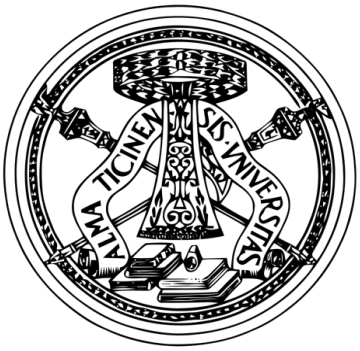

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LET'S MAKE THE INTIFADA GO VIRAL: DATA-DRIVEN ANALYSIS OF THE TIKTOK NETWORK ON THE ISRAELI-PALESTINIAN CONFLICT

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INTRODUCTION

Datafication marks a fundamental paradigm shift for contemporary society, in virtue of which systems and life-worlds transmute into data or are mediated by it,[1] subjecting human discourse and knowledge to the procedural logics that undergird computation.[2] Civic engagement has shifted to the online territory too, with diverse implementation and varying degrees of success.[3] Today we face a historical change in the infrastructure and dynamics of social and political life, a scenario where data, information, and politics intertwine. Online engagement eventually enables offline activities, providing access to three keys of social change: information, people, and tools to organize. Therefore, the understanding of algorithmic media logic is a critical resource to measure equality in political participation, as those who do not grasp it become vulnerable to algorithm persuasion and its political weaponization. Recent findings raise the urgent issue of widespread public ignorance about algorithms in news feeds.[4] This obliviousness is dangerous, as acknowledging the constructed origin of information is a necessary step to make democracy function. "Algorithms do things, and their syntax embodies a command structure to enable this to happen."[5] Comprehension

[1] Kitchin R (2014) Big data, new epistemologies and paradigm shifts. Big Data & Society. (January 2014).
[2] Gillespie, T. (2014). The relevance of algorithms. Media technologies: Essays on communication, materiality, and society, 167(2014), 167.
[3] Raynes-Goldie, Kate, and Luke Walker. “Our Space: Online Civic Engagement Tools for Youth." Civic Life Online: Learning How Digital Media Can Engage Youth. Edited by W. Lance Bennett. The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning. Cambridge, MA: The MIT Press, 2008. 161–188. doi: 10.1162/dmal.9780262524827.161
[4] Pew Research Center (2018) Many Facebook users don’t understand how the site’s news feed works. Available at: https://www.pewresearch.org/fact-tank/2018/09/05/many-facebook-users-dont-understand-how-the-sites-news-feed-works/ (accessed 15 October 2023).
[5] Goffey, Andrew. 2008. "Algorithm." In Software studies: A Lexicon, ed. Matthew Fuller, 15-20. Cambridge, MA: MIT Press.

of the workings of information algorithms is a form of power, vital to participating in public discourse and achieving visibility online.

Algorithms play a pivotal role in selecting what they deem as relevant to us, as the news and content we are exposed to represent a crucial stage of our participation in public life. They are a key logic governing the flows of information on which we depend, invested in the "power to enable and assign meaningfulness, managing how information is perceived by users."[6] Data is also a political resource: its availability can allow shaping tactics, mobilization, recruitment, and organization, from being a tactical tool used as part of an action repertoire - modular tools for political struggle, to be the very reason for mobilization - objects of political struggle.[7] In fact, online media affordances help people move from informational activities into civic action,[8] forming keyways to engage with political information and influence public opinion. Producers of information invest resources to make their content and themselves recognizable to an algorithm, using hashtags is redesigning human expression to be better recognized and distributed by search algorithms.[9] So, platforms *do* eventually serve as a public sphere for global social movements,[10] except they aren't. Social networks are commercial products and are not designed for participatory democratic citizenship. As profit-based products, algorithms have their foundations in a substantial power asymmetry between those who hold hyper-specialistic

[6] Langlois, Ganaele. 2012. "Participatory culture and the new governance of communication: The paradox of participatory media." Television and New Media.
[7] Beraldo, D., & Milan, S. (2019). From data politics to the contentious politics of data. Big Data & Society, 6(2). https://doi.org/10.1177/2053951719885967
[8]Marchi R and Clark L (2018) Social media and connective journalism: the formation of counterpublics and youth civic participation. Journalism. Available at: https://doi.org/10.1177/1464884918807811
[9] Gillespie, T. (2014).
[10] Zeynep Tufekci. 2017. Twitter and Tear Gas: The Power and Fragility of Networked Protest. Yale University Press, New Haven and London.

know-how and design, redirect, correct, and maintain algorithms, and those who only use them, and feed their input, mostly unknowingly, and are subjected to algorithmic decision-making. Nevertheless, there is an integral relationship between information practices, quality of democracy, and political engagement.

Gramsci wrote that cultural hegemony does not depend on forms of conditioning. Instead, it uses public discourse to make certain forms of experience appear natural while completely neglecting others. In Gramsci's understanding, public discourse refers to the prevailing system of ideas, values, and beliefs disseminated by those in power. Today, it is possible to reflect on this tying it with sociotechnical systems of information and the notion of *public*, questioning if and to what degree algorithms assume the role of "those in power". Algorithms are designed to be embedded into practice in the lived world that produces the information they process, and in the lived world of their users.[11] They not only affect people's behavior but exist in a multidimensional entanglement that involves the implementation of machines, and the social tactics adopted by users who engage with them. This recursive loop of interaction is volatile, as algorithms change along with populations and practices.[12]

In today's digital landscape, social media platforms have emerged as powerful spaces for communication, activism, and the spread of information. Among these platforms, TikTok has gained prominence due to its unique algorithm-driven content delivery system and its capacity to amplify messages rapidly. As a video-based social platform, TikTok offers users a way to engage with global issues in a highly visual and interactive manner,

[11] Couldry, Nick. 2012. Media, Society, World. Cambridge: Polity Press
[12] Gillespie, T. (2014).

often resulting in viral trends and the proliferation of politically charged content. This research focuses on the role of TikTok in shaping discourse around the Gaza-Israel conflict, a topic that has spurred intense debate across digital and social media platforms.

This study is framed by the broader context of socio-technical systems theory, which emphasizes the interplay between technological affordances and social behavior. As TikTok operates as both a technological platform and a social space, its role in mediating content and guiding political discourse has significant implications for our understanding of digital activism and media power. By examining how content related to the Gaza-Israel conflict is structured and spread on TikTok, this research sheds light on the mechanisms that drive engagement and the ethical concerns surrounding algorithmic governance in social media.

1. CHAPTER ONE - THE ORIGINS OF THE ISRAELI-PALESTINIAN CONFLICT

1.1 The Zionist-Arab Nationalist Divide and the Struggle Over Palestine

The roots of the Israeli-Palestinian conflict can be traced back to the late 19th and early 20th centuries, a period marked by the rise of both Zionism and Arab nationalism. Zionism emerged as a nationalist movement among Jews in Europe, advocating for the establishment of a Jewish homeland in response to widespread anti-Semitism and persecution.[13] The early Zionist movement was influenced by the broader currents of European nationalism and colonialism, where the idea of a national homeland was seen as a solution to the "Jewish question." Theodor Herzl, often considered the father of modern political Zionism, crystallized these ideas in his seminal work "*Der Judenstaat*" -The Jewish State-, published in 1896, where he argued that the creation of a sovereign Jewish state was necessary to ensure the safety and self-determination of the Jewish people.[14] Herzl and other Zionist leaders initially considered various locations for this homeland, including Uganda and Argentina. Still, they ultimately settled on Palestine due to its historical and religious significance to the Jewish people.

The Zionist movement gained significant momentum with the Balfour Declaration of 1917, in which the British government expressed its support for the establishment of "a national home for the Jewish people" in Palestine.

[13] Elaraky, Hossam, "Perspectives on the Israel-Palestine Conflict: A Historical Analysis through Palestinian
Narratives" (2024). Theses/Capstones/Creative Projects. 312.
[14] Herzl, Theodor. (1896). *Der Judenstaat. Versuch einer modernen Lösung der Judenfrage*. Leipzig and Vienna: Breitenstein.

This declaration was strategically aligned with British imperial interests during World War I, as it aimed to garner support from Jewish communities worldwide and secure British influence in the Middle East. However, the Balfour Declaration also disregarded the political aspirations and rights of the Arab inhabitants of the region, setting the stage for future tensions. The document's vague language, which promised the protection of the "civil and religious rights" of non-Jewish communities in Palestine, did little to address the fears and concerns of the Arab population. Instead, it laid the groundwork for a conflict between two national movements – Zionism and Arab nationalism – both of which claimed Palestine as their rightful homeland.[15]

The post-World War I era saw the collapse of the Ottoman Empire and the subsequent establishment of the British Mandate for Palestine, which further inflamed tensions between the Jewish and Arab populations. Under the terms of the mandate, the British were tasked with implementing the Balfour Declaration while also ensuring the welfare of the Arab population, a mandate that was inherently contradictory and ultimately unmanageable. During the interwar years, Jewish immigration to Palestine increased dramatically, driven by the Zionist movement's efforts to establish a Jewish majority in the region and by the escalating persecution of Jews in Europe, particularly after the rise of the Nazi regime in Germany. The influx of Jewish immigrants, coupled with the purchase of land by Zionist organizations, led to significant socio-economic changes in Palestine, including the displacement of Arab tenant farmers and the growth of a Jewish urban economy.[16]

[15] Tessler, M. (2009). A history of the Israeli-Palestinian conflict. Indiana University Press.
[16] Caplan, N. (2019). *The Israel-Palestine conflict: contested histories*. John Wiley & Sons.

"The Balfour Declaration to me represents a historical injustice and the beginning of displacement and loss of homeland. The Balfour Declaration symbolizes colonialism, dispossession, and the denial of our rights. It is a historic injustice and an ongoing struggle for Palestinian self-determination and right of return." - Mohammed Suleiman[17]

The native Arab population grew increasingly resentful, fearing the loss of their land and political autonomy. This resentment was not merely a reaction to the presence of Jewish immigrants but also the perceived collusion between the British authorities and the Zionist movement. Arab leaders began to organize politically, leading to a series of protests and uprisings against both the British mandate and the Zionist project. The most notable of these was the Arab Revolt of 1936-1939, a nationalist uprising that was brutally suppressed by the British, further deepening the divide between Jews and Arabs in Palestine. During this period, the British administration's policies were increasingly seen as favoring the Zionist cause, which led to a growing sense of betrayal among the Arab population.[18]

The situation reached a critical point with the United Nations Partition Plan of 1947, which proposed the division of Palestine into separate Jewish and Arab states. The plan was the result of years of failed attempts to reconcile the conflicting nationalist aspirations of Jews and Arabs in Palestine. While the Jewish community, represented by the Jewish Agency, accepted the plan, seeing it as a step towards international legitimacy and statehood, the Arab community rejected it outright. The Arab rejection was driven by several factors, including the perception that the partition plan was

[17] Elaraky, H. (2024)
[18] Khalidi, R. (2020). *Hundred Years' War on Palestine : A history of settler colonialism and resistance,*
19172017. Picador.

inherently unfair, as it allocated a disproportionate amount of land to the Jewish state, despite Jews comprising a smaller percentage of the population and owning less land. Additionally, the broader Arab world, influenced by rising pan-Arab nationalism and anti-colonial sentiments, saw the partition as another example of Western imperialism imposing solutions on the Middle East without the consent of its people.[19]

The rejection of the partition plan led to the outbreak of violence, culminating in the 1948 Arab Israeli War, known in Israel as the War of Independence and among Palestinians as the Nakba, or "catastrophe."[20] On May 14, 1948, the State of Israel was officially declared, prompting the immediate invasion by neighboring Arab states. The ensuing conflict resulted in a decisive Israeli victory but at a tremendous human cost. Approximately 700,000 Palestinians were displaced from their homes, becoming refugees in neighboring Arab countries and in the territories of the West Bank and Gaza Strip.[21] This mass displacement was accompanied by the destruction of hundreds of Palestinian villages, an act that has been the subject of intense historical debate. Some historians argue that this was a deliberate strategy by Zionist forces to create a Jewish majority state, while others view it as an unfortunate consequence of war.[22] The Nakba is not only a historical event but also a central narrative in Palestinian identity, shaping their collective memory and continuing to influence the dynamics of the conflict today.

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[19] Caplan, N. (2019).
[20] Sa'di, A. H., & Abu-Lughod, L. (Eds.). (2007). *Nakba: Palestine, 1948, and the claims of memory*. Columbia University Press.
[21] Masalha, N. (2012). *The Palestine Nakba: Decolonising history, narrating the subaltern, reclaiming memory*. Bloomsbury Publishing.
[22] Abu-Laban, Y., & Bakan, A. B. (2022). Anti-Palestinian Racism and Racial Gaslighting. *The Political Quarterly*, *93*(3), 508–516. https://doi.org/10.1111/1467-923x.13166

"*People got their homes demolished if they did something, like my uncle got his house demolished when I was very young. I wasn't born during this time, but I've heard stories of Israelis completely taking over villages. Small cities and villages were flourishing at the time. 1948 is a very dark history for what happened to the Palestinians. When they started committing massacres in 1968, people had no choice. They were forced to flee, and many towns had their name changed. If you go to some forest area, you might see features of someone's home or the floor of someone who used to live there. They tried to completely erase their memories, erase their towns, but it is in their hearts. Many Palestinians are still sticking to the idea of the right to return. A lot of people took the keys to their homes with them and passed them on from generation to generation. When they died, they gave the key to the second generation just to keep the memory of the Nakba in their hearts. People were completely expelled from their homes. They used to have orchard trees and lemon trees in their backyard, and life was so peaceful. In a heartbeat, they had to leave their gardens and beautiful homes. Instead of having the smell of flowers in their garden, they were put in a tent somewhere." - Bashar Sharif*[23]

The 1948 war not only established the state of Israel but also left the Palestinian territories of the West Bank and Gaza Strip under Jordanian and Egyptian control, respectively.[24] The armistice lines drawn at the end of the war, known as the Green Line, became the de facto borders of Israel, but they did not resolve the fundamental issues at the heart of the conflict. Over the next two decades, the Israeli-Palestinian conflict remained in a state of uneasy tension, punctuated by periodic skirmishes and diplomatic efforts to

[23] Elaraky, H. (2024)

[24] Manna', A. (2013). The Palestinian Nakba and its continuous repercussions. *Israel Studies*, *18*(2), 86-99.

reach a settlement. However, these efforts were largely unsuccessful, as both sides continued to assert their claims to the land, and the situation was further complicated by the broader Arab Israeli conflict.[25]

The subsequent decades saw further escalation with the Six-Day War of 1967, during which Israel occupied the West Bank, Gaza Strip, Golan Heights, and Sinai Peninsula.[26] This war marked a significant turning point in the conflict, as Israel's victory and subsequent occupation of these territories intensified the struggle over land and sovereignty. The Israeli government began establishing settlements in the occupied territories, a move that was widely condemned by the international community but justified by Israel on security grounds.[27] The settlements, which continue to expand to this day, have become one of the most contentious issues in the conflict, symbolizing the ongoing occupation and the denial of Palestinian self-determination.[28] The occupation and settlement enterprise have not only altered the physical landscape of the region but have also deepened the psychological divide between Israelis and Palestinians, making the prospects for peace increasingly remote.

The late 20th century witnessed efforts to resolve the conflict, most notably through the Oslo Accords of the 1990s, which aimed to establish a framework for peace and the creation of a Palestinian state. The accords, negotiated under the auspices of the United States, represented a historic

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[25] Davis Jr., E. (2024, January 5). *The Plight of Palestinian Refugees, Explained*. U.S. News; U.S. News. https://www.usnews.com/news/best-countries/articles/2024-01-05/explainer-the-complicated-plight-of-palestinian-refugees

[26] Golan, G. (2005). The Soviet Union and the Outbreak of the June 1967 Six-Day War. *Journal of Cold War Studies*, *8*(1), 3-19.

[27] Khalidi, R. (2020). *Hundred Years' War on Palestine : A history of settler colonialism and resistance,*
19172017. Picador.

[28] Elaraky, H. (2024)

breakthrough, as they marked the first time that the Israeli government and the Palestine Liberation Organization (PLO) officially recognized each other.[29] The Oslo process led to the creation of the Palestinian Authority (PA) and the withdrawal of Israeli forces from parts of the West Bank and Gaza Strip. However, the accords left many critical issues unresolved, including the status of Jerusalem, the right of return for Palestinian refugees, and the future of Israeli settlements. The Oslo process ultimately faltered due to a combination of factors, including continued violence, mutual distrust, and the inability of both sides to make the necessary compromises for a lasting peace.[30] Despite these efforts, peace remains elusive, with periodic outbreaks of violence, such as the First and Second Intifadas, highlighting the deep-seated grievances on both sides.

1.2 The Intifadas and the Fractured Path to Palestinian Liberation

The First Intifada, which began in 1987, was a grassroots uprising against the Israeli occupation, characterized by widespread civil disobedience, protests, and clashes with Israeli forces. The Second Intifada, which erupted in 2000, was far more violent, leading to thousands of deaths and further entrenching the divide between Israelis and Palestinians.[31] These uprisings were driven by the frustration and anger of a generation of Palestinians who had grown up under occupation and who saw little hope for

[29] Weiner, J. (1999). Israel, Palestine, and the Oslo Accords. *Fordham Int'l LJ*, *23*, 230.
[30] Tutu, D., & Skarphéðinsson, Ö. (2013). *The Oslo accords 1993–2013: A critical assessment*. IB Tauris.
[31] Araj, B. (2024, May 4). *intifada | History, Meaning, Cause, & Significance | Britannica*. Www.britannica.com. https://www.britannica.com/topic/intifada

a peaceful resolution to the conflict. These Intifadas were not just reactions to specific events but were the result of decades of occupation, disenfranchisement, and unfulfilled promises.

The First Intifada, which erupted in 1987, was a largely grassroots movement characterized by widespread civil disobedience, nonviolent protests, and limited armed resistance, deeply rooted in the frustrations of Palestinians who had endured over two decades of worsening living conditions. The occupation, often described as "benign," was anything but, as Palestinians faced severe restrictions on their freedoms, land expropriations, and daily humiliations, leading to an inevitable intensification of resistance.[32]

"*I came back for the first time since I lived abroad in 1986, but things got much worse in 1987. A lot of people, mostly kids, participated in throwing stones. They would get killed, jailed, or injured a lot of the time. Then, unfortunately, in 2000, Sharon and his army went to Jerusalem. They did something to the Al Aqsa Mosque there. And that erupted or caused the first Intifada. That was a brutal hit to the Palestinians because they destroyed a lot of infrastructure, Israel constructed their movement, and they put a lot of people in jail. It caused a huge setback to the peace. A lot of families were affected. My dad, at that time, was having a heart attack, and they had to use a different road because the roads were bad. There's a lot of bad things. It was a major setback to the livelihood of Palestinians. On top of that, Israeli settlements and settlers increased. They became much more brutal. A lot of people lost their land, and restrictions were increased. The first Intifada was much different than the second. The first one involved stone*

[32] Shafir, G., & Peled, Y. (2002). *Being Israeli: The dynamics of multiple citizenship* (Vol. 16). Cambridge University Press.

and was minor, but the second one involved a deadly weapon. I went home in 1995, right before the first Intifada."- Mahmoud Ali[33]

The Second Intifada, beginning in 2000, marked a significant escalation in violence, driven by years of unmet expectations following the Oslo Accords and the ongoing expansion of Israeli settlements. This uprising was far more brutal, with both sides suffering heavy casualties, and it further entrenched the divisions between Israelis and Palestinians. These uprisings were deeply intertwined with the broader struggle for Palestinian independence and self-determination, reflecting the collective will of a people who had long been denied basic rights and recognition on the international stage.[34] The Intifadas, therefore, were not isolated events but were part of a larger, ongoing struggle against occupation and for the realization of Palestinian national aspirations.

The Intifadas were pivotal in shaping both Palestinian identity and the broader geopolitical landscape of the region. The First Intifada was particularly significant in that it unified various segments of Palestinian society, fostering a sense of collective identity and purpose.[35] The uprising was marked by a remarkable level of organization and discipline among Palestinians, who, despite the severe repression, managed to create alternative social structures. These included grassroots committees that took on roles traditionally managed by state institutions, such as education, healthcare, and social welfare. The Intifada also brought Palestinian women to the forefront, altering traditional gender roles and involving them directly in the resistance, which was a significant departure from the past. [36]

[33] Elaraky, H. (2024)
[34] Said, E. (1989). Intifada and independence. *Social Text*, (22), 23-39.
[35] Rigby, A. (1991). *Living the intifada* (p. 196). London: Zed Books.
[36] Said, E. (1989).

Moreover, the First Intifada reshaped the global perception of the Palestinian struggle. It exposed the harsh realities of the Israeli occupation to the international community, galvanizing support for the Palestinian cause and leading to a shift in the discourse surrounding the conflict. The images of young Palestinians confronting heavily armed Israeli soldiers with nothing more than stones became powerful symbols of resistance, drawing attention to the asymmetry of the conflict.[37]

The Second Intifada, however, introduced a different dynamic. This period saw a departure from the largely nonviolent tactics of the First Intifada, with an increase in suicide bombings and other forms of armed resistance.[38] The escalation in violence led to severe repercussions for Palestinians, including widespread destruction of infrastructure, increased restrictions on movement, and a further deterioration of living conditions. The Second Intifada also underscored the failures of the peace process, particularly the Oslo Accords, which had raised hopes for a resolution but ultimately failed to deliver meaningful change. The intensified violence deepened the mistrust between Israelis and Palestinians, making the prospect of peace seem even more remote.

The Oslo process had a demoralizing effect on the Palestinian population. As the peace process dragged on without tangible results, the situation on the ground deteriorated, with economic hardship worsening due to restrictions imposed by Israel. The perceived failure of the Palestinian leadership to secure meaningful concessions further deepened the sense of betrayal among the population, setting the stage for the more militant and

[37] Said, E. (1989).
[38] Moghadam, A. (2003). Palestinian suicide terrorism in the second intifada: Motivations and organizational aspects. *Studies in conflict and terrorism*, *26*(2), 65-92.

desperate tactics that characterized the Second Intifada. The Accords also failed to stop the expansion of Israeli settlements, which was seen as a direct threat to the viability of a future Palestinian state. This continued settlement activity was a major point of contention, as it was perceived as undermining the very foundation of the Oslo agreements. The resulting disillusionment was not just with the Israeli government but also with the international community, which Palestinians felt had failed to hold Israel accountable for its obligations under the peace process. The breakdown of the Oslo Accords contributed significantly to the shift towards more violent resistance during the Second Intifada and led many Palestinians to conclude that armed struggle was the only remaining option to achieve their national aspirations.[39] This deep-seated frustration and anger, compounded by daily humiliations and a sense of powerlessness, fueled the escalation in violence that marked the Second Intifada. The cycle of violence and retaliation that ensued not only deepened the rift between Israelis and Palestinians but also eroded any remaining hopes for a negotiated peace.

The Intifadas, particularly the First Intifada, were crucial in redefining the Palestinian national movement. Before 1987, the Palestinian struggle was largely associated with the PLO and its external leadership. However, the grassroots nature of the First Intifada brought the struggle inside the Occupied Territories, shifting the center of Palestinian resistance to those directly under Israeli control. This movement fostered a new generation of leaders who emerged from the local population, many of whom were less reliant on the older, exiled leadership. This shift not only democratized the resistance but also gave it renewed legitimacy and energy.[40] The First

[39] Rigby, A. (1991).
[40] Rigby, A. (1991).

Intifada, through its widespread civil disobedience and its ability to mobilize the entire society, demonstrated that the Palestinian people were not passive victims but active agents in their quest for liberation. The symbolic acts of resistance, such as stone-throwing, boycotts, and the creation of underground schools, were powerful statements against the occupation and served to unify the Palestinian community.

The Second Intifada, while more violent, was also an expression of deep-seated despair at the lack of progress towards a just peace. The failure of the Oslo process, coupled with ongoing settlement expansion and the harsh realities of life under occupation, led many Palestinians to lose faith in the possibility of achieving their goals through negotiations alone. The increased militarization of the conflict during the Second Intifada reflected this disillusionment and the belief that more aggressive tactics were necessary to achieve political objectives. However, this escalation also had severe consequences, leading to widespread destruction and a further entrenchment of the Israeli-Palestinian divide.[41]

As both sides continue to assert their narratives and claims to the land, the prospects for a just and lasting peace remain uncertain, with the conflict continuing to cast a long shadow over the Middle East and beyond.

[41] Schachter, J. (2010). The End of the Second Intifada?. *Strategic Assessment*, *13*(3), 63-70.

1.3 The Unfolding Israeli Palestinian Conflict - 2020 to 2024

The Israeli-Palestinian conflict has continued to evolve in complex and often volatile ways from 2020 through August 2024. The past few years have been marked by significant political shifts, escalations in violence, and changing international dynamics that have further shaped the trajectory of the conflict.

In 2020, the signing of the Abraham Accords, facilitated by the United States, marked a major development in Middle Eastern geopolitics. These agreements saw Israel normalize relations with several Arab countries, including the United Arab Emirates, Bahrain, Sudan, and Morocco. While these accords were hailed as a diplomatic breakthrough by some, they were met with mixed reactions within the Palestinian territories. Many Palestinians viewed the normalization as a betrayal by Arab states, which had long conditioned peace with Israel on the establishment of a Palestinian state.[42] The accords did not address the core issues of the Israeli-Palestinian conflict, such as the status of Jerusalem, the right of return for Palestinian refugees, and the future of Israeli settlements in the West Bank.[43]

In May 2021, the conflict saw one of its deadliest escalations in years, with an 11-day war between Israel and Hamas, the governing authority in Gaza. The violence, triggered by tensions in East Jerusalem and clashes at the Al-Aqsa Mosque, resulted in significant casualties on both sides, including over 250 Palestinians and 13 Israelis. The conflict caused widespread destruction in Gaza and highlighted the ongoing humanitarian

[42] Trigano, S. (2022). *Abraham Accords: Contrasting Reflections*. Begin-Sadat Center for Strategic Studies.
[43] Guzansky, Y., & Marshall, Z. A. (2020). The Abraham Accords: Immediate significance and long-term implications. *Israel Journal of Foreign Affairs*, *14*(3), 379-389.

crisis in the enclave, exacerbated by the Israeli blockade and internal political divisions within the Palestinian territories.[44]

Throughout 2022 and 2023, the situation remained tense, with frequent flare-ups in violence, particularly in the West Bank. The Israeli government, led by a new right-wing coalition under Prime Minister Naftali Bennett and later Benjamin Netanyahu, pursued policies that included expanding settlements and intensifying military operations in response to Palestinian attacks. These actions further strained relations with the Palestinian Authority (PA) and fueled discontent among Palestinians, leading to frequent clashes between Israeli forces and Palestinian protesters.[45]

Since October 7, 2023, the conflict between Israel and Palestine has escalated into one of the deadliest and most destructive confrontations in the history of the region, marking a significant turning point in the Israeli-Palestinian conflict. The conflict began with a surprise attack by Hamas, which involved launching thousands of rockets into southern Israel and infiltrating Israeli territory by land, sea, and air. This unprecedented attack resulted in the deaths of 1,139 people in Israel and left at least 8,730 others injured. Hamas's assault was a response to ongoing Israeli occupation, the blockade of Gaza, and tensions surrounding the Al-Aqsa Mosque, among other grievances. Following this, Israel launched a massive military retaliation against Gaza, resulting in catastrophic consequences for the Palestinian population.

[44] Ezugwu, O. (2023). The 21st Century Israel-Palestine Conflict Over Jerusalem and its Peace Processes. *MJIR| Malaysian Journal of International Relations*, *11*(1), 107-127.
[45] Benn, A. (2024). Israel's Self-Destruction: Netanyahu, the Palestinians, and the Price of Neglect. *Foreign Aff.*, *103*, 44.

By September 2024, Israeli military actions had resulted in the deaths of over 40,738 Palestinians, including nearly 16,500 children. The scale of destruction in Gaza has been immense, with more than half of the homes in the region either damaged or destroyed. Essential infrastructure has been decimated, including 80% of commercial facilities, 85% of schools, and significant portions of the healthcare system, leaving 17 of the 36 hospitals in Gaza only partially functional. The Israeli blockade, compounded by relentless airstrikes, has caused a collapse of telecommunications, power, and water supplies, leading to severe shortages of food, medicine, and other necessities.[46]

The humanitarian situation has deteriorated to such an extent that the World Food Programme had to suspend its operations in Gaza after a clearly marked UN vehicle was struck multiple times by Israeli gunfire. The blockade and continuous bombings have made it nearly impossible for civilians to find safety, as the Israeli military's instructions to evacuate have been inconsistent and difficult to follow due to the collapse of communication networks.

In the occupied West Bank, the Israeli military has conducted its largest raids in decades, killing at least 676 Palestinians, including more than 152 children, and injuring over 5,400. These raids have exacerbated the already dire situation in the West Bank, leading to widespread unrest and further loss of life.

Internationally, the conflict has reignited debates over Israel's actions, with increasing accusations of genocide and apartheid. Various international

[46] Al Jazeera. (2023, October 9). *Israel-Hamas war: In maps and charts - live tracker*. Al Jazeera. https://www.aljazeera.com/news/longform/2023/10/9/israel-hamas-war-in-maps-and-charts-live-tracker

actors, including South Africa, have taken the issue to the International Court of Justice (ICJ), arguing that Israel's military campaign against Gaza has crossed into genocidal intent. Israeli officials have made statements that reinforce this view, with some military leaders openly discussing the destruction of Gaza as a means to render it uninhabitable.[47] The international community remains divided, with some countries, including members of the UN Security Council like China and Russia, engaging diplomatically with Hamas, while others, particularly the United States, continue to support Israel militarily and diplomatically, blocking ceasefire resolutions at the UN.

The implications of the conflict extend beyond the immediate humanitarian crisis. The sustained violence and destruction have led to significant geopolitical shifts, including increased tensions between Israel and its regional neighbors, such as Lebanon, Syria, and Iran, where Israel has conducted numerous airstrikes. The conflict has also sparked widespread protests around the world, with large demonstrations supporting Palestine and condemning Israel's actions. The situation remains highly volatile, with the potential for further escalation posing a serious risk to regional and global stability.

The ongoing conflict has not only devastated Gaza but has also drawn in a wider regional and global context, reflecting the deeply entrenched and complex nature of the Israeli-Palestinian struggle. The humanitarian toll is staggering, with the Gaza Strip, home to 2.3 million people, now largely uninhabitable. The Israeli government's aggressive military strategy, which includes the destruction of civilian infrastructure, has been described by

[47] International Court of Justice. (2024). *Relocation of the United States Embassy to Jerusalem (Palestine v. United States of America)*. International Court of Justice. https://www.icj-cij.org/case/192

many observers as crossing the line from military action into genocide. This perspective is supported by various legal experts and human rights organizations, who argue that Israel's actions constitute a deliberate attempt to destroy the Palestinian population in Gaza, a charge that is now being formally investigated by the International Court of Justice.

The conflict has also intensified the global debate on the role of the United States in the Middle East. As Israel's most powerful ally, the U.S. has provided extensive military and diplomatic support to Israel, including blocking multiple UN Security Council resolutions aimed at ceasing hostilities.[48] This unwavering support has drawn sharp criticism from many quarters, including within the United States itself, where public opinion is increasingly divided on the issue. The U.S. government's stance has also strained its relationships with traditional allies in Europe and the Global South, where there is growing support for the Palestinian cause.

At the same time, the conflict has revealed the limitations of the current international order in addressing complex and deeply rooted conflicts like that of Israel and Palestine. The United Nations, despite its repeated calls for ceasefires and humanitarian access, has been largely powerless to stop the violence or to protect civilians. This has led to growing calls for reform of the international system, with some advocating for stronger mechanisms to enforce international law and protect human rights.

Internationally, the Biden administration maintained its support for a two-state solution but faced challenges in advancing peace negotiations due

[48] United Nations. (2024, July 15). *Security Council stresses urgent need for sustained humanitarian truce in Middle East, as members clash over Ukraine crisis*. United Nations. https://press.un.org/en/2024/sc15767.doc.html

to the complex political landscape.[49] The European Union and United Nations continued to call for renewed peace talks, though with limited success.[50] The year 2024 also saw growing global activism and solidarity movements, driven by concerns over human rights violations in the occupied territories and the ongoing humanitarian crisis in Gaza.[51]

As of August 2024, the Israeli-Palestinian conflict remains unresolved, with deep-seated issues such as the future of the settlements, the status of Jerusalem, and the right of return for Palestinian refugees still at the heart of the dispute. The conflict continues to be a focal point of regional and global concern, with periodic escalations in violence underscoring the fragility of the situation and the urgent need for a sustainable and just resolution.

[49] Indyk, M. (2024). The Strange Resurrection of the Two-State Solution: How an Unimaginable War Could Bring about the Only Imaginable Peace. *Foreign Aff.*, *103*, 8.
[50] Anaukwu, N. O. (2024). Prospects for Peace: Exploring Diplomatic Initiatives and Challenges in the Israeli-Hamas Conflict. *International Journal of Advanced Academic Research*, *10*(8), 24-40.
[51] Luerdi, L., Fitria, A., & Karisma, G. (2024). Solidarity beyond city halls: a study of city transnational activism on Palestine question. *Politicon*.

2. CHAPTER TWO – THE PALESTINIAN GRASSROOTS ACTIVISM

2.1 The Evolution of Palestinian Grassroots Activism

Palestinian grassroots activism is rooted in the broader context of anti-colonial resistance and national struggle that began in the early 20th century. Early Palestinian resistance to Zionist immigration and British colonial policies can be traced to the 1920s and 1930s, with movements like the Palestinian Arab Congresses and local committees organizing to defend land rights and oppose the British Mandate's support for the establishment of a Jewish homeland.[52] These early initiatives were predominantly led by the urban elite, particularly focusing on diplomatic efforts to internationalize the Palestinian cause by appealing to the League of Nations and the Arab world.[53] However, grassroots organizing also occurred at a local level, particularly in rural areas where peasants, often organized by local committees, resisted land sales and displacement, reflecting the social and economic dimensions of early Palestinian activism. The 1936–1939 Arab Revolt represented a critical juncture, where mass mobilization came to the fore. This revolt was a significant expression of grassroots participation, involving widespread strikes, boycotts, and armed resistance, marking the first time a broader cross-section of Palestinian society engaged in organized rebellion.[54] Though brutally suppressed, the revolt laid the foundations for

[52] Haugbølle, S. (2024). Global Palestine Solidarity and the Jewish Question. *Historical Materialism*, *1*(aop), 1-29.
[53] Elaraky, H. (2024). Perspectives on the Israel-Palestine Conflict: A Historical Analysis through Palestinian Narratives.
[54] Pappé, I., Dana, T., & Naser–Najjab, N. (2024). Palestine Studies, Knowledge Production, and the Struggle for Decolonisation. *Middle East Critique*, 1-21.

later movements by showcasing the potential of popular resistance. The legacy of the revolt also highlighted the socio-economic diversity within Palestinian activism, linking urban political initiatives with rural, agrarian struggles that would continue to shape the nature of grassroots mobilization.

The 1948 Nakba, the mass displacement of over 700,000 Palestinians and the establishment of Israel, was a transformative moment in Palestinian activism. The catastrophe shifted Palestinian organizing from a primarily local struggle to a transnational movement. The displacement of Palestinians to refugee camps in neighboring Arab countries fragmented Palestinian society but simultaneously sowed the seeds for a new, decentralized form of activism. Refugee camps quickly became the epicenters of resistance, fostering political consciousness and organizing efforts through informal networks. These camps, as highlighted by various studies, also incubated a new generation of politically engaged Palestinians, many of whom played central roles in subsequent movements.[55] The camps' role in education and cultural preservation became a form of resistance in itself, ensuring that young Palestinians learned about their national history and the ongoing struggle despite geographic dislocation. The creation of the Palestine Liberation Organization (PLO) in 1964 marked a pivotal moment in this evolution.[56] Under the leadership of figures like Yasser Arafat, the PLO sought to unify the various factions within the Palestinian resistance and assert itself as the representative of the Palestinian people.[57] The PLO's

[55] Mall Dibiasi, C. (2015) Changing Trends in Palestinian Political Activism: The Second Intifada, the Wall Protests, and the Human Rights Turn, Geopolitics, 20:3, 669-695, DOI: 10.1080/14650045.2015.1028028

[56] Haugbolle, S. & Olsen, P. V. (2023) Emergence of Palestine as a Global Cause, Middle East Critique, 32:1, 129-148, DOI: 10.1080/19436149.2023.2168379

[57] Scheindlin, D. Diasporas in Conflict: Can the Jewish and Palestinian American Diasporas Contribute to Israeli-Palestinian Peace?. *Israel and Its Palestinian Predicament*, 197.

tactics, initially focused on armed struggle through guerrilla operations, also embraced broader diplomatic efforts, signaling a shift towards a more institutionalized and globally recognized resistance.

Throughout the 1950s and 1960s, the Palestinian struggle became increasingly linked to global anti-colonial movements. The fight against Israeli occupation was reframed within the broader context of Third World liberation, drawing inspiration from the struggles in Algeria, Vietnam, and South Africa.[58] This internationalization of the Palestinian cause not only brought global solidarity but also helped shape the ideological underpinnings of the resistance. Movements like Fatah, a dominant faction within the PLO, explicitly aligned their struggle with anti-imperialist forces, emphasizing the connection between the Palestinian plight and broader efforts to overthrow colonial and neo-colonial regimes.[59] In tandem with the rise of armed resistance, grassroots organizing remained a central aspect of Palestinian activism. Organizations such as the General Union of Palestinian Students (GUPS) played a key role in this mobilization, particularly in the diaspora.[60] GUPS was instrumental in politicizing Palestinian youth and connecting their struggle to broader movements for decolonization and anti-imperialism. Beyond militant tactics, education became a vital tool of resistance, with efforts to preserve Palestinian history and culture through informal networks that emerged in exile. These efforts reflected a broader grassroots resilience aimed at sustaining national identity amidst displacement.

[58] Tawil-Souri, H. (2015) Media, Globalization, and the (Un)Making of the Palestinian Cause, Popular Communication, 13:2, 145-157, DOI: 10.1080/15405702.2015.1021470
[59] Haugbolle, S. & Olsen, P. V. (2023)
[60] Haugbølle, S. (2024). Global Palestine Solidarity and the Jewish Question. *Historical Materialism*, *1*(aop), 1-29.

The resilience of grassroots activism persisted despite immense challenges. The Nakba and the subsequent years of displacement led to the fragmentation of Palestinian society, both geographically and politically. Yet, this fragmentation also fostered a form of decentralized resistance, with various local groups and factions taking up the mantle of activism in different regions. This networked form of resistance proved adaptive, as the Palestinian movement continued to evolve in response to Israeli military occupation and the changing geopolitical landscape. The rise of student movements, labor unions, and women's groups further diversified the modes of activism, expanding the base of the resistance and allowing for greater participation across different segments of society. Women, in particular, played a crucial role in organizing and sustaining communities within refugee camps. Groups like the General Union of Palestinian Women (GUPW) not only advocated for women's rights but also took part in broader national liberation efforts, marking the integration of gendered perspectives within the resistance movement.[61]

By the 1970s, the Palestinian movement had matured into a multifaceted struggle that combined both armed resistance and nonviolent grassroots organizing. This period saw the increased prominence of civil society organizations that focused on issues such as education, health, and community development. These organizations, often working in refugee camps or under occupation, became vital for maintaining the social fabric of Palestinian communities amidst ongoing conflict. They also played a significant role in sustaining the political consciousness of the Palestinian people, ensuring that the cause of liberation remained alive despite decades

[61] Sosebee, S. J. (1990). The Palestinian Women's Movement and the Intifada: a historical and current analysis. *American-Arab Affairs*, (32), 81.

of displacement and military occupation. This dynamic of grassroots resilience would continue to shape Palestinian activism in the decades to come, laying the groundwork for the mass mobilizations of the 1980s and beyond, and ensuring that grassroots efforts remained a core element of the broader struggle for self-determination.[62]

2.2 Palestinian Activism and Its Role in Global Anti-Colonial Movements

The 1960s and 1970s saw Palestinian activism increasingly intertwined with global revolutionary movements, and organizations like the General Union of Palestinian Students (GUPS) played an important role in linking the Palestinian struggle with broader anti-colonial and anti-imperialist movements. Palestinian activists worked to forge solidarity with the global left, situating their struggle within a wider global movement against imperialism and colonialism, drawing on the legacies of struggles in Vietnam, Algeria, and South Africa.[63] This connection was especially significant in the context of decolonization, where Palestinian liberation was framed as part of a broader Third World revolutionary narrative. During this period, movements like Fatah and the Popular Front for the Liberation of Palestine (PFLP) articulated their resistance to Israeli occupation through the same Marxist-Leninist frameworks that informed global anti-colonial resistance, linking their efforts to global struggles against imperialism.[64] This ideological alignment allowed Palestinian groups to position themselves as

[62] Haugbolle, S. & Olsen, P. V. (2023)
[63] Mullen, B. V. (2021). The Palestinian BDS Movement as a global antiracist campaign. *Interface: A Journal on Social Movements*, *13*(2).
[64] Buck, T. J. (2013). *The Decline of the Popular Front for the Liberation of Palestine: A Historical Analysis*. Bachelorarbeit, Hampshire College.

part of a broader anti-capitalist struggle against colonialism, drawing substantial support from leftist movements in Europe and the Global South. The fight for Palestinian liberation, therefore, became emblematic of broader struggles against capitalist and colonial systems, with the Palestinian cause resonating across leftist movements in Europe and the global South.[65] Notably, European solidarity for Palestine grew significantly after the June 1967 War, as left-wing movements in Europe that had previously supported Israel shifted their focus toward pro-Palestinian activism.[66]

At the same time, this internationalization brought challenges. The intersection of anti-Zionism, anti-imperialism, and accusations of antisemitism introduced complexities into the global solidarity movement. The debate over how to critique Zionism without veering into antisemitism became especially prominent as Palestinian movements gained momentum within leftist circles. The emergence of the New Left in Western capitals brought about a shift in perspective, as these groups began to question the traditional pro-Israel stance that had dominated post-World War II leftist politics.[67] Palestinian solidarity movements faced the challenge of disentangling legitimate critiques of Israeli colonialism from antisemitic rhetoric, an issue that has persisted into contemporary discourse. The ongoing tension between the need to address antisemitism and the fight against Zionism complicated efforts to maintain a cohesive global movement.

[65] Tabar, L. (2017). From third world internationalism to 'The Internationals': The transformation of solidarity with Palestine. *Third World Quarterly*, *38*(2), 414-435.
[66] Scheindlin, D. Diasporas in Conflict: Can the Jewish and Palestinian American Diasporas Contribute to Israeli-Palestinian Peace?. *Israel and Its Palestinian Predicament*, 197.
[67] Haugbølle, S. (2024). Global Palestine Solidarity and the Jewish Question. *Historical Materialism*, *1*(aop), 1-29.

Additionally, the asymmetry in global networks often placed Palestinian activists at a disadvantage. Transnational networks were dominated by actors in the Global North who had greater access to resources, media platforms, and international capital.[68] This uneven distribution of power meant that while Palestinian activism gained visibility, it often had to navigate the constraints of resource disparity and representation. Palestinian groups, particularly those operating from refugee camps or under occupation, faced difficulties in participating equally in global movements due to a lack of resources compared to their counterparts in wealthier regions . This created a dynamic where local Palestinian concerns sometimes became subsumed under broader global narratives shaped by the socio-political frameworks of the Global North. Moreover, the global media portrayal of the Palestinian struggle increasingly framed it in human rights terms rather than its original focus on anti-colonialism and national liberation. This shift contributed to a "hollowing out" of the core political demands of the Palestinian cause, which risked diluting the struggle's foundational objectives.[69]

Despite these challenges, Palestinian movements leveraged international platforms to amplify their cause, often aligning themselves with global decolonization efforts and radical leftist politics. The intellectual and ideological global connections formed during this period were critical in shaping the Palestinian narrative as not just a local resistance but as part of the larger global struggle against colonization, oppression, and racial

[68] Ferron-UPEC–Céditec, B. (2000). The asymmetric internationalization of "media-activism". *Review of Sociology*, *26*, 611-639.
[69] Tawil-Souri, H. (2015). Media, globalization, and the (un) making of the Palestinian cause. *Popular Communication*, *13*(2), 145-157.

injustice.[70] This framework of resistance was evident in the international platforms where Palestinians sought to assert their cause, including the UN and international conferences. Figures like Yasser Arafat and other PLO leaders used these platforms to elevate the Palestinian struggle to one of global importance, engaging with revolutionary governments and movements worldwide.[71] Additionally, European cities like Oslo and Barcelona became critical hubs for pro-Palestinian activism, as progressive leftist groups championed the Palestinian cause through protests and political engagement.[72] This regional activism, particularly in Scandinavia, helped spread the Palestinian narrative across Europe, reinforcing global solidarity. However, this broader representation came with the challenge of fragmentation, as diverse global movements framed the Palestinian cause through different lenses—whether human rights, anti-imperialism, or Islamist resistance—creating conflicting interpretations of what supporting Palestine entailed.[73] This symbolic and emotional draw toward Palestine among leftist movements in Europe and Latin America was not just a result of diplomatic efforts by the PLO, but also due to personal relationships, intellectual labor, and cultural transfers that created a deep sense of solidarity .[74]

In more recent decades, solidarity movements have further evolved, particularly within the context of U.S. college campuses, where intersectional activism has gained prominence. Marginalized student groups,

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[70] Shalhoub-Kevorkian, N. (2014). Human suffering in colonial contexts: Reflections from Palestine. *Settler Colonial Studies*, *4*(3), 277-290.
[71] Humeid, M. (2023). The Role of the Palestine Liberation Organization in Establishing the Foundations of Palestinian Diplomacy.
[72] Luerdi, L., Fitria, A., & Karisma, G. (2024). Solidarity beyond city halls: a study of city transnational activism on Palestine question. *Politicon*.
[73] Herrera, L., & Sakr, R. (2014). *Wired Citizenship*. New York: Routledge Press.
[74] Haugbolle, S., & Olsen, P. V. (2023). Emergence of Palestine as a Global Cause. *Middle East Critique*, *32*(1), 129-148.

including students of color, increasingly draw parallels between their own histories of oppression and the Palestinian struggle, linking anti-colonial resistance to global movements against racism, capitalism, and imperialism.[75] This intersectional framework expands the Palestinian cause beyond the earlier revolutionary movements, connecting it to modern struggles for racial and social justice. These connections are critical in sustaining contemporary Palestinian activism, especially in the Global North, where university campuses serve as hubs for organizing, debate, and building global solidarity.[76] This development signifies that the internationalization of the Palestinian cause is ongoing, with its relevance extending into present-day social justice movements.

Global justice movements, particularly the Boycott, Divestment, and Sanctions (BDS) campaign, have linked Palestinian activism to global justice frameworks. BDS has become a central tool in the internationalization of Palestinian resistance, operating through shared repertoires of contention such as corporate complicity and human rights violations, which resonate with global movements challenging neoliberalism and corporate overreach. By targeting multinational corporations like G4S and HP, which are accused of complicity in the Israeli occupation, the BDS movement taps into wider critiques of global capitalism and human rights abuses, reinforcing the idea that the Palestinian struggle is part of a larger global fight for social and economic justice. [77]

[75] Hill, S., Ben Hagai, E., & Zurbriggen, E. L. (2018). Intersecting alliances: Non-Palestinian activists in support of Palestine. *Journal of Diversity in Higher Education*, *11*(3), 239.
[76] Alexander, J., & Jarratt, S. C. (2014). Rhetorical education and student activism. *College English*, *76*(6), 525-544.
[77] Morrison, S. (2022). Border-crossing repertoires of contention: Palestine activism in a global justice context. *Globalizations*, *19*(1), 17-33.

Moreover, the framing of Palestinian rights within international law and justice-oriented narratives helps position Palestinian activism within global conversations about human rights and social justice. This shared justice framework allows for greater cross-border solidarity, as activists and movements worldwide adopt the Palestinian cause as a symbol of broader struggles against inequality and oppression. This contemporary activism, especially through campaigns like BDS, showcases how the Palestinian cause remains deeply embedded in global justice movements, continually adapting to new challenges while drawing on historical solidarities.[78]

Nevertheless, the internationalization of the Palestinian cause was not without its costs. The global left's efforts to build solidarity were often complicated by political tensions and varying degrees of commitment among different factions. The intersection of Palestine solidarity with the broader "Jewish Question," which some activists sought to minimize or overlook, continued to create fractures within the movement. The challenge of navigating accusations of antisemitism, especially as pro-Palestinian rhetoric intensified in the 1970s, further complicated the internationalization of the cause.[79] Still, these global networks of solidarity helped to sustain Palestinian activism, particularly as Israel's occupation entrenched further, leading to an era where Palestinian resistance became increasingly visible on the global stage.

In recent decades, Palestinian activism has increasingly intersected with global justice movements, particularly through campaigns like Boycott,

[78] Barghouti, O. (2011). *BDS: Boycott, divestment, sanctions: The global struggle for Palestinian rights*. Haymarket Books.
[79] Hitchcock, J. (2023). Framing Palestinian Rights: A Rhetorical Frame Analysis of Vernacular Boycott, Divestment, Sanctions (BDS) Movement Discourse. *Rhetoric Society Quarterly*, *53*(2), 87-103.

Divestment, and Sanctions (BDS). These justice-oriented frameworks facilitate cross-border solidarity, where activists from diverse movements adopt the Palestinian cause as a symbol of larger struggles against inequality, imperialism, and state violence. This contemporary activism showcases how Palestinian resistance remains a central node in the global justice movement, continually adapting to new political realities while drawing on historical solidarities.[80] Personal relationships, intellectual exchanges, and cultural transfers have also played a key role in maintaining global solidarity with the Palestinian cause, particularly in Europe and Latin America. These connections, forged through decades of activism and intellectual collaboration, have helped sustain the symbolic and emotional ties that keep the Palestinian struggle alive in the international arena.[81]

However, the internationalization of the Palestinian cause continues to face challenges, particularly in terms of maintaining unity among its diverse supporters. The global left's efforts to build solidarity with Palestine have often been complicated by political tensions, ideological differences, and varying degrees of commitment among different factions. The intersection of Palestine solidarity with the broader "Jewish Question" has also introduced divisions, as activists struggle to navigate the delicate balance between critiquing Israeli policies and avoiding accusations of antisemitism. Despite these complexities, the global networks of solidarity that were established in the 1960s and 1970s, and have since evolved, continue to provide crucial support for Palestinian activism.

[80] Aidid, S. A. (2022). *From divestment to climate justice: perspectives from university fossil fuel divestment campaigns*(Doctoral dissertation).
[81] Tabar, L. (2017). From third world internationalism to 'The Internationals': The transformation of solidarity with Palestine. *Third World Quarterly*, *38*(2), 414-435.

2.3 The Intifadas: Civil Resistance and the Power of Grassroots Mobilization

The First Intifada (1987-1993) marked a profound shift from militarized resistance to widespread civil disobedience, driven by grassroots mobilization. Sparked by spontaneous protests, the uprising rapidly grew into a large-scale, decentralized movement characterized by nonviolent resistance, including strikes, boycotts, and organized community efforts.[82] Popular committees formed to sustain resistance at the local level, coordinating the provision of essential services amidst an increasingly repressive Israeli occupation. These committees represented a form of strategic nonviolence, a concept articulated by theorist Gene Sharp, who argued that power depends on the consent of the ruled. By organizing mass refusal to cooperate with the occupying forces through boycotts, strikes, and nonpayment of taxes, Palestinians strategically withdrew their consent to the occupation's authority, crippling its ability to function.[83]

Youth and women emerged as central figures in this movement, fundamentally shifting the dynamics of leadership and activism within Palestinian society.[84] Women, in particular, took on key roles in mobilizing the community, organizing nonviolent demonstrations, and sustaining the popular committees that coordinated the uprising. This involvement of women in civil resistance not only challenged Israeli forces but also reshaped gender dynamics within Palestinian society itself.[85] The committees enabled

[82] Mall Dibiasi, C. (2015). Changing trends in Palestinian political activism: The second intifada, the wall protests, and the human rights turn. *Geopolitics*, *20*(3), 669-695.
[83] Norman, J. M. (2010). *The second Palestinian intifada: Civil resistance*. Routledge.
[84] Kawar, A. (1996). *Daughters of Palestine: Leading women of the Palestinian national movement*. SUNY Press.
[85] Kuttab, E. S. (1993). Palestinian Women in The" Intifada": Fighting On Two Fronts. *Arab studies quarterly*, 69-85.

a more inclusive, democratic form of activism by bypassing traditional hierarchical leadership structures. Moreover, the involvement of women in these grassroots efforts emphasized that nonviolent resistance was not a passive act but a form of *strategic defiance*, reframing nonviolence as a powerful means of empowerment rather than pacification.[86]

The concept of Sumud (steadfastness) was central to the ethos of the Intifada, as Palestinians resisted not only through demonstrations but through the simple act of remaining on their land, refusing to be displaced despite Israeli pressure. Sumud symbolized a form of passive yet powerful resistance, embodying the determination to preserve identity, culture, and presence.[87] As seen through their actions, Palestinians not only engaged in civil disobedience but also practiced noncooperation—economic boycotts and strikes—that targeted the very infrastructure of the occupation. This steadfastness transcended violent confrontation and emerged as an assertion of existence and rights through civil means, similar to the later village campaigns during the Second Intifada, where protesters resisted the Separation Wall and checkpoints through everyday acts of defiance.

Furthermore, the grassroots movement that flourished during the First Intifada set a precedent for later forms of nonviolent resistance, such as the Wall protests and other human rights campaigns that emerged during the Second Intifada.[88] The First Intifada also showcased the principle of *political jiu-jitsu*, wherein the Israeli military's harsh responses to unarmed protests were broadcast to the world, creating a backlash against the occupation and

[86] Kayali, L. (2020). *Palestinian women and popular resistance: Perceptions, attitudes, and strategies*. Routledge.
[87] Geertsen, A. M. (2024). Voices of Nonviolent Resistance: Motivations, Strategies, and Beliefs among Palestinian Activists in the Occupied Palestinian Territories.
[88] Mall Dibiasi, C. (2015). Changing trends in Palestinian political activism: The second intifada, the wall protests, and the human rights turn. *Geopolitics*, *20*(3), 669-695.

drawing international sympathy to the Palestinian cause.[89] The image of unarmed Palestinian youth facing off against tanks and soldiers resonated deeply with global audiences, helping to frame the Palestinian struggle within broader human rights discourses. This shift in the global narrative contributed to the growing international solidarity with Palestinians and connected their resistance to global movements for justice, nonviolence, and self-determination.

In many ways, the civil resistance during the First Intifada was both principled and pragmatic. It was rooted in deeply held beliefs about nonviolence and steadfastness, while also serving as a strategic response to the asymmetry of military power between Israel and the Palestinians. This dual nature of the movement allowed it to gather significant internal support and attract international recognition.[90] The civil resistance tactics seen during the First Intifada persisted into later periods of Palestinian activism, even in the face of increased violence during the Second Intifada and subsequent territorial control mechanisms such as the Separation Wall and checkpoints.[91] Ultimately, the grassroots mobilization during the First Intifada was an act of reclaiming agency by ordinary Palestinians, who were previously marginalized in the PLO's more centralized, militarized approaches to resistance. The ability of grassroots resistance to generate unity and solidarity contrasted sharply with the fragmentation of the Palestinian movement during later years, particularly as professionalized

[89] Martin, B. (2008). Terrorism as a backfire process. *Nonviolence: An Alternative for Defeating Global Terror (ism)*, 57-69.
[90] Carpenter, M. J. (2017). *Unarmed and participatory: Palestinian popular struggle and civil resistance theory*(Doctoral dissertation).
[91] Busbridge, R. (2013). Performing colonial sovereignty and the Israeli 'separation'wall. *Social Identities*, *19*(5), 653-669.

NGOs, influenced by international donors, began to dominate the landscape of Palestinian activism.[92]

Internationally, the Intifada shifted perceptions of the Palestinian movement. Global media coverage of nonviolent protests against a heavily militarized Israeli response garnered significant sympathy for the Palestinian cause. This period marked a critical point where Palestinian activism aligned with broader human rights discourses, helping to reshape the global narrative surrounding the conflict.[93] The First Intifada demonstrated the effectiveness of civil resistance in drawing international attention and mobilizing solidarity, as seen through the later Boycott, Divestment, and Sanctions (BDS) movement, which echoed many of the noncooperation tactics employed during the Intifada. In connecting local struggles for self-determination with global movements for justice and human rights, the First Intifada redefined Palestinian activism as a powerful example of strategic civil resistance, establishing a legacy of nonviolence that would continue to inspire future generations of activists both in Palestine and across the world.[94]

[92] Tabar, L. (2017). From third world internationalism to 'The Internationals': The transformation of solidarity with Palestine. *Third World Quarterly*, *38*(2), 414-435.
[93] Miskel, J. F. (2004). The Palestinian intifada: An effective strategy?. *World Policy Journal*, *21*(4), 48-56.
[94] Darweish, M. (1989). The intifada: social change. *Race & class*, *31*(2), 47-61.

2.4 Palestinian Youth and The Use of Art and Media to Fight Occupation

In the wake of the Second Intifada, Palestinian activism has increasingly turned to creative and nonviolent forms of resistance, particularly among the younger generation. Youth-led movements have harnessed the power of media, theater, and art to assert their political agency and document their experiences under occupation.[95] These artistic outlets serve not only as tools of political expression but also as vital mechanisms for healing and psychological resilience. For young Palestinians growing up under occupation, creative activism has become a space to process trauma, articulate identity, and build solidarity within and beyond their immediate communities. Furthermore, these creative efforts are not isolated acts of resistance; they are deeply embedded in a broader global struggle for decolonization, positioning Palestinian youth as central actors in a movement that seeks to dismantle not only the physical structures of occupation but also the colonial frameworks that have historically marginalized their voices.

Participatory media and cultural activism have emerged as central strategies for reclaiming Palestinian narratives and challenging dominant international portrayals of Palestinians as either passive victims or violent aggressors.[96] These creative forms of activism allow Palestinian youth to transcend these binary representations by inserting their voices into global discourses on human rights, resistance, and self-determination. This cultural

[95] Norman, J. (2009). Creative activism: Youth media in Palestine. *Middle East Journal of Culture and Communication*, *2*(2), 251-274.
[96] Masalha, N. (2018). Decolonizing methodology, reclaiming memory: Palestinian oral histories and memories of the Nakba. *An oral history of the Palestinian Nakba*, 6-40.

resistance is deeply rooted in the desire not only to critique the occupation but also to rewrite Palestinian history from the perspective of those who have experienced it firsthand. It challenges the often one-dimensional narratives that dominate Western media coverage of the conflict, providing a more nuanced and complex understanding of Palestinian resistance. In this context, creative activism becomes an act of decolonization, as it not only contests Israeli settler-colonialism but also reclaims intellectual and cultural spaces that have long been dominated by colonial narratives. By doing so, young Palestinians assert their place within global decolonial movements, highlighting the interconnectedness of their struggle with other anti-colonial and liberation movements worldwide.

Projects like *The Boy and the Wall*, for instance, encourage young people to symbolically reimagine ways of resisting the occupation, offering them both hope and agency. *The Boy and the Wall* (2005) is a bilingual children's book that tells the story of a Palestinian refugee boy living in Aida Refugee Camp. The boy enjoys simple childhood pleasures like playing soccer, finding turtles, and picking flowers, but his joy is overshadowed by a huge wall being built through his land. The story explores the boy's imaginative responses to escape the wall, such as dreaming of turning into a fig tree to break it or dancing until it crumbles. The book reflects on how the separation wall has impacted the lives of those in Aida, where about 5,000 Palestinian refugees live, most displaced since Israel's creation in 1948. The wall, built in 2004 near the camp, increased Israel's military presence and worsened local unemployment. Written by Amahl Bishara and illustrated with collages by Lajee youth, the book won the 2008 Josephine "Scout" Wollman Fuller Award from Psychologists for Social Responsibility.[97]

[97] Lajee Center. (n.d.). *The Boy and the Wall*. Lajee Center. https://lajee.org/the-boy-and-the-wall/

These artistic endeavors serve a dual purpose: they empower individuals through the act of creation while also fostering collective identity and resilience. The role of creativity in this context extends beyond mere expression; it is an act of reclaiming space, identity, and narrative in a political landscape that seeks to erase or distort Palestinian voices. This is particularly important in a context where knowledge production itself has become a battleground, with Israeli settler-colonial narratives historically seeking to marginalize Palestinian perspectives. Thus, Palestinian youth are generating counter-narratives that resist both physical and intellectual erasure.[98]

Moreover, youth media initiatives allow young Palestinians to redefine their roles within their communities, fostering a sense of empowerment and agency that extends beyond individual expression. Participatory media projects often serve as spaces for both self-reflection and collective action, encouraging youth to critically engage with their environment and develop new narratives about their place in the broader struggle. These initiatives transform local spaces, whether they are physical or symbolic, into arenas for public dialogue, where issues such as land confiscation, checkpoints, and occupation are discussed through creative outlets like photography exhibitions, music, and theater performances. This process of creative expression invites both local and international audiences to reconsider the entrenched narratives about the Israeli-Palestinian conflict, offering a form of resistance that is as intellectual and emotional as it is political. In this way, Palestinian youth-led activism contributes to the global

[98] Norman, J. (2009). Creative activism: Youth media in Palestine. *Middle East Journal of Culture and Communication*, *2*(2), 251-274.

discourse on decolonization, linking their struggle to broader movements against settler colonialism and systemic oppression. [99]

At the same time, movements such as the Boycott, Divestment, Sanctions (BDS) campaign have provided a framework for Palestinian youth to engage in global solidarity networks. The BDS movement, which calls for nonviolent pressure on Israel through economic, cultural, and academic boycotts, has gained traction worldwide, particularly among youth and social justice movements like Black Lives Matter.[100] This intersectional solidarity highlights the growing recognition that the Palestinian cause is part of a broader global struggle against oppression, colonialism, and racial injustice. The increasing visibility of BDS is a testament to the interconnectedness of global struggles, as Palestinian activists align their cause with other anti-colonial, anti-racist, and human rights movements. It frames Palestinian resistance within the larger historical and contemporary contexts of decolonization, drawing parallels between the occupation of Palestinian lands and other forms of settler colonialism across the globe.

Palestinian activism today is not just a response to contemporary issues but part of a longer historical continuum of economic resistance. This lineage of boycotts has evolved to become a powerful tool in challenging the legitimacy of Israel's policies on a global scale. By drawing on the legacy of earlier boycotts, BDS situates itself as part of a broader historical resistance to settler colonialism, echoing similar movements in places like South Africa during apartheid. For many Palestinian youth, the BDS movement offers a tangible method of resistance.

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[99] Christou, F. (2022). Being Young in the Diaspora: Fragmentation of the Palestinian Youth Mobilisation from the Middle East to Europe. *Migration Letters*, *19*(1), 83-93.
[100] Mullen, B. V. (2021). The Palestinian BDS Movement as a global antiracist campaign. *Interface: A Journal on Social Movements*, *13*(2).

Further deepening this connection, many Muslim scholars have framed participation in the BDS movement as a form of Jihad, a nonviolent struggle against injustice.[101] This framing, rooted in religious doctrine, encourages Muslim communities worldwide to see their participation in boycotts as fulfilling both a political and religious duty. As scholars like Sheikh Yusuf al-Qaradhawi have noted, boycotts can serve as a potent tool of economic resistance, aligning with the broader Islamic concept of Jihad, which encompasses efforts to combat oppression through nonviolent means.[102] For many young Palestinians, this religious dimension adds a profound sense of purpose to their activism, as they see their actions not only as a form of resistance but as part of a sacred struggle for justice. The concept of Jihad as a form of economic and social resistance allows activists to frame their boycott efforts within a larger ethical and spiritual context, lending additional legitimacy and urgency to their cause.

This intertwining of religious belief and political activism has galvanized support for BDS within Muslim-majority countries and across the broader Muslim diaspora. The fatwas issued by religious leaders in support of boycotting Israeli products reflect a deeper religious commitment to justice and human dignity, reinforcing the idea that resistance can take many forms.[103] For young Palestinians engaged in the BDS movement, this religious backing provides both moral and spiritual encouragement.

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[101] Jevtić, J. (2023). *Lives in Solidarity: BDS Activism Among Europe's Muslims* (Vol. 43). Brill.
[102] Samudra, F., Zaman, A. R. B., & Mukti, D. A. (2024). Reviving the Essence of Jihad in the Contemporary Era: Advocating Struggle and Solidarity for Palestine Through Boycott of Pro-Israel Products. *MILRev: Metro Islamic Law Review*, *3*(1), 22-42.
[103] Fahimah, I., & Yarmunida, M. (2023). Indonesian Ulema Council Fatwa on Boycotting Products Supporting Israel in the Ijtihad Discourse of Nahdatul Ulama and Muhammadiyah. *NUSANTARA: Journal Of Law Studies*, *2*(2), 156-167.

Furthermore, these creative and participatory forms of activism offer young Palestinians practical skills in both the artistic and technical realms, serving as a vocational lifeline in a region where unemployment is high. Whether through photography, theater, or filmmaking, these projects empower youth with valuable abilities that can be applied in future career paths, thus providing a sense of purpose and economic opportunity.[104] This vocational aspect, coupled with the therapeutic benefits of artistic expression, allows for a more holistic approach to resistance. By critically examining their experiences and contributing their voices to the broader Palestinian narrative, youth are better equipped to confront the psychological and socio-political challenges of living under occupation.

[104] Peteet, J. M. (2005). *Landscape of hope and despair: Palestinian refugee camps*. University of Pennsylvania Press.

3. CHAPTER THREE - DIGITAL RESISTANCE AND MEMETIC COMMEMORATIONS IN PALESTINIAN YOUTH ACTIVISM

3.1 Social Media and Memetic Commemorations in Palestinian Youth Activism

Political engagement may both influence and be influenced by the exposure to political information.[105] There are three key dimensions of political engagement: political interest, political knowledge, and political efficacy, and even if not necessarily, being politically interested, knowledgeable, or efficacious is most likely to lead to political participation.[106] A study by Ekström & Shehata also designates four modes of political engagement: political information, which is reading and searching for political knowledge; political interaction, posting comments and discussing public matters, sharing, and linking news and clips on politics; public production, writing about politics on a blog or creating video clips; and collective actions when initiating and joining protests and activism.[107]

[105] Andersen, K., Ohme, J., Bjarnoe, C., Bordacconi, M. J., Albaek, E., & Vreese, C. de. (2021). Generational Gaps in Political Media Use and Civic Engagement: From Baby Boomers to Generation Z, 1(1), 1– 216. Routledge.
[106] Alfred, J. J. R., & Wong, S. P. (2022). The Relationship between the Perception of Social Media Credibility and Political Engagement in Social Media among Generation Z. Journal of Communication, Language and Culture, 2(2), 18-33.
[107] Ekström & Shehata (2016). Social media, porous boundaries, and the development of online political
engagement among young citizens. New Media & Society, 20(2), 740–759.

Studies suggest that direct social media exposure to shared political information increases political engagement.[108] In particular, social media's ability to deliver political content in a more relevant, diverse, and direct way for digitally witty youth to encounter political information may, in turn, affect their political engagement due to its appeal, and even users who are unconcerned about politics may be exposed to political information by accident due to their exposure to shared political material.[109]

Social media has emerged as a transformative tool in the Israeli-Palestinian conflict, particularly in the realm of youth activism. Platforms like Facebook, Twitter, Instagram, and TikTok have become essential spaces where young Palestinians and Israelis can express their voices, mobilize for action, and connect with a global audience. For Palestinian youth, who often face severe restrictions on movement and speech due to the Israeli occupation, social media offers a crucial outlet for raising awareness about their plight, documenting human rights abuses, and organizing protests.[110] These digital platforms enable them to bypass traditional media outlets, which are often perceived as biased or inaccessible, allowing them to share unfiltered accounts of their daily experiences under occupation.

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[108] Tang, G., & Lee, F. L. F. (2013). Facebook Use and Political Participation. Social Science Computer Review,
31(6), 763–773.

[109] Knoll, J., Matthes, J., & Heiss, R. (2018). The social media political participation model. Convergence: The
International Journal of Research into New Media Technologies, 2, 135485651775036.

[110] Al-Zo'by, M. (2023). Digital activism and the politics of protest: Palestine and the struggle for global popular representation. *Global Media Coverage of the Palestinian-Israeli Conflict: Reporting the Sheikh Jarrah Evictions*, 121.

However, the use of social media by Palestinian activists transcends mere information sharing. It represents a sophisticated engagement with memefication and memetic activism, where visuals, videos, and viral content are not merely shared but become part of a larger process of collective identity formation and political resistance.[111] Memes, whether humorous or symbolic, serve as flexible tools to express resistance and challenge dominant narratives. In this context, Palestinian youth use memes and other viral content to articulate their struggles in ways that resonate with both local and global audiences, embedding their fight for justice within larger, universal themes of freedom and human rights.[112]

Palestinian youth have harnessed the power of social media framing to recontextualize their lived experiences and situate them within global human rights discourses. Twitter content during that period focused on sharing human stories of victims, engaging in what can be considered memetic acts of resistance, where personal stories are transformed into collective memories that resonate with both local and global audiences.[113] This process of memetic activism ensures that their struggle remains visible in the global consciousness, with each shared image or post contributing to a larger, ongoing narrative of resistance.[114] Moreover, the use of social media serves as a double-edged sword. While it allows Palestinian activists to disseminate their narratives widely and build solidarity, it also opens

[111] Nabulsi, M. (2014). "Hungry for freedom": Palestine youth activism in the era of social media. In *Wired Citizenship* (pp. 105-120). Routledge.
[112] Zeng, J., & Abidin, C. (2023). '# OkBoomer, time to meet the Zoomers': Studying the memefication of intergenerational politics on TikTok. In *The Playful Politics of Memes* (pp. 93-115). Routledge.
[113] Abu-Ayyash, S. (2015). The Palestine solidarity movement, human rights and Twitter. *Networking Knowledge: Journal of the MeCCSA Postgraduate Network*, *8*(2).
[114] Cervi, L., & Divon, T. (2023). Playful activism: Memetic performances of Palestinian resistance in TikTok# Challenges. *Social media+ society*, *9*(1), 20563051231157607.

them to counter-narratives from Israeli authorities who use the same platforms for surveillance, censorship, and disinformation, complicating the landscape of digital activism.

Much like how Gen Z utilizes TikTok's diverse, multimodal communication tools – memes, video challenges, and humor – to articulate complex political messages, Palestinian youth similarly leverage a wide range of digital tools to convey their political struggles. These varied forms of expression allow activists to bypass formal channels and craft narratives that resonate emotionally and politically with both local and global audiences. By framing their struggle in terms of human rights violations, similar to the discourse used during the 2014 Gaza War on Twitter, Palestinian youth activists present themselves as part of a broader global struggle for justice and freedom, aligning their cause with universal values that are more likely to garner international solidarity.[115]

In the Palestinian context, social media rituals are essential in building and sustaining international solidarity and awareness. Palestinian activists engage in rituals of promotion when they elevate their cause, utilizing hashtags, viral videos, or protest livestreams to showcase the reality of their lives under occupation.[116] These posts often function as collective calls for recognition, urging both local and global audiences to identify with their cause. In times of crisis, such as during the May 2021 Gaza escalation, these posts also take the form of rituals of

[115] Welchman, L., Zambelli, E., & Salih, R. (2021). Rethinking justice beyond human rights. Anti-colonialism and intersectionality in the politics of the Palestinian Youth Movement. *Mediterranean Politics*, *26*(3), 349-369.
[116] Kelsch, S. M. (2022). *Digital resistance:# SaveSheikhJarrah and the role of Palestinian activism on social media* (Master's thesis).

commemoration, marking these events in collective memory and using digital spaces to mourn the loss of life while reflecting on the broader political struggle.[117] This form of memetic commemoration mirrors how pro-Palestinian activists on Twitter during the 2014 Gaza War crafted their narratives through carefully framed human stories, leveraging emotional resonance to reach global audiences.[118] These framing techniques have become key tools for Palestinian activists navigating social media platforms today.

To deepen our understanding of how global digital activism can be localized, we can draw on insights from studies like the reformulation of the #MeToo movement in Japan through the VTM framework (Values, Topics, Media). Much like how #MeToo was adapted to reflect cultural values of modesty and harmony in Japan, Palestinian activists reframe global social media strategies to reflect local values of resistance, collective endurance, and historical memory.[119] This localization process is central to how Palestinian youth use digital tools to build solidarity while ensuring their content remains deeply rooted in cultural symbols like the olive tree and the right of return.[120] This adaptation mirrors how movements around the world reshape digital strategies to fit their unique political and social landscapes, drawing parallels to how activists in the 2014 Gaza War used framing strategies on social media to amplify their cause.

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[117] Abushbak, A. M., Majeed, T., & Kusuma, K. S. (2024). Mobile phone activism during Israel's 'Operation Guardian of the Wall'in Gaza. *Media, War & Conflict*, 17506352241249063.
[118] Cervi, L., & Divon, T. (2023).
[119] Mizoroki, S., Shifman, L., & Hayashi, K. (2023). Hashtag activism found in translation: Unpacking the reformulation of# MeToo in Japan. *new media & society*, 14614448231153571.
[120] Norman, J. M. (2010). *The second Palestinian intifada: Civil resistance*. Routledge.

In this way, social media imagery becomes more than just a means of broadcasting information; it embodies memetic commemorations, wherein images and videos are continuously reshared, recontextualized, and reframed to ensure that the Palestinian cause remains visible.[121] These images act as value-laden social media portraits, where each image functions as an expression of political principles such as justice, civic engagement, and resistance. A protest photo, for example, is not merely a documentation of an event—it is a powerful political statement that reflects deeper values. Through the act of sharing these images, Palestinian youth engage in a form of memory activism, communicating both individual and collective values to a broader audience.[122] These visuals signal both their political stance and their belonging to a wider movement fighting against oppression, thus making Palestinian social media activism a participatory form of resistance.

Central to understanding the use of social media in these movements is the concept of value affordances, which refers to the ethical, aesthetic, and relational principles that emerge from the interaction between social media users and platform technologies.[123] These affordances shape how users engage with features like "Like," "Comment," and "Share," turning these actions into powerful tools for activism. For Palestinian youth, these features have become vehicles for expression and community building, promoting values such as solidarity, care, and resistance, even as they face significant challenges like online surveillance and censorship. These

[121] Trillò, T., & Shifman, L. (2021). Memetic commemorations: Remixing far-right values in digital spheres. *Information, Communication & Society*, *24*(16), 2482-2501.
[122] Fridman, O. (2022). Memory activism and digital practices after conflict. *Memory activism and digital practices after conflict*.
[123] Scharlach, R., & Hallinan, B. (2023). The value affordances of social media engagement features. *Journal of Computer-Mediated Communication*, *28*(6), zmad040.

ritualistic behaviors extend beyond mere digital interactions; they embody what social media ritual theorists identify as the communicative values of persuasion, authenticity, affiliation, and demonstration.[124] Real-world mobilization remains essential for meaningful change. Palestinian youth strategically use social media not only for raising awareness but also as a vital tool for coordinating physical protests and actions, translating online visibility into offline resistance.

The memetic nature of these social media posts adds another layer of significance to the Palestinian struggle. Each shared photo, video, or post must navigate the complex intersection of personal and political values, allowing users to communicate the authenticity of their experiences.[125] Authenticity, as a communicative value, is central to the success of Palestinian activism on social media. Given the highly contested narratives of the Israeli-Palestinian conflict, Palestinian youth use these platforms to construct a counter-narrative that challenges mainstream media portrayals. By engaging in memetic commemorations, they remix historical events and transform moments of resistance, violence, or suffering into symbols of ongoing struggle. This process of commemoration through social media ensures that these events remain alive in the collective memory, not only among Palestinians but also among global allies.

For example, the "Share" button on platforms like Instagram or Facebook allows Palestinians to disseminate images and videos that document human rights abuses, effectively transforming these moments

[124] Trillò, T., Hallinan, B., & Shifman, L. (2022). A typology of social media rituals. *Journal of Computer-Mediated Communication*, *27*(4), zmac011.
[125] Boyd, D. (2010). Social network sites as networked publics: Affordances, dynamics, and implications. In *A networked self*(pp. 47-66). Routledge.

into powerful calls for action.[126] This aligns with the rituals of promotion, where the shared content seeks to elevate the Palestinian struggle onto the global stage. By distributing this content, activists also perform rituals of affiliation, inviting viewers worldwide to identify with the Palestinian cause. The act of sharing becomes a ritualized behavior that affirms community values of justice and solidarity, demonstrating that social media is not just a conduit for messages but a space where communal identities are affirmed, reframed, and amplified.[127] This process, rooted in memefication, serves as flexible, accessible, and highly adaptable tools of political expression.

3.2 Connective Memory and Global Solidarity

Social media eventually becomes a platform for connective memory, where individual experiences are linked to the broader collective memory of the Palestinian struggle. This dynamic reflects a participatory memory often seen in digital spheres, where users actively contribute their own stories, remixing and resharing them into an evolving narrative of resistance.[128] Palestinian youth utilize platforms to craft a shared identity centered around their political reality, and Palestinian activists engage with digital spaces to foster solidarity, transcending traditional activist labels and connecting their cause with broader social justice movements such as racial equality and anti-colonialism.

[126] Hallinan, B. (2023). No judgment: value optimization and the reinvention of reviewing on YouTube. *Journal of Computer-Mediated Communication*, *28*(5), zmad034.
[127] Trillò, T., Hallinan, B., & Shifman, L. (2022).
[128] Bennett, W. L., & Segerberg, A. (2012). The logic of connective action: Digital media and the personalization of contentious politics. *Information, communication & society*, *15*(5), 739-768.

This process of narrative construction is not only about representation but about framing – diagnostic, prognostic, and motivational framing – as outlined by Shadi Abu-Ayyash in the context of the Palestine solidarity movement on Twitter. Palestinian activists use social media to diagnose the causes of their oppression, highlighting human rights violations and systemic injustices under Israeli occupation. They effectively use platforms to prognosticate solutions, such as international solidarity, resistance, and calls for justice. Additionally, they motivate both local and global audiences to take action, whether through protest, online support, or political pressure. This strategic framing enhances their ability to globalize local struggles, positioning the Palestinian cause as one rooted in universal principles of human rights and justice, thereby creating a powerful narrative that resonates with a global audience.[129]

Just as far-right groups have used memes to build alternative historical memories, Palestinian activists employ memetic forms of resistance, reshaping historical events and symbols into powerful digital tools. This process enables the international community to participate in the commemoration of events like Nakba Day, thus keeping the memory of displacement and resistance alive.[130] Through the continuous recirculation and reinterpretation of images and videos, these acts of memory-making invite global audiences to engage with the Palestinian cause, turning digital platforms into sites of global solidarity.[131]

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[129] Abu-Ayyash, S. (2015). The Palestine solidarity movement, human rights and Twitter. *Networking Knowledge: Journal of the MeCCSA Postgraduate Network*, *8*(2).
[130] Trillò, T., & Shifman, L. (2021). Memetic commemorations: Remixing far-right values in digital spheres. *Information, Communication & Society*, *24*(16), 2482-2501.
[131] Li, E. P. H., & Prasad, A. (2018). From wall 1.0 to wall 2.0: Graffiti, social media, and ideological acts of resistance and recognition among Palestinian refugees. *American Behavioral Scientist*, *62*(4), 493-511.

The role of social media portraits in this process is crucial. As Trillò and colleagues note, these portraits are inherently value-laden constructs.[132] In the context of Palestinian activism, each image documenting protests, resistance, or everyday life under occupation transcends the visual and becomes a symbolic representation of a community's ongoing fight for recognition and rights. The blending of personal and political narratives into a cohesive digital identity reflects how Palestinian activists harness social media to assert a fluid yet potent collective identity that resonates beyond their immediate geographical borders.[133]

One of the most significant impacts of social media in this context has been its ability to globalize the Palestinian struggle. Through value-laden features such as hashtags, viral videos, and live streams, Palestinian youth have successfully garnered international attention, turning localized incidents into global movements. During the May 2021 escalation in Gaza, for instance, the ability to share images and videos globally through platforms like Instagram and TikTok was essential in spreading awareness.[134] The "Share" button, often associated with care and community, enabled Palestinian youth to foster a sense of global solidarity, inviting activists from around the world to engage with their cause and participate in collective actions. These digital actions reflect the rituals of

[132] Trillò, T., Hallinan, B., Green, A., Kim, B., Mizoroki, S., Scharlach, R., ... & Shifman, L. (2023). "I love this photo, I can feel their hearts!" How users across the world evaluate social media portraiture. *Journal of Communication*, *73*(3), 235-246.
[133] Zeng, J., & Abidin, C. (2023). '# OkBoomer, time to meet the Zoomers': Studying the memefication of intergenerational politics on TikTok. In *The Playful Politics of Memes* (pp. 93-115). Routledge.
[134] Hayes, J. (2023). *Palestinian Solidarity on Social Media: The Distribution of Images of Occupation on Twitter, Facebook, and Instagram by Advocacy Organisations* (Doctoral dissertation, University of Sheffield).

commemoration, where historical and contemporary events are memorialized, becoming rallying points for future activism.[135]

Yet, while the "Share" button and other social media affordances facilitate the dissemination of their message, they also come with significant trade-offs. The quest for visibility often requires negotiating between personal exposure and platform demands. For Palestinian activists, this tension is heightened by the constant threat of surveillance. Privacy and safety, critical values identified in studies on social media engagement, are often compromised.[136] For youth under constant Israeli surveillance, using platforms like Instagram or Twitter poses the risk of exposure to security forces and online harassment. Similar to Mizoroki et al.'s study on Japanese #MeToo activists, where privacy concerns affected the visibility of digital activism, Palestinian activists must also carefully navigate the line between global exposure and personal security. This highlights the complexity of social media rituals, particularly the rituals of disclosure, where activists strategically choose what personal information or content to reveal while constantly navigating the dangers posed by digital surveillance.[137]

[135] Trillò, T., & Shifman, L. (2021). Memetic commemorations: Remixing far-right values in digital spheres. *Information, Communication & Society*, *24*(16), 2482-2501.
[136] Bayat, A. (2002). Activism and social development in the Middle East. *International journal of Middle East studies*, *34*(1), 1-28.
[137] Trillò, T., Hallinan, B., & Shifman, L. (2022).

3.3 The Digital Intifada

In line with Trillò's study on how users evaluate social media content,[138] it becomes clear that the decisions about disclosure and visibility are closely tied to the communicative value of authenticity. For Palestinian activists, being authentic in their portrayal of the conflict is not just a matter of personal expression, it is a strategy of survival and solidarity.[139] Authenticity creates resonance, enabling viewers to emotionally connect with the content in profound ways. When global audiences encounter unfiltered images of occupation or protests, the raw emotional power of these visuals fosters a deeper understanding and identification with the Palestinian cause. This emotional dimension is critical in transforming distant spectators into engaged global allies, thus turning digital participation into tangible forms of solidarity—whether through sharing posts, organizing protests, or lobbying for political action.[140]

The emotional power that social media harnesses is further emphasized by how social media serves as a crucial vehicle for evoking global empathy, particularly among youth, by presenting not only visuals but deeply personal stories of resistance,[141] further enhanced by the aesthetic dimensions of social media portraits, which amplify the symbolic

[138] Trillò, T., Hallinan, B., Green, A., Kim, B., Mizoroki, S., Scharlach, R., ... & Shifman, L. (2023). "I love this photo, I can feel their hearts!" How users across the world evaluate social media portraiture. *Journal of Communication*, *73*(3), 235-246.
[139] Abdulhadi, R. (2004). Activism and Exile: Palestinianness and the Politics of Solidarity. In *Local Actions: Cultural Activism, Power, and Public Life in America* (pp. 231-254). Columbia University Press.
[140] Herrera, L., & Sakr, R. (2014). *Wired Citizenship*. New York: Routledge Press.
[141] Monshipouri, M., & Prompichai, T. (2017). Digital activism in perspective: Palestinian resistance via social media. *Int'l Stud. J.*, *14*, 37.

weight of these images.[142] Palestinian activists are acutely aware of how the visual and symbolic resonance of their content can transcend borders. Images of children standing amid rubble, protests against armed forces, or daily acts of resistance evoke universal themes of innocence, courage, and injustice. These value-laden symbols not only document the realities of conflict but also act as emotive and visual arguments that appeal to global audiences, galvanizing support, and political action. Consequently, Palestinian social media activism transcends local grievances and becomes a global call for justice, mediated through both aesthetic and emotional engagement. Palestinian activists utilize multimodal communication, remixing trauma with creativity, from protest memes to viral video content, to amplify their message to a broader global audience. These forms of communication, which integrate personal experience with broader political narratives, foster a sense of shared resilience and collective identity, transforming social media into a powerful tool for emotional mobilization.[143]

The role of memetic activism becomes particularly relevant here. Palestinian activists engage in memetic commemorations to adapt and spread their message, such as using modern hashtags to commemorate Nakba Day or resharing iconic protest photos.[144] The commemorative power of these memes lies in their ability to act as both digital markers of

[142] Trillò, T., & Shifman, L. (2021). Memetic commemorations: Remixing far-right values in digital spheres. *Information, Communication & Society*, *24*(16), 2482-2501.
[143] Bail, C. A., Brown, T. W., & Mann, M. (2017). Channeling hearts and minds: Advocacy organizations, cognitive-emotional currents, and public conversation. *American Sociological Review*, *82*(6), 1188-1213.
[144] Hassan, W., & Elaiza, S. (2016). *Hashtag Wars: Twitter as a Discursive Space in the'Battle of Narratives' between pro-Israelis and pro-Palestinians* (Doctoral dissertation, Open Access Te Herenga Waka-Victoria University of Wellington).

memory and rallying cries for action, sustaining the momentum of the movement in an ever-evolving digital world.

Israeli youth, particularly those involved in anti-occupation and peace movements, face similar challenges. Groups such as Breaking the Silence and Peace Now leverage these platforms to challenge Israeli government policies, share testimonies from former soldiers, and promote dialogue between Israelis and Palestinians.[145] Here, too, the value affordances of social media play a critical role. The "Comment" affordance facilitates the exchange of diverse opinions, allowing for feedback and improvement in how activists communicate their messages. However, this openness also turns comment sections into spaces of conflict, where harassment and “comment wars” often drown out meaningful dialogue.[146] These dynamics reflect the rituals of competition and demotion, where users attempt to elevate or discredit viewpoints, creating spaces that reflect not just community building but also contestation and division.[147]

Mira Nabulsi's work in *Wired Citizenship: Youth Learning and Activism in the Middle East* highlights the strategic use of social media by Palestinian youth activists, emphasizing how these platforms have become sites of resistance and empowerment. Nabulsi notes that social media allows Palestinian youth to engage in what she describes as a "digital intifada," where they can articulate their demands, share their narratives,

[145] Levy, Y. (2020). Scenario: the conditions that would lead Israelis to reject the Israeli-Arab conflict. *Israel and Its Palestinian Predicament*, 31.
[146] Davis, J. L. (2020). How artifacts afford: The power and politics of everyday things. The MIT Press.
[147] Trillò, T., Hallinan, B., & Shifman, L. (2022). A typology of social media rituals. *Journal of Computer-Mediated Communication*, *27*(4), zmac011.

and coordinate collective actions across physical and digital spaces.[148] This digital activism has strengthened the Palestinian youth movement and aligns with the rituals of pledging, where activists make visible their ongoing commitment to the cause, often expressed through profile picture filters or status updates that declare solidarity with Palestine, further reinforcing the collective identity of the movement.[149]

3.4 Emotional Resonance and Global Engagement

An important aspect of the digital rituals is the emotional resonance that they generate among viewers. The emotional impact of social media images is a central component of their success in fostering political engagement. When viewers across the globe see images of Palestinians resisting oppression, standing up to military forces, or simply enduring the hardships of occupation, the visceral nature of these images resonates on an emotional level, generating empathy and often spurring people to action. This emotional dimension is a critical part of what makes social media an effective tool for political participation, as it allows activists to transcend geographical and cultural boundaries, making their struggle universally relatable.[150]

However, value trade-offs are a persistent reality for these young activists. The same platforms that provide visibility and community also

[148] Nabulsi, M. (2014). "Hungry for freedom": Palestine youth activism in the era of social media. In *Wired Citizenship* (pp. 105-120). Routledge.
[149] Trillò, T., Hallinan, B., & Shifman, L. (2022). A typology of social media rituals. *Journal of Computer-Mediated Communication*, *27*(4), zmac011.
[150] Young, L. E. (2023). Mobilization under threat: emotional appeals and pro-opposition political participation online. *Political Behavior*, *45*(2), 445-468.

hinder mindfulness, peace, and safety. For instance, the constant bombardment of images of violence and conflict on platforms like TikTok and Instagram can exacerbate tensions and emotional exhaustion among activists and their audiences.[151] The visibility labor required to keep their cause relevant and in the public eye comes at a cost, as activists must navigate emotional fatigue and burnout. This dynamic mirrors what Bonini and Treré describe as the everyday fight against platform power, where maintaining visibility on social media requires constant work, often at the expense of personal well-being.[152]

At the same time, Palestinian activists engage in algorithmic resistance by strategically manipulating platform affordances, such as hashtags, viral videos, and engagement metrics, to ensure their message is amplified. While algorithms often prioritize content that generates high engagement, activists work within these constraints to optimize visibility. For instance, during the May 2021 Gaza escalation, activists flooded social media with specific hashtags and timely posts, maximizing their reach despite the platform's algorithmic biases. This reflects the symbiotic relationship between users and algorithms, where activists are shaped by platform constraints but also actively shape how their content circulates.[153]

Additionally, global and local repertoires of evaluation play a significant role in how social media content is consumed and shared.[154]

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[151] Hayes, J. (2023). *Palestinian Solidarity on Social Media: The Distribution of Images of Occupation on Twitter, Facebook, and Instagram by Advocacy Organisations* (Doctoral dissertation, University of Sheffield).
[152] Bonini, T., & Treré, E. (2024). *Algorithms of resistance: The everyday fight against platform power*. Mit Press.
[153] Treré, E. (2018). *Hybrid media activism: Ecologies, imaginaries, algorithms*. Routledge.
[154] Hallinan, B., Kim, B., Scharlach, R., Trillò, T., Mizoroki, S., & Shifman, L. (2023). Mapping the transnational imaginary of social media genres. *new media & society*, *25*(3), 559-583.

Palestinian activists, while deeply rooted in local contexts of struggle, are acutely aware of how their content will be evaluated on a global scale. The same image might be interpreted differently in Ramallah compared to New York, yet Palestinian activists have managed to craft content that appeals to both local and international audiences. This requires a delicate balance of global and local narratives, where the struggle is framed in universal terms of human rights, freedom, and dignity, yet remains deeply connected to the specific historical and political circumstances of Palestine. This global-local interplay in evaluation ensures that Palestinian activists can mobilize international solidarity while still remaining authentic to their local realities.[155]

To navigate these challenges, activists have developed strategies to engage with social media on their own terms. Some choose to avoid certain features—such as refraining from "Liking" content to manipulate the algorithm—while others limit their visibility by using direct messages or closed groups to share sensitive information. These strategies reflect a keen awareness of the value affordances of social media, as activists selectively engage with the platforms' features to maximize their impact while minimizing personal and collective risks. This balancing act also exemplifies how resistance through algorithms becomes a tool for activists. By understanding and working with the algorithmic structures, Palestinian activists turn these platforms into spaces of resistance, ensuring their voices are heard despite the inherent challenges posed by surveillance and censorship.

[155] Gawerc, M. I. (2018). Building solidarity across asymmetrical risks: Israeli and Palestinian peace activists. In *Research in social movements, conflicts and change* (Vol. 42, pp. 87-112). Emerald Publishing Limited.

Despite these challenges, social media remains a powerful avenue for youth activism in the Israeli-Palestinian conflict, providing young people with the means to challenge oppression, advocate for their rights, and connect with a broader community. The value affordances of these platforms – expression, community, and care – are central to the ways in which both Palestinian and Israeli youth use social media to resist, advocate, and seek change.[156]

Furthermore, the relational character of the values used to evaluate social media portraits reflects new modes of digital sociability.[157] Palestinian activists are broadcasting their message, while engaging in a form of mediated public intimacy, where their personal struggles become part of a global conversation. This intimacy, created through the visual and emotional power of social media images, invites viewers to not only witness the Palestinian struggle but to become part of it. The relationship between the viewer and the subject of these images is no longer passive; it is dynamic, participatory, and deeply emotional. This redefines how social movements operate in the digital age, with social media not just as a tool for activism but as a space for creating communities of resistance.

[156] Scharlach, R., & Hallinan, B. (2023). The value affordances of social media engagement features. *Journal of Computer-Mediated Communication*, *28*(6), zmad040.
[157] Trillò, T., Hallinan, B., Green, A., Kim, B., Mizoroki, S., Scharlach, R., ... & Shifman, L. (2023). "I love this photo, I can feel their hearts!" How users across the world evaluate social media portraiture. *Journal of Communication*, *73*(3), 235-246.

3.5 Empowerment and Surveillance in Palestinian Activism

In addition to the transformative power of social media in fostering solidarity and building global awareness, it is crucial to recognize the dual-edged nature of these platforms in the Israeli-Palestinian conflict. While platforms like Twitter, Instagram, and Facebook have been essential tools for Palestinian activists in raising international awareness, organizing protests, and crafting counter-narratives, they also serve as instruments of repression. Israeli authorities have increasingly weaponized these same platforms for surveillance, monitoring activist activities, and even using social media posts as evidence in arrests or for targeted harassment.[158] The pervasive surveillance complicates digital activism, as activists are forced to navigate not only algorithmic biases but also the ever-present risk of surveillance and state intervention.

This duality of empowerment and oppression is a defining feature of digital activism in the Palestinian context. While activists work to amplify their cause and mobilize both online and offline action, they are simultaneously subject to increased scrutiny and repression. Social media platforms, though offering space for solidarity, also expose activists to digital policing, where Israeli security forces monitor hashtags, viral posts, and online interactions.[159] In response to this surveillance, Palestinian activists have developed strategies to counter these risks, such as using encrypted messaging apps, creating anonymized accounts, or relying on

[158] Zureik, E., Lyon, D., & Abu-Laban, Y. (2010). Surveillance and control in Israel/Palestine. *Population Territory and Power. London: Routledge*.
[159] Wolfsfeld, G. (2018). The role of the media in violent conflicts in the digital age: Israeli and Palestinian leaders' perceptions. *Media, War & Conflict*, *11*(1), 107-124.

closed groups to share sensitive information.[160] These acts of digital resistance highlight the tension between visibility and vulnerability that activists must constantly manage.

The power of social media lies not only in its ability to spread awareness but also in the fact that it is intricately tied to real-world mobilization. While digital activism amplifies the Palestinian cause globally, the true impact often hinges on ground mobilization, transforming online engagement into physical protests, political advocacy, and collective action. Palestinian activists use social media not only as a tool for emotional and visual engagement but also as a means to coordinate on-the-ground efforts, ensuring that digital activism translates into real-world change.[161] This delicate balance of using platforms for both virtual visibility and tangible action underscores the complexity of digital resistance in an environment fraught with both opportunity and oppression.

Social media functions as both a bridge and a battlefield for Palestinian youth. It connects local struggles to global audiences, aligning their cause with universal values of justice and human rights. Yet, at the same time, these platforms expose activists to the risks of surveillance, censorship, and repression. The dual nature of social media adds another layer of complexity to Palestinian activism, revealing the multifaceted challenges faced by activists in their fight for justice, freedom, and global solidarity.

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[160] Awwad, G., & Toyama, K. (2024, May). Digital Repression in Palestine. In *Proceedings of the CHI Conference on Human Factors in Computing Systems* (pp. 1-15).

[161] Monshipouri, M., & Prompichai, T. (2017). Digital activism in perspective: Palestinian resistance via social media. *Int'l Stud. J.*, *14*, 37.

4. CHAPTER FOUR – ACTIVISM AND POLITICAL ENGAGEMENT IN THE ALGORITHM-MEDIATED SYSTEM

4.1 The complex role of Algorithms in shaping behavior and belief

In computer science terms, an algorithm is an abstract, formalized description of a computational procedure. As Neyland explains, making algorithms accountable means, in ethnomethodological jargon, giving them qualities that make them comprehensible to groups of people in particular contexts.[162] If we understand algorithms as enacted by the practices used to engage with them, then our methods change. From being remote bystanders, we become active enactors. Where a computer scientist might enact algorithms as abstract procedures through mathematical analysis and be concerned with efficiency or interaction with data structures; a sociologist might enact them as sociotechnical systems constituted by human practices, researching how they materialize values and cultural connotations.[163]

Algorithms rely upon and create categories, becoming a "programmed sociality" that structures human relations by sorting, relating, recommending, and signaling the value of information.[164] They are assemblages and infrastructures of human and nonhuman actors that make

[162] Neyland D (2016) Bearing account-able witness to the ethical algorithmic system. Science, Technology & Human Values 41(1): 50–76.
[163] Seaver, N. (2017). Algorithms as culture: Some tactics for the ethnography of algorithmic systems. Big data & society, 4(2), 2053951717738104.
[164] Taina Bucher, If . . . Then: Algorithmic Power and Politics (Oxford, UK: Oxford Univ. Press, 2018).

domains of entertainment,[165] law,[166] education, [167] policing,[168] journalism,[169] medicine,[170] real estate,[171] immigration,[172] engineering,[173] advertising,[174] politics,[175] social media,[176] labor,[177] and supply chains.[178] They are anything but neutral black boxes of computation that simply reflect or mirror human actions, nor are they just sites of thought and human-machine interdependency.[179] Algorithms are complex sociotechnical forces that are

[165] Gillespie, T. (2016). # trendingistrending: When algorithms become culture. In Algorithmic cultures (pp. 64-87). Routledge.
[166] Vincent M. Southerland, "The Intersection of Race and Algorithmic Tools in the Criminal Legal System," Maryland Law Review 80, no. 3 (2021): 487–566, https://digitalcommons.law.umaryland .edu/mlr/vol80/iss3/1;
[167] Rowe, M. (2019). Shaping our algorithms before they shape us. Artificial intelligence and inclusive education: Speculative futures and emerging practices, 151-163.
[168] Sarah Brayne and Angèle Christin, "Technologies of Crime Prediction: The Reception of Algorithms in Policing and Criminal Courts," Social Problems 68, no. 3 (2021): 68–24; Brayne, Predict and Surveil: Data, Discretion, and the Future of Policing (Oxford, UK: Oxford Univ. Press, 2020).
[169] Petre, "Engineering Consent"; Nicholas Diakopoulos, Automating the News: How Algorithms Are Rewriting the Media (Cambridge, MA: Harvard Univ. Press, 2019).
[170] Phillips, S. P., Spithoff, S., & Simpson, A. (2022). Artificial intelligence and predictive algorithms in medicine: Promise and problems. Canadian Family Physician Medecin de Famille Canadien, 68(8), 570-572.
[171] Noelle Stout, "Automated Expulsion in the U.S. Foreclosure Epidemic," in Life by Algorithms: How Roboprocesses Are Remaking Our World, ed. Catherine Besteman and Hugh Gusterson (Chicago: Univ. of Chicago Press, 2019), 31–43.
[172] Susan J. Terrio, "Detention and Deportation of Minors in U.S. Immigration Custody," in Besteman and Gusterson, Life by Algorithms, 59–76.
[173] Antoniou, A., & Lu, W. S. (2007). Practical optimization: algorithms and engineering applications (Vol. 19, p. 669). New York: Springer.
[174] Kelley Cotter et al., "'Reach the Right People': The Politics of 'Interests' in Facebook's Classification System for Ad Targeting," Big Data & Society 8, no. 1 (2021), https://doi.org/10.1177 /2053951721996046.
[175] C. W. Anderson and Daniel Kreiss, "Black Boxes as Capacities for and Constraints on Action: Electoral Politics, Journalism, and Devices of Representation," Qualitative Sociology 36, no. 4 (2013): 365–82.
[176] Adrienne Massanari, "#Gamergate and the Fappening: How Reddit's Algorithm, Governance, and Culture Support Toxic Technocultures," New Media & Society 19, no. 3 (2015): 329–46; Kelly Cotter, "Playing the Visibility Game: How Digital Influencers and Algorithms Negotiate Influence on Instagram," New Media & Society 21, no. 4 (2018): 895–913.
[177] Mary L. Gray and Siddharth Suri, Ghost Work: How to Stop Silicon Valley from Building a New Global Underclass (Boston: Houghton Mifflin Harcourt, 2019).
[178] Matthew Hockenberry, "Redirected Entanglements in the Digital Supply Chain," Cultural Studies 35, no. 4–5 (2021): 641–62.
[179] Ananny, M. (2023). Making Mistakes: Constructing Algorithmic Errors to Understand Sociotechnical Power.

culture,[180] and is important to study algorithms not as inaccessible black boxes but as heterogeneous and dispersed socio-technical systems, with entanglements beyond the software.[181] An algorithm is not only a "description of the method by which a task is to be accomplished."[182] It is a collision of "settings, data, and devices"[183] that "play an increasingly important role in selecting what information is considered most relevant to us."[184] Algorithms have the "ability to shape perceived realities [...] not only by enabling certain representations of the world around us but also by enticing us to internalize these realities and make them our own".[185] Further, big data and their representations tend to reify the future, crystallizing a reality – usually quantified, and presented as neutral and infallible – as the only possible one and narrowing down the options for alternatives.[186]

When activists share narratives about how their social networks influence their engagement and commitment, they talk about "interactions among people, and interactions around ideas".[187] In other words, they talk about the association with like-minded groups, a tool to foster participation, and how ideas and values of networks are crucial in the recruitment process.[188] The

[180] Seaver, N. (2017). Algorithms as culture: Some tactics for the ethnography of algorithmic systems. Big data & society, 4(2), 2053951717738104.
[181] Seaver, N. (2017). Algorithms as culture: Some tactics for the ethnography of algorithmic systems. Big data & society, 4(2), 2053951717738104.
[182] Les Goldschlager and Andrew Lister, Computer Science: A Modern Introduction, 2nd ed. (Englewood Cliffs, NJ: Prentice Hall, 1988), 12, quoted in Andrew Goffey, "Algorithm," in Software Studies: A Lexicon, ed. Matthew Fuller (Cambridge: MIT Press, 2008), 15.
[183] Adrian Mackenzie, Machine Learners: Archaeology of a Data Practice (Cambridge: MIT Press, 2017), 2.
[184] Agudo, U., & Matute, H. (2021). The influence of algorithms on political and dating decisions. Plos one, 16(4), e0249454.
[185] Renzi, Alessandra/Langlois, Ganaele (2015): "Data Activism." In: Greg Elmer/ Ganaele Langlois/Joanna Redden (eds.), Compromised Data: From Social Media to Big Data, London: Bloomsbury, pp. 202–25.
[186] Chun, W. H. K. (2011). Programmed visions: Software and memory. mit Press.
[187] Valocchi, S. (2009). Social Movements and Activism in the USA (1st ed.). Taylor and Francis. Retrieved from https://www.perlego.com/book/1607698/social-movements-and-activism-in-the-usa-pdf
[188] Valocchi, S. (2009).

association process is also an integral part of many Machine Learning Algorithms, and acknowledging this parallelism which goes beyond overlapping vocabulary, is crucial to investigating the issue: algorithms have the power to structure possibilities; individual fairness, for example, suggests that similar individuals should be classified similarly,[189] but in doing so, Algorithmic Decision-Making Systems (ADMS) are never free of bias, from proxy discrimination to corrupted training data, technical issues to de-bias ADMS, and the inherent trade-offs between accuracy and bias.[190] To put it more simply: algorithms classify users and connect them with peers who are likely to have something in common with them. Ananny noticed how the Android Market recommended a sex offender location app to Grindr users, raising questions about algorithmic errors, blunt associations with the term "sex," or potentially subtle but culturally deep-rooted links between homosexuality and predatory behavior.[191]

The issue is complicated, depending on many variables in a multidimensional space, closely interacting with political segregation, a topic that gains particular relevance in social media, associated with polarization, intergroup hostility, misinformation, acrophily, [192] and monologic belief systems.[193] Algorithms and data-driven techniques use past

[189] Matthew Joseph, Michael Kearns, Jamie Morgenstern, Seth Neel, and Aaron Roth. 2016. Rawlsian Fairness for Machine Learning. In 3rd Workshop on Fairness, Accountability, and Transparency Conference. 1–26. arXiv:arXiv:1610.09559v1

[190] Adams-Prassl, J., Binns, R., & Kelly-Lyth, A. (2022). Directly Discriminatory Algorithms. The Modern Law Review, 86(1), 144-175. https://doi.org/10.1111/1468-2230.12759

[191] Ananny, Mike. 2011. "The curious connection between apps for gay men and sex offenders." The Atlantic, April 14. Available at http://www.theatlantic.com/technology/archive/2011/04/the-curious-connection-between-apps-for-gay-men-and-sex-offenders/237340/.

[192] Bishop, B. (2009). The big sort: Why the clustering of like-minded America is tearing us apart. Mariner Books

[193] Iyengar, S., Lelkes, Y., Levendusky, M., Malhotra, N., & Westwood, S. J. (2018). The origins and consequences of affective polarization in the United States. Annual Review of Political Science, 22, 1–35.

user behavior to inform output and allow small groups of actors to amplify information, potentially encouraging selective exposure to like-minded political views,[194] which may foster greater extremity on issue positions. Algorithms select and reflect information that makes sense within an algorithm's computational logic and the human cultures that created that logic[195] and are often opaque "black boxes,"[196] surrounding intricate blends of human decisions, including the initial algorithm design, inputs from users, and adjustments made by the algorithm itself.[197] Put this way, algorithms seem obscure entities, attributed with great significance and power, and vaguely defined properties. Yet, algorithms are inert, meaningless syntax until fed with databases upon which to function.

4.2 Algorithmic Bias and Resistance in Palestinian Activism

Building on the discussion of algorithmic biases and their sociotechnical complexities, one must address the role of algorithms as socio-cultural entities that perpetuate the inequalities embedded in the datasets they learn from. In essence, algorithms function as cultural artifacts that both reflect and reinforce societal norms and biases. As Massimo Airoldi explains, machine learning algorithms embody what he refers to as "machine

[194] P. Barbera, Social Media and Democracy: The State of the Field and Prospects for Reform, N. Persily, J. A. Tucker, Eds. (Cambridge Univ. Press, 2020), pp. 34–55.
[195] Gillespie, T. 2014. "The Relevance of Algorithms." In Media Technologies: Essays on Communication, Materiality, and Society, edited by T. Gillespie, P. Boczkowski, and K. A. Foot, 167-94. Cambridge, MA: MIT Press.
[196] Barberá P (2020) Social media, echo chambers, and political polarization. In: Persily N, Tucker JA (eds) Social Media and Democracy: The State of the Field, Prospects for Reform. Cambridge: Cambridge University Press, pp. 34–55.
[197] Calice, M. N., Bao, L., Freiling, I., Howell, E., Xenos, M. A., Yang, S., ... & Scheufele, D. A. (2023). Polarized platforms? How partisanship shapes perceptions of "algorithmic news bias". New Media & Society, 25(11), 2833-2854.

habitus," drawing on Bourdieu's notion of habitus as the ingrained dispositions shaped by historical and cultural processes.[198] These algorithms, while not possessing consciousness or social experience, mirror human societal structures through their learned behaviors from data, encoding both the biases and values prevalent in the communities they serve.

This notion of "machine habitus" is crucial for understanding how algorithms influence activist movements, particularly in the context of Palestinian social movements. For activists, algorithms are not neutral; they are agents of social reproduction that can both hinder and enhance their efforts. As activists use social media platforms to organize and disseminate information, they are often subjected to the platform's opaque filtering systems. This process – algorithmic articulation – shapes which messages gain visibility and how they are interpreted by different audiences.[199] In Palestinian activism, this can manifest in both enabling solidarity across geographies and languages, but also in censoring or suppressing content that challenges dominant political narratives.

Algorithms, then, do not simply reflect human actions but actively shape and reconfigure the possibilities for activism. By categorizing, ranking, and recommending content based on learned associations, algorithms can amplify or suppress certain voices, creating what José van Dijck calls the "culture of connectivity," a digital landscape where sociality

[198] Airoldi, M. (2021). *Machine habitus: Toward a sociology of algorithms*. John Wiley & Sons.
[199] Airoldi, M., & Rokka, J. (2022). Algorithmic consumer culture. *Consumption Markets & Culture*, *25*(5), 411-428.

itself is engineered and mediated through platform logic.[200] This is particularly significant in politically contentious contexts like Palestine, where algorithmic decisions can align with state policies that monitor or control dissent.

Furthermore, algorithms' tendency to reinforce existing power structures is evident in how they perpetuate racial and ethnic stereotypes. For instance, Noble (2018) highlights how search algorithms disproportionately associate Black and brown bodies with crime and poverty.[201] In the Palestinian context, this dynamic is seen in how content related to the Israeli-Palestinian conflict is filtered or flagged, often aligning with political biases that can silence Palestinian narratives.

Thus, understanding algorithms as socio-technical entities requires recognizing their role in structuring not just digital interactions but the broader social and political realities in which activism operates. Activists must navigate these algorithmic biases while simultaneously working to expose and resist the power these systems hold over public discourse. As Airoldi emphasizes, while algorithms may appear as neutral technological tools, they are deeply entangled in the very social and political fields that they help to reproduce.[202] In this sense, algorithms in the digital age become critical actors in the shaping of activist movements, including those in the Palestinian struggle for recognition and justice.

[200] van Dijck, J. (2013). *The Culture of Connectivity: A Critical History of Social Media*. Oxford University Press.
[201] Noble's, S. U. (2019). Noble, Safiya Umoja. Algorithms of Oppression: How Search Engines Reinforce Racism. New York University Press, 2018. *WHY POPULAR CULTURE MATTERS*, 166.
[202] Airoldi, M. (2021).

The intersection of algorithms and activism reveals the dual role these systems play as both enablers of and barriers to social movements. While they can amplify the voices of marginalized groups, they can just as easily reinforce the structures of oppression encoded in their design. For Palestinian activists, confronting the biases of algorithmic systems is as much a part of their struggle as challenging the political forces that seek to suppress their cause.

The notion of "refracted publics" as proposed by Abidin offers a valuable perspective in understanding how marginalized groups like Palestinian activists adapt their digital strategies within controlled and monitored environments.[203] Refracted publics differ from the traditional "networked publics" by employing subversive and covert strategies to evade detection by dominant surveillance structures, including algorithmic scrutiny. In contexts such as Palestinian activism, where state and corporate entities may suppress certain types of political discourse, activists often resort to practices that allow them to remain under the radar. These might include using ephemeral content, encrypted communications, or even code-switching between languages and symbols that are intelligible only to those within the community.

The dynamics between visibility and invisibility in social movements, especially those operating in contentious political spaces, highlight how algorithms both control and also the power dynamics between actors. For instance, refracted publics are shaped by hyper-competitive attention economies, where the most visible content often

[203] Abidin, C. (2021). From "networked publics" to "refracted publics": A companion framework for researching "below the radar" studies. *Social Media+ Society*, *7*(1), 2056305120984458.

overshadows marginalized voices.[204] Palestinian activists must navigate the algorithmic landscapes of social media platforms where content that does not align with the platform's or the state's political values is deprioritized, flagged, or outright censored.

Bruns' concept of "networks of publics" further complicates the notion of a singular, cohesive public sphere.[205] Instead, what we see are fractured, overlapping spaces of communication, where activist movements must compete with misinformation, corporate agendas, and state-sponsored narratives. Palestinian activists, operating within this fractured sphere, face additional hurdles: their content can be algorithmically categorized in ways that misrepresent or diminish their voices, as algorithms tend to filter, rank, and recommend content based on past interactions, embedding biases in these structures.

The algorithmic categorization described by Airoldi, what he refers to as "algorithmic articulation", also affects activism at both individual and collective levels.[206] Algorithms categorize users into behavioral clusters that determine what content they see and engage with, reinforcing echo chambers or filter bubbles. For Palestinian activists, this presents a dual challenge: while these systems can help foster solidarity by connecting like-minded individuals, they can also amplify misinformation or suppress political dissent through these very mechanisms.

Ultimately, the interplay of algorithms, social movements, and digital publics like the Palestinian cause reveals the complexities of digital

[204] Airoldi, M., & Rokka, J. (2022).
[205] Bruns, A. (2008). Life beyond the public sphere: Towards a networked model for political deliberation. *Information polity*, *13*(1-2), 71-85.
[206] Airoldi, M. (2021).

activism in the contemporary landscape. Algorithms do not merely process content—they shape the visibility and viability of social movements through opaque decision-making processes that activists must navigate with strategic caution. This landscape, marked by refracted and networked publics, places algorithmic systems at the center of political expression, where their role in shaping both participation and suppression becomes increasingly significant.

The multiplicity of online platforms and algorithmic processes have led to a situation where public communication spaces are no longer unified, but instead exist as a collection of intersecting “issue publics” and “platform publics.”[207] These fragmented communication spheres mean that Palestinian activists must navigate a complex and competitive digital landscape, where visibility is mediated by algorithms that prioritize certain types of content over others.

Palestinian activists, like other politically engaged groups, operate within what could be described as a series of overlapping "issue publics," which emerge around specific topics such as resistance to occupation, calls for justice, or global solidarity movements. Algorithms, operating based on learned patterns, can amplify certain topics while silencing others through content moderation practices, content ranking, and filtering processes that are opaque to the users they affect. This fragmentation and the selective amplification of certain publics over others is crucial to understanding how Palestinian activism is represented, and often suppressed, within the broader digital ecosystem.

[207] Bruns, A. (2008).

Furthermore, as highlighted by Bennett and Segerberg's concept of "connective action",[208] digital technologies have transformed traditional collective action. In the Palestinian context, social media platforms enable individuals to connect through shared grievances and actions without the need for centralized organizations. Algorithms facilitate this connective action by linking like-minded individuals, but they can also introduce new challenges. For instance, the tendency of algorithms to create "filter bubbles," spaces where users are only exposed to content that aligns with their existing beliefs, may limit the exposure of Palestinian activism to wider, more diverse audiences. This can entrench polarization, as algorithms reinforce existing divisions rather than bridging gaps between different issue publics.

These algorithmic systems, as Airoldi describes, reproduce the social biases embedded in the data upon which they are trained. For Palestinian activists, this can mean that their content is disproportionately flagged, removed, or suppressed due to historical and political biases present in the platform's training data. The result is a form of algorithmic censorship that affects not only the visibility of their messages but also the very narratives that can be publicly discussed and disseminated.

Palestinian social movements are shaped by the interplay between algorithms and activism, where the actions of digital platforms determine which narratives gain visibility and which are silenced. This fragmented digital public sphere requires activists to continuously adapt their strategies, navigating algorithmic biases and seeking alternative means of

[208] Bennett, W. L., & Segerberg, A. (2013). *The logic of connective action: Digital media and the personalization of contentious politics*. Cambridge University Press.

connection and visibility within a landscape that both enables and constrains their political engagement. The relationship between algorithms and activism is not just one of suppression but also of strategic adaptation, where Palestinian activists must find creative ways to engage with and circumvent the algorithmic forces that shape their digital presence.

The increasing use of algorithms to recommend and curate content plays a significant role in shaping how these movements unfold online. The structural affordances of social media, such as how algorithms prioritize certain types of content, often work against grassroots movements by promoting sensational or divisive material that generates high engagement. This can distort the public's understanding of the conflict, amplifying polarized narratives and making it more difficult for nuanced, peace-driven discussions to gain traction. As activists navigate these structural challenges, they develop creative strategies to bypass algorithmic biases, such as flooding platforms with specific hashtags or using alternative forms of content like memes and short videos to maintain relevance and visibility. These strategies reflect the adaptive nature of digital activism, as users continually adjust their practices to the evolving digital landscape in order to maintain political influence and visibility.

Palestinian activists have similarly learned to navigate social media algorithms by optimizing their use of trending hashtags, timely posts, and highly shareable content. By doing so, they increase their reach and ensure that their message breaks through the noise of the digital landscape, showing how social media during conflict periods can serve as a platform

for framing political narratives in ways.[209] Activists often adapt to platform affordances, ensuring their content fits into the global media narrative while retaining local authenticity and urgency.

In the realm of Palestinian youth activism, algorithmic resistance has emerged as a crucial strategy to counter the limitations and biases imposed by social media platforms, which often prioritize content that aligns with their commercial or political interests. Activists must contend with the ways platforms like Twitter, Instagram, and Facebook influence what is seen, shared, and amplified. As Zeynep Tufekci notes, platforms operate as "model organisms" that determine which content circulates widely and which is suppressed or marginalized based on algorithmic logics, such as engagement metrics, trending topics, and content moderation policies.[210] These algorithms, while shaping the visibility of content, often create structural disadvantages for marginalized groups, including Palestinian activists, whose posts can be de-emphasized or even censored under claims of violating platform policies. To navigate this, activists engage in sophisticated forms of algorithmic resistance, leveraging platform affordances like hashtags, viral posts, and trending topics to amplify their voices while working within the constraints of algorithms that typically favor non-political or sensationalist content.[211] This algorithmic resistance is not just about bypassing suppression but also about engaging with platforms tactically. Palestinian activists often flood social media with

[209] Abu-Ayyash, S. (2015). The Palestine solidarity movement, human rights and Twitter. *Networking Knowledge: Journal of the MeCCSA Postgraduate Network*, *8*(2).
[210] Tufekci, Z. (2014, May). Big questions for social media big data: Representativeness, validity and other methodological pitfalls. In *Proceedings of the international AAAI conference on web and social media* (Vol. 8, No. 1, pp. 505-514).
[211] Treré, E. (2018). From digital activism to algorithmic resistance. In *The Routledge companion to media and activism* (pp. 367-375). Routledge.

key hashtags during critical moments, like the 2021 Gaza escalation, to ensure their posts gain traction despite algorithmic attempts to limit visibility. By doing this, they counteract the platform's biases that may otherwise drown out their message in favor of more commercially viable or politically neutral content. Activists must adapt to platform structures, like Twitter's preference for concise, fast-moving content, by framing their messages in ways that maximize engagement within these constraints.[212]

In parallel, Abidin's concept of refracted publics helps further explain how Palestinian activists navigate the double-edged sword of social media, creating spaces for engagement that balance between visibility and obscurity.[213] Platforms are not just tools for broadcasting their cause but spaces for tactical concealment when necessary. Palestinian activists strategically toggle between public and private spheres of digital space, especially under the constant threat of Israeli surveillance, which exploits the same platforms for monitoring and repression. For instance, using features like private groups, direct messages, or ephemeral content on platforms such as WhatsApp or Instagram, activists can coordinate efforts without exposing themselves to censorship or surveillance. This "below-the-radar" engagement reflects a form of algorithmic resistance where visibility is negotiated, not simply maximized.[214] By selectively choosing when to go public and when to remain hidden, activists subvert the algorithmic structures that often determine which narratives gain traction and which are sidelined.

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[212] Ettlinger, N. (2018). Algorithmic affordances for productive resistance. *Big Data & Society*, *5*(1), 2053951718771399.
[213] Abidin, C. (2015). Communicative intimacies: Influencers and percieved interconnectedness.
[214] Lee, A. Y., Mieczkowski, H., Ellison, N. B., & Hancock, J. T. (2022). The algorithmic crystal: Conceptualizing the self through algorithmic personalization on TikTok. *Proceedings of the ACM on Human-computer Interaction*, *6*(CSCW2), 1-22.

Moreover, algorithmic resistance involves a careful manipulation of the platform's algorithmic affordances. Palestinian activists employ similar techniques, adapting their content to the trends and preferences of the platform's algorithms by using viral memes, curated emotional narratives, and highly shareable visuals. As highlighted in the previous chapter, this digital strategy mirrors the memetic activism observed during the 2014 Gaza War, where activists framed their struggles within global human rights discourses to resonate beyond their local context.

However, the very affordances of these platforms can also work against activists. As algorithms often prioritize divisive or inflammatory content,[215] and platforms' commercial imperatives often favor viral content that can distort the activist message by promoting sensationalized or out-of-context images that do not fully capture the nuance of the Palestinian struggle. This creates a tension between the need to remain visible and the risks of misrepresentation or co-optation by platform dynamics. Palestinian activists, aware of this, engage in a continuous process of algorithmic negotiation, constantly adjusting their strategies to both exploit and resist these platform biases.

The work of Airoldi and Rokka (2022) on algorithmic consumer culture adds an important layer of understanding by conceptualizing the dialectical relationship between platforms and users. Airoldi points out that algorithms are not neutral but act as "non-human mediators" that actively shape digital culture and consumption patterns through recursivity, opacity,

[215] Milioni, D. L., & Papa, V. (2022). The oppositional affordances of data activism. *Media International Australia*, *183*(1), 44-59.

and authority.[216] Algorithms operate in a feedback loop, continuously adjusting based on users' behavior, but they also reinforce existing power structures by favoring certain types of content and engagements that fit commercial goals. This recursivity means that Palestinian activists not only engage with algorithmic systems but also influence and are influenced by them. Their strategies can reshape algorithmic outputs temporarily, but platforms may adapt to these behaviors over time, diluting their effectiveness. The opacity of these algorithms, where the criteria for prioritizing content are hidden from users, further complicates the activists' efforts. They are often left to experiment with platform dynamics, unsure of what will trigger higher visibility or suppression.

Furthermore, Airoldi and Rokka's framework highlights the non-neutrality of algorithms, which often reinforce biases present in the data that train them. In the context of Palestinian activism, this bias can manifest in the amplification of narratives that align with dominant geopolitical powers or commercial interests while suppressing dissenting voices. For activists, this means that their struggle is not only against political oppression but also against algorithmic systems that are embedded with cultural and commercial biases, making it even more challenging to maintain visibility and global solidarity. Activists resist these dynamics by strategically manipulating the inputs into the algorithmic system, such as viral content, but this resistance is always partial and contingent, as platforms continue to evolve in response to user behavior.

[216] Airoldi, M., & Rokka, J. (2022). Algorithmic consumer culture. *Consumption Markets & Culture*, *25*(5), 411-428.

This feedback loop is critical for understanding algorithmic resistance as not just a one-way effort by activists to game the system but a dynamic and ongoing process. Algorithms themselves learn from activist behaviors, and platforms continuously recalibrate based on the actions of their users. This creates a dialectical tension where platforms attempt to maintain control over user engagement through algorithmic authority, while activists seek to disrupt and subvert these structures to amplify their cause. This means that while Palestinian activists may experience moments of heightened visibility through algorithmic resistance, such victories are often fleeting as platforms adjust, reinforcing the asymmetry of power between users and the platform. This dialectical relationship underscores the precarious nature of digital activism, where success is not guaranteed, and activists must continually adapt to new forms of algorithmic governance.

Finally, the recursive nature of algorithms and their ability to shape not just individual behavior but also collective culture.[217] For Palestinian activists, this means that their content contributes to the collective memory of resistance on these platforms. As activists engage in memetic activism, they create a digital footprint that influences future iterations of the algorithm, which may privilege certain types of activism over others based on previous patterns of user engagement. However, this recursive relationship also poses risks, as it can lead to the normalization of certain types of activist content that fit within platform logics, potentially muting more radical or less commercially viable forms of resistance. Thus, algorithmic resistance is a constant balancing act, where activists must

[217] Totaro, P., & Ninno, D. (2016). Algorithms and the practical world. *Theory, Culture & Society*, *33*(1), 139-152.

navigate the fine line between visibility and co-optation, between disruption and reinforcement of the very systems they seek to challenge.[218]

[218] Treré, E. (2018). *Hybrid media activism: Ecologies, imaginaries, algorithms*. Routledge.

5. CHAPTER FIVE – TIKTOK, GENZ, AND POLITICS

5.1 Youth and Civic Engagement

Generation Z holds a role in transforming civic participation and engagement with political issues online.[219] GenZers have experienced the presence of technology and the Internet from birth and have become accustomed to communicating with technological devices from anywhere and at any time.[220] Access to networked digital media technologies is common among youth, who are particularly adept at their use, [221] using digital smart gadgets several times every hour.[222]

Social media has the potential to promote political engagement among them in ways like never before: online, they can form political groups, share political content on their social networks, and write about political issues.[223] Informational use of media stimulates youth discussion and expression, which in turn boosts civic and political participation.[224] Research suggests that information consumption through traditional and digital media

[219] Dookhoo, S., & Dodd, M. (2019). Slacktivists or activists? Millennial motivations and behaviors for
engagement in activism. Public Relations Journal, 13(1), 1–17.
[220] Delaviz, Y., & Ramsay, S. D. (2018). Student usage of short online single-topic videos in a first-year engineering chemistry class. Proceedings of the Canadian Engineering Education Association (CEEA), 10(6).
[221] Cilliers, E.J. (2017). The challenge of teaching generation Z. People: International Journal of Social Sciences, 3(1), 188–198.
[222] Beall, G. (2016). 8 key differences between Gen Z and Millennials. HuffPost. Retrieved from https://www.huffpost.com/entry/8-key-differences-between_b_12814200.
[223] Abdullah, N. H., Hassan, I., Ahmad, M. F., Hassan, N. A., & Ismail, M. M. (2021). Social media, youths and political participation in Malaysia: A review of literature. International Journal of Academic Research in Business and Social Sciences, 11(4), 845–857.
[224] Palfrey, J., & Gasser, U. (2008). Born digital: Understanding the first generation of digital natives. New York,
NY: Basic Books.

encourages civic engagement.[225] In fact, by simplifying access to political information and offering apparatuses and chances for political expression and mobilization, digital media may allow new possibilities for activism among young people.[226] Recent research also suggests that engagement with new digital media—even one that is not political in nature— provides young people with opportunities to develop relevant skills, knowledge, and capacities that are essential for participating in collective action.[227] Generation Z cohort has a positive perception of social media credibility and they show high political engagement in social media.[228]

Despite this promising scenario, a characteristic attributed to Gen Z is slacktivism, the combination of slacker and activism.[229] Slacktivism, as per the United Nations definition, refers to the advocacy for a political or non-political cause through simple actions, without necessarily demonstrating active engagement or dedicated commitment to effecting substantial change. In 2021, a study indicated that Gen Z had the potential to reduce slacktivism,[230] but regarding the issue, studies have prioritized the

[225] Lee, N. J., Shah, D. V., & McLeod, J. M. (2013). Processes of political socialization: A communication mediation approach to youth civic engagement. Communication Research, 40(5), 669-697.
[226] Bennett, W. L. (2008). Changing citizenship in the digital age. In W. L. Bennett (Ed.), Civic life online: Learning how digital media can engage youth (pp. 1-24). Cambridge, MA: MIT Press.
[227] Ito, M., Baumer, S., Bittanti, M., boyd, d., Cody, R., Herr-Stephenson, B., . . . Tripp, L. (2009). Hanging out,
messing around and geeking out: Kids living and learning with new media. Cambridge, MA: MIT Press.
[228] Alfred, J. J. R., & Wong, S. P. (2022). The Relationship between the Perception of Social Media Credibility and Political Engagement in Social Media among Generation Z. Journal of Communication, Language and Culture, 2(2), 18-33.
[229] Nieżurawska-Zając, J., Karaszewska, H., & Dziadkiewicz, A. (2016). The attractiveness of the cafeteria
systems, work-life-balance systems and the concept of "hygge" based on the opinion of Generation Y – Pilot study. International Journal of Social, Behavioural, Educational, Economic, Business and Industrial Engineering, 10(2), 309–318.
[230] Sehijpaul, V. (2021). Offline activism: Does it take more than online social justice warriors? The Journal of Intelligence, Conflict, and Warfare, 4(1), 175–178.

exploration of the phenomenon among millennials leaving a significant dearth of research on Generation Z.

The increasing acceptance of new media and technology applications among the younger generation is shaping their initial encounters with politics and civic life. Being digital natives accustomed to algorithmic media logic, they may find themselves perceiving life through the informational bubbles to which platforms classify them. Given that they represent the first digital native generation, it becomes imperative to study their information practices and civic engagement habits. This is crucial to ensure the proper functioning of democracy, particularly in the contemporary digital landscape dominated by private organizations that derive profits from data.

5.2 Digital Connectivity and Political Engagement

Looking at how the younger generations engage in politics means understanding the mechanism that makes societal and political change possible[231] and speculating on how democracy will look like tomorrow.[232] In particular, marginalized adolescents can experience socioeconomic, racial, cultural, [233] and immigrant generational marginalization, discrimination[234], and social exclusion that may hinder their political participation.[235] Digital

[231] Delli Carpini, M. X. (1989). Age and History: Generations and Sociopolitical Change. In R. S. Sigel (Ed.), Political Learning in Adulthood, pp. 11–55. Chicago: The University of Chicago Press.
[232] Hooghe, M. and D. Stolle (2003). Age Matters. Life-cycle and Cohort Differences in the Socialisation Effect of Voluntary Participation. European Political Science 3(2), 49–56.
[233] Diemer MA (2012) Fostering marginalized youths' political participation: longitudinal roles of parental political socialization and youth sociopolitical development. American Journal of Community Psychology 50: 246–256.;
[234] Alper M, Katz VS and Clark LS (2016) Researching children, intersectionality, and diversity in the digital age. Journal of Children and Media 10(1): 107–114.
[235] Rogowski JC and Cohen CJ (2015) Black Millennials in America. Available at: https://ypp.dml-central.net/publications/252

connectivity also allows marginalized groups to exercise agency, overcoming structural constraints they may have, and the iniquity they face is vital to address to foster equitable representation. Young individuals engaging in civic, community, or activist issues increasingly turn to the Internet for information: connecting with like-minded peers and organizations, seeking avenues to organize and mobilize, and showcasing the tangible consequence of online engagement shifting into offline action.[236] Nonetheless, young people are less educated about politics and less prone to consume public affairs news than older generations, and also, they hardly trust their fellow citizens and join social organizations, volunteer, and vote.[237] To study today's and tomorrow's democracy, it is imperative to unveil the complexities of each step of this journey, along which young people engage with information practices across both online and offline spheres, understanding variables that wield heightened influence in steering them towards concrete actions: why young people seem to care about their communities, but research proves that this interest seldom translates into action?[238]

Since the dawn of the Internet, research speculated that by facilitating access to political information and by providing tools and paths for political expression and mobilization, digital media would have provided new

[236] Raynes-Goldie, Kate, and Luke Walker. "Our Space: Online Civic Engagement Tools for Youth." Civic Life Online: Learning How Digital Media Can Engage Youth. Edited by W. Lance Bennett. The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning. Cambridge, MA: The MIT Press, 2008. 161–188. doi: 10.1162/dmal.9780262524827.161

[237] Lee, N. J., Shah, D. V., & McLeod, J. M. (2013). Processes of political socialization: A communication mediation approach to youth civic engagement. Communication Research, 40(5), 669-697.

[238] Kathryn Montgomery, Barbara Gottleib-Robles, and Gary O. Larson, Youth as E-Citizens: Engaging the Digital Generation, Center for Social Media, 2004, http://www.centerforsocialmedia.org/ecitizens/youthreport.pdf

promises for civic and political activism among young people.[239] Many suggested that engagement with the digital realm—even when not intrinsically political— provides young people with opportunities to develop skills and knowledge for participating in collective action.[240] [241] On the other hand, the opinion-shaping impact of peer-to-peer social media has often been scrutinized by scholars who tend to disdain this activity as so-called "slacktivism."[242] Still, a growing body of literature indicates that peer-driven political persuasion and viral influence on social networking platforms necessitate more serious consideration[243] without overpowering the phenomena, as communication at home, school, physical contact with peers, and other forms of media still play a central role.[244]

5.3 TikTok and Politics

TikTok, with over 1 billion monthly users, is the fastest-growing social media platform, with a GenZ-dominated pool of users. Its success is significantly driven by its recommendation system, but despite its significance, there is a noticeable lack of empirical analysis of its algorithm. Its users have also presented many interesting examples of online civic

[239] Bennett, W. L. (2008). Changing citizenship in the digital age. In W. L. Bennett (Ed.), Civic life online: Learning how digital media can engage youth (pp. 1-24). Cambridge, MA: MIT Press.
[240] Quintelier, E., & Vissers, S. (2008). The effect of Internet use on political participation: An analysis of sur- vey results for 16-year-olds in Belgium. Social Science Computer Review, 26, 411-427.
[241] Smith, A., Schlozman, K. L., Verba, S., & Brady, H. (2009, September). The Internet and civic engagement.
Washington, DC: Pew Internet & American Life Project.
[242] Joel Penney. 2017. The Citizen Marketer. Oxford University Press, New York, NY.
[243] Martin Bene.2017. Influenced by peers: Facebook as an information source for young people. Social Media + Society (April-June 2017), 1-14. DOI: https://doi.org/10.1177/2056305117716273
[244] Lee, N. J., Shah, D. V., & McLeod, J. M. (2013). Processes of political socialization: A communication mediation approach to youth civic engagement. Communication Research, 40(5), 669-697.

engagement: in an effort to garner algorithmic attention, some individuals strategically leverage trending TikTok sounds or filters, following this logic, users notably engage in algorithmic resistance, seeking to outsmart and surpass platform algorithms by manipulating the platform logic to promote content that would otherwise face restrictions or bans. This practice is particularly prevalent among Generation Z, who employ specific slang as means to circumvent censorship. For instance, creating a new vocabulary, such as using "to unalive" for "to kill" or purposefully misspelling words like "sex" as "seggs." These endeavors are often motivated by activist intentions, specifically aiming to disseminate politically charged content.

In 2023, users adopted the “Watermelon filter,” purportedly created to raise funds for Gaza civilians. Observing perceived censorship of pro-Palestinian content on platforms, users began using the filter under seemingly inconsequential pretexts, transforming it into a taboo and an insider secret within the pro-Palestine community. Additionally, users strategically align their content with prevailing trends or disguise it as trending material promoted by the platform to raise awareness about the situation of the Uyghurs in Xinjiang and allegations of genocide against the Chinese government. In essence, these are collective efforts toward community empowerment and social change that may demonstrate an active stance in navigating and challenging the constraints imposed by algorithmic platforms. By strategically manipulating the platform's logic and language, users not only navigate constraints but also contribute to a shared narrative that transcends conventional boundaries, and this form of algorithmic resistance becomes a tool for community-driven activism.

Unlike other social media platforms, even in their short-video features, TikTok does not generate video feeds based on content from accounts

followed.[245] Rather, the TikTok recommendation algorithm customizes video content for the individual user's for you page (FYP),[246] based on previous and continuous user engagement with presented video content through video viewing time, liking, commenting, and sharing;[247] also, the FYP feed is generated from videos that use trending hashtags, filters, voice effects, and sounds. Constantly learning users' video content preferences,[248] the output of the TikTok algorithm can become detectable to users. In particular, GenZ is developing its own set of vocabulary to refer to the phenomena: "the algorithm is algorithming," or "TikTok really said for YOU page," to comment on the accuracy of the content based on their identity, and "interacting so that the algorithm keeps me on this side of TikTok," to signaling their preference for the category of content they are commenting on.

Once users post a video, it is shown to a small group of users who are likely to interact with it and then, if the initial group engages with the video, it is shown to more users.[249] According to TikTok, the algorithm attributes significant importance to the sound, the hashtags, and the captions used in videos a user engages with. The company that owns TikTok, ByteDance, applies Natural Language Processing to classify text elements and audio components in the videos on the platform, and computer vision technology

[245] Benjamin Guinaudeau, Fabio Vottax, and Kevin Munger. 2020. Fifteen Seconds of Fame: TikTok and the Democratization of Mobile Video on Social Media. (2020).
[246] Katie Elson Anderson. [n.d.]. Getting acquainted with social networks and apps: it is time to talk about TikTok. Library Hi Tech News 37 ([n. d.]).
[247] Klug, D., Qin, Y., Evans, M., & Kaufman, G. (2021, June). Trick and please. A mixed-method study on user assumptions about the TikTok algorithm. In Proceedings of the 13th ACM Web Science Conference 2021 (pp. 84-92).
[248] Ellen Simpson and Bryan Semaan. 2021. For You, or For" You"? Everyday LGBTQ+ Encounters with TikTok. Proceedings of the ACM on Human-Computer Interaction 4, CSCW3 (2021), 1–34.
[249] Louise Matsakis. 2020. TikTok Finally Explains How the 'For You' Algo- rithm Works. https://www.wired.com/story/tiktok-finally-explains-for-you- algorithm-works/.

to automatically locate and categorize visual objects.[250] This has been creating racist controversies, for example when the platform categorized as "Black loud girl" the video of a user who was a Black woman.

TikTok user pool is mainly crowded by GenZers, which makes it an ideal candidate for studying their information practices and behavior online. The community on TikTok is hardly divided into subgroups, subcultures, and niches identifying instead itself as a somehow cohesive group. This is perceivable even when TikTok users venture onto other platforms like YouTube shorts or Instagram Reels, where they leave comments criticizing platforms attempting to emulate TikTok, and, conversely, on TikTok, users mock Instagram Reels users. Additionally, TikTok has spawned a unique lingo that occasionally seeps into real-life interactions among Gen Z individuals, who complain when peers fail to properly communicate with them as they do not use TikTok.

Moreover, TikTok provides an environment tightly controlled and mediated by its algorithm, leaving less room for user exploration compared to platforms like Facebook, Instagram, or YouTube. On these platforms, the homepage, which serves as the main interface upon access, typically features content posted by friends and followed pages on Facebook and Instagram, and a search bar interface similar to Google search on YouTube, inviting the user to discover the content posted by others. In contrast, TikTok's primary page is the FYP, presenting a curated series of short videos, each lasting a maximum of 10 minutes. These videos are tailored based on the information the algorithm extracts from the user. This distinctive context positions

[250] Klug, D., Qin, Y., Evans, M., & Kaufman, G. (2021, June). Trick and please. A mixed-method study on user assumptions about the TikTok algorithm. In Proceedings of the 13th ACM Web Science Conference 2021 (pp. 84-92).

TikTok as an ideal platform for studying the intersection of algorithms and Generation Z. I envision it as the initial step toward a future comparative analysis of Human-Computer Interaction on various platforms.

5.4 Watermelons, Resistance, and Symbolic Activism

Meta has been widely accused of engaging in shadowbanning tactics against pro-Palestinian content, restricting user accounts, and applying labels such as "terrorist" to Palestinian-related bios. These actions have prompted significant backlash, with many users feeling that their voices were being stifled and their perspectives on the Palestinian struggle censored. In response to these perceived acts of digital suppression, users have devised creative strategies to continue expressing solidarity with Gaza and supporting the Palestinian cause. One of the most notable methods that emerged was the use of the watermelon emoji, which allowed users to subtly bypass platform restrictions while still signaling their stance on the issue.

The watermelon, however, is not a random symbol. It holds deep cultural and political significance for Palestinians, having become a symbol of resistance and national identity following the 1967 Six-Day War. During that period, displaying the Palestinian flag was banned under Israeli rule, which forced Palestinians to seek alternative ways to express their national pride and political defiance.[251] The colors of the watermelon—red, black, white, and green—directly mirrored those of the Palestinian flag, making it a powerful surrogate symbol for the banned flag. Carrying or showing a

[251] Connor, S. (2015). Palestine Profile. BBC News. Retrieved from https://www.bbc.com/news/world-middle-east-14630174.

watermelon became a quiet yet powerful act of defiance, symbolizing the endurance of Palestinian identity even in the face of repression.

This symbolic association gained further recognition in 2007, when Palestinian artist Khaled Hourani contributed to the Subjective Atlas of Palestine, a project that explored Palestinian culture and identity through various artistic expressions. Hourani's depiction of the watermelon as a symbol of Palestinian resilience and resistance sparked international conversations, giving the fruit renewed significance in the context of Palestinian self-expression. The image resonated with many as it encapsulated the ingenuity and determination of Palestinians to preserve their identity and express their defiance against occupation, even in the most subtle ways.

The watermelon symbol saw a resurgence in 2021, when social media platforms like Meta increased their content moderation efforts, leading to heightened censorship of pro-Palestinian posts. As more users found their content being removed, accounts locked, or posts censored, they began adopting the watermelon emoji as a way to circumvent these digital barriers. This clever form of symbolic resistance not only allowed users to express solidarity with Palestine without triggering automated censorship algorithms but also contributed to a broader campaign of creative digital protest. The watermelon, already embedded in Palestinian history as a symbol of defiance, became a rallying cry for a new generation of activists navigating the challenges of online suppression.

In this way, the watermelon has evolved from a quiet symbol of resistance into a global icon of Palestinian solidarity, representing not only

the historical struggle but also the modern-day fight for visibility and voice in an increasingly censored digital landscape. Its significance has only grown as activists and users around the world continue to find inventive ways to express their support for Palestine, illustrating the enduring power of symbols in movements for justice and freedom.

Following the Israeli aggression on October 10, 2023, the watermelon symbol gained widespread prominence across social media platforms, serving as a key example of "algospeak"—a strategy where users adapt language or symbols to bypass content filters. This was particularly evident on TikTok, despite the company's assertion that it does not moderate content based on political sensitivities.[252] In line with this creative form of resistance, users began utilizing the “FILTER FOR GOOD I,” more commonly known as the “Watermelon Filter.” This augmented reality (AR) filter was designed by AR effects creator Jourdan Johnson (@XoJourdanLouise) with the intention of raising funds for humanitarian aid in Gaza. The filter, which became available to users on November 6, featured a game where players guided a slice of watermelon to collect seeds, adding an interactive and engaging element to the campaign.

At the time of the filter's release, Johnson already had a substantial presence on TikTok, but her follower count skyrocketed as a result of the filter’s success. As of today, she boasts over 200,000 followers, officially marking her status as a macro-influencer on the platform. By May 2024, the Watermelon Filter had been used over 11.5 million times, with participation ranging from celebrities to everyday users with no followers at all. This

[252] Mendez, M. (2023) A TikTok Watermelon Filter Raising Money for Gaza Highlights the Platform’s Potential for Fundraising. Time.

widespread engagement helped propel the filter into viral status, solidifying it as an effective tool for both awareness and fundraising. The filter not only became a symbol of solidarity with Gaza but also a creative and viral means of generating support for humanitarian efforts. This innovative approach highlights how digital activism can blend interactive technology, symbolism, and social media influence to drive tangible outcomes, all while navigating the complexities of platform censorship.

Unlike typical entertainment filters, Johnson's augmented reality (AR) filter takes a more activist approach by promoting social justice and harnessing the potential of TikTok's creator economy. The filter is part of TikTok's Effect Creator Rewards program, which incentivizes creators based on how much users engage with their filters. In Johnson's case, each unique video made using the Watermelon Filter generates earnings for her, which she has pledged to donate to humanitarian aid organizations supporting Gaza.

The TikTok system is structured to ensure that creators only start earning rewards after their effects reach a threshold of 200,000 qualified publisheswithin 90 days. After that point, creators can earn based on every 1,000 publishes, with a cap of $14,000 per effect and a monthly maximum of $50,000 per creator[253]. Qualified posts are defined as unique videos posted daily from eligible regions, whether on public or private accounts, though drafts do not count. This mechanism encourages mass participation, making Johnson’s initiative both scalable and impactful as more users engage with her filter to amplify the cause.

[253] Mendez, (2023).

Throughout the campaign, Johnson provided daily updates on the filter's progress, allowing users to see the tangible impact of their participation. She also actively adjusted her donations to respond to the most urgent humanitarian needs on the ground in Gaza. In addition to her fundraising efforts, Johnson emphasized the importance of ensuring that the campaign was not exploited by copycat creators. She urged users to verify the authenticity of any similar initiatives and remain cautious about how their engagement was contributing to the cause.

Beyond the filter's fundraising potential, Johnson encouraged users to take further action. She called on them to amplify marginalized voices, contact government representatives, and participate in consumer boycotts of brands complicit in harmful actions. By combining digital activism with practical social justice strategies, the Watermelon Filter not only became a viral fundraising tool but also a symbol of how individuals can use social media platforms to drive collective action and awareness on pressing global issues.

The Watermelon Filter is a prime example of how social media can be innovatively harnessed for humanitarian causes, illustrating the immense potential of digital platforms to facilitate mass mobilization and support. In this case, TikTok becomes more than just a space for entertainment—it is transformed into a powerful tool for political and social action. The filter's design, which incorporates a playful game mechanic, serves as a clever way to engage users, particularly those who might otherwise be disengaged from political conversations. By embedding political advocacy within the familiar and entertaining framework of a game, the filter taps into what Huang and

Liu (2022) refer to as "playful resistance"—a strategy that leverages the interactive affordances of platforms like TikTok to subtly introduce and normalize discussions around serious political issues.[254]

This approach reflects the idea of "playful citizenship," as proposed by Glas et al. (2019), where digital tools and games foster a form of citizenship that is more approachable and integrated into daily life.[255] Instead of positioning political engagement as something reserved for activists or specific events, the filter promotes the notion that everyone can engage in civic action, even through casual interactions with digital content. In this sense, it makes political participation feel less daunting and more accessible, particularly to younger generations who may feel disconnected from traditional modes of activism.

Moreover, this form of playful engagement normalizes political and humanitarian advocacy as an everyday activity, subtly integrating it into the routines of users who might not otherwise seek out such content. This aligns with the concept of "playful citizenship" highlighted by Zhao and Abidin (2021), which suggests that playful interactions in digital spaces can foster a deeper sense of community and civic responsibility.[256] By using something as simple as a filter, TikTok users are invited to participate in a larger conversation about social justice, in a manner that feels organic and intuitive rather than forced or overly formal.

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[254] Huang V. G., Liu T. (2022). Gamifying contentious politics: Gaming capital and playful resistance. Games and Culture, 17(1), 26–46.
[255] Glas R., Lammes S., Lange M., Raessens J., Vries I. (2019). The playful citizen. Amsterdam University Press.
[256] Zhao X. A., Abidin C. (2021). Tiktok's "fox eye" trend and everyday activism: Gen Z agency in an audiovisual narrative case study (AoIR Selected Papers of Internet Research). https://journals.uic.edu/ojs/index.php/spir/article/view/12267.

The combination of entertainment and activism also allows for the creation of ad hoc digital publics, where communities can form around shared goals or values, even if their initial connection was based on something playful. In this way, Johnson's filter transcends its role as a fundraising tool and becomes a cultural artifact that redefines how political engagement can occur in the digital age. It exemplifies how platforms like TikTok can serve as both spaces for entertainment and arenas for meaningful civic participation, helping to bridge the gap between everyday users and larger humanitarian efforts.

This blending of entertainment and activism has the additional benefit of drawing in hard-to-reach audiences—those who might not typically engage with political issues directly. Through the guise of a game, users are introduced to the broader issues affecting Palestine, helping to raise awareness in a way that feels accessible and non-confrontational. This strategy is particularly effective for reaching younger audiences, many of whom are deeply immersed in digital and social media cultures, where playful interaction is a dominant form of communication. By combining activism with fun, the filter creates a low-barrier entry point for individuals to become involved in humanitarian efforts, ultimately encouraging a new generation of digital activists.

As individuals participate in acts of symbolic solidarity online, they must navigate complex digital landscapes where censorship and surveillance pose significant challenges to freedom of expression. In these spaces, the conscious or subconscious adoption of symbols, such as the watermelon emoji in pro-Palestinian activism, becomes a means through which people

assert their agency. By using these symbols, individuals engage in shaping online discourse, often pushing back against dominant narratives that seek to suppress or undermine their perspectives. In doing so, they contribute to transnational movements for social change, where collective digital actions transcend borders and link individuals across the globe in a shared cause.[257]

This phenomenon is deeply connected to Mead's theory of symbolic interactionism, which explores how humans create and use symbols to communicate and interact with one another.[258] Social media platforms like Facebook and Instagram, with their heavy emphasis on visual content, naturally facilitate this form of symbolic interaction by translating social exchanges into recognizable visual cues and symbols. For instance, when users adopt symbols like the watermelon emoji to signal solidarity with Palestine, they are engaging in a broader conversation where these symbols are imbued with meaning through collective interaction.

Blumer's conception of symbolic interactionism further suggests that individuals' actions are inherently shaped by the expectations and meanings that others attribute to events and objects. In the digital realm, symbols take on collective meanings that are often negotiated within online communities. For example, when users post or share content featuring the watermelon emoji, they are contributing to a collective understanding of that symbol as one representing resistance and solidarity. This process reflects Blummer's idea that human interaction is guided by the meanings assigned to objects

[257] Connor, 2015
[258] Mead, G. H. (1934). Mind, self, and society (C. W. Morris, Ed.). The University of Chicago Press.

and actions by the community, which are continuously modified through social interaction.[259]

Studies on self-concept further illuminate how individuals develop their identities through social interaction. According to Mead, self-concept is formed through both the "I" (the imaginative, subjective self) and the "Me" (the socially constructed self). In the context of social media activism, the "I" negotiates societal norms by determining how to participate in digital spaces, while the "Me" reflects how individuals perceive themselves through the eyes of others. When users engage in online activism, they actively shape their identity in relation to the movements they support, while also responding to the societal pressures and norms present in these digital communities.[260]

Social media platforms thus serve as arenas for collective interpretation of symbols. Within these platforms, users collectively assign meaning to symbols like the watermelon emoji, creating a shared language through visual representation. The community responds to and evolves these meanings through visual interaction, as users continue to reinterpret and reframe symbols in the context of current events. The ability to shape and influence the meaning of symbols in real-time underscores the dynamic nature of social media as a space for symbolic interaction and identity formation.

[259] Blumer, H. (1979). Symbolic interactionism. *Interdisciplinary approaches to human communication*, 135-55.
[260] Wicaksono, Ari. (2020, April). Cyberbullying Againts Transgender in Social Media: Symbolic Interactionism Perspective. In International Proceeding ASEAN YOUTH CONFERENCE 2018 PPI-MALAYSIA 10.5281/ZENODO.2549102.

Symbolic interactionism offers valuable insights into how symbols like the watermelon emoji are employed as tools of solidarity, particularly in opposition to perceived injustices such as social media censorship or the broader Palestinian cause. This symbolic expression allows users to align themselves with specific political movements while navigating the limitations imposed by digital platforms. For some users, these symbols serve as subtle ways to participate in activism without taking a clear or overt stance, often to avoid potential repercussions such as reduced visibility, content suppression, or lost sponsorships. This raises larger questions about the role of digital activism in shaping global narratives and contesting power structures.

Moreover, the use of these symbols demonstrates how digital activism is both a personal and collective process. On one hand, individuals engage in acts of resistance and solidarity, shaping their own identity and moral stance through their participation in online movements. On the other hand, they are part of a larger collective effort that influences global narratives and challenges existing power dynamics. The ability to use symbols to express political beliefs or dissent in creative and indirect ways underscores the evolving nature of digital activism in an era of heightened censorship and control.

6. CHAPTER SIX – DATA SCIENCE, NETWORK ANALYSIS AND THEIR ROLE IN SOCIAL SCIENCES

6.1 Random Forest

The complexity of processes influencing political partecipation poses a challenge for researchers who aim to study the interactions between humans and digital platforms. Yet, accurate modeling and prediction are critical for informing policy and activists' strategies, especially as algorithm-mediated environments become more pervasive than ever.

The surge of interdisciplinary interest in Big Data has sparked a revolution in analytical techniques, pushing the boundaries of how we model real-world data sets. This wave of innovation has birthed a lexicon—"machine learning, data mining, statistical learning, applied mathematics, data science" - each label hinting at the same goal: to minimize uncertainty and outpace traditional methods in predictive accuracy.[261] When it comes to social movements and their digital behaviors, machine learning (ML), a branch of Artificial Intelligence (AI), holds particularly exciting promise. ML systems are designed to harness data and learn autonomously, cutting out the need for constant human oversight.

For scholars exploring the online dynamics of social movements, supervised learning models dominate the ML landscape. These models excel by splitting data into training and test sets, predicting outcomes with remarkable precision. Whether tracking social media activity, charting the

[261] Hindman, M. (2015). Building Better Models. *The Annals of the American Academy, 659*, 48–62.

spread of online mobilization, or measuring the evolution of movements, ML techniques frequently outperform the classic regression models, offering sharper insights into which variables truly drive change. While traditional social science has leaned heavily on linear regression models (Taagepera, 2008; Hindman, 2015), machine learning opens a new chapter, offering methods that are both robust and finely tuned to handle the complexity of online behavior.[262]

In this arena, Random forests (RF) are a versatile ML algorithm widely used for classification and regression tasks.[263] This study employed a RF regression model to predict social media engagement, measured by the engagement.plays variable, using a variety of features such as author statistics, post metrics, and music attributes. This method was chosen due to its ability to handle complex, non-linear relationships between variables, its robustness against overfitting, and its ability to rank feature importance, offering insights into the predictors most relevant to the target variable.

A random forest is an ensemble learning method that constructs multiple decision trees during training and outputs either the mode (for classification) or the mean prediction (for regression) of the individual trees. Each tree is built using a random subset of the training data (via bootstrapping) and a random subset of the features at each split, which helps in reducing correlation between the trees and prevents overfitting. Random forests are known for their robustness, especially when dealing with large datasets and highly dimensional feature spaces, as they

[262] Taagepera, R. (2008). Making Social Sciences More Scientific: The Need For Predictive Models. Oxford University Press, Great Clarendon Street, Oxford.
[263] Breiman, L. (2001). Random forests. *Machine learning*, *45*, 5-32.

aggregate the predictions of many weak learners (individual decision trees) to produce a more accurate and stable final prediction.

6.2 Modeling Complex Systems

In recent years, network analysis has emerged as a transformative tool in various fields, ranging from social network studies to biological systems and, more recently, psychological and health sciences. As David Hevey (2018) discusses, the power of network analysis lies in its capacity to model complex systems of interrelated variables, providing deeper insights into how these variables influence each other.[264] Network analysis enables an holistic view of phenomena, allowing researchers to explore how multiple variables interact collectively in a dynamic system.

At their core, networks consist of vertices or nodes, representing entities, and edges or links, which represent the relationships or interactions between these entities. These relationships can be neatly encapsulated in a mathematical structure called an adjacency matrix. Each element of this matrix indicates whether a given pair of nodes is connected, offering a precise representation of the network's structure. However, beyond the simple presence or absence of a link between two nodes, networks possess a rich variety of properties that influence their overall behavior and functionality. One of the core strengths of network analysis is its ability to visualize and analyze the structure of complex relationships among variables. In a network, the relationships between the variables are captured by edges connecting them. These edges can vary in weight and direction,

[264] Hevey, D. (2018). Network analysis: a brief overview and tutorial. *Health psychology and behavioural medicine*, *6*(1), 301-328.

representing the strength and nature of the relationships between the variables. By mapping these relationships, network analysis allows researchers to identify key variables that play a crucial role in the overall network structure, thereby offering novel insights into how complex behaviors are formed and maintained.

The properties of a network can be examined at different levels, ranging from the fundamental characteristics of individual nodes and edges to more complex group-level dynamics. First-order properties focus on pairwise connections, such as the degree of a node - the number of links it has - and link density - the ratio of actual links to possible links -. Second-order properties expand the analysis to triads of nodes, which reveal features such as clustering, or the tendency of nodes to form tightly knit groups. Finally, higher-order properties look at broader, system-wide structures, providing insight into large-scale connectivity patterns.

Another important contribution of network analysis is its ability to handle systems with reciprocal or feedback relationships, which are often difficult to capture with traditional statistical models. Network analysis can easily model such feedback loops, offering insights into how these reciprocal relationships contribute to the overall dynamics of the system.[265]

In addition, network analysis can also be used to compare different population groups. The ability to compare networks across different subpopulations allows researchers to explore how the structure of variables

[265] Cross, R., Laseter, T., Parker, A., & Velasquez, G. (2006). Using social network analysis to improve communities of practice. *California Management Review*, *49*(1), 32-60.

might vary between groups. Such comparisons can offer insights into how specific populations experience and respond to challenges.

6.3 Network Models

Several theoretical models have been developed to simulate and analyze the structure of various types of networks. A key example is the Erdős–Rényi model, one of the foundational models in network theory. This model provides a simple yet insightful approach to understanding how sparse networks form. In the Erdős–Rényi model, links between nodes are created randomly, based on a fixed probability, meaning that the presence of a link does not depend on the specific properties of the nodes. While this model is effective in generating networks for theoretical study, it has limitations when applied to real-world systems. Real networks often exhibit more complex features, such as hubs or highly connected nodes, and an uneven distribution of connections, which this model does not account for. As a result, while useful for basic simulations, the Erdős–Rényi model cannot fully capture the intricate structure of networks observed in many real-life phenomena.

To address networks with more variability in node connectivity, the Chung-Lu model has been developed. This model modifies the random-linking approach of the Erdős–Rényi model by incorporating degree heterogeneity—an essential feature of many real-world networks. By making the probability of link formation dependent on the degree of each node, the Chung-Lu model offers a more nuanced representation of

networks where some nodes are highly connected, while others have fewer links.

One of the most influential models for network reconstruction is the Barabási-Albert model, which introduces the concept of preferential attachment. In this model, nodes are added to the network over time, and the probability of a new node linking to an existing node is proportional to the existing node's degree. This mechanism reflects the "rich get richer" phenomenon observed in many networks, such as the World Wide Web and social media, where nodes with many connections tend to acquire even more connections over time. The Barabási-Albert model leads to the emergence of scale-free networks, characterized by a few highly connected hubs and many less connected nodes.

These models provide essential frameworks for understanding and reconstructing networks from incomplete data. They highlight the importance of underlying structural principles—such as randomness, degree heterogeneity, and preferential attachment—that shape the evolution of real-world networks.

6.4 Network Reconstruction

In recent years, network theory has witnessed a significant paradigm shift with the adoption of the Maximum Entropy Principle for generating ensembles of graphs. This approach treats a network as a specific realization from a broader family of networks, all of which share certain topological properties. The central idea is that, given partial information

about a network, the most unbiased assumption about its structure is the one that maximizes entropy, subject to the known constraints. This ensures that the reconstructed network is as random as possible while still adhering to the empirical data.

The Exponential Random Graph Model (ERGM) formalizes this idea by representing the network as one possible configuration within an ensemble of networks. The probability of observing a specific network configuration is determined by a Hamiltonian functional, which encodes the network's topological properties, as measures evaluated from known data. In this framework, the goal is to find the network configuration that maximizes entropy while satisfying the constraints imposed by the observed data.

This approach has led to more refined methods for network reconstruction. By maximizing entropy, researchers can derive parametric expressions for the probability of link formation between nodes, ensuring that the reconstructed network reflects the empirical properties of the original network as closely as possible. One of the key advantages of the Maximum Entropy approach is its ability to incorporate a wide range of constraints, allowing it to be applied to networks with complex structures and heterogeneous properties.

Seminal contributions to this field include the work of Cimini et al. (2019), who provided a comprehensive review of the statistical physics of real-world networks,[266] and Squartini and Garlaschelli (2017), who

[266] Cimini, G., Squartini, T., Saracco, F., Garlaschelli, D., Gabrielli, A., & Caldarelli, G. (2019). The statistical physics of real-world networks. *Nature Reviews Physics*, *1*(1), 58-71.

explored the application of Maximum Entropy methods to network reconstruction and pattern detection.[267]

The study of Cimin et al. explores the intersection of statistical physics and complex networks, emphasizing how the principles of statistical mechanics have been effectively applied to understand real-world network structures over the past 15 years. The principle of maximum entropy, which ensures the most unbiased inference possible by maximizing uncertainty within the constraints of available information, plays a central role in this approach. By applying this principle, researchers can generate network models that replicate the observed local features of real systems, such as node degrees and connection strengths, while also enabling the detection of statistically significant patterns and deviations. The work emphasizes that these models are especially useful when the actual microscopic details of a network are inaccessible or incomplete, as the ensemble approach provides the most probable network configurations under the given constraints.

They also contrast two key modeling approaches: dynamic models that attempt to replicate the formation mechanisms of networks and probabilistic models that reproduce the structural properties of real networks. The latter, grounded in the exponential random graph (ERG) framework, has its roots in social sciences and statistical mechanics. By imposing soft or hard constraints on network properties—such as node degrees, link weights, or community structures—the maximum entropy method allows for a flexible and highly scalable modeling of networks across various domains. This approach enables the modeling of not only

[267] Squartini, T., & Garlaschelli, D. (2017). *Maximum-entropy networks: Pattern detection, network reconstruction and graph combinatorics*. Springer.

simple networks but also more advanced structures like multiplex networks, interacting networks, and simplicial complexes, all of which capture the multi-dimensional interactions in real-world systems.

Furthermore, the study delves into the practical applications of these models, particularly in validating empirical patterns observed in networks. For example, in the analysis of the World Trade Web, the authors demonstrate how null models derived from statistical physics can explain certain higher-order patterns, such as disassortativity and clustering, by considering only local constraints like node degree. However, the study also reveals that in weighted network analyses, these local constraints may not fully capture the system's higher-order complexities, underscoring the need for further refinement of the models.

In addition to pattern validation, they discuss the challenges of network reconstruction, where only partial information about a network's structure is available. The maximum entropy approach is particularly well-suited to this task, allowing for the estimation of plausible network configurations even when direct observations are incomplete or noisy. By applying constraints like node degrees and connection strengths, the approach can robustly reconstruct network topologies, which is crucial for understanding systems in fields such as finance, biology, and social networks.

6.5 Network Inference from Partial Information

The problem of network inference from partial information is central to many applications of network theory. In scenarios where the full adjacency matrix is not available, researchers must rely on incomplete or indirect data to reconstruct the network. One promising approach involves combining topological and non-topological information to infer the network's properties. For example, in the case of a social network like TikTok, non-topological data such as the number of followers or the frequency of user interactions can provide clues about the network's structure, even when the actual follower relationships are not fully known.

The use of statistical methods like maximum likelihood estimation has become increasingly common in network inference. These methods allow researchers to estimate the parameters of a network model based on observed data and to quantify the uncertainty in their estimates. By incorporating prior knowledge about the network, these methods can improve the accuracy of network reconstructions.

For our analysis, we will adopt an empirical, data-driven approach, beginning with the observed characteristics of the sampled data. We will then apply the configuration model to reconstruct the network under the constraint of preserving the degree distribution.

Another approach to network inference involves using dynamical data, such as the time series of node interactions, to infer the underlying network structure. For instance, in communication networks, the sequence of messages exchanged between nodes can be used to infer the existence of

links, even if the full communication graph is not directly observable. Similarly, in biological networks, the timing of interactions between proteins or genes can provide information about the network's regulatory structure.[268]

6.6 Network Analysis for Social Sciences and Real-World Applications

In network theory, one area of active research is the study of higher-order patterns in networks, such as motifs and communities.[269] The study of communities, or groups of nodes that are more densely connected to each other than to the rest of the network, is an important area of research.[270] Communities can represent meaningful structures in a variety of contexts, such as social groups, functional units in biological systems, or clusters of related websites in the World Wide Web. Advanced network reconstruction methods are being developed to identify these communities and to analyze their role in the overall network structure.

Real-world applications of network reconstruction are numerous and span a wide range of fields. In social media, for example, network reconstruction techniques are used to analyze the spread of information and influence, helping platforms like TikTok and Twitter to optimize their recommendation algorithms and identify key influencers.

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[268] Newman, M. E. J. (2006). The Structure and Dynamics of Networks. Princeton University Press.
[269] Battiston, F., Amico, E., Barrat, A. *et al.* The physics of higher-order interactions in complex systems. *Nat. Phys.* **17**, 1093–1098 (2021). https://doi.org/10.1038/s41567-021-01371-4
[270] Santo Fortunato, Darko Hric,
Community detection in networks: A user guide,
Fortunato, S., & Hric, D. (2016). Community detection in networks: A user guide. Physics reports, 659, 1-44.

As the volume and complexity of network data continue to grow, the need for accurate and scalable network reconstruction methods will only increase. With advances in computational power and machine learning, it is likely that future methods will be able to handle even larger and more complex networks, providing deeper insights into the structure and dynamics of real-world systems.

In this evolving context, Social Network Analysis (SNA) has emerged as a pivotal methodology within the social sciences, offering profound insights into the web of relationships that define social structures. By conceptualizing individuals, groups, or organizations as nodes and their interactions as edges, SNA provides a framework to quantitatively analyze the patterns and dynamics that underpin social phenomena.[271]

In the 1970s, the focus of network research shifted predominantly to sociology. Researchers like Lorrain and White endeavored to construct reduced models of complex relational systems by identifying structurally equivalent nodes, those with similar patterns of incoming and outgoing ties. This approach aligned with anthropological perspectives that emphasized roles over individual identities, facilitating broader applications such as analyzing the structure of economies or organizational hierarchies.[272]

At its core, Social Network Analysis is the paradigmatic ground of application of network theory: in the social context, nodes represent actors

[271] Freeman, L. C. (1977). Centrality in Social Networks Conceptual Clarification. Social Networks, 1(3), 215-239.
[272] Roth, C. (2005). Co-evolution in epistemic networks--Reconstructing social complex systems. *Structure and Dynamics*, *1*(3).

-individuals, organizations, and links denote the relationships or interactions between them. This abstraction enables the examination of network topology, in particular the analysis of structural features such as density, centrality, clustering, and the distribution of ties.

Social scientists identify several types of dyadic (two-way) relationships, each with distinct effects on network dynamics. First, similarity-based ties arise when individuals share common traits or circumstances, such as shared hobbies, working in the same environment, or having similar demographic characteristics like age or gender. These similarities often serve as the initial foundation for connections and can help foster trust and collaboration. Second, social relations encompass both formal and informal bonds, including relationships like kinship (such as parent-child), friendships, professional ties, and hierarchical connections like employer-employee. These relationships play a central role in creating and sustaining networks, shaping how information and resources move between individuals. Third, interactions are characterized by direct exchanges between actors, including communication, collaboration, or transactions. The frequency and quality of these interactions can deeply influence the strength and character of the relationship. Finally, flow-based ties involve the movement of resources, information, beliefs, or personnel between actors. These flows are essential for understanding how resources are allocated and how influence spreads throughout a network. [273]

SNA addresses a multitude of research questions, often categorized into two broad areas. The first one is the formation of Network Ties:

[273] Wellman, B., et al. (1996). The Network Perspective in Sociology. Annual Review of Sociology, 22, 213-238.

understanding why and how relationships form is a central concern. Researchers explore opportunity-based antecedents (the likelihood of contact between actors) and benefit-based antecedents (the utility derived from forming a tie). Factors such as homophily (the tendency to associate with similar others), reciprocity, and structural constraints play crucial roles in tie formation. The second area relates to the consequences of Network Structure, which involves examining how the configuration of a network influences individual and collective outcomes. Key areas of interest include homogeneity - the extent to which actors within a network exhibit similar behaviors, attitudes, or characteristics- and performance - how network position affects outcomes such as innovation capacity, financial performance, or power and influence.[274]

Several theoretical mechanisms explain how network structure influences outcomes. One such mechanism is the transmission mechanism, which suggests that attributes or behaviors are directly transferred between nodes through their connections. This means that information, resources, or innovations can spread across a network via direct interactions. Another is the adaptation mechanism, where nodes become similar by adapting to comparable social environments, resulting in homogeneity as actors facing similar external influences develop analogous responses or characteristics. The binding mechanism compares social ties to chemical bonds, where connections between nodes form cohesive entities with collective properties that differ from those of individual members. Structural holes, which represent gaps in a network where actors are not directly connected, allow nodes to broker relationships between otherwise unconnected actors,

[274] Van der Hulst, R. C. (2009). Introduction to Social Network Analysis (SNA) as an investigative tool. *Trends in Organized Crime*, *12*, 101-121.

thus enhancing their strategic advantage. Lastly, the exclusion mechanism involves competitive dynamics, where the formation of a new tie by one node can exclude another from accessing certain resources or relationships. This exclusion can shift power balances within the network, affecting bargaining positions and the overall stability of the network.[275]

The versatility of Social Network Analysis (SNA) is evident through its diverse applications across multiple fields. In sociology, SNA is crucial for examining social structures, family dynamics, organizational behavior, and community interactions. It helps to reveal how social ties affect individual behavior, group cohesion, and societal norms.

6.7 Our Case Study

For its prevalent use in the younger stratum of the population, for which activism is mostly present, we chose to study data coming from TikTok. The case of social networks is particularly compelling for a description with the above framework. Given the breadth of its applications, network analysis can be carried out with different goals, depending on the quality of data at hand. As is often the case with large social media platforms, only partial information has been available to research purposes. For instance, while we may have data on the number of followers a user has or the number of posts they have made, when describing the above relationships between users we may not have access to the full adjacency matrix.

[275] Muller, E., & Peres, R. (2019). The effect of social networks structure on innovation performance: A review and directions for research. *International Journal of Research in Marketing*, *36*(1), 3-19.

The challenge in this case study is to reconstruct the underlying network structure from incomplete data. As the adjacency matrix is entirely unknown, the reconstruction must rely on non-topological information, in our case being the degree of nodes – such as follower counts and/or posting activity – without knowledge of any pairwise interaction represented by links.

Using network models such as the Barabási-Albert preferential attachment model, researchers can approximate the properties of the influencer network, including its degree distribution and clustering coefficient. These properties provide insight into the dynamics of influence on the platform, revealing how certain users emerge as hubs with a disproportionately large number of followers, while others occupy more peripheral positions within the network.

By leveraging this technique, we can further investigate the statistical behavior of the degree distribution in the sampled dataset. Specifically, the Barabási-Albert model provides a powerful framework for understanding the emergence of scale-free networks, where a small number of nodes (hubs) accumulate a disproportionately large number of connections, while most nodes maintain only a few links. This model is based on two principles: growth (the network continuously expands by adding new nodes) and preferential attachment (new nodes are more likely to connect to highly connected nodes

Given that real-world networks, including social networks, frequently exhibit such scale-free properties, we aim to analyze whether the

degrees in our dataset follow a similar power-law distribution, a hallmark of the BA model. Power laws imply that while most nodes have few connections, a few nodes, the so-called hubs, have a vast number of links, leading to a skewed degree distribution. To rigorously test this, we will attempt to fit the degree distribution to a power law and evaluate the goodness of fit using appropriate statistical tools (e.g., maximum likelihood estimation).

Accordingly, to analyze our case study of a small sample of TikTok Netowrk, we will leverage the properties of the BA model, which provides a robust framework for understanding the structural characteristics of networks with preferential attachment. By applying this model, we aim to understand whether the degree distribution of our dataset exhibits the typical scale-free properties observed in many real-world networks. The insights gained from this analysis will allow us to assess the presence of hubs and explore the dynamics of influence within the network.

In order to to explain the degree distributions observed in many real-world networks, power laws play a critical role. A power-law distribution is characterized by the probability $P(k)$ that a node has k connections, following the form:

$$P(k) \sim k^{-\gamma}$$

where γ is a constant, often referred to as the power-law exponent. This distribution implies that while most nodes in the network have relatively few connections, a small number of nodes (hubs) possess a disproportionately large number of links. This heavy-tailed nature of the

distribution is what sets power laws apart from other distributions, such as Gaussian or exponential, where values cluster around a mean.

In our case, the significance of power laws in network science lies in their ability to describe the heterogeneity seen in real-world networks. For instance, in social networks, a few highly connected individuals (influencers) exist alongside the majority of people, who have relatively few connections. This uneven structure provides insights into various network dynamics, such as the propagation of information on networks. The power law property dictates the existence of these giant hubs, allowing for efficient propagation to lower degree nodes. Another consequence of this property is through the statement “six degrees of separation” and quantifiable in the value of the network diameter: the maximum length of the shortest paths (distance) over all pairs of nodes.

Mathematically, the power-law distribution also exhibits scale invariance, which, in the context of networks, means that the degree distribution remains the same regardless of the network's size. This property is crucial for understanding the scalability of networks and the universal nature of the power-law behavior across different types of systems, whether they are technological, biological, or social.

Mathematically, the Barabási-Albert model generates a scale-free network, meaning that the probability $P(k)$ that a node in the network has k connections follows a power-law distribution, where γ is typically between 2 and 3 for many real-world networks. This power-law behavior implies that a few hubs have a vast number of connections, while most nodes have only a few. As a result, these networks are robust to random

failures but vulnerable to targeted attacks on hubs. These mechanisms are critical in understanding the evolution of many natural and man-made systems, from social networks to the structure of the World Wide Web.

For further research with more complex datasets, the stdy could be extended using more sophisticated methods, such as analyzing the clustering coefficients or exploring deviations from a perfect power-law fit. Such advanced techniques, analogous to those used in high-precision statistical analysis, could offer deeper insights into the complex structure of large-scale networks.

7. RESEARCH DESIGN

7.1 Theoretical framework and conceptualization

Before getting into the insights of the research, its design, results, and conclusions, it is appropriate to specify the theoretical framework we have worked within. Therefore, the following concepts are going to be operationalized according to the proposed definition:

- **Civic engagement / civic action**: any activity aimed at improving one's community.[276]
- **Political resource:** mean that can be used to influence an outcome on social life that makes claims toward a legislative/decision-making body.[277]
- **Political tactics:** subset of political behavior used by social actors to influence other social actors to earn self-interests.[278]
- **Mobilization:** process by which energy that is latent from the viewpoint of the acting unit is made available for collective action.[279]
- **Digital Connectivity:** relations enabled via digital media technologies.[280]

[276] Montgomery K., Gottleib-Robles B., and Larson G. O. (2004) Youth as E-Citizens: Engaging the Digital Generation, Center for Social Media. http://www.centerforsocialmedia.org/ecitizens/youthreport.pdf
[277] Piven, Fox F. and Cloward R. A. (2005) "Rule Making, Rule Breaking, and Power." The Handbook of Political Sociology.
[278] Nejad, B. A., Abbaszadeh, M. M. S., & Hassani, M. (2011). Organizational Political Tactics in Universities. Higher Education Studies, 1(2), 65-72.
[279] Etzioni, A. (1968). The Active Society, New York, Free Press.
[280] Ponzanesi, S. (2019). Migration and mobility in a digital age: (Re) mapping connectivity and belonging. Television & New Media, 20(6), 547–557.

- **Digital affordances:** perceived actual or imagined properties of social media, emerging through the relation of technological, social, and contextual that enables and constrains specific uses of the platforms.[281]
- **Datafication:** transformation of social action into online quantified data, thus allowing for real-time tracking and predictive analysis.[282]
- **Generation Z:** people born between 1995 and 2012.[283]

Finally, it is worth noticing that the study is underpinned by the assumption that the dynamics under consideration are inherent within the domain of socio-technical systems. A socio-technical system is delineated as a cohesive and mutually dependent amalgamation of social and technical components collaboratively employed to attain defined objectives, emphasizing the interaction between people, technology, and the broader organizational context. The theoretical and philosophical background is based on the conceptual framework established by Trist, Ropohl, and Airoldi.[284]

[281] Ronzhyn, A., Cardenal, A. S., & Batlle Rubio, A. (2023). Defining affordances in social media research: A literature review. New Media & Society, 25(11), 3165-3188. https://doi.org/10.1177/14614448221135187
[282] Cukier, K., & Mayer-Schoenberger, V. (2013). The Rise of Big Data: How It's Changing the Way We Think About the World. Foreign Affairs, 92(3), 28–40. http://www.jstor.org/stable/23526834
[283] Zorn, Robert L. (2017). Coming in 2017: A new generation of graduate students-The Z Generation. College and University, 92(1), 61-63.
[284] Ropohl, G. (1999). Philosophy of socio-technical systems. Society for Philosophy and Technology Quarterly Electronic Journal, 4(3), 186-194.; Ropohl, G. 1979. Eine Systemtheorie der Technik: Zur Grundlegung der Allgemeinen Technologie. Munich/Vienna: Hanser. 2nd ed., 1998. ; Airoldi, M. (2021). *Machine habitus: Toward a sociology of algorithms*. John Wiley & Sons.

7.2 Research questions

The following research questions (RQs) aim to explore the multifaceted interactions between TikTok's platform dynamics, user behavior, and algorithmic influences in the context of the Gaza conflict. As social media increasingly becomes the primary space for political discourse and activism, understanding how these factors shape the dissemination and visibility of content is crucial. In the case of a polarizing and politically sensitive issue like the Gaza conflict, where different narratives compete for attention, this study seeks to investigate not only how content spreads but also how users engage with it and how underlying platform mechanisms may affect this process. The research questions are designed to address both the technical affordances of TikTok and the sociopolitical implications of its algorithmic environment, in order to gain insights into the role digital platforms play in contemporary political engagement and the amplification of diverse narratives.

RQ1: How do affordances on TikTok related to the Gaza conflict influence the dissemination and visibility of content?

This research question examines the role of platform-specific affordances in shaping the dissemination and visibility of content related to the Gaza conflict on TikTok. Given TikTok’s unique features, such as algorithmically driven recommendations, understanding how these affordances impact the spread of politically charged content is crucial. Exploring this question sheds light on how social media platforms influence public discourse and shape the visibility of contentious political issues, offering insights into how digital platforms mediate access to information and influence public perception.

RQ2: How does user engagement vary across pro-Palestinian and pro-Israeli content on TikTok?

This research aim investigates the differential patterns of user engagement with pro-Palestinian versus pro-Israeli content on TikTok. Engagement metrics serve as indicators of audience response and interaction. By analyzing these patterns, the study seeks to understand the factors driving user engagement with content from different sides of the conflict, for assessing whether certain content resonates more strongly with TikTok's audience, potentially influencing the broader visibility and reach of these narratives.

RQ3: What role do algorithmic biases play in shaping the visibility of content related to the Palestinian-Israel conflict on TikTok?

This research issue focuses on the impact of TikTok's algorithmic processes in shaping the visibility of content related to the Palestinian-Israel conflict. As social media platforms increasingly rely on algorithms to prioritize content, it becomes essential to investigate whether these mechanisms introduce biases that affect the distribution of politically sensitive material. This question aims to uncover how algorithmic design, potentially favoring certain types of content or user profiles, influences the way information is disseminated, thereby shaping public opinion and discourse around complex geopolitical issues.

RQ4: Does the network related to the Gaza conflict structured on TikTok share properties with known network models, allowing for mathematical analysis?

This question explores whether the structure of the network formed by interactions related to the Gaza conflict on TikTok aligns with known network models, such as scale-free or small-world networks, which are often observed in social and information networks. By applying mathematical analysis to this network, the study aims to reveal structural patterns that could explain how information flows and hubs of influence emerge within the TikTok ecosystem. Understanding these dynamics is critical for identifying key influencers and the mechanisms by which content related to the Gaza conflict gains visibility and spreads within the platform.

7.3 Research Design

Starting with Gaza, Gazaunderattack, and Israel as keywords, we utilized Traktok[285] for video scraping. The process involved the following steps: we first downloaded cookies to enable accurate searches. Using Traktok, we then searched for and retrieved relevant videos for analysis. Subsequently, we analyzed the most frequent words in the dataset using R (see code in Appendix I). Descriptive analysis was conducted on both the full dataset and specific subsets, allowing for a comparison of different sections and the identification of key patterns within the data.

[285] Gruber, Johannes B. (2023). traktok. An R package to scrape data from TikTok. R package version 0.0.4.9000. https://github.com/JBGruber/traktok.

7.4 Text Analysis

Acknowledging that hashtags are valuable frameworks for understanding memetic media[286] and social media content dissemination, we focused on the trending hashtags #gazaunderattack (535.1 million views)[287], #gaza, #israel, according to existent literature and previous research conducted by Siapera et al. (2015) on the most recurring hashtags used by Palestinian users.[288]

We conducted text analysis. we cleaned the text, converted it to lowercase, removed punctuation, and eliminated stop words and URLs. Then, we removed hashtags to ensure consistency in treating them as regular words, and further filtering was done to remove terms like 'fyp' or 'for you'. The next step involved creating a document-feature matrix. The most recurring terms resulted being “Gaza”, “Israel”, and “Palestine.” Therefore, we scraped TikTok videos again by the aforementioned keywords, obtaining three datasets, one for each keyword.

[286] Highfield, Tim & Leaver, Tama. (2015). A methodology for mapping Instagram hashtags. First Monday. 20. 10.5210/fm.v20i1.5563.
[287] Siapera, Eugenia & Hunt, Graham & Lynn, Theodore. (2015). #GazaUnderAttack: Twitter, Palestine and diffused war. Information, Communication & Society. 18. 1-23. 10.1080/1369118X.2015.1070188.
[288] Cervi, L., & Divon, T. (2023). Playful Activism: Memetic Performances of Palestinian Resistance in TikTok #Challenges. Social Media + Society, 9(1). https://doi.org/10.1177/20563051231157607

7.5 Data Cleaning

In order to process the data further to run further analysis, we started by cleaning the dataset (see Appendix II). In order to perform a comparative analysis between the three datasets but also treat them as only one, we selected the common features. Once detected, we uniformed the datasets and merged them into one. Then, we removed the repeated videos appearing in more than one dataset by removing its duplicates. Additionally, the dates in the dataset (i.e. date of creation of video) were in Unix format. Therefore, we converted the mentioned variables into a human readable format (dd/mm/yyyy). The variables we selected are as follows:

Name	Description	Example
"Extraction.date"	Date on which the data was extracted from TikTok	02/05/2024
"item_id"	Unique identifier of the item	7.35750e+18
“data.desc”	Description of the video provided by the author and publicly available	Peace in Israel | JRE #2049
"data.createTime"	Date on which the video was posted on TikTok	2023-10-22 01:22:04
"data.video.duration"	Time duration of the video in seconds	92
"data.author.id"	Unique identifier of the author in numbers	6.807730+18
"data.author.uniqueId"	Unique identifier of the item in letters	todaysnewsuk

"data.author.nickname"	Author's nickname on TikTok	Today's News
"data.author.signature"	Author's bio on TikTok	Tutto quello che succede (e vi riguarda)
"data.author.verified"	Whether the author's profile is verified	TRUE/FALSE
"data.music.id"	Unique code identifier of the sound used in the video	7.357503+18
"data.music.title"	Title of the sound used in the video	Life Will Be
"data.music.authorName"	Name of the author of the sound used in the video	steve_marques
"data.music.original"	Whether the video is original or not	TRUE/FALSE
"data.stats.diggCount"	Number of likes gained by the video	25300
"data.stats.shareCount"	Number of shares gained by the video	25300
"data.stats.commentCount"	Number of comments gained by the video	19100

"data.stats.playCount"	Number of views gained by the video	53400000
"data.stats.collectCount"	Number of times the video was saved among users' favorite gained by the video	3726
"data.authorStats.followingCount"	Number of accounts followed by the author	1685
"data.authorStats.followerCount"	Number of accounts following the author	1200000
"data.authorStats.videoCount"	Number of videos posted by the author	80
"data.authorStats.diggCount"	Number of likes gained in total on the author's profile	1494

The dataset consists of 787 observations, each representing an individual user within a network, and includes 92 variables that describe various attributes of these users. Despite the dataset's richness in features, the numerosity of 787 users represents a relatively small sample when compared to the full scale of the TikTok user base, which limits the ability to generalize findings across the entire platform.

7.6 Descriptive Analysis

In this paragraph, the methodological approach and results of the analysis of the entire dataset will be discussed.

7.6.1 Authors

To conduct the analysis, we first ensured the uniqueness of the dataset by removing duplicate entries based on the video ID (see Appendix III). Next, we calculated the number of unique authors in the dataset. To understand the distribution of these authors, we computed the frequency of each unique author ID, and then sorted these frequencies in descending order to identify the most common authors. From this sorted list, we selected the top seven authors, as the last three in the top ten had only four occurrences each (see Figure 1). The top seven most common authors and their frequencies were as follows:

trtworld: 14 occurrences
aljazeeraenglish: 8 occurrences
ajplus: 5 occurrences
middleeasteye: 5 occurrences
militarywomens: 5 occurrences
skynews: 5 occurrences
zmngz14: 5 occurrences

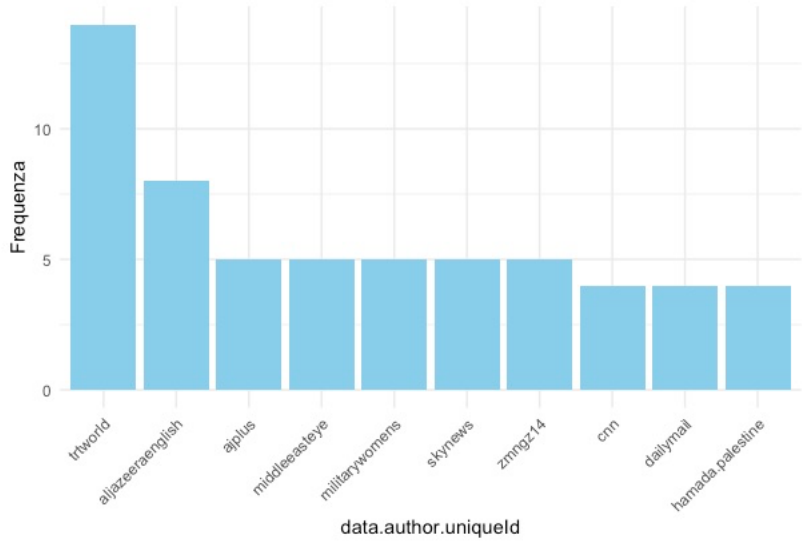

Figure 1 Frequency of most common authors

The authors repeated 5 or more times on the dataset were:

- trtworld: 14 – A page that features a variety of videos that cover global news, trending topics, and social issues. TRT World, a Turkish international news platform, uses this account to share short, engaging clips about international affairs, human interest stories, and analysis. The content is aimed at raising awareness of current events in a digestible and visually appealing format, suitable for the TikTok audience.

- aljazeeraenglish: 8 – A page features short-form videos that cover global news, politics, and in-depth reports on various international issues. The content focuses on breaking news, special reports, and human-interest stories from around the world, tailored for a younger audience. The channel uses visually engaging and concise clips to explain current events and news developments.

- ajplus: 5 – A page that shares informative and engaging videos covering social justice, human rights, global news, and political issues. AJ+, part of Al Jazeera Media Network, focuses on delivering stories about underreported topics in a visually appealing and easy-to-consume format for TikTok's audience.

- middleeasteye: 5 – A page that shares videos focused on news, events, and stories from the Middle East. Their content often highlights political developments, social issues, and human interest

stories relevant to the region. The videos are brief, visually engaging, and tailored for TikTok's audience, aiming to inform and create awareness about ongoing issues in the Middle East.

- militarywomens: 5 – As of the data of the analysis of the dataset, the page was deleted or banned from TikTok.

- skynews: 5 – The page features short videos covering breaking news, current events, and trending stories from around the world. The content focuses on delivering quick updates, major headlines, and key moments in a format that is suitable for the TikTok platform, often with a strong visual component. Topics range from politics and social issues to technology and entertainment.

7.6.2 Music

The frequency of each unique data.music.id was calculated using the table function (See Appendix IV). The frequency table was converted to a data frame for easier manipulation and merging with other data. We merged the frequency data frame with the original dataset to include the corresponding data.music.title for each data.music.id. Then, we removed duplicates to ensure that each data.music.id and data.music.title pair was unique. The frequencies were sorted in descending order to identify the most common music IDs, and the top 10 most common music IDs and their associated titles were displayed. The ggplot2 library was used to create a bar plot visualizing the top 10 most common music IDs and their titles (see Figure 2).

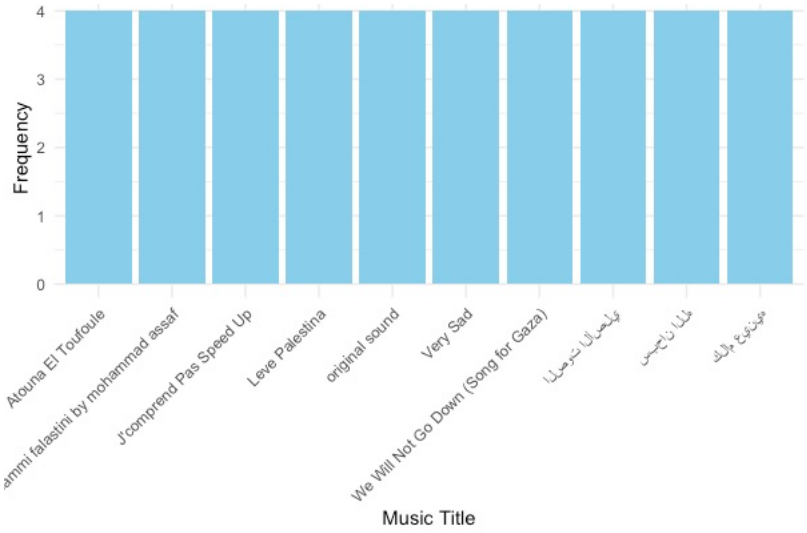

Figure 2 Frequency of Sounds titles

7.6.3 Timeline

To provide a time distribution of the dataset, we converted the data.createTime column containing UNIX timestamps into a human-readable date format using the as.POSIXct function (see Appendix V). This conversion facilitated further time-based analysis. To analyze the distribution of data creation events over time, we aggregated the data by month and year. This was achieved by creating a new column month_year that formatted the data.createTime into a YYYY-MM string; grouping the data by the month_year column; and summarizing the grouped data to count the number of occurrences for each month-year combination. To analyze the distribution of data creation events over time, we aggregated the data by month and year. This was achieved by creating a new column month_year that formatted the data.createTime into a YYYY-MM string; grouping the data by the month_year column; summarizing the grouped data to count the number of occurrences for each month-year combination. There is a significant peak around late 2022, where the data creation spikes

dramatically, exceeding 200 entries.[289] This spike is followed by a sharp decline and smaller peaks in early 2024 (Figure 3).

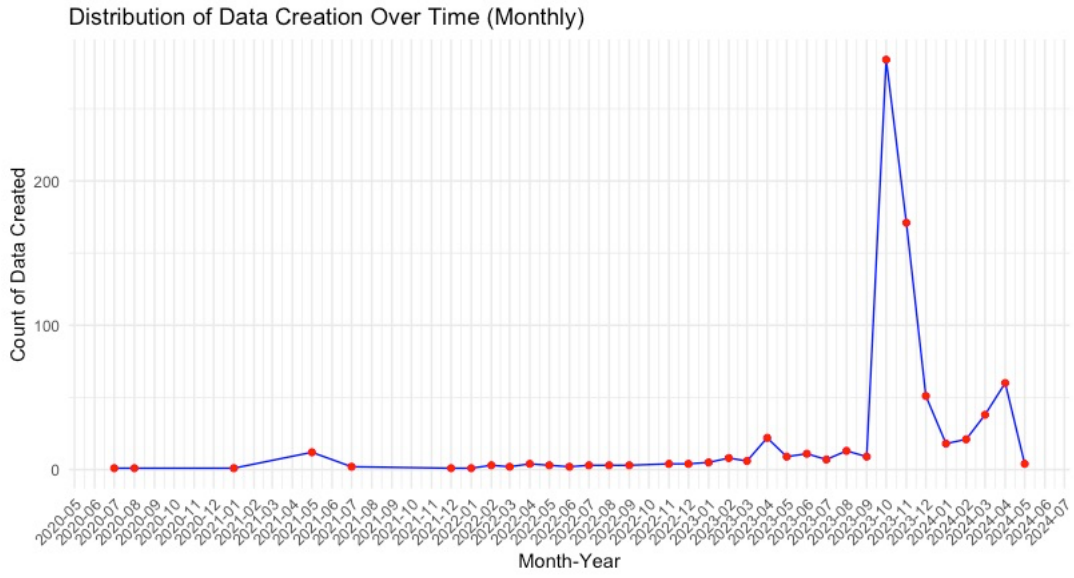

Figure 3 Time Distribution

7.6.4 Text Analysis on Author Signature

Adding to the descriptive analysis, we decided to run a Text Analysis on *Author Signature*, a TikTok attribute that allows profiles to have a short description in their main profile interface, similarly to a bio. We prepared a list of stop words and added custom stop words to remove irrelevant words from the analysis. We transformed the dataset into a text corpus using the corpus function from the quanteda package, setting the data.author.signature column as the text data and item_id as document names. We performed several steps to clean the text data: removing punctuation, numbers, and symbols; converting text to lowercase; removing stop words and unwanted patterns (like URLs). We transformed the cleaned text tokens into a document-feature matrix (DFM),

[289] Our data was extracted on May, 2024.

where rows represent documents and columns represent terms, with cell values indicating term frequencies (see Figure 4).

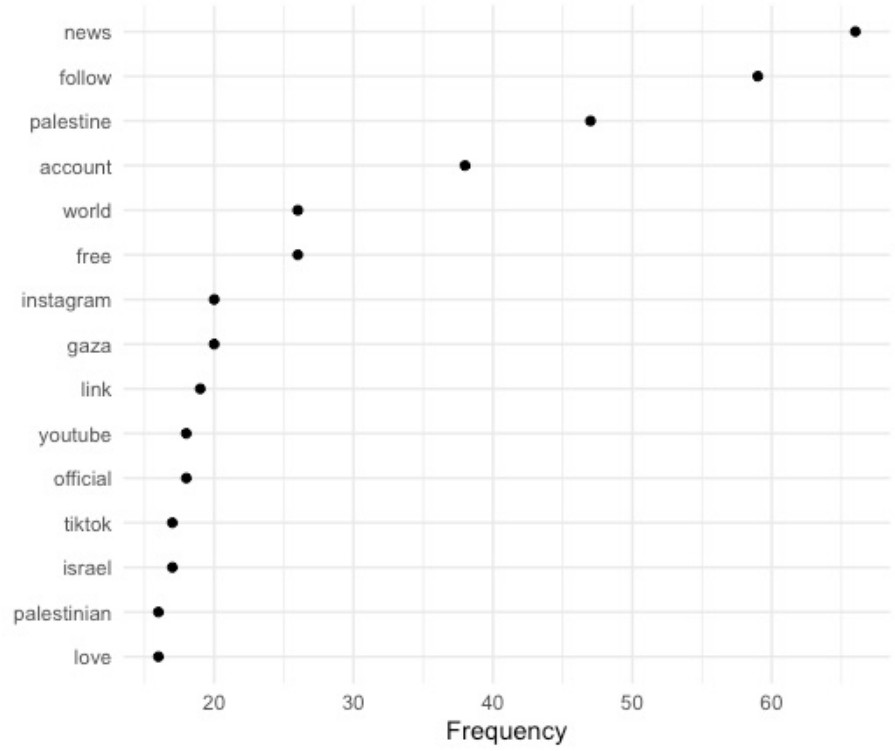

Figure 4 Words Frequency

We transformed the cleaned text tokens into a document-feature matrix (DFM), where rows represent documents and columns represent terms, with cell values indicating term frequencies. We created another DFM for n-grams (2 to 4 words appearing together) to capture common multi-word expressions (see Figure 5).

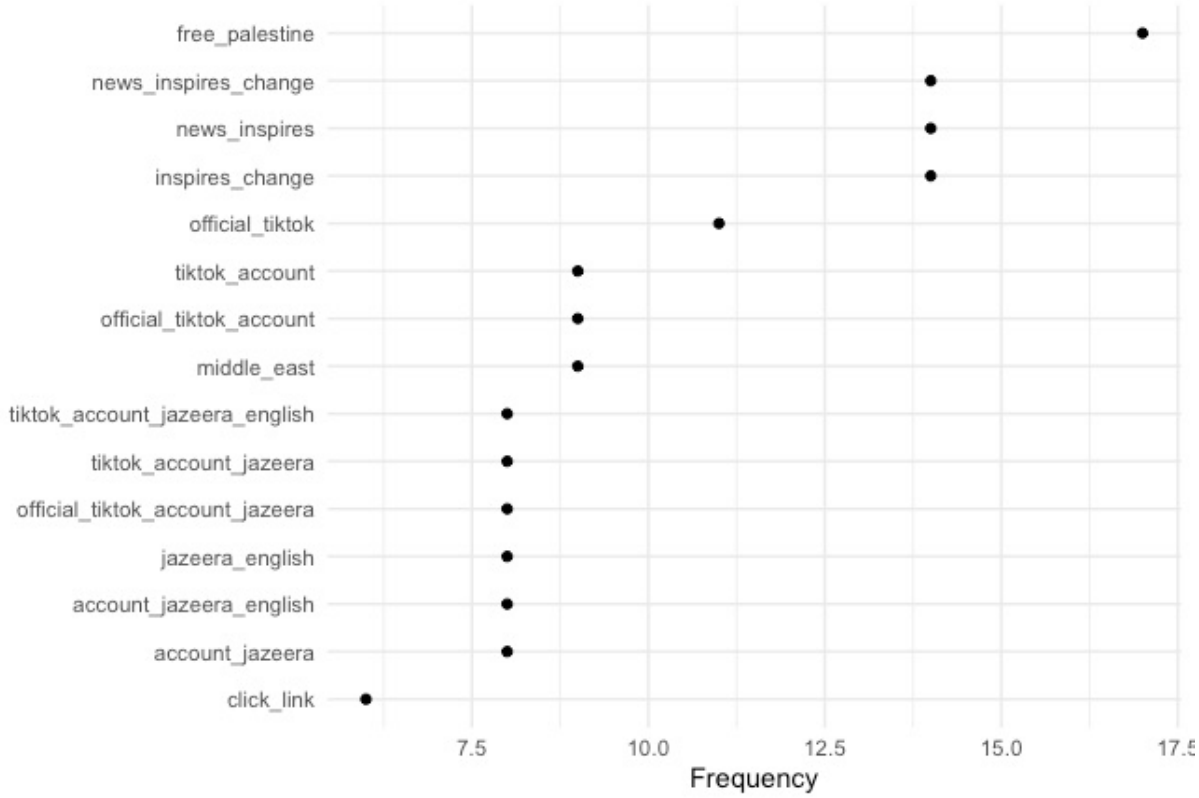

Figure 5 Multi-word Expressions Frequency

We computed and visualized the frequency of terms and n-grams using ggplot2. Then, we created a feature co-occurrence matrix (FCM) and visualized the network of words, highlighting the relationships between terms (see Figure 6).

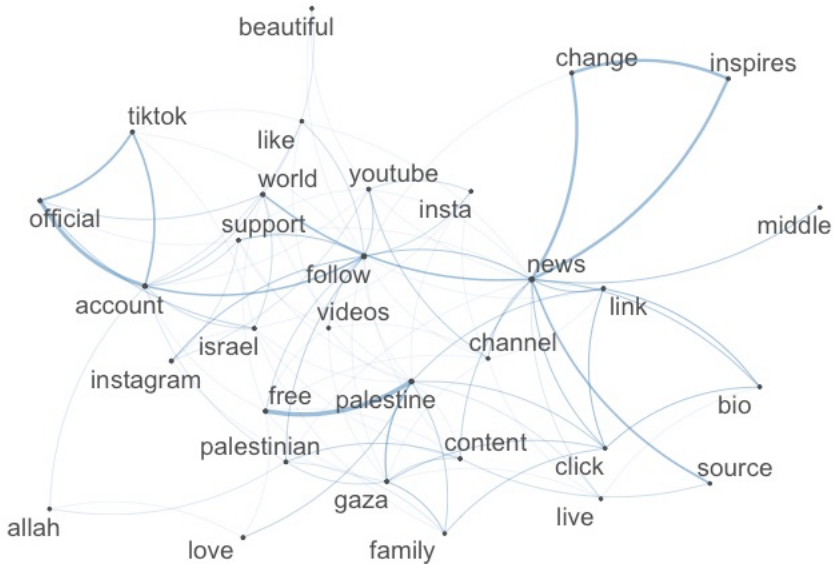

Figure 6 Network of Words

7.6.6 Interactions

In order to perform mean, median, and standard deviation of engagement metrics – like count, comment count, share count, save count, views count, and followers count – we filtered the dataset to remove any entries with missing values (NA) in the columns (see Appendix VI), to ensure that the statistical analysis is based on complete cases.

The mean was calculated to understand the central tendency of the number of comments. The median, which is the middle value when the data is ordered, was calculated to provide a measure of central tendency that is less influenced by outliers compared to the mean. The standard deviation was computed to measure the amount of variation or dispersion in the values. A higher standard deviation indicates that the data points are spread out over a wider range of values (Figure 7).

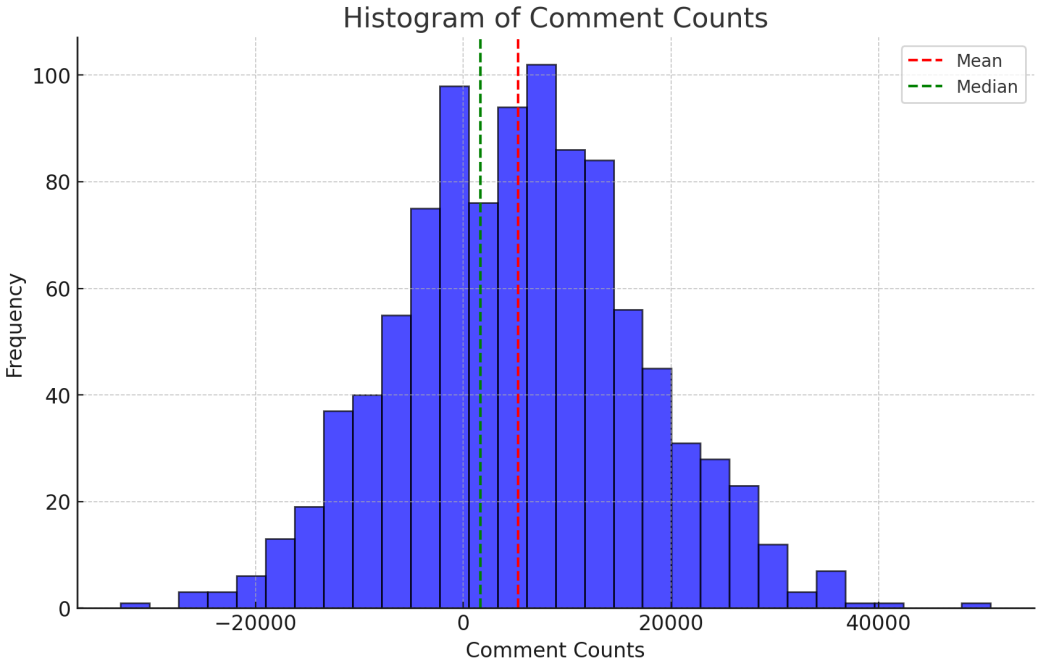

Figure 7 Histogram of Comment Counts

The mean value of 5266.31 and the median value of 1650 suggests a skewed distribution where some posts have a significantly higher number of comments. The high standard deviation of 11811.36 further confirms that there is considerable variability in the comment counts, indicating the presence of posts with exceptionally high engagement.

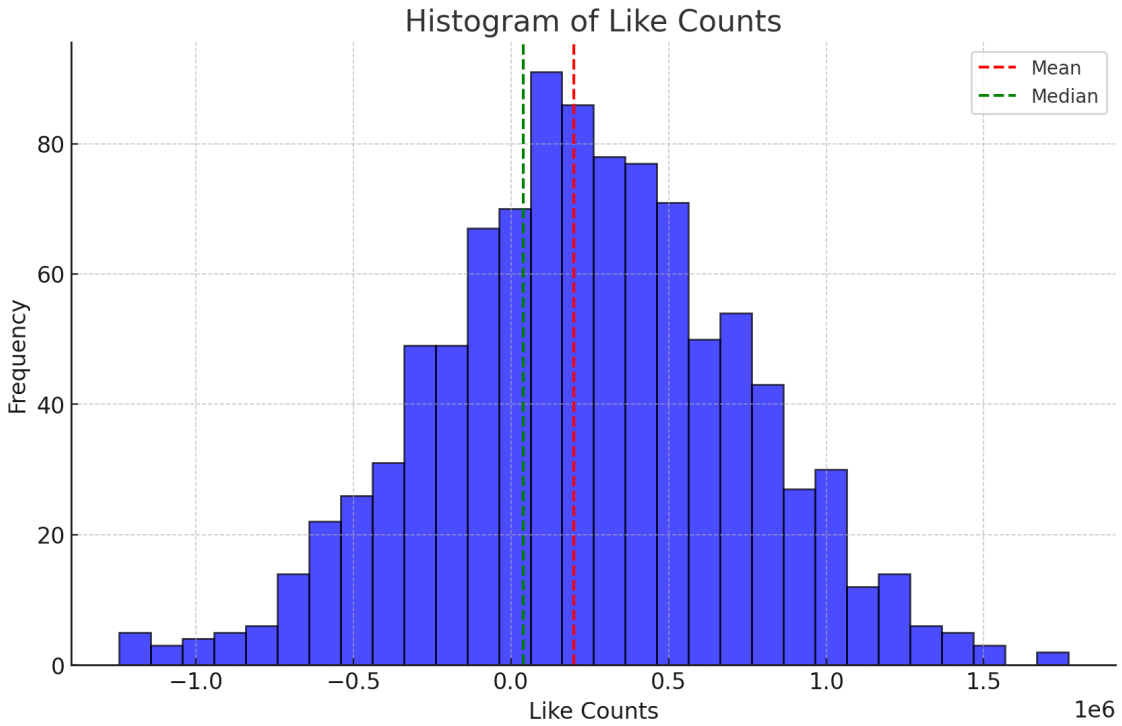

Figure 8 Histogram of Like Counts

The analysis of the like counts reveals, again, a highly skewed distribution, characterized by a mean that is substantially higher than the median and a large standard deviation. This suggests that, while the majority of posts receive a moderate number of likes, there are a few posts with exceedingly high like counts that significantly affect the average (Figure 8).

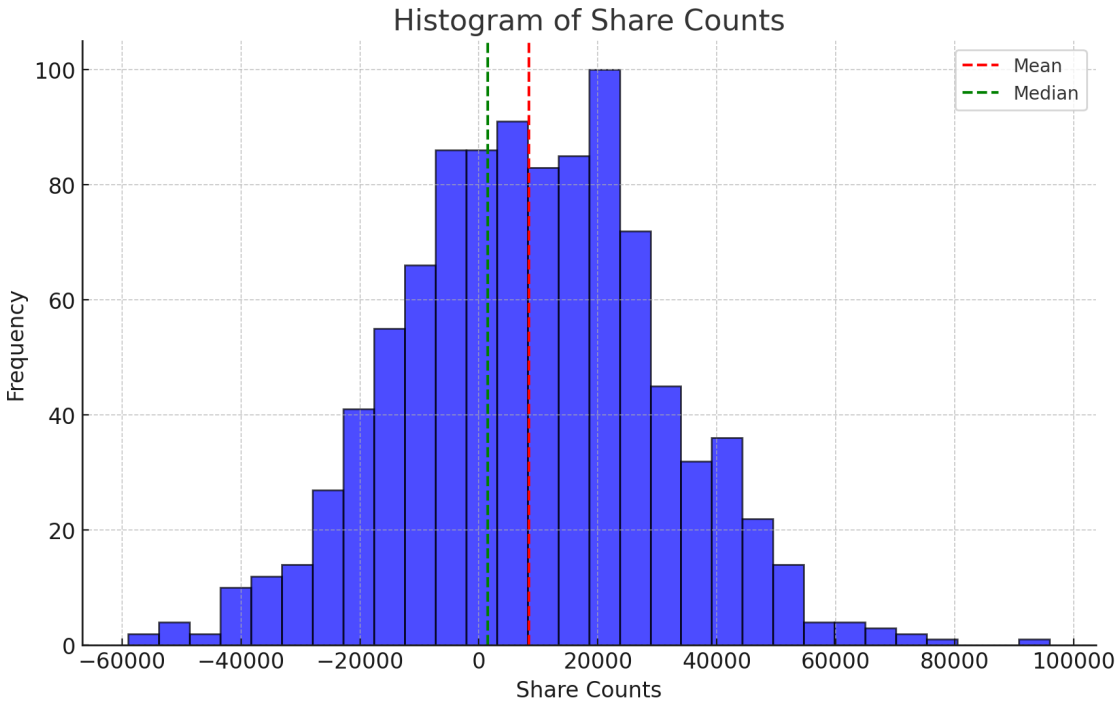

Figure 9 Histogram of Share Counts

The share count data exhibits a similar pattern: the mean count of 8,381.77 indicates that, as this is a relatively high average, some posts are very popular and widely shared. The substantial difference between the mean and the median share count again suggests a positively skewed distribution, with a minority of posts being shared a large number of times. The standard deviation of 22,312.21 is quite high, reflecting substantial variability in share counts across posts. This high standard deviation indicates that while many posts have moderate share counts, there are some posts with extremely high share counts, contributing to a wide spread in the data.

The substantial difference between the mean and the median collect count suggests – again – a positively skewed distribution, where a minority of posts are collected an extraordinarily high number of times. The

standard deviation of 33,572.17 is very high, reflecting substantial variability in collect counts across posts. The analysis of collect counts reveals a pattern of distribution similar to that observed with share and like counts: a highly skewed distribution with a mean significantly higher than the median and a large standard deviation (Figure 10).

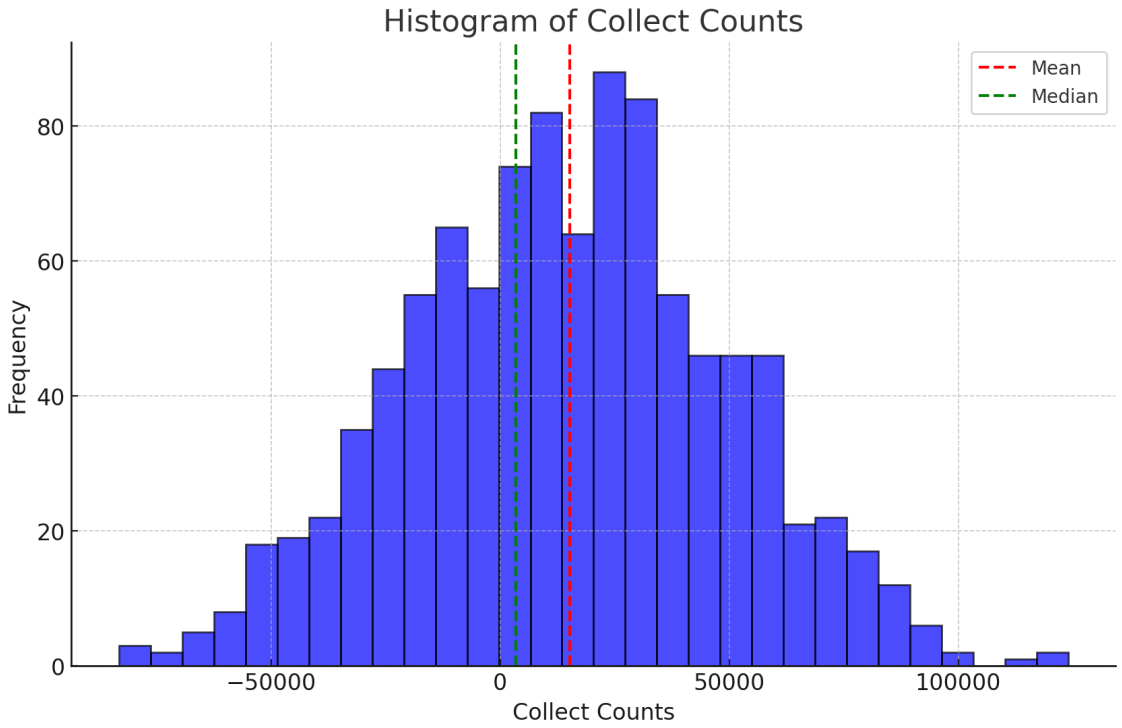

Figure 10 Histogram of Collect Counts

The views count data exhibits a pattern consistent with other engagement metrics, where the mean (3,309,556) is substantially higher than the median (874,200).

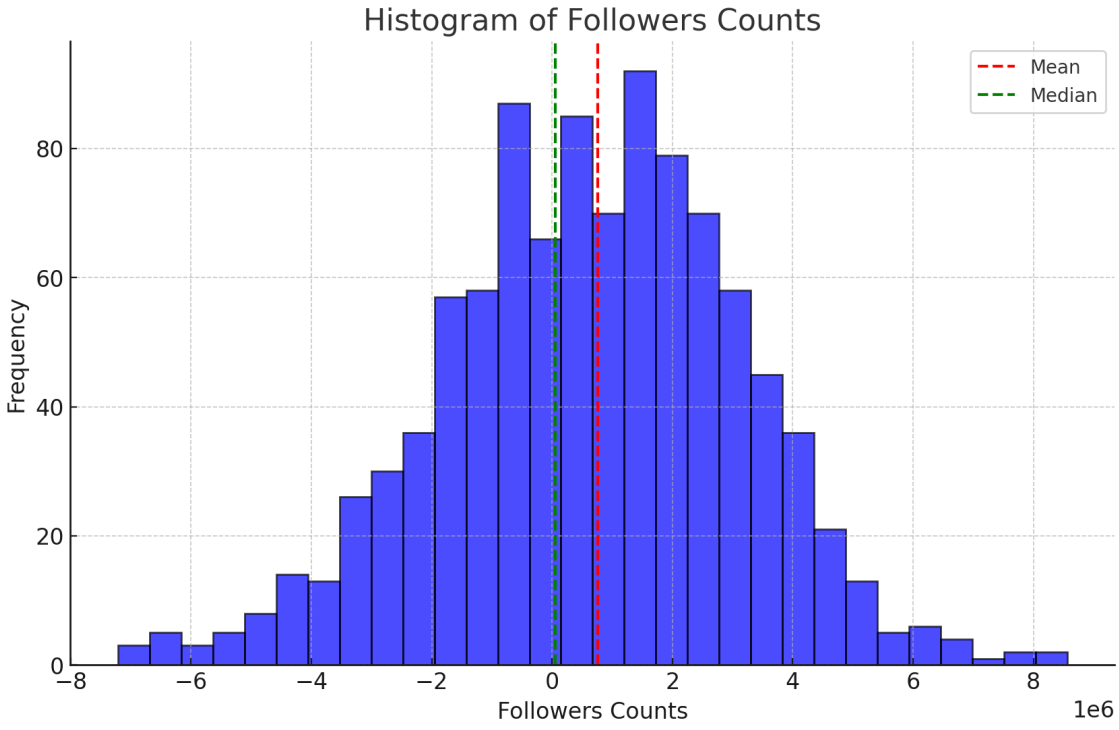

Figure 11 Histogram of Followers Count

The distribution of followers count shows a very large gap between the mean (754,722.5) and the median (51,800), and an extremely high standard deviation (2,508,175). Similar to other engagement metrics, the presence of highly influential accounts with millions of followers creates a wide spread in the data (Figure 11).

7.6.7 Accounts with Higher Engagement

To calculate the engagement of the posts within our dataset, we started from the theoretical configuration of engagement as a two-way interaction between the engagement subject (e.g., the consumer) and engagement object (e.g., the influencer).[290] In social media, engagement mirrors the interactions that content reaches beyond transactions.[291] Social media engagement can be inferred from the engagement rate, which captures the volume of followers' interactions relative to the number of followers of social media influencers.[292] Engagement rate is the ratio between the total number of engagements of each user and the number of followers of each user, whereby "engagements" mean reactions, likes, comments, and shares. This is based on current industry practices.[293]

In our dataset, each row represents a video with various engagement metrics such as comment count, like count, share count, collect count, and view count (data.stats.commentCount, data.stats.diggCount, data.stats.shareCount, data.stats.collectCount, and data.stats.playCount, respectively). The goal has been to create an engagement index for each video that reflects its overall engagement based on the ratio of its play count to other engagement metrics.

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[290] Hollebeek, L. D. (2011). Demystifying customer brand engagement: Exploring the loyalty nexus. *Journal of marketing management*, *27*(7-8), 785-807.
[291] Dolan, R., Conduit, J., Fahy, J., & Goodman, S. (2016). Social media engagement behaviour: a uses and gratifications perspective. *Journal of strategic marketing*, *24*(3-4), 261-277.
[292] Pourazad, N., Stocchi, L., & Narsey, S. (2023). A comparison of social media influencers' KPI patterns across platforms: Exploring differences in followers and engagement on Facebook, Instagram, YouTube, TikTok, and Twitter. *Journal of Advertising Research*, *63*(2), 139-159.
[293] Sehl, K., & Tien, S. (2022). How to calculate engagement rate (Calculator). *Retrieved from the Hootsuite website: https://blog. hootsuite. com/calculate-engagement-rate*.

For each video, we calculated the engagement index by dividing its play count (data.stats.playCount) by the maximum value among comment count, like count, share count, and collect count. This index represents the relative engagement level of each video, considering all available engagement metrics. If any of the engagement metrics (comment count, like count, share count, collect count) is zero for a video, we set the engagement index to zero to avoid division by zero errors. Then, we sorted the videos in descending order based on their engagement index to identify the videos with the highest engagement level.

Finally, we selected the top 50 videos with the highest engagement index to identify the videos with the most significant engagement relative to their play count. (see Appendix VII). After conducting the descriptive analyses on the dataset obtained from the research of all keywords, we proceeded to carry out the same analyses on each of the three individual datasets: “Israel,” “Palestine,” and “Gaza.” By doing so, we aimed to explore potential differences and nuances in the data.

7.7 Comparative Analysis

After conducting the descriptive analyses on the dataset obtained from the research of all keywords, we proceeded to carry out the same analyses on each of the three individual datasets. By doing so, we aimed to explore potential differences and nuances in the data.

7.7.1 Time Distribution

We generated a time series plot to visualize the distribution of data creation over time for each dataset, with monthly intervals, displaying trends through a line plot and highlighting specific points of data creation using red markers.

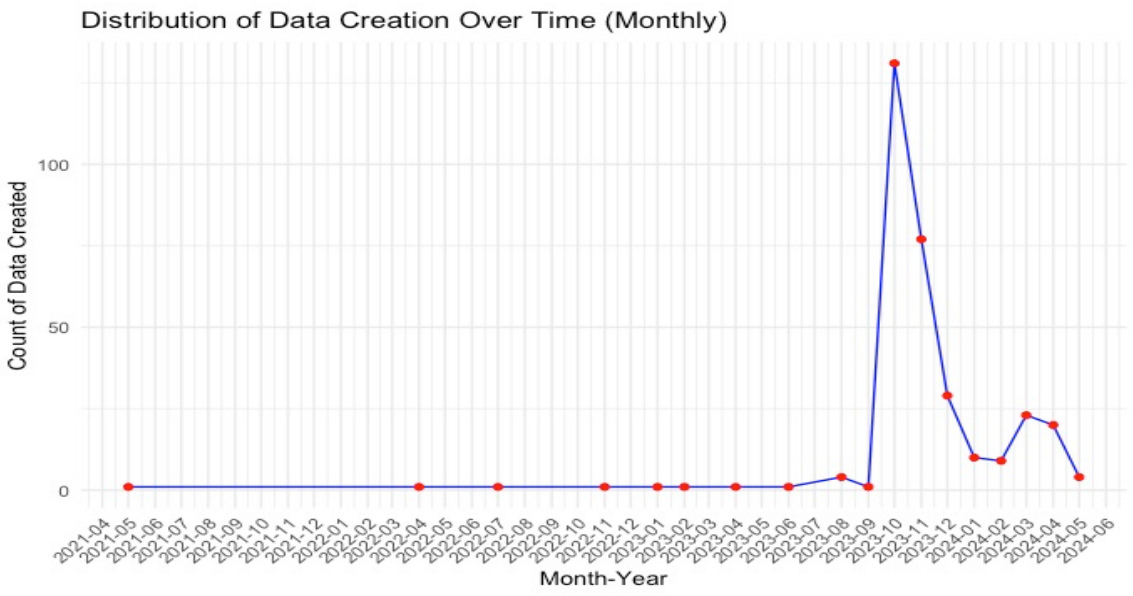

Figure 12 Time Distribution for Gaza Dataset

As far as concerns the Gaza dataset, in August 2023, there is a sharp increase, with the count of video created. Following the peak in August 2023, there is a rapid decline in data creation. However, the data creation continues with noticeable fluctuations in the following months, gradually tapering off by mid-2024.

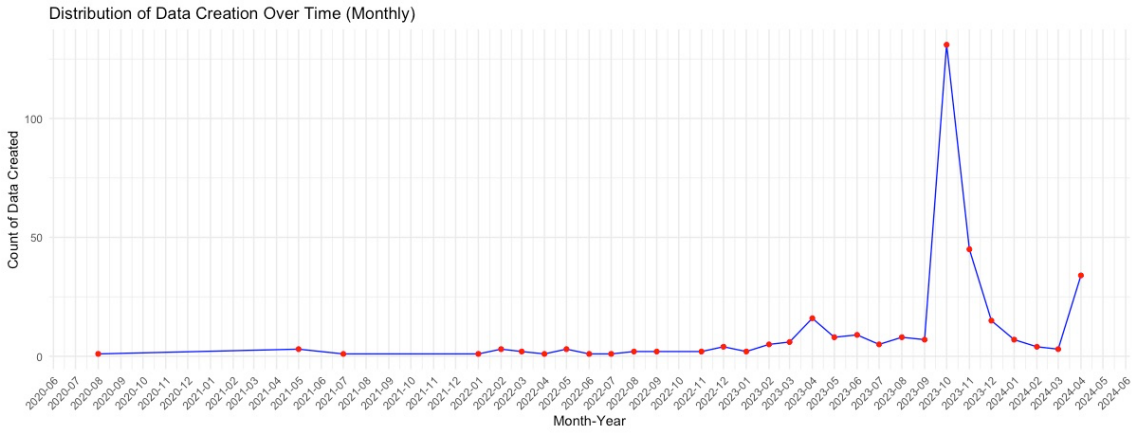

Figure 13 Time Distribution for Israel Dataset

The Time Distribution for the Israel Dataset shows a significant increase in videos is seen in October 2023, where the count rises sharply to its highest point on the graph. After the October 2023 peak, the videos uploads quickly drops off, with a steep decline in the following months. After the decline, there are some fluctuations, and by mid-2024 (around May 2024), there is a noticeable increase in the data creation trend again, though it is not as sharp as the previous spike.

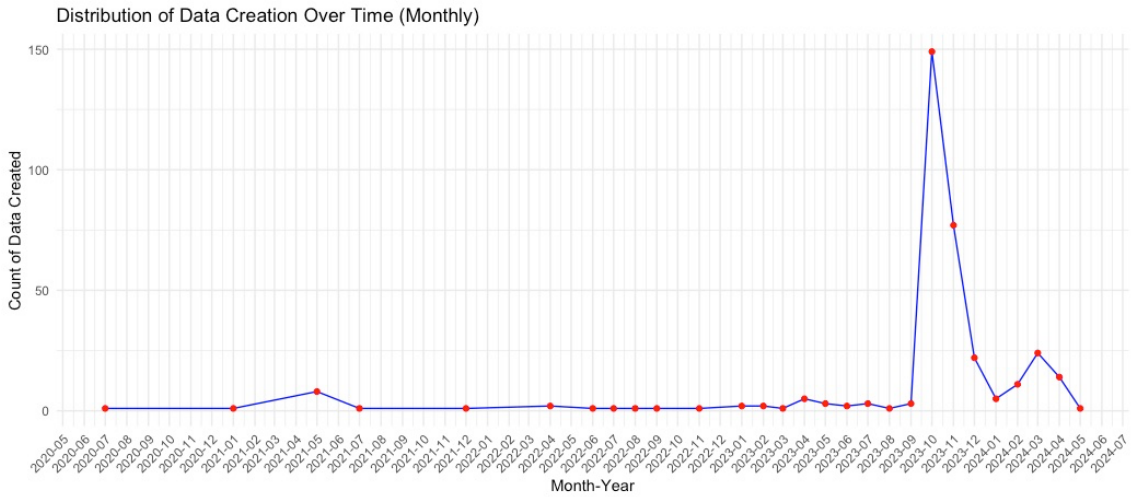

Figure 14 Time Distribution for Palestine Dataset

Finally, the Palestine dataset, similar to the other datasets, video creation remains minimal from mid-2020 until early 2023. The graph is nearly flat, with very few fluctuations. A significant and sharp spike in data creation occurs in October 2023, with the count exceeding 120 entries. This spike is the highest point in the dataset. Again, following the October 2023 peak, there is a decline over the next few months, and after the decline, the data creation activity picks up slightly, showing some fluctuations in early to mid-2024, although it doesn't reach the same levels as the earlier spike. By mid-2024, data creation seems to taper off again, reaching lower levels in the months approaching July 2024.

7.7.2 Popular Sounds

Subsequently, we compared the most popular sounds used by users across the three different datasets, following the same methodology described earlier.

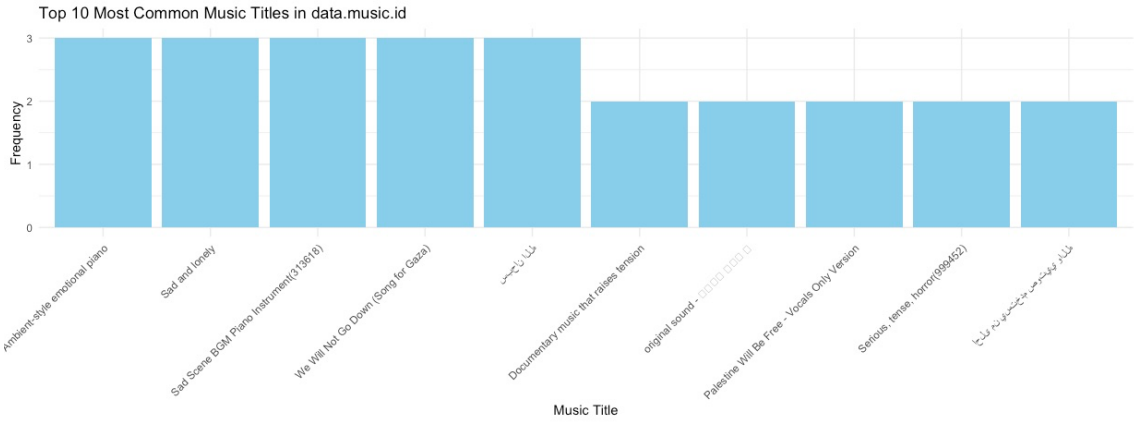

Figure 15 Top 10 Most Common Music Titles in Gaza Dataset

In the Gaza Dataset, the highest frequency music title is "original sound" with a count of 8. Other frequently appearing music titles include "Ayoune El Tefoule" and "dammi falastini by mohammad assaf" with a frequency of 6 each. There is a noticeable presence of Arabic music titles, such as "لحن ال" and "وينك ياعرب", indicating a cultural or regional focus in this dataset.

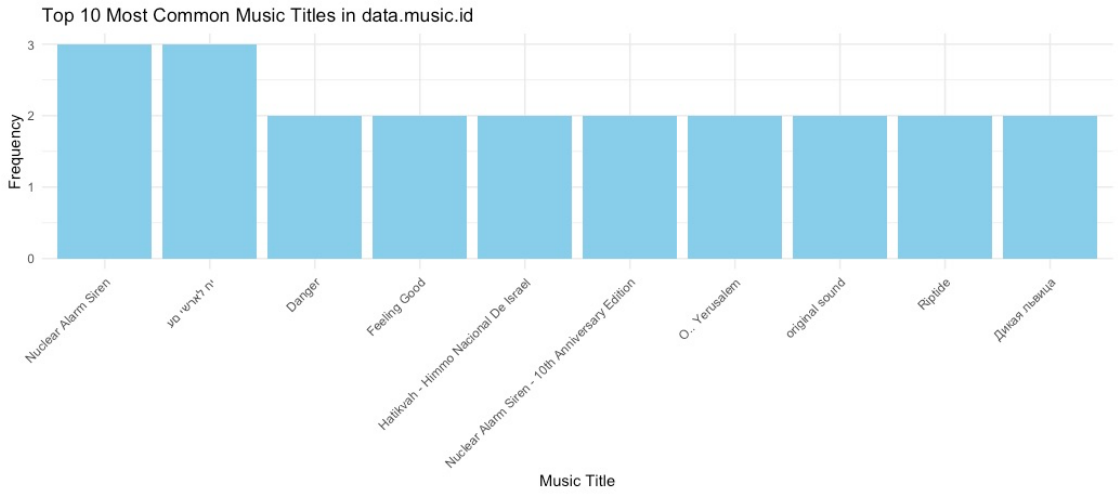

Figure 16 Top 10 Most Common Music Titles in Israel Dataset

In the Israel Dataset, Two titles, "Nuclear Alarm Siren" and "yo why n", have the highest frequency, each appearing 3 times. Other titles such as "Danger", "Feeling Good", and "Hatikvah - Himno Nacional De Israel" also appear in this dataset, reflecting a mix of international and Israeli-themed music. The "O. Yerushalem" and "Nuclear Alarm Siren - 10th Anniversary Edition" suggest a focus on content related to Israel, likely driven by nationalistic or thematic tracks.

Finally, in the Palestine Dataset there's a wide array of music titles, with a more diverse spread in frequency. Most titles appear around 2-3 times. Notable titles include "Sad Scene (GM)", "Emotional Piano", "Documentary music that makes stories", and "Palestine Will Be Free (Vocals Only Version)", indicating the presence of thematic and emotionally driven music, possibly related to narratives and documentaries. Tracks like "Stefania (Eurovision Hymn)" add a global context to this dataset, showing an intersection of both local and international music.

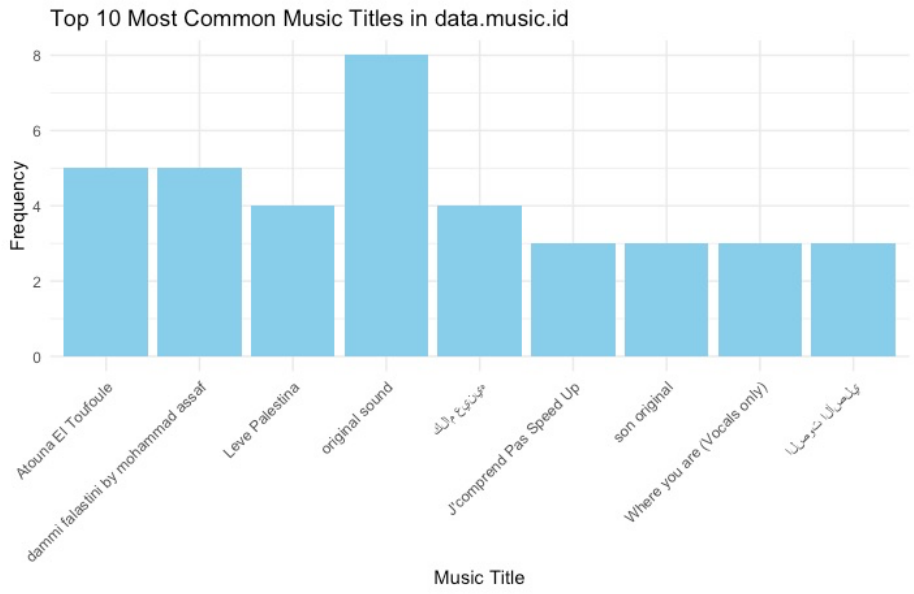

Figure 17 Top 10 Most Common Music Titles in Palestine Dataset

7.7.3 Most Frequent Users

Just as we did for the complete dataset, we analyzed which authors were the most frequent in each individual dataset.

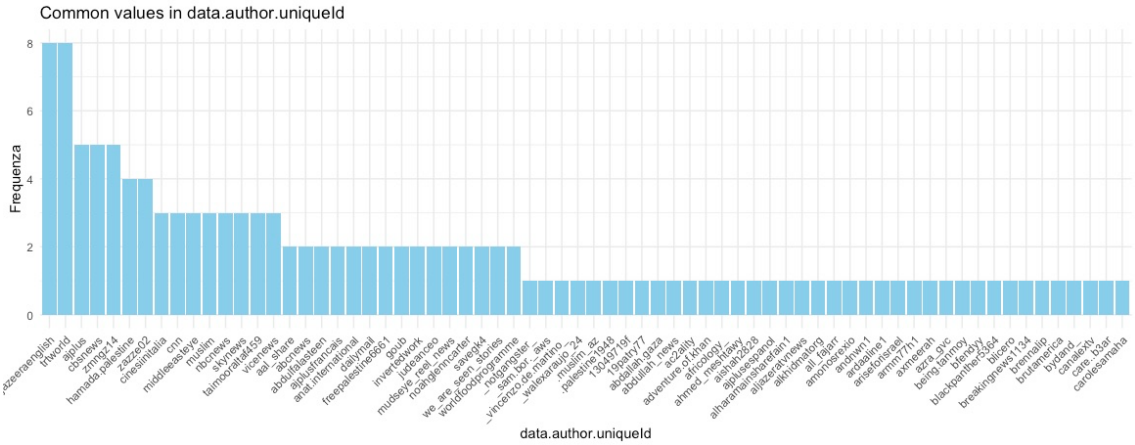

Figure 18 Most Common Creators in Gaza Dataset

In the Gaza Dataset, the most common authors are AlJazeeranglish, trtworld, ajplus, cbsnews.

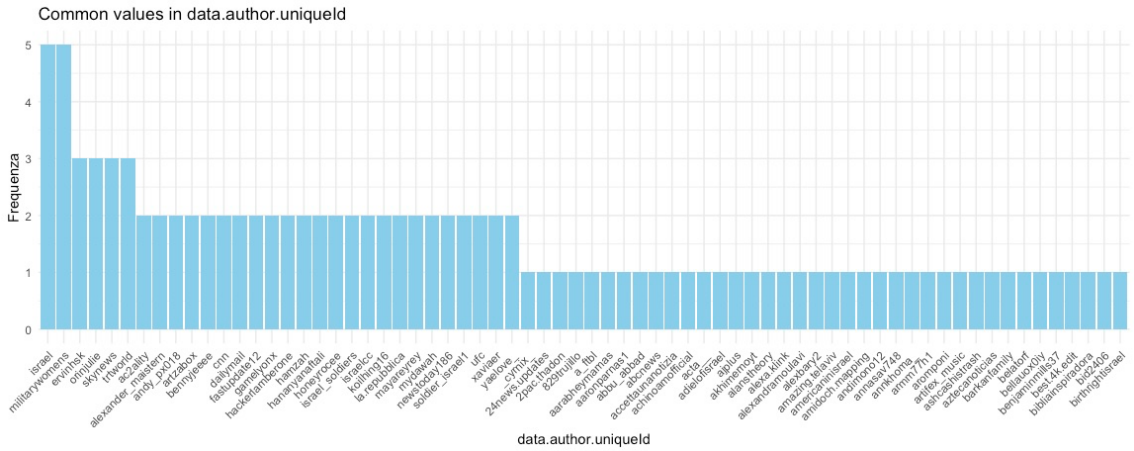

Figure 19 Most Common Creators in Israel Dataset

In the Israel Dataset, the most common occurences are israel, militarywomens, ervinhsk, orinjulie, skynews. In the Palestine dataset, we can see trtworld, alijazeeraenglish, palestine_official, palestinevibes, and wolpalestine.

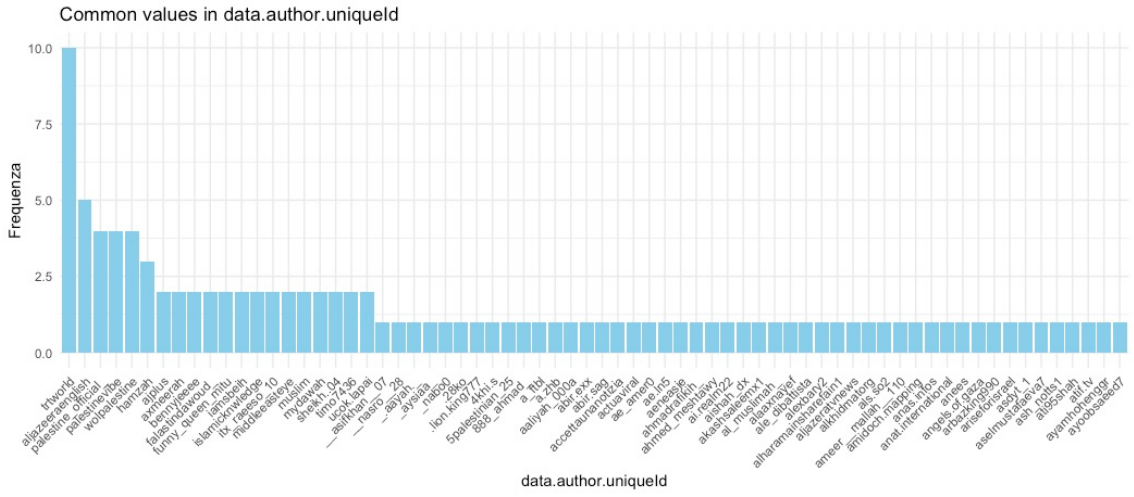

Figure 20 Most Common Creators in Palestine Dataset

7.7.4 Comparative Analysis of engagement metrics in Gaza, Israel, and Palestine datasets

In the next step of the analysis, we calculated the key statistics for each dataset to examine different metrics, which comment counts, like counts, share counts, collect counts, play counts, and follower counts. For each of these metrics, the mean, median, and standard deviation were computed to summarize the central tendencies and variability in user engagement.

In the "Gaza" dataset, the average number of comments per post was 4771, while the median was significantly lower at 1276. This pattern is further emphasized by the high standard deviation (10237), suggesting considerable variation in user engagement. In comparison to the Gaza dataset, the Israel ONE exhibits similar trends of skewed distributions and significant variability across engagement metrics. The average number of comments per post (5,958.4) was higher than in the Gaza dataset, but the median (1,686.5) was still much lower, indicating that a few posts received a disproportionate number of comments.

Similarly, for likes, the mean in the Gaza dataset was 185,575.2, with a much lower median of 32,700, and an extremely large standard deviation of 519,758.4, again highlighting the variability across posts. The same pattern encountered with comments is evident in the likes of the Israel dataset, with a mean of 142,071.3 and a median of 26,550, showing a large gap between the most and least popular posts, reflected in a standard deviation of 466,231. In the "Palestine" dataset, we continue to observe substantial variability across key engagement metrics. The average number

of likes per post was 282,659.2, with a median of 94,250, showing a more pronounced gap between the average and median than in the previous datasets, indicating even more skewed engagement. The high standard deviation of 546,179.1 further emphasizes the presence of a few posts with extremely high like counts.

In the Gaza dataset, the share counts followed a similar trend, with an average of 9720.9, a median of 1807, and a standard deviation of 25,832.7. Share counts in the Israel dataset followed suit, with a mean of 5,376.9 and a median of 966, compared to the "Gaza" dataset's higher mean and median, indicating a broader distribution of shares across posts. Similarly, in the Palestine dataset, the average number of shares was 11,447.9, with a median of 2,829.5, and a large standard deviation of 25,805.1, again reflecting the pattern of a small number of highly shared posts driving up the average.

Collect counts of the Gaza dataset showed an average of 15,484.6, a median of 3120.5, and a standard deviation of 40,456.8, suggesting some posts were saved far more frequently than others. For the Israel dataset, the mean was 10,754.9, with a median of 2,130.5 and a high standard deviation of 32,547.4, indicating wide variability similar to that observed in the first dataset. The collect counts in the Palestine dataset followed a similar trend, with a mean of 21,175.2, a median of 8,356, and a standard deviation of 36,009.2, revealing wide variation in how often posts were saved.

The view counts were especially high in the Gaza dataset, with a mean of 2,343,083, a median of 642,300, and a standard deviation of over 5 million, indicating that certain posts went viral. Again, in the Israel dataset,

views had a particularly large mean of 3,443,474, with a median of 907,600, and a high standard deviation of 8,862,791, showing that a small number of posts went viral, much like the "Gaza" dataset. In the Palestine datsset views were particularly high as well, with a mean of 4,064,425 and a median of 1,550,000, suggesting that some content went viral, as seen in earlier datasets, supported by a large standard deviation of 7,419,560.

Finally, the analysis of follower counts showed that the average number of followers was 876,102.9, but the median was much lower at 70,300, with a standard deviation of over 2 million, underscoring the presence of a few highly influential accounts with massive followings compared to the rest. As far as it concerns the Israel dataset, the average follower count was 600,551.7, lower than the Gaza one, but both datasets demonstrate the presence of highly influential accounts driving the overall averages up. In the Palestine dataset, follower counts had an average of 780,038.6, but the median was much lower at 43,100, with a massive standard deviation of 3,185,460, underscoring the significant influence of a few highly followed accounts.

We can observe notable trends in user engagement metrics by calculating the coefficient of variation (CV), which expresses the relative variability of the data. We find that for comments, the Gaza dataset has a CV of 214.5%, compared to 171.8% for Israel and 182% for Palestine. This indicates significant variability in user comments across all datasets, with Gaza exhibiting the highest inconsistency. For likes, the CV is particularly high: Gaza has a CV of 280%, Israel at 328%, and Palestine at 193%, reflecting that a few posts receive disproportionately high levels of engagement. Similarly, share counts are also highly variable, with Gaza

having a CV of 265.7%, Israel at 233.2%, and Palestine at 225.4%. These high values indicate the skewed nature of shares, with a few posts driving the overall averages upward. For collect counts, Gaza's CV is 261.3%, Israel's is 302.6%, and Palestine's is 170%, indicating that posts are saved far more frequently in some cases than others. For views, which represent the largest standard deviations across all datasets, Gaza has a CV of 213.5%, Israel at 257.3%, and Palestine at 182.5%, again underscoring the viral nature of a small subset of posts. Follower counts exhibit extreme variability, with Gaza's CV at 228%, Israel's at 334.5%, and Palestine's at an extraordinary 408.3%, demonstrating that only a few accounts have amassed massive followings, significantly skewing the data.

In addition to the CV analysis, we can further evaluate the skewness of these distributions by observing the disparity between the mean and median values. In all metrics across the three datasets, the mean is significantly higher than the median, confirming a positive skew. This confirms that engagement is dominated by a few high-performing posts or accounts, while the majority receive lower engagement. These skewed distributions are most pronounced in follower counts and views, where certain viral content or popular accounts drastically impact the overall metrics.

7.7.5 Engagement

We designed an R script to preprocess and analyze the dataset, specifically by computing and organizing engagement metrics (Appendix VII).

The dataset is filtered to retain only the relevant columns, including follower and following counts, creation time, likes, shares, comments, collections, play counts, music metadata, and a unique identifier. Additionally, two binary flags are created using `grepl()` to detect specific emojis in the content descriptions (`data.desc`), representing Palestinian and Israeli flags. This allows for the analysis of content flagged with political symbols. After this, the text-based description column is removed from the dataset for cleaner analysis.

We calculated the engagement metric, `engagement.plays`, by combining the product of likes, shares, comments, and collections, divided by play counts, and scaled by a factor of 100,000 to normalize the values. We then removed the individual engagement metrics (likes, shares, comments, and collections) to avoid potential multicollinearity issues that could arise from including both the aggregated metric and the individual components. The dataset was then sorted in descending order of this newly created engagement metric, which enables further analysis or visualization based on the most engaged-with content.

Subsequently, we designed a model to determine which of the variables have a significant impact on the number of views the content

receives. The model is a linear regression model that seeks to explain the relationship between several independent variables and the dependent variable, engagement.plays. This structure specifies that engagement.plays is the dependent variable (i.e., the outcome we are trying to predict), and the other terms are independent variables (i.e., predictors that we believe influence plays). The output shows coefficients - which represent the effect of each independent variable on engagement.plays, and positive coefficient means that as the independent variable increases, the number of plays tends to increase, and vice versa for a negative coefficient; p-values - which tells us how well the independent variables together explain the variation in engagement.plays, with a higher R-squared meaning that the model is better at explaining the outcome; R-squared which tells us how well the independent variables together explain the variation in engagement.plays, and when R-squared has a higher value, that means that the model is better at explaining the outcome; residual standard error, which shows how much variation in engagement.plays is not explained by the model, with a smaller value indicating a better fit.

We obtained an R-squared value of 0.07753, which is obviously low, as expected given the complexity of the phenomenon and the limited amount of information available. This indicates that only about 7.75% of the variance in the data is explained by the model. The adjusted R-squared value, at 0.07025, is similarly low, which further suggests that even after accounting for the number of predictors, the model is unable to adequately capture the variability. This likely reflects the fact that there are many additional factors influencing the outcome that are not included in the current model.

The regression analysis provides insights into the factors influencing engagement.plays, revealing both expected and surprising trends. One of the most notable findings is the significant negative relationship between author's follower count and engagement.

The residuals represent the differences between the observed values and the values predicted by the model. In this output, the minimum residual is -18.74, meaning that in the worst case, the model overestimated engagement.log by approximately 18.74 units. The maximum residual is 15.48, indicating that in the best case, the model underestimated engagement.log by about 15.48 units. The other quartile residuals give insight into how these errors are distributed across the data points, with smaller values suggesting a closer fit for those points.

The coefficients provide an estimate of how each independent variable affects engagement.log. These are the most critical part of the regression output as they indicate how much engagement.log changes in response to changes in the independent variables.

The intercept of 38.38 represents the predicted value of engagement.log when all other variables are zero. However, like in many regression models, this value might not be meaningful on its own, especially if zero is not a plausible value for the independent variables.

The creation time of the data has a coefficient of -1.882x10^{-8}, but this effect is not statistically significant (p-value = 0.166). Therefore, we can say that the creation time of the data has not a meaningful impact on engagement.log. However, we will keep it in the model as an adjustment

factor for the other variables, ensuring that potential confounding effects related to time are accounted for.

The presence of the Israel flag has a coefficient of -1.704, indicating a significant negative effect on engagement.log. With a p-value of 0.013, we can say that posts with the Israel flag tend to have lower engagement.log values, all else being equal.

On the other hand, the presence of the Palestine flag has a coefficient of 1.716 and a p-value of 0.001, making it highly statistically significant. This suggests that posts with the Palestinian flag tend to see a positive impact on engagement.log.

The author's follower count has a positive and significant coefficient of 3.862×10^{-7}, meaning that as the author's follower count increases, engagement.log increases slightly. The low p-value ($p<0.001$) confirms that this variable is highly statistically significant.

In contrast, the author's following count has a negative coefficient of -3.813×10^{-4} and a significant p-value of 0.005, indicating that as the author follows more accounts, engagement.log decreases. This inverse relationship is statistically significant and highlights a potential dynamic where following more accounts correlates with lower engagement.

Finally, the presence of original music has a positive coefficient of 1.462 and a p-value of 0.003, indicating that posts with original music have a statistically significant positive impact on engagement.log.

Coefficients	Estimate	Std. Error	t value	Pr(>|t|)	Significance
(Intercept)	38.38	23.03	1.666	0.096078	.
data.createTime	-1.882E-08	1.359E-08	-1.385	0.166489	
flagisraelTRUE	-1.704	0.6878	-2.477	0.01345	*
flagpalestineTRUE	1.716	0.5032	3.41	0.000684	***
data.authorStats.followerCount	3.862E-07	8.847E-08	4.365	1.44E-05	***
data.authorStats.followingCount	-0.0003813	0.0001371	-2.782	0.005541	**
data.music.originalTRUE	1.462	0.4952	2.953	0.003249	**

Figure 21 Model Results

The model explains about 7.75% of the variance in engagement.log, as indicated by the R-squared value. This suggests that while the included variables are important, most of the variation in engagement.log is likely due to other factors that are not captured by the model, such as content quality, platform-specific algorithms, or other variables not included here. The F-statistic, with a p-value of $2.237\text{x}10^{-11}$, confirms that at least one or more of the variables are meaningful predictors of engagement.log, even though the overall explanatory power of the model remains modest.

We created a histogram (Figure 23) that shows the distribution of the log-transformed engagement.plays variable. The x-axis represents the log-transformed values of engagement.plays, which means the original values of engagement.plays have been transformed using the natural logarithm. Log transformation is often used when data is skewed (for example, when there are a few very large values that could distort the scale), and it helps to normalize the distribution. The y-axis shows the count of observations (data points) that fall into each bin of the histogram. Each bar in the histogram represents how many values of log(engagement.plays) fall within a certain range (or bin). The distribution starts low, increases toward

the center, and then slightly decreases again. This indicates that the log-transformed engagement.plays values are concentrated in the middle range, with fewer data points at the extremes (both very low and very high values).

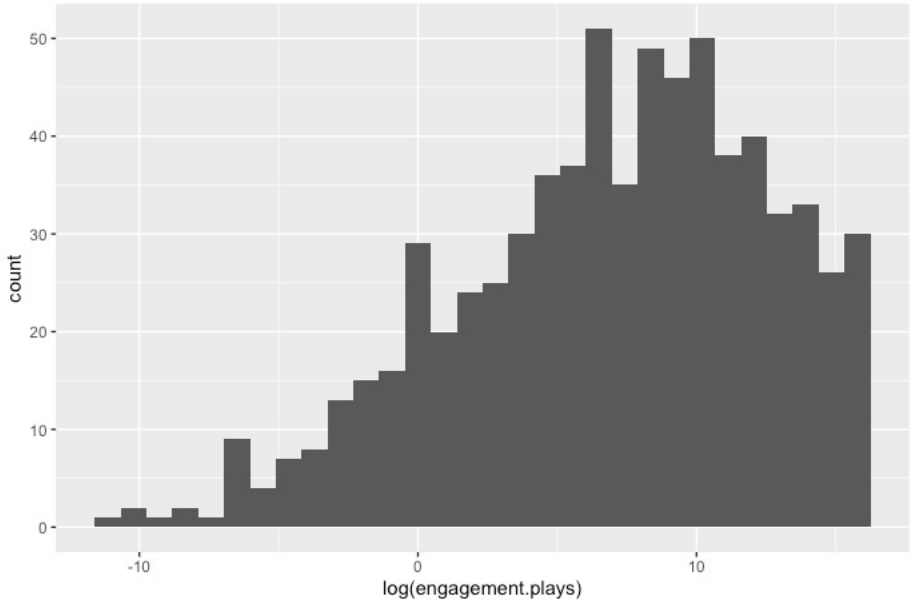

Figure 22 Histogram of Engagement Analysis in log-scale

7.8 Random Forest Model

The random forest algorithm was selected for several reasons. First, given that social media engagement is likely influenced by complex, non-linear relationships between variables (e.g., interplay between user followers, post interactions, and content features), random forests are well-suited to capture these dynamics without requiring explicit assumptions about the functional form of the relationships. Moreover, Random forests provide a measure of feature importance, which allows us to understand which variables contribute most significantly to predicting engagement, an essential consideration for interpreting results and improving future

models. Not only that, but by averaging across many decision trees, the random forest reduces the likelihood of overfitting, especially in cases where the dataset might contain noisy or irrelevant features (e.g., the music-related attributes in our dataset).

The random forest model was trained to predict engagement.plays, a derived measure of engagement based on post interactions such as likes, comments, shares, and collections. The model included several predictors, including the number of followers and followings, post metrics (e.g., number of shares, likes, comments), content description flags (e.g., presence of certain emojis), and music-related attributes (Appendix VIII). The random forest model was trained with the following settings: 100 trees were used to ensure a robust aggregation of decision trees; 2 variables were randomly selected at each split, as specified by the mtry parameter, allowing the model to explore different subsets of predictors across trees.

The random forest algorithm provides two key metrics for understanding feature importance: %IncMSE and IncNodePurity. %IncMSE indicates the percentage increase in mean squared error if a particular variable is removed from the model, with higher values representing more important predictors.

In this analysis, the number of followers (data.authorStats.followerCount, 23.40% IncMSE) was the most important variable, meaning that posts by users with larger follower counts are highly predictive of engagement. The variable related to the post's creation time (data.createTime, 7.04% IncMSE) also had a notable influence on engagement, suggesting that when a post is created can affect how much

engagement it receives. The flag for posts related to Palestine (flagpalestine, 8.60% IncMSE) further contributed to predicting engagement, indicating that these posts tend to drive more interaction.

Other variables, such as the number of accounts the author follows (data.authorStats.followingCount, 4.89% IncMSE) and whether the post contains original music (data.music.original, 4.39% IncMSE), had smaller yet still meaningful contributions. The flag for Israel-related posts (flagisrael, 2.26% IncMSE) showed the least impact among the considered variables, though it still contributed positively to the model.

The second metric, IncNodePurity, reflects the reduction in node impurity (variance) caused by each variable across all trees, with higher values indicating a greater contribution to splitting the data. The follower count (IncNodePurity = 8708.92) had the highest value, emphasizing its central role in explaining engagement variance. The creation time (IncNodePurity = 5311.51) also contributed significantly, reinforcing its importance. Interestingly, despite its higher %IncMSE, the Palestine-related flag (IncNodePurity = 844.31) had a lower node purity, suggesting its impact is more nuanced. Other variables, like the flag for Israel and the use of original music, had smaller contributions to node purity.

The mean squared error (MSE) of the model was 31.68. With the model explaining about 18.08% of the variance, the overall results suggest that author-specific features, such as follower count, play a far more crucial role in predicting engagement than metadata like post creation time or flags related to geographical content.

The results of the random forest model suggest that author characteristics (follower count) are the most significant predictors of engagement, more so than the content of the post itself (music originality or use of flags). Specifically, posts by authors with more followers tend to drive significantly higher engagement, which aligns with the common understanding that influencers or highly followed users receive more interaction. While post-specific variables like creation time and flags for specific regions (Palestine in particular) do affect engagement, their impact is much less pronounced compared to the author's follower base.

In contrast, the music-related feature (data.music.original) had a relatively low impact, indicating that while originality in music might be relevant for some posts, it does not strongly predict engagement in the dataset analyzed. The presence of flags related to Israel showed the least influence, despite contributing some noise to the model.

The variable flagpalestine has a relatively high %IncMSE, suggesting that posts related to Palestine are important for predicting engagement (Table 24). Removing this variable would lead to a considerable increase in the model’s error.

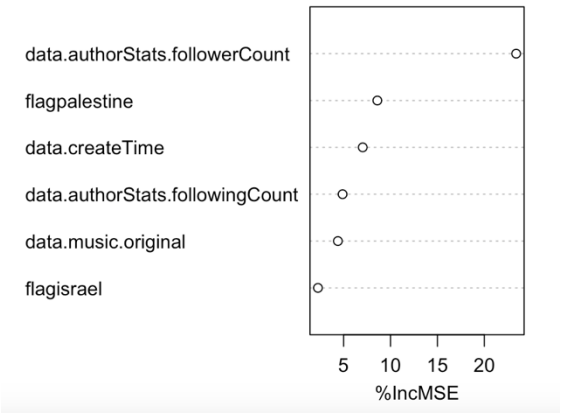

Figure 23 %IncMSE of Random Forest Model

7.9 Network Analysis

We illustrated the most widely used mathematical tools for network analysis in Chapter 6. Unfortunately, we are not able to exploit such frameworks for network reconstruction as we have been able to sample only a very small fraction of the entire influencer network, much less the entire TikTok users network. The information at our disposal is then lacking when it comes to the numerosity of the nodes (users). Moreover, we have no information about the pairwise interaction between the sampled users (direct following).

Nonetheless, we are able to explore the behaviour of the dataset and compare it to known models using the non topological information at our disposal: we consider the in-degree of our nodes, amounting to the number of direct followers of each user.[294] To this aim, we are interested in analyzing the degree distribution: the assumption is that it is going to follow a power law,

[294] For clarity, we refer to the in-degree as "degree" throughout this section.

hallmark of a Barabási network model as explained in section 6.7, after a certain threshold; this would mean that we are able to assert the presence of hubs.

$$P(k) \sim k^{-\gamma}$$

where γ is a constant, often referred to as the power-law exponent.[295]

The degree distribution is visualized in Figure 25, where we plot the data representative of hubs that are highly distinct from the bulk of the distribution. The log-log plot of the degree distribution clearly shows a small number of nodes with very high degree values, representing the "hubs", while the majority of the nodes exhibit much smaller degree values. This discrepancy between the large degree of hubs and the bulk of lower-degree nodes is characteristic of a power-law distribution, confirming the scale-free nature of the network even within our limited sample.

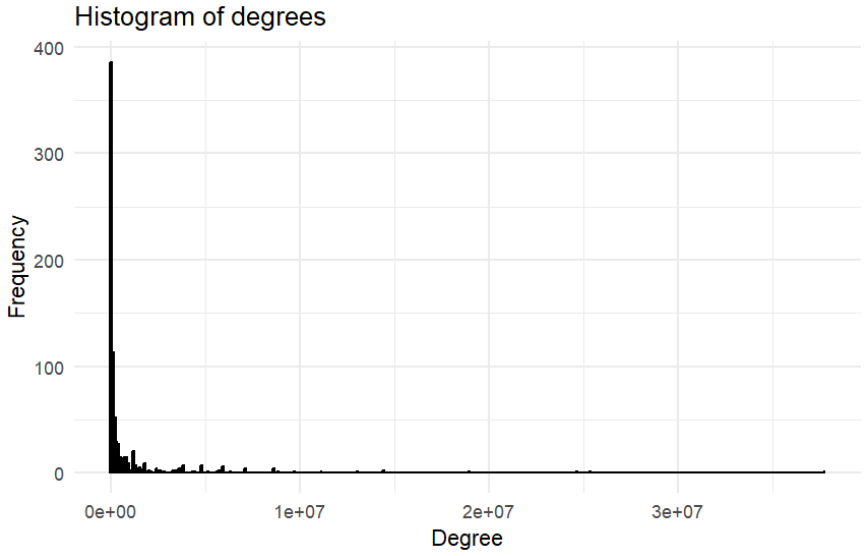

Figure 24 Histogram of Degrees

A more quantitative assessment of the power law behavior, evident in the tail of the distribution, is done by fitting the exponent γ. The exponent γ is a

[295] The ~ represents the fact that the equation holds up to a multiplicative normalizing constant.

critical parameter that characterizes how quickly the degree values decay as we move towards nodes with higher degrees (or more connections). To estimate this exponent, we focus on the higher end of the distribution, where we expect the power-law behavior to be most prominent. To make this estimation, we divide the nodes into different ranges based on their degrees. Specifically, we focus on nodes with a degree (number of followers) of at least 4,000,000, then on nodes with degree greater than 6,000,000. These nodes represent the top 5% (2,5%) of users in terms of degree, placing them in the 95^{th} (97,5%) percentile of the distribution, amounting to 39 (19) top degree nodes (see Appendix IX). This choices of threshold is based on the observation that power-law behavior is usually clearest among the hubs in the network.

By fitting the data from two different thresholds, we can more accurately estimate the exponent γ. This two-threshold approach helps confirm that the power-law behavior holds consistently at different levels within the tail of the distribution. However, due to the limited size of our sample, we are not able to estimate γ using a single, comprehensive dataset. Instead, we rely on the data available in the top percentiles (39 and 19 nodes, respectively).

Despite these limitations, our analysis shows that the degree distribution still follows a power-law pattern, with an estimated γ value of approximately 2.91. This means the sampled network retains the hallmarks of a scale-free network, with a small number of highly connected hubs and many more nodes with fewer connections.

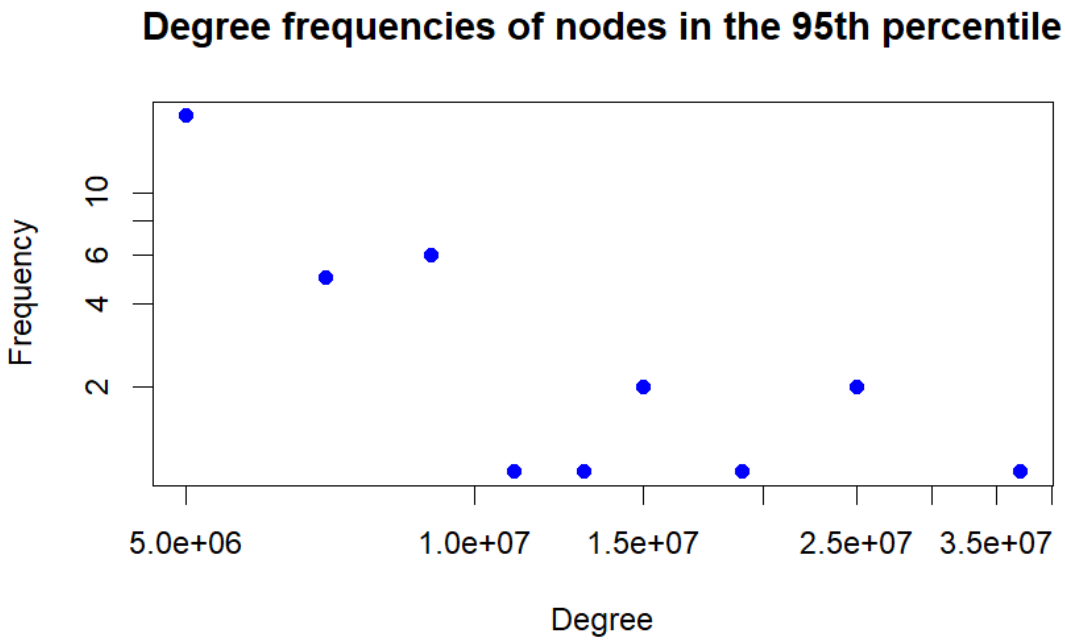

Figure 25 Degree Frequencies in the 95th Percentile

Therefore, we conducted the fitting of the distribution in two distinct cases, obtaining power-law exponents of $\gamma = 2.534$ and $\gamma = 2.583$, respectively. These results further confirm the tendency of the network to follow a power-law distribution, even with the limited data available. The two estimates, while derived from different samples, are remarkably close to each other, reinforcing the hypothesis that the network exhibits scale-free properties, characterized by the presence of hubs with significantly higher connectivity compared to the average nodes. These findings are consistent with observations from other real-world networks, where the exponent of a power-law distribution typically falls within the range of $2 < \gamma < 3$.

Relying on the visual approach, we created to graphs showing the degree distribution of nodes within the 95th percentile, both highlighting the frequencies of nodes with varying degrees of connections. The linear trend observed in the log-log scale is a characteristic feature of power-law behavior, suggesting that the network follows a scale-free structure. This is a hallmark of Barabási–Albert

networks, where a small number of highly connected "hubs" emerge, while the majority of nodes have relatively few connections. The presence of a power-law distribution reinforces the idea that the network contains these critical hubs, which dominate the overall connectivity.

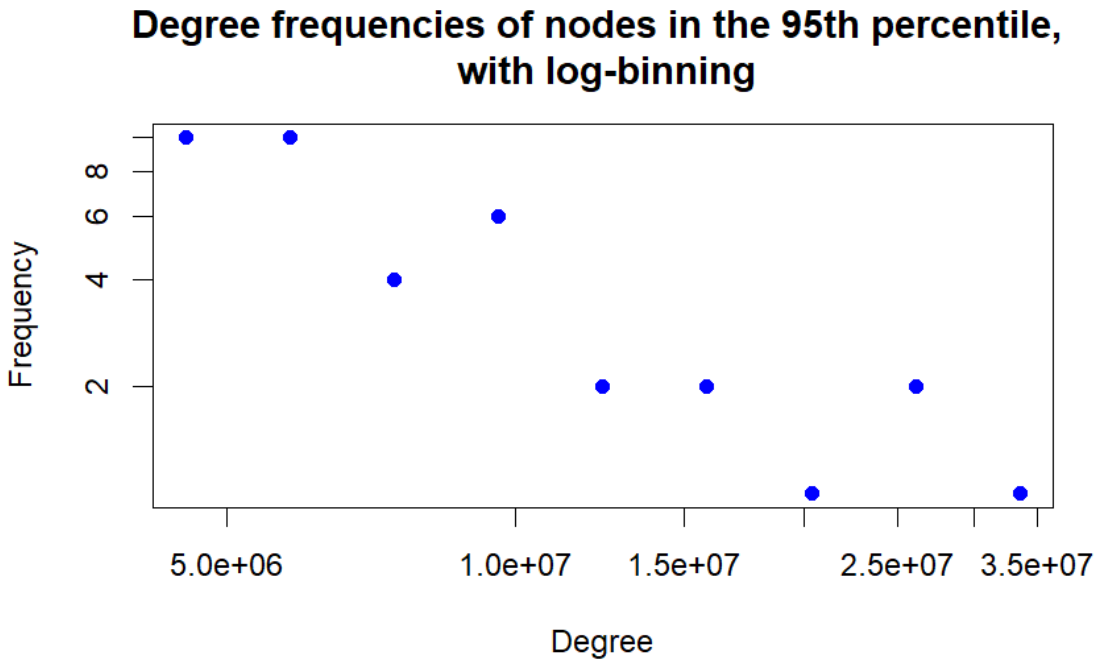

Figure 26 Degree of nodes in the 95th Percentile with log-binning

In Figure 27, log-binning is used to better visualize distributions with large ranges of values, since we are dealing with sparse data in the tail of the distribution, as is typical for networks that follow a power-law. Instead of counting each degree value individually, the degrees are grouped into logarithmically spaced bins, reducing noise and emphasizing trends in the data. This approach smooths out fluctuations and highlights the underlying power-law behavior more clearly, especially in the tail of the distribution where the majority of the variance occurs (see Appendix X). Our analysis reveals a mean degree of 754,722.5 with a standard deviation of 2,508,175. These values highlight a significant variance in the degree distribution among the sampled nodes. The

large standard deviation, in particular, underscores the presence of nodes with exceptionally high degrees, further confirming the scale-free nature of the network (see Appendix XI).

The exponents we found for the sampled network considered are consistent with other experimental cases found in the literature
As a future step, we surmise that a larger sample size would likely reveal a power-law behavior with γ in the range $2<\gamma<3$, as is typically expected for scale-free networks. Expanding the dataset and incorporating additional information would also allow us to reconstruct the network using more detailed node-level information, enabling a more comprehensive analysis of the structure and dynamics of the influencer network through the deployment of the techniques described in paragraph 6.9.

Network	N	L	⟨k⟩	⟨k_in²⟩	⟨k_out²⟩	⟨k²⟩	γ_in	γ_out	γ
Internet	192244	609066	6.34	-	-	240.1	-	-	3.42
WWW	325729	1497134	4.6	1546.0	482.4	-	2.0	2.31	-
Citation Network	449673	4689479	10.43	971.5	198.8	-	3.03	4.0	-
Email	57194	103731	1.81	94.7	1163.9	-	3.43	2.03	-
Science Collaboration	23133	93437	8.08	-	-	178.2	-	-	3.35

Figure 27 Table of Networks from existing Literature

We present in Table 28 the key characteristics of five important networks, as studied in the literature: Internet, WWW (World Wide Web), Citation Network, Email, and Science Collaboration. Each row represents a specific network and its structural properties, with a particular focus on degree distribution and the presence of power-law behavior. The table highlights that many of these networks exhibit a scale-free structure, characterized by power-law distributions. Hubs, nodes with a disproportionately high number of

connections, are crucial for maintaining the robustness and efficiency of networks, especially in Internet and Citation Networks.

The column N indicates the number of nodes in each network, while L shows the total number of links between these nodes. These numbers give an idea of the network's full scale. For instance, the Citation Network has a large number of nodes (449,673) and links (4,689,479), reflecting its extensive structure, which mirrors the many academic papers and their references. In contrast, the Science Collaboration network, which tracks scientific partnerships, has a smaller node count of 23,133 and 93,437 connections.

The column $\langle k \rangle$ provides the average degree of each network, which represents the mean number of connections per node. The Email network has a low average degree of 1.81, implying a sparse structure where most nodes have relatively few connections. On the other hand, the Citation Network has a higher average degree of 10.43, indicating that papers often cite multiple other papers. For directed networks, $\langle k_{in}^2 \rangle$ and $\langle k_{out}^2 \rangle$ represent the second moments of in-degree and out-degree distributions, respectively. These values help to measure the variance in connectivity. In the WWW, for instance, we see a high value for $\langle k_{in}^2 \rangle$ (1546.0), which suggests a significant variation in the number of links pointing to different websites. Similarly, the Citation Network shows high second moments for both in-degree (971.5) and out-degree (198.8), reflecting that some papers are cited far more frequently than others.

The $\langle k^2 \rangle$ column applies to undirected networks, like Internet and Science Collaboration, where the squared average degree captures the variance in connectivity. The value of 240.1 for Internet indicates that while most routers or servers may have a small number of connections, a few highly connected hubs dominate.

The listed quantities showcase how little numerical analysis of basic properties of the empirical networks can give great insight into their singular characteristics, but also, crucially, on shared behaviors like their scale-freeness.

The power-law exponents γ_in and γ_out provide insight into the degree distribution of directed networks. In the Email network, the power-law exponent for in-degree is 3.43, suggesting that while most users receive few emails, a small number of individuals are disproportionately more connected. Similarly, in the Citation Network, the value of 3.03 for in-degree confirms the presence of hubs (highly cited papers). The column γ is used for undirected networks and shows that the Internet has a power-law exponent of 3.42, implying that it is a scale-free network with a few highly connected hubs.

In the context of our study, this table reinforces that the influencer network we analyzed on TikTok exhibits scale-free properties. The comparable power-law exponents between our sampled network and those in the table suggest that the behaviors observed in our data align with findings from more established networks, despite the limitations of our dataset.

Moreover, the table serves as a benchmark for interpreting our results. The power-law exponent we estimated ($\gamma \approx 2.91$) falls within the range observed in other networks, helping to validate our approach. This comparison suggests that, despite constraints like a smaller sample size and lack of topological data, our network shares key characteristics with other empirical networks.

8. CONCLUSIONS

Currently, there exists a significant gap in research regarding how algorithms wield influence over people's decisions and attitudes. For the proper functioning of democracy, it is imperative to equip citizens with the tools to comprehend the impact of their online presence and their interactions with algorithms. Deciding whether to trust the companies to which they entrust their data requires a nuanced understanding. However, increased confidence may pose potential vulnerabilities, given the dearth of research on how algorithmic persuasion shapes human decisions. Publicly available experiments are crucial to assess the effectiveness of various styles of algorithmic persuasion, especially in critical contexts of influence. Adopting a human-centric approach is not only about establishing critical requirements for algorithmic trustworthiness but also about minimizing the consequences of that trust on human decisions and freedom.[296]

Research focusing on information networks and democracy should establish a methodology for measuring the effectiveness of online civic engagement, as the absence of a framework poses a challenge in providing ideal tools to improve offline civic engagement among youth.[297] The digital landscape poses new tasks that must be now undertaken to gain insights into the development of young citizens' democratic competencies and motivations for commitment, whether online civic engagement sites as

[296] Beer D. The social power of algorithms. Information, Commun Soc. 2017; 20: 1–13. https://doi.org/10. 1080/1369118X.2016.1216147

[297] Raynes-Goldie, Kate, and Luke Walker. "Our Space: Online Civic Engagement Tools for Youth." Civic Life Online: Learning How Digital Media Can Engage Youth. Edited by W. Lance Bennett. The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning. Cambridge, MA: The MIT Press, 2008. 161–188. doi: 10.1162/dmal.9780262524827.161

primary facilitators of action, rather than places of action, in order to foster political participation.

This study addressed four research questions regarding the dissemination and visibility of content related to the Gaza conflict on TikTok, the role of user engagement, and the potential influence of algorithmic biases in shaping content visibility.

The analysis of engagement metrics (likes, comments, shares, collects, and views) revealed clear differences in user engagement between pro-Palestinian and pro-Israeli content. Posts flagged with pro-Palestinian symbols, such as the Palestinian flag, consistently showed higher engagement metrics compared to those associated with pro-Israeli content. Specifically, posts with pro-Palestinian content saw stronger engagement. This is reflected in the coefficients observed in the regression analysis, where the presence of the Palestinian flag had a statistically significant positive impact on engagement. In contrast, posts containing pro-Israeli content showed lower overall engagement. The regression results indicated a significant negative relationship between posts with the Israeli flag and engagement levels. While both types of content received attention, the disparity in engagement suggests that the TikTok user base involved in this dataset leaned towards pro-Palestinian content in terms of active interaction.

Although the exact workings of TikTok's recommendation algorithm are proprietary, the results from this study suggest that content that aligns with trending hashtags or is created by users with larger followings was more likely to achieve higher visibility. In fact, the regression model showed that posts by authors with a large follower base tend to receive higher engagement, indicating that TikTok's algorithm might prioritize content

from influencers or users with established audiences, irrespective of the content's subject matter. This creates an inherent bias in the visibility of content, potentially marginalizing posts from smaller or less influential users. While it is difficult to assert the presence of direct political bias in the algorithm, it is clear that algorithmic mechanisms favor certain types of engagement, which can indirectly shape the dissemination of pro-Palestinian or pro-Israeli content based on how users interact with that content.

The majority of the authors who appeared multiple times are international news outlets, such as TRT World, Al Jazeera English, AJ+, and Sky News. This highlights the significant role that established media organizations play in disseminating information about the Gaza conflict on TikTok. These outlets use TikTok to distribute visually engaging, bite-sized news content, making complex political and social issues more accessible to a younger and more digital-savvy audience. Their repeated presence suggests that professional media entities dominate the coverage of the conflict on the platform, leveraging their global reach and authority. Pages like TRT World, Middle East Eye, and Al Jazeera English, which specialize in global or Middle Eastern affairs, emphasize that content related to the Gaza conflict is closely linked to platforms with a deep understanding of regional issues. Their recurring appearance in the dataset implies that they are influential in shaping narratives and perceptions of the conflict, likely due to their focus on providing in-depth coverage of Middle Eastern political developments. Since only a small number of accounts (6) appeared five or more times in the dataset, we can infer that content related to the Gaza conflict may be concentrated among a few key players, particularly those with established media platforms or significant followings. This suggests that while TikTok provides opportunities for a wide range of users to contribute to the

conversation, the most visible and frequently shared content comes from a relatively small group of influential accounts.

The words co-occurrences network paints a picture of how discourse around the Gaza conflict unfolds on TikTok. What stands out is the multi-platform integration: TikTok doesn't operate in isolation. The presence of terms like "instagram" and "youtube," underscores how content creators are leveraging multiple platforms to amplify their reach, ensuring the same message permeates various online ecosystems. This cross-platform coordination mirrors the nature of global digital campaigns, where visibility is maximized, and messages are continuously recontextualized for different audiences.

The periphery of the network also conveys important information. Emotionally charged words such as "love" and "beautiful" suggest that content about the Gaza conflict taps into the emotive side of audiences. The presence of "allah" further suggests that religious sentiments also shape the discourse, hinting at the deeper cultural and spiritual layers interwoven with the political conversation. This reveals that the conflict is framed not only in terms of politics but also personal identity, belonging, and belief systems.

The comparative analysis of user engagement metrics across the Gaza, Israel, and Palestine datasets highlights the viral architecture of social media, where a few key players or posts dominate attention, leaving the rest in relative obscurity. The striking disparity between the mean and median values across all datasets tells the story of this imbalance: while the average post might suggest robust engagement, the reality is that only a handful of posts drive these figures, with the majority falling well below the average. This positive skew suggests that the TikTok ecosystem, especially around

politically charged topics like the Gaza conflict, is highly hierarchical. Certain posts achieve viral status, often amassing millions of interactions, while the majority of content languishes with significantly less visibility.

Moreover, the high coefficients of variation (CV) further underscore this variability. The Gaza dataset, for example, exhibits a CV of over 200% for comments, likes, and views, revealing just how unpredictable engagement can be. These large standard deviations are indicative of the fact that user attention is far from evenly distributed, engagement explodes for a few key posts, while the rest struggle to capture attention. This suggests a content landscape shaped not just by the quality or relevance of posts, but by the platform's algorithmic architecture, which amplifies certain content, propelling it to viral status, and consequently marginalizing other contributions. The data suggests that to emerge, content creators must strive for virality, as the majority of user attention is concentrated on a narrow slice of content. This calls for strategic use of TikTok's affordances, such as trending hashtags, timing, and visual storytelling that can captivate and resonate with users at a viral scale.

Furthermore, the role of a few highly influential accounts, reflected in the CVs of follower counts, demonstrates the power of digital gatekeepers. These accounts act as nodes of influence, capable of shaping discourse on a large scale. The extreme variability in follower counts reveals how the platform’s architecture favors a few large influencers, making it imperative for movements or causes to either partner with these accounts or become one themselves to gain traction.

Ultimately, this comparative analysis shows the importance of ensuring that the message cuts through an increasingly competitive and

algorithm-driven digital environment. As more social movements, political campaigns, and news outlets vie for user attention, understanding the mechanisms of viral engagement becomes not just a strategy but a necessity for achieving meaningful visibility.

As discussed in the network analysis section, the network formed around content related to the Gaza conflict exhibits properties of a scale-free network, consistent with the Barabási–Albert model. Despite the limitations in data sampling, the observed in-degree distribution suggests the presence of hubs. These hubs represent influencers or accounts with significantly larger followings, which play a critical role in disseminating information within the network. The degree distribution follows a power-law, as evidenced by the linear trend in the log-log plot. The results are consistent with those found in other real-world networks, supporting the hypothesis that the TikTok network related to the Gaza conflict shares structural similarities with known scale-free network models. However, the limited sample size restricts the precision of the analysis. With more comprehensive data, future studies could refine the determination of the power-law exponent and conduct more sophisticated analyses of network behavior, particularly in the tail of the distribution.

Social platforms operate on algorithms that thrive on engagement, amplifying content from influential users. Understanding the mathematical underpinnings of how these networks behave allows us to better grasp how certain information, whether it's pro-Palestinian, pro-Israeli, or neutral, achieves visibility. The presence of hubs means that specific accounts can disproportionately shape the narrative by attracting engagement, which the algorithm then prioritizes. This is a crucial intersection between network theory and algorithmic influence, where mathematical analysis offers

insights into the structure of the network, and on how the platform's design inherently biases certain content toward virality.

. In a political and social environment as volatile and complex as the Gaza conflict, this type of analysis is beyond academically interesting; it has real-world implications for how public opinion is shaped, how misinformation might spread, and how movements can mobilize support on digital platforms. Fundamentally, Mathematics allows for a more scientific approach to social strategy, and becomes a lens through which we can better understand not only the digital landscape but the deeper social and political currents that flow through it. It is essential to understand not only what content to create, but also the platform it will be shared on, how the algorithm will engage with it., and exploring how different types of content propagate through this network.

In an era where social and political discourse increasingly unfolds on digital platforms, the convergence of data science, social science, and political science offers transformative opportunities for research. The Gaza conflict, as a highly divisive and politically charged topic, exemplifies the need to understand how information propagates through networks, is shaped by algorithms, and influences public opinion. As this study has shown, tools such as network analysis reveal patterns of information flow, exposing the mechanics of social platforms like TikTok. These insights are crucial for academics, policymakers, activists, and civic organizations who seek to foster informed democratic participation.

The fusion of data science with social and political inquiry allows for a more nuanced examination of phenomena such as algorithmic bias, censorship, and the viral architecture of modern media. Furthermore, by

understanding the dynamics of virality, and how a few influential accounts can disproportionately drive engagement, researchers can uncover the ways algorithms may reinforce or marginalize specific narratives. This is especially relevant when studying democracy and civic participation online, where content visibility can directly impact public sentiment, political mobilization, and the shaping of collective memory.

For young citizens, who increasingly engage with political and social issues through digital platforms, this intersection of disciplines offers invaluable insights into their role in the democratic process. By mapping the structure of information networks, we can better understand how youth interact with, are influenced by, and contribute to political discourse online. This is particularly critical in contexts like the Gaza conflict, where narratives are fiercely contested, and where platforms have been accused of censoring content that challenges dominant political frameworks. In such a polarized environment, the tools of data science, empowered by the critical lenses of social and political science, allow us to dissect the role algorithms play in amplifying or suppressing certain voices, offering pathways toward more equitable and transparent digital ecosystems.

Ultimately, the opportunities for future research are vast. By delving deeper into the algorithmic and network dynamics at play, scholars can better understand how information spreads, how it shapes public opinion, informs civic engagement, and influences political outcomes. In an age where digital platforms are becoming the primary arena for democratic participation, this interdisciplinary approach will be vital to ensuring that online spaces foster informed, critical, and active citizenship.

APPENDIX I

```
remotes::install_github("JBGruber/traktok")
rm(list = ls ())
setwd
library(traktok)
library(dplyr)
#Prima vanno scaricati i cookie
cookiemonster::add_cookies("cookies-prova-1.txt")

rstats_df <- tt_search_hidden("Palestine", max_pages = 50)
rstats_df2 <- tt_search_hidden("Gaza", max_pages = 50)
rstats_df3 <- tt_search_hidden("#Gaza", max_pages = 50)
rstats_df4 <- tt_search_hidden("Israel", max_pages = 50)
rstats_df5 <- tt_search_hidden("#Israel", max_pages = 50)

merged_df <- bind_rows(rstats_df, rstats_df2, rstats_df3, rstats_df4,
rstats_df5)
merged_df_unique <- distinct(merged_df, video_url, .keep_all = TRUE)

library(data.table) #a library for data cleaning
library(dplyr) #a library for data cleaning
library(dbplyr) #a library for data cleaning
library(RSQLite) #a library for importing data from a SQLite database
library(quanteda) #a library for quantitative textual analysis
library(quanteda.textplots) # vanno caricati a parte per la mia
versione di R
library(quanteda.textstats)
library(ggplot2) #for plotting data
library(igraph) #for network analysis

stop_words <- as.data.frame(unlist(stopwords::stopwords("italian")))
stop_word <- NULL
stop_word$word <- stop_words$`unlist(stopwords::stopwords("italian"))`
stop_word <- as.data.frame(stop_word)
final_stop <- data.frame(word = c("desc", "t.co", "n", "i'm"))
final_stop<- rbind(stop_word, final_stop)
rm(stop_word)
rm(stop_words)

#trasformiamo il db in un oggetto corpus
group_corpus <- corpus(merged_df_unique$video_title, docnames =
merged_df_unique$video_id)

#step per text analysis (pulizia testo, tutto minuscolo, togliere url
ecc)
corpus_tokens <- group_corpus %>%
  tokens(remove_punct = TRUE, remove_numbers = TRUE, remove_symbols =
TRUE) %>%
  tokens_tolower() %>%
  tokens_remove(pattern = final_stop$word, padding = T)

group_corpus_clean <- gsub("#", " ", group_corpus)

corpus_tokens <- group_corpus_clean %>%
  tokens(remove_punct = TRUE, remove_numbers = TRUE) %>%
  tokens_tolower() %>%
```

```
  tokens_remove(pattern = final_stop$word, padding = TRUE)

toks <- tokens(corpus_tokens,remove_punct = TRUE, remove_numbers =
TRUE, remove_url = TRUE)
toks <- tokens_select(toks, c("https","http","t.co", "url", "i'm",
"perte", "fyp", "foryou", "iran", "foryoupage", "viral", "video",
"trending"), selection = 'remove')
toks <- tokens_select(toks, min_nchar=3, selection = 'keep')
toks <- tokens_select(toks, stopwords('en'), selection = 'remove')

toks_dfm <- dfm(toks)

ngram <- tokens_ngrams(toks, n =2:4)
bigram_dfm <- dfm(ngram)

freq <- textstat_frequency(toks_dfm, n = 25)
toks_dfm %>%
  textstat_frequency(n = 15) %>%
  ggplot(aes(x = reorder(feature, frequency), y = frequency)) +
  geom_point() +
  coord_flip() +
  labs(x = NULL, y = "Frequency") +
  theme_minimal()

freq <- textstat_frequency(bigram_dfm, n = 25)
bigram_dfm %>%
  textstat_frequency(n = 15) %>%
  ggplot(aes(x = reorder(feature, frequency), y = frequency)) +
  geom_point() +
  coord_flip() +
  labs(x = NULL, y = "Frequency") +
  theme_minimal()

set.seed(100)
textplot_wordcloud(toks_dfm)

new_dfm <- dfm_trim(toks_dfm, min_termfreq = 10) #create a new dfm to
include words that have appeared at least 10 times in the corpus.
new_fcm <- fcm(new_dfm) #create a feature co-occurrence matrix
feat <- names(topfeatures(new_fcm, 100))
new_fcm <- fcm_select(new_fcm, feat)
size <- log(colSums(dfm_select(new_dfm, feat)))
textplot_network(new_fcm, min_freq = 0.3, vertex_size = size /
max(size) * 1, edge_size = 1)
```

APPENDIX II

```
install.packages("dplyr")
install.packages("ggplot2")
library(dplyr)
library(ggplot2)

rm(list = ls ())
setwd

data.israel <- read.csv("2024-05-02_zeeschuimer_israel.csv")
data.palestine <- read.csv("2024-05-02_zeeschuimer_palestine.csv")
data.gaza <- read.csv("2024-05-02_zeeschuimer_gaza.csv")


#differenze tra i dataset
diff_names_1 <- setdiff(colnames(data.israel),
colnames(data.palestine))
if (length(diff_names_1) > 0) {
  print("Columns in data.israel but not in data.palestine:")
  print(diff_names_1)
}

diff_names_2 <- setdiff(colnames(data.palestine),
colnames(data.israel))
if (length(diff_names_2) > 0) {
  print("Columns in data.palestine but not in data.israel:")
  print(diff_names_2)
}

diff_names_3 <- setdiff(colnames(data.israel), colnames(data.gaza))
if (length(diff_names_3) > 0) {
  print("Columns in data.israel but not in data.gaza:")
  print(diff_names_3)
}

diff_names_4 <- setdiff(colnames(data.gaza), colnames(data.israel))
if (length(diff_names_4) > 0) {
  print("Columns in data.gaza but not in data.israel:")
  print(diff_names_4)
}

diff_names_5 <- setdiff(colnames(data.palestine),
colnames(data.gaza))
if (length(diff_names_5) > 0) {
  print("Columns in data.palestine but not in data.gaza:")
  print(diff_names_5)
}

diff_names_6 <- setdiff(colnames(data.gaza),
colnames(data.palestine))
if (length(diff_names_6) > 0) {
  print("Columns in data.gaza but not in data.palestine:")
  print(diff_names_6)
}
```

```
#sistemo le differenze
data.palestine <- data.palestine[, !colnames(data.palestine) %in%
c("data.videoSuggestWordsList.video_suggest_words_struct")]
data.israel <- data.israel[, !colnames(data.israel) %in%
c("data.videoSuggestWordsList.video_suggest_words_struct")]
data.gaza <- data.gaza[, !colnames(data.gaza) %in%
c("data.videoSuggestWordsList.video_suggest_words_struct")]
data.gaza <- data.gaza %>% rename(Extraction.date =
Extraction.data)
data.palestine <- data.palestine[, !colnames(data.palestine) %in%
c("data.videoSuggestWordsList.video_suggest_words_struct",
"data.music.scheduleSearchTime")]

#controllo
colnames(data.israel)
colnames(data.palestine)
colnames(data.gaza)

#merging
data.combined <- rbind(data.israel, data.palestine, data.gaza)

#scarico il dataset ottenuto
install.packages("writexl")
library("writexl")
write_xlsx(data.combined, "data_combined.xlsx")


#rimuovo le obs duplicate basate sull'ID unico del video
data.combined.clean <- distinct(data.combined, data.video.id,
.keep_all = TRUE)

#scarico il dataset
write_xlsx(data.combined.clean, "data.combined.clean.xlsx")

theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

APPENDIX III

```
setwd
data.combined.clean <- read.csv("data.combined.clean.xlsx")

#1) voglio sapere quante value diversi ci sono in variabile
data.author.uniqueId, e quali sono più comuni
#valori unici nella variabile
num_unique_values <-
length(unique(data.combined.clean$data.author.uniqueId))
cat("Numero di valori unici in data.author.uniqueId:",
num_unique_values, "\n")
#Numero di valori unici in data.author.uniqueId: 655

#frequenza di ciascun valore
value_counts <- table(data.combined.clean$data.author.uniqueId)

#ordino i valori in base alla frequenza (dal più comune al meno
comune)
sorted_value_counts <- sort(value_counts, decreasing = TRUE)
cat("I primi 10 valori più comuni in data.author.uniqueId:\n")
head(sorted_value_counts, 80)
#visto che gli ultimi  hanno solo 2 occ tengo i primi 68
cat("I valori ripetuti in data.author.uniqueId:\n")
head(sorted_value_counts, 68)

#facciamo un grafico a barre
library(ggplot2)

df <- data.frame(value = names(sorted_value_counts),
                 count = as.numeric(sorted_value_counts))

ggplot(df[1:68, ], aes(x = reorder(value, -count), y = count)) +
  geom_bar(stat = "identity", fill = "skyblue") +
  theme_minimal() +
  labs(x = "data.author.uniqueId", y = "Frequenza", title = "I
valori ripetuti in data.author.uniqueId") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

APPENDIX IV

```
setwd
data.combined.clean <- read.csv("data.combined.clean.xlsx")

#calculate  frequency of each unique music ID
music_value_counts <- table(data.combined.clean$data.music.id)

music_df <- as.data.frame(music_value_counts)
colnames(music_df) <- c("data.music.id", "count")

#merge with  original dataset to get corresponding titles
music_df <- merge(music_df, data.combined.clean[,
c("data.music.id", "data.music.title")], by = "data.music.id",
all.x = TRUE)

#remove duplicates (since some IDs might have the same titles)
music_df <- distinct(music_df)

#sort the frequencies in descending order
sorted_music_df <- music_df[order(-music_df$count), ]

#display the top 10 most common values
cat("The top 10 most common values in data.music.id with their
titles:\n")
print(head(sorted_music_df, 10))

#visualize the top occurrences with both data.music.id and
data.music.title
library(ggplot2)

#create a label combining music id and title
sorted_music_df$label <- sorted_music_df$data.music.title

#the top 10 most common music IDs with titles
ggplot(sorted_music_df[1:10, ], aes(x = reorder(label, -count), y =
count)) +
  geom_bar(stat = "identity", fill = "skyblue") +
  theme_minimal() +
  labs(x = "Music Title", y = "Frequency", title = "Top 10 Most
Common Music Titles in data.music.id") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

APPENDIX V

```
setwd
data.combined.clean <- read.csv("data.combined.clean.xlsx")

data.combined.clean$data.createTime <-
as.POSIXct(data.combined.clean$data.createTime, origin="1970-01-
01", tz="UTC")

#aggregate data by month and year
data.combined.clean <- data.combined.clean %>%
  mutate(month_year = format(data.createTime, "%Y-%m")) %>%
  group_by(month_year) %>%
  summarize(count = n())

#create a time series plot to visualize the distribution of data
creation over time (monthly)
ggplot(data.combined.clean, aes(x = as.Date(paste0(month_year, "-
01")), y = count)) +
  geom_line(color = "blue") +
  geom_point(color = "red") +
  theme_minimal() +
  labs(title = "Distribution of Data Creation Over Time (Monthly)",
       x = "Month-Year",
       y = "Count of Data Created") +
  scale_x_date(date_labels = "%Y-%m", date_breaks = "1 month") +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))
```

APPENDIX VI

```
 setwd
data.combined.clean <- read.csv("data.combined.clean.xlsx")

 #####commenti

#handle missing values
data.combined.clean <- data.combined.clean %>%
  filter(!is.na(data.stats.commentCount))

#mean, median, and standard deviation
mean_comment_count <-
mean(data.combined.clean$data.stats.commentCount)
median_comment_count <-
median(data.combined.clean$data.stats.commentCount)
sd_comment_count <- sd(data.combined.clean$data.stats.commentCount)

#results
cat("Mean of comment counts:", mean_comment_count, "\n")
cat("Median of comment counts:", median_comment_count, "\n")
cat("Standard deviation of comment counts:", sd_comment_count,
"\n")


#####likes

#handle missing values
data.combined.clean <- data.combined.clean %>%
  filter(!is.na(data.stats.diggCount))

#mean, median, and standard deviation
mean_like_count <- mean(data.combined.clean$data.stats.diggCount)
median_like_count <-
median(data.combined.clean$data.stats.diggCount)
sd_like_count <- sd(data.combined.clean$data.stats.diggCount)

#results
cat("Mean of like counts:", mean_like_count, "\n")
cat("Median of like counts:", median_like_count, "\n")
cat("Standard deviation of like counts:", sd_like_count, "\n")

#####shared

#handle missing values
data.combined.clean <- data.combined.clean %>%
  filter(!is.na(data.stats.shareCount))

#mean, median, and standard deviation
mean_like_count <- mean(data.combined.clean$data.stats.shareCount)
median_like_count <-
median(data.combined.clean$data.stats.shareCount)
sd_like_count <- sd(data.combined.clean$data.stats.shareCount)

#results
```

```
cat("Mean of share counts:", mean_like_count, "\n")
cat("Median of share counts:", median_like_count, "\n")
cat("Standard deviation of share counts:", sd_like_count, "\n")

#####saved

#handle missing values
data.combined.clean <- data.combined.clean %>%
  filter(!is.na(data.stats.collectCount))

#mean, median, and standard deviation
mean_collect_count <-
mean(data.combined.clean$data.stats.collectCount)
median_collect_count <-
median(data.combined.clean$data.stats.collectCount)
sd_collect_count <- sd(data.combined.clean$data.stats.collectCount)

#results
cat("Mean of collect counts:", mean_collect_count, "\n")
cat("Median of collect counts:", median_collect_count, "\n")
cat("Standard deviation of collect counts:", sd_collect_count,
"\n")

#####views

#handle missing values
data.combined.clean <- data.combined.clean %>%
  filter(!is.na(data.stats.playCount))

#mean, median, and standard deviation
mean_views_count <- mean(data.combined.clean$data.stats.playCount)
median_views_count <-
median(data.combined.clean$data.stats.playCount)
sd_views_count <- sd(data.combined.clean$data.stats.playCount)

#results
cat("Mean of views counts:", mean_views_count, "\n")
cat("Median of views counts:", median_views_count, "\n")
cat("Standard deviation of views counts:", sd_views_count, "\n")

#####followers

#handle missing values
data.combined.clean <- data.combined.clean %>%
  filter(!is.na(data.authorStats.followerCount))

#mean, median, and standard deviation
mean_followers_count <-
mean(data.combined.clean$data.authorStats.followerCount)
median_followers_count <-
median(data.combined.clean$data.authorStats.followerCount)
sd_followers_count <-
sd(data.combined.clean$data.authorStats.followerCount)

#results
cat("Mean of followers counts:", mean_followers_count, "\n")
```

```
cat("Median of followers counts:", median_followers_count, "\n")
cat("Standard deviation of followers counts:", sd_followers_count,
"\n")
```

APPENDIX VII

```
setwd
rm(list=ls())
library(dplyr)
library(readxl)
library(ggplot2)
data.combined.clean <- read_excel("data.combined.clean.xlsx")

data1306 <-
data.combined.clean%>%select(data.authorStats.followerCount,

data.authorStats.followingCount,
                                          data.createTime,
                                          Extraction.date,
                                          data.desc,
                                          data.stats.diggCount,
                                          data.stats.shareCount,
                                          data.stats.commentCount,
                                          data.stats.collectCount,
                                          data.stats.playCount,
                                          data.music.id,
                                          data.music.title,
                                          data.music.original,
                                          item_id)

data1306$flagpalestine <- grepl(pattern = "🇵🇸",
data.combined.clean$data.desc)
data1306$flagisrael <- grepl(pattern = "🇮🇱",
data.combined.clean$data.desc)

#data1306 <- data1306%>%select(-data.desc)




head(data1306)
#data1306<-data1306 %>% mutate_all(as.numeric)
data1306$engagement.plays <- with(data1306,
                                  (data.stats.diggCount *
                                     data.stats.shareCount *
                                     data.stats.commentCount *
                                     data.stats.collectCount) /
                                    (data.stats.playCount*100000))
data1306_sorted <- data1306 %>%
  arrange(desc(engagement.plays))

head(data1306_sorted)

colnames(data1306_sorted)

######################
str(data1306_sorted)
```

```
#linear regression model with all variables as predictors
model1 <- lm(engagement.log ~
               data.createTime +
               flagisrael +
               flagpalestine +
                data.authorStats.followerCount+
                data.authorStats.followingCount+
                data.music.original,
             data = data1306_clean)
#data.music.id +
#data.music.title

summary(model1)

#multicollinearity
library(car)
vif(model1)


any(is.infinite(data1306_clean$engagement.log))  # Checks for Inf
values
data1306_clean <-
data1306_clean[!is.infinite(data1306_clean$engagement.log), ]
```

APPENDIX VIII

```
setwd
rm(list=ls())
library(dplyr)
library(readxl)
library(ggplot2)
library(randomForest)
library(caret)
data.combined.clean <- read_excel("data.combined.clean.xlsx")

data1306 <- data.combined.clean %>%
select(data.authorStats.followerCount,

data.authorStats.followingCount,
                                          data.createTime,
                                          Extraction.date,
                                          data.desc,
                                          data.stats.diggCount,
                                          data.stats.shareCount,
                                          data.stats.commentCount,
                                          data.stats.collectCount,
                                          data.stats.playCount,
                                          data.music.id,
                                          data.music.title,
                                          data.music.original,
                                          item_id)

data1306$flagpalestine <- grepl(pattern = "🇵🇸",
data.combined.clean$data.desc)
data1306$flagisrael <- grepl(pattern = "🇮🇱",
data.combined.clean$data.desc)

data1306$engagement.plays <- with(data1306,
                                  (data.stats.diggCount *
                                     data.stats.shareCount *
                                     data.stats.commentCount *
                                     data.stats.collectCount) /
                                    (data.stats.playCount *
100000))

data1306_sorted <- data1306 %>%
  arrange(desc(engagement.plays))

data1306_sorted <- data1306_sorted %>% select(-data.desc)

data1306_clean <- na.omit(data1306_sorted)

data1306_clean$engagement.log <-
as.vector(log(data1306_clean$engagement.plays))

data1306_clean<-data1306_clean[data1306_clean$engagement.plays!=0,]
#Rf model
rf_model <- randomForest(engagement.log ~
```

```
                              data.createTime +
                              flagisrael +
                              flagpalestine+
                              data.authorStats.followerCount+
                              data.authorStats.followingCount+
                              data.music.original,
                            data = data1306_clean,
                            importance = TRUE,
                            ntree = 100)

print(rf_model)


importance(rf_model)
varImpPlot(rf_model)

#predict on test data
predictions <- predict(rf_model, newdata = testData)

#model performance
testMSE <- mean((testData$engagement.plays - predictions)^2)
cat("Test Mean Squared Error: ", testMSE)
```

APPENDIX IX

```
ft <- fit_power_law(
  df$data.authorStats.followerCount, xmin = 4000000
)
ft

#
ft <- fit_power_law(
  df$data.authorStats.followerCount, xmin = 6000000
)
ft
```

APPENDIX X

```
# Fit the power law to the data considering only values larger than
4,000,000
ft <- fit_power_law(df$data.authorStats.followerCount, xmin =
4000000)

# Extract the data points greater than 4,000,000
filtered_data <-
df$data.authorStats.followerCount[df$data.authorStats.followerCount
> 4000000]

bins <- seq(4000000,38000000, by = 2000000)
binned_data <- cut(filtered_data, breaks = bins, include.lowest =
TRUE)
frequencies <- table(binned_data)
frequencies

bins_centers <- seq(5000000,37000000, by = 2000000)

# Plot the filtered data points on a log-log scale
plot(bins_centers,
  frequencies,
  log = "xy",             # Log-log scale for both axes
  main = "Degree frequencies of nodes in the 95th percentile",
  xlab = "Degree",
  ylab = "Frequency",
  col = "blue",
  pch = 16,
  yaxt = "n"
)

axis(2, at = pretty(log_frequencies), labels =
pretty(log_frequencies, scientific = TRUE))



ft <- fit_power_law(df$data.authorStats.followerCount, xmin =
6000000)

# Extract the data points greater than 4,000,000
filtered_data <-
df$data.authorStats.followerCount[df$data.authorStats.followerCount
> 6000000]

# Create logarithmic bins (log-spaced between 4,000,000 and
38,000,000)
log_bins <- 10^seq(log10(6000000), log10(38000000), length.out =
10)

# Cut the data into logarithmic bins
log_binned_data <- cut(filtered_data, breaks = log_bins,
include.lowest = TRUE)

# Calculate frequencies of data in each bin
```

```
log_frequencies <- table(log_binned_data)

# Get bin centers (midpoints of the log bins)
log_bin_centers <- sqrt(log_bins[-length(log_bins)] * log_bins[-1])

# Plot the filtered data points with log-log scale using log
binning
plot(log_bin_centers,
     log_frequencies,
     log = "xy",           # Log-log scale for both axes
     main = "Degree frequencies of nodes in the 95th percentile, \n
with log-binning",
     xlab = "Degree",
     ylab = "Frequency",
     col = "blue",
     pch = 16              # Use points instead of bars
)

axis(2, at = pretty(log_frequencies), labels =
pretty(log_frequencies, scientific = TRUE))
```

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ABSTRACT ENGLISH VERSION

This thesis investigates TikTok's role in shaping political discourse, with a specific focus on content related to the Gaza-Israel conflict. Using network analysis and Machine Learning methods, the study examines how TikTok's algorithmic content delivery and influencer dynamics affect the visibility and engagement of pro-Palestinian and pro-Israeli narratives. The research is framed within socio-technical systems theory, emphasizing the interaction between technology and social behavior on digital platforms.

The analysis reveals significant disparities in engagement between pro-Palestinian and pro-Israeli content. Posts featuring pro-Palestinian symbols, such as the Palestinian flag, show consistently higher engagement, while content with Israeli symbols receives comparatively lower interaction. Regression analysis confirms a statistically significant positive relationship between pro-Palestinian content and user engagement, suggesting that TikTok's algorithm may favor this type of content, either due to user preferences or algorithmic biases.

The study also finds that content created by influential users with large followings is more likely to achieve higher visibility, reinforcing the power of a few key players in disseminating information. This aligns with the Barabási-Albert model of scale-free networks, where a small number of influencers (hubs) dominate the spread of content. The presence of international media outlets like Al Jazeera and TRT World as major content creators further highlights the role of professional media in shaping discourse on TikTok. Additionally, the network analysis indicates that emotionally charged language and religious sentiments, such as the frequent use of "allah," play a significant role in framing discussions around the conflict.

This research contributes to the understanding of how social media platforms like TikTok influence political discourse through algorithmic and network dynamics. The findings underscore the need for further scrutiny of algorithmic biases in digital platforms, particularly in politically charged contexts, to ensure balanced and transparent dissemination of content. Future studies should explore the ethical implications of algorithmic governance and its impact on democratic participation.

ABSTRACT ITALIAN VERSION

Questa tesi esplora il ruolo di TikTok nel plasmare il discorso politico, concentrandosi in particolare sui contenuti relativi al conflitto tra Gaza e Israele. Attraverso network analysis e metodi statistici, la ricerca esamina come la struttura algoritmica e le dinamiche degli influencer su TikTok influenzino la visibilità e l'interazione con contenuti pro-palestinesi e pro-israeliani. Il lavoro è inquadrato nella teoria dei sistemi socio-tecnici, mettendo in luce l'interazione tra tecnologia e comportamento sociale sulle piattaforme digitali.

I risultati rivelano significative differenze nell'engagement degli utenti tra i contenuti pro-palestinesi e pro-israeliani. I post che includono simboli pro-palestinesi, come la bandiera palestinese, mostrano un livello di coinvolgimento più elevato rispetto ai contenuti associati a simboli israeliani. Inoltre, si evidenzia una correlazione positiva e statisticamente significativa tra la presenza della bandiera palestinese e il livello di engagement, suggerendo che l'algoritmo di TikTok possa favorire questo tipo di contenuti, in parte per le preferenze degli utenti e in parte per possibili bias algoritmici. Lo studio rileva che i contenuti pubblicati da utenti con un ampio seguito tendono a ottenere una visibilità maggiore, evidenziando come pochi influencer dominino la diffusione delle informazioni. Questo conferma il modello delle reti a distribuzione libera (scale-free) di Barabási-Albert, in cui una piccola parte degli utenti concentra su di sé la maggior parte dell'influenza.

La presenza ricorrente di grandi testate internazionali come Al Jazeera e TRT World tra i principali creatori di contenuti sottolinea l'importante ruolo dei media professionali nel definire la narrazione del conflitto su TikTok. L'analisi delle reti di parole evidenzia anche l'uso di un linguaggio fortemente emotivo e religioso, come dimostra la frequente presenza di termini come "allah", a indicare che il discorso sul conflitto si sviluppa non solo su un piano politico, ma anche su quello identitario e religioso.

Questa ricerca offre un contributo significativo alla comprensione di come le piattaforme digitali, come TikTok, influenzino il discorso politico attraverso meccanismi algoritmici e dinamiche di rete. I risultati sollevano la necessità di una maggiore trasparenza e attenzione ai bias algoritmici, soprattutto in contesti politicamente delicati, per garantire una diffusione più equa e bilanciata delle informazioni. Future ricerche dovranno approfondire le implicazioni etiche della governance algoritmica e il suo impatto sulla partecipazione democratica.

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