Analysis of the Impact of Social Media on Social Dynamic

Zexing Xie[1,a,*]

[1]*Roycemore School, US Illinois 1121Church st, Evanston, 60202, United States*
a. xiezexing0313@gmail.com
*corresponding author

Abstract: In recent times, the influence of social media has extended beyond the digital realm and has become an integral part of people's daily lives. This is particularly evident among young individuals, who dedicate a significant amount of time to social media platforms for communication purposes. Therefore, it is plausible that social media can be manipulated, whether maliciously or benevolently, to intentionally disseminate some alluring and deceptive news, controlling and affecting social dynamics. In this paper, the primary focus will be on exploring the various methods----such as government intervention or echo chamber---- through which social media can be manipulated to shape and influence people's attitudes and beliefs. Additionally, the examination will extend to how these influences extend beyond the digital realm and impact individuals in their real lives. The primary research method of this paper will be to analyze other scholarly articles, trying to combine them together to explain such a phenomenon; the main subject of this paper is the interconnected sphere between social media (information initiator), the medium (information carriers), and the viewers (information recipients, social bots). Furthermore, this paper has found that people's opinions can be swayed by two factors: exposure effect and polarization. In the former one, when individuals are exposed to instigating or deceptive news, their opinions can be influenced to a certain degree, even if they possess the ability to discern the accuracy of the information. This phenomenon is exacerbated by the existence of echo chambers, particularly in online environments. The polarization is facilitated by the echo chamber—online viewers will receive information that caters to their own beliefs—which makes their opinions more extreme. As a consequence, this can contribute to the adoption of irrational decision-making processes.

Keywords: social media, echo chamber, social bots, social dynamic, polarizations

1. Introduction

Social dynamic, a study of changes in the pattern of a group's behaviors influenced by individual behaviors, is considered a vital indicator of social change and an indispensable component of measuring shifts in social behavior. However, the advent of social media, an online platform that facilitates the transmission of information among individuals, has tremendously impacted the way people interact and communicate, thereby having a significant influence on social dynamics [1]. At the beginning of 2000, which is arguably referred to as the actual inception of social networks, the number of active online users each month was less than 500 million; however, nowadays, that number has skyrocketed to 4.9 billion active online users per month, indicating that people are increasingly

inclined to gain information through scrolling the articles or posts on social media, like Twitter or TikTok. More importantly, the content of those posts may, to some extent, influence the viewers' decisions or political standpoints. On January 6th, 2021, a group of Trump supporters gathered at the United States Capitol Building trying to interrupt the certification of Joe Biden's election; after the front door was breached, the rioters stormed in, assaulted police, and destroyed anything on their way. After the investigation, the occurrence of such deindividuation—people lose their own sense of self-awareness of the social norms when grouped together— was owing to Trump's speech and posts on Twitter. Therefore, the main interest of this paper is to untangle the intricate relationship between social media and its effect on the social dynamic: how some misleading posts or articles on social media can instigate such disorderly chaos in society. To find out the crux, this paper will focus on two areas related to social media: the platform of free speech and the social polarization engendered by this platform. The first part of the paper will enlist the number of common social deceptive news and how the news is disseminated on such a massive scale to eventually influence social dynamics. Then, the paper will also discuss how the combination of viewers' own preferences and social media's unique ecosystem—echo chamber— facilitates polarization.

2. Analysis of the Impact of Social Media on People

2.1. Characteristics of Social Media

Understanding how social media can easily influence people's opinions needs comprehension of its fundamental component. One of the most recognizable features of social media is that people may openly communicate their thoughts and feelings: the platform of free speech. Therefore, some people may take advantage of the fact that people struggle to judge the credibility of claims and disseminate false information in an effort to catch their attention and profit from those clicks. For example, click bait is typical false news that has misleading headlines that aim to allure viewers' attention and clicks, but it is not very effective at swaying peoples' opinions because people can readily distinguish the credibility of the content. However, other forms of social fake news, like propaganda and hoaxes, are very undetectable and misleading to viewers [2]. During the Covid pandemic, when individuals were practicing social distancing or under quarantine, social media became a prominent source of information. This situation led to the amplification of propaganda and other forms of social fake news, which gained significant political influence. For example, during the Covid outbreak, when the only medium for gaining information was by social media or online news, people's attitudes and beliefs could be easily swayed, and therefore, the online messages can be manipulative in the purpose of gaining geopolitical advantage. A study, which was to collect the primary online data on Singapore during Covid time, has discovered the presence of a positive relationship between the stereotype and prejudice toward Chinese immigrants and disease risk perception [3]. This indicates that people who use social media----exposed to many misleading propaganda----are more incline to express prejudice and negative stereotype toward Chinese immigrants since it was commonly believed that the origin of the disease was from China. Furthermore, another study, which was aimed to discover the cause of the massive public riot happening in Papua, has also confirmed the effectiveness of the propaganda in changing people's attitudes [4]. By conducting the quantitative research on the event, the researchers were able to show that propaganda, especially when confronting with the issues of racism, is very effective in achieving the goal of changing people's opinion.

2.2. Impact of Propaganda or Other Types of Information Carriers on Political Standpoint

The primary issue lies in the abundance of misleading and deceptive articles posted on news platforms, and how these articles proliferate and disseminate to other people. Social bots, which are independent software programs that engage in online communication with individuals, have become a prevalent

medium for spreading information. These bots can serve different purposes, with some being manipulative and generating malicious comments, while others are designed with benevolent intentions. The involvement of social bots in geopolitical issues is massive [5]: during the 2022 invasion of Ukraine, among all the pro-Russian campaigns, 20.28% of the spreaders were likely social bots. However, some social bots are benevolent; at the beginning of the pandemic, people were dubious about the effectiveness of vaccines, but social bots actively advocate for the vaccination: the findings detected that 28,081 tweets (11% of all tweets) were posted social bots [6]. Although the number may not be very astonishing, the implication behind this number is tremendous since social platforms are easily accessible to anyone and people generally have positive feelings and attitudes toward social bots [7]. The primary objective of social bots is often to generate and amplify traffic around a particular topic or issue. By doing so, the bots aim to create the perception that the topic is widely discussed and popular, thereby attracting more people to engage with it.[5]. This is when the exposure effect kicks in. The study shows that even a slight increase in exposure to known fake news will incubate belief in such news [8]. Another important medium is government, usually when countering political or geopolitical issues [1]. For instance, the study reveals that across the 70 countries observed, it is evident that at least one political party in each country utilizes social media as a tool to shape public attitudes domestically. The primary objective of these parties is often to suppress the ideas and dissenting opinions of their opponents [9]. Moreover, research done by the University of Oxford has indicated that more than 93% of the countries, 76 out the 81, have used social media to spread false information to bolster their campaign. In consideration of social media's role in disseminating false information— influencing attitudes, and amplifying propaganda, as well as the prevalence of false articles and the involvement of social bots— people should be able to employ critical thought in order to successfully navigate such a complicated online community.

3. Analysis of the Impact of Social Media on Users

3.1. The Echo Chamber Effect in Social Media

In addition to the various types of misleading news discussed earlier and their distribution on social media platforms, there is a latent problem concerning how viewers receive and interpret false or deceptive messages. The echo chamber phenomenon on social media platforms is indeed a significant aspect that contributes to social polarization. In an echo chamber, individuals are exposed predominantly to information and viewpoints that align with their preexisting beliefs and opinions, creating a self-reinforcing cycle. Therefore, they are more inclined to find like-minded groups and spread misinformation under the influence of the echo chamber. A study has shown that people have the tendency to seek information that supports their own beliefs and attitudes and rejected the information that is against them [10]. Another study, which was conducted by looking at 12 million Twitter messages about the impeachment of the former President of Brazil, Dilma Rousseff, has confirmed this by showcasing the correlation between people's capability to spread information and their attitudes; this indicates that the capability of users in spreading content is depending on their attitudes: people who support the impeachment are more capable of transmitting the content than the anti-impeachment people [11]. As a result, when individuals with preexisting beliefs come across messages that support their position, they are more likely to spread this information. Additionally, as discussed in the first section, the exposure effect takes effect when individuals are exposed to this information many times, influencing the attitudes and opinions of individuals with neutral positions.

3.2. Polarization in Social Media

Polarization—often known as people's choices and decisions becoming more extreme after a discussion with like-minded individuals— is somewhat a byproduct of the echo chamber, or, to some

extent, the echo chamber fosters and facilitates political polarization for viewers. The use of Twitter by Trump and his supporters exemplified the formation of an echo chamber, where individuals with similar political beliefs connected and reinforced their views. This was evident when Trump posted the message "Be there. Will be Wild!" on Twitter, which mobilized his supporters to gather at the Capitol Building [12]. The subsequent attack on the United States Capitol Building showcased the extreme consequences of such polarization. A study has shown that pro-attitudinal media can facilitate polarization [13]. In other words, when people receive social media message that agrees with their own political belief and attitude, their political attitudes are more likely to diverge from the center(average), possibly leading to irrational behaviors. Furthermore, polarized social media messages can also be used as a political tool(rhetoric) to increase animosity toward opponents. Analysis has indicated that when the posts are about political out groups, such as political opponents, they are 67% more likely to be shared than posts about political in groups, increasing the accumulated animosity. Aligned with the content discussed above, some social media algorithms, like social bots, can also foster polarization [14]. Twitter's social media algorithms play a significant role in exacerbating polarization by recommending content that aligns with viewers' existing attitudes and ideology. This can be particularly problematic for individuals with limited exposure to diverse perspectives, as they may become convinced that their perception of the content represents the objective reality. As a result, they become more susceptible to manipulation and less open to considering alternative viewpoints.

4. Discussion

Social media's impact on societal dynamics can be further understood from a psychological perspective. Confirmation bias, a cognitive bias inherent in all individuals, plays a significant role in shaping online behavior. People have a natural inclination to seek out and interpret information in a way that validates their existing beliefs. This bias is amplified when individuals engage with social media platforms, especially when they can remain anonymous. In such cases, individuals actively search for content or articles that align with their attitudes, reinforcing their preconceived notions [14]. This psychological phenomenon, coupled with the influence of social media algorithms and the proliferation of deceptive content like propaganda or click bait, contributes to the polarization of opinions and beliefs among individuals. As a result, they contribute to the polarization of opinions and beliefs among individuals. This explains why people refuse to take Covid vaccine when the epidemic was prevalent, why Trump's supporters gathered around at the front of the building and trespassed the restrictive area trying to interfere with the discussion going on about certifying the victory of Biden even at expense of going to jails or paying huge amount of fines, and why the slogan of Black Lives Matter brought supporters to fearlessly march on the street and hold the flag nationwide.

Human minds are susceptible to be manipulative. It is crucial for individuals to recognize that social media is a double-edged sword. On one hand, it can be a powerful tool for uncovering hidden injustices and unethical practices, raising awareness, and facilitating social change. On the other hand, social media also has the potential to undermine justice and erode its foundations. The spread of misinformation, online harassment, and hate speech can erode trust in institutions and perpetuate social divisions, hindering the pursuit of justice. Understanding the psychological mechanisms at play can help individuals navigate social media with greater awareness and critical thinking, ensuring that its positive potential is harnessed while mitigating its negative consequences.

5. Conclusion

This paper has clearly demonstrated that social media has a huge impact on the social dynamic, and this process can be explained by the dissemination of deceptive news and the special characteristics of social media platforms. By disseminating some alluring and inflammatory messages—like propaganda or other types of news— mediums, such as government or social media algorithms can effectively convey those deceptive ideas to a broad range of viewers. Although the veracity of news might be readily identified, the exposure effect will, to some extent, oscillate people's attitudes and beliefs. This effect is further amplified by the combination of social media's characteristics and polarization. With the effect of the echo chamber, people will receive or actively seek messages that are congruent with their opinions and beliefs, which eventually leads to polarization— a more extreme standpoint, which might be projected to the real world, as the examples listed in the above sections. However, some shortcomings still exist in such a paper. Firstly, this paper does not have the opportunity to do any type of experiment trying to understand the direct relationship between social media and social dynamics. Moreover, the target subject of this paper is the US, and hence, the conclusion may not be reached to other countries due to the fact that different cultures and societal structures can influence peoples' ideologies. Finally, future studies can focus on a deeper, complex, and subtle relationship between social media and polarization— how it can project to real life— since such researches are deficient.

Acknowledgment

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