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14. ABSTRACT

Political polarization is a critical threat to national security, and affective polarization in the US has increased more radically in the last four decades than in any other democratic state. Social media provides an exposed forum for social movement mobilization, exploitation by which rogue actors manipulate, and a vehicle for influencers to promote their cause and drive behavior. It can also act as an open domain for misinformation, disinformation, and propaganda. Social media accelerates the process of polarization due to human's general vulnerability to influence and the affordances of the technology itself, what social media invites people to do. Cognitive biases, heuristics, and social needs amplify the power of social media influence, especially when users are more likely to share and spread content that has an emotional response, or sort themselves along identity faultlines. The politics of contention and polarization come from decades of bitter divisions across the US seen in apparent viral YouTube videos of interpersonal conflict against racial divides, with rogue actors and influencers actively stoking cultural conflict on social media platforms. However, polarization does not simply arise from actors promoting message content. Rather, polarization can be seen as a product of media usage and media effects that cultivate polarization over time. Social media may polarize individuals, and thus may also foster the polarization of a network. Through Analysis of Competing Hypotheses and examination of the Black Lives Matter case study, the social media platform demonstrates the most significant capacity in increasing polarization. The propensity for human biases in information consumption and reasoning, amplified by social media algorithms, fuels the sharing of content and political cues that in turn amplifies polarization. The content that drives publics toward more polarization views can take the forms of frames. The platform itself provides affordances to amplify frames and counterframes throughout contentious politics, like BLM, and serves as the vehicle for influencers and rogue actors to exploit their narratives. The affordances of social media platforms make them influential and a powerful foundation for manipulation, computational propaganda, misinformation, conspiracy theories, and disinformation. The affective, identity-based nature of polarization across America increased through social media's affordances. Political polarization, worsened by affective polarization across partisan identities and groups throughout the US is detrimental to society and democracy. The polarization manipulated with the BLM movement significantly demonstrates the severity of an internal examination and required resolution for systemic racism and injustice, along with the power social media holds over people. This study highlights the platforms affordances and portrays various challenges that social media-induced polarization presents to the US. The problem requires an integrated effort to combat the challenges of the current environment and divide in America.

15. SUBJECT TERMS

Social Media-Induced Polarization; Platforms; Rogue Actors; Influencers; Political Polarization; Affective Polarization; Contentious Politics; Black Lives Matter; #BlackLivesMatter; Frames; Social Media Information Ecosystem; Identity

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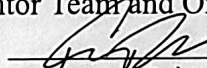MASTER OF MILITARY STUDIES

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Executive Summary

Title: Social Media-Induced Polarization: The Case of #BlackLivesMatter

Author: Major Allison N. Smyczynski, United States Marine Corps

Thesis: Social media platforms provide affordances to rogue actors and influencers within contentious politics to manipulate social, psychological, and communication schemas in individuals, groups, and the system and amplify frames, which increases polarization.

Discussion: Political polarization is a critical threat to national security, and affective polarization in the US has increased more radically in the last four decades than in any other democratic state. Social media provides an exposed forum for social movement mobilization, exploitation by which rogue actors manipulate, and a vehicle for influencers to promote their cause and drive behavior. It can also act as an open domain for misinformation, disinformation, and propaganda. Social media accelerates the process of polarization due to human's general vulnerability to influence and the affordances of the technology itself, what social media invites people to do. Cognitive biases, heuristics, and social needs amplify the power of social media influence, especially when users are more likely to share and spread content that has an emotional response, or sort themselves along identity faultlines. The politics of contention and polarization come from decades of bitter divisions across the US seen in apparent viral YouTube videos of interpersonal conflict against racial divides, with rogue actors and influencers actively stoking cultural conflict on social media platforms. However, polarization does not simply arise from actors promoting message content. Rather, polarization can be seen as a product of media usage and media effects that cultivate polarization over time. Social media may polarize individuals, and thus may also foster the polarization of a network. Through Analysis of Competing Hypotheses and examination of the Black Lives Matter case study, the social media platform demonstrates the most significant capacity in increasing polarization. The propensity for human biases in information consumption and reasoning, amplified by social media algorithms, fuels the sharing of content and political cues that in turn amplifies polarization. The content that drives publics toward more polarization views can take the forms of frames. The platform itself provides affordances to amplify frames and counterframes throughout contentious politics, like BLM, and serves as the vehicle for influencers and rogue actors to exploit their narratives. This study highlights the platforms affordances and portrays various challenges that social media-induced polarization presents to the US The problem requires an integrated effort to combat the challenges of the current environment and divide in America.

Conclusion: The affordances of social media platforms make them influential and a powerful foundation for manipulation, computational propaganda, misinformation, conspiracy theories, and disinformation. The affective, identity-based nature of polarization across America increased through social media's affordances. Political polarization, worsened by affective polarization across partisan identities and groups throughout the US is detrimental to society and democracy. The polarization manipulated with the BLM movement significantly demonstrates the severity of an internal examination and required resolution for systemic racism and injustice, along with the power social media holds over people.

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Preface

"Russia didn't hack Facebook, Russia used Facebook."

In the wake of COVID-19, the 2020 presidential election, and the murder of George Floyd, I became more intrigued on why my social media feeds became increasingly polarized. People that I grew up with, my family, my friends could experience the same pandemic and see the same video of George Floyd's murder, yet somehow relate both to their political identity, which correlated to what they posted and shared on their social media account. I also noticed a lot of hostility among opinions and various forms of false information spread throughout the platforms, heightening the chaos the pandemic already brought to the world. Through personal research and informal discussions, I wanted to know more about this divide. Was it influencers that have millions of followers, or rogue actors, like Russia, who used inauthentic accounts to influence the 2016 election? After watching *The Social Dilemma* documentary and reading the book, *LikeWar*, I knew I needed to study the social media system. Fortunately, I was given the incredible opportunity to be a part of the Social and Political Conflict Lab (SPCL), Gray Scholars Program, which opened my eyes to contentious politics and various schemas that induced affects in attitudes, thought, and behavior. I chose the case, BLM, based on its social media mobilization and the growth of polarization within the US surrounding racial injustice. There is some degree of overlap between #BlackLivesMatter and Black Lives Matter – the organization, but I chose to focus on the movement itself. BLM highlights the link between polarization, contentious politics, and social media. It is both intrinsic and instrumental in understanding polarization and social media through its various episodes and provides an excellent case to explore multi-perspectival analyses through the voices and perspectives of various actors, groups, and their interaction through social media, polarization, and offline

behavior. Most relatable, understanding polarization through the affordances that social media provides presents further study requirements into how it impacts national security. For this reason, recognizing the significance of polarization to society, to national security, and to democracy will further enable a more specific understanding of what it can do to the very fabric of the military, the people that fight wars.

First, I would like to thank the entire SPCL team, CG 5, LtCol John Nash, and various professors for their insightful comments, valuable feedback, and hours of listening to me finagle this topic into discussion. I cannot express enough gratitude to my SPCL and MMS mentor team, Dr. Claire Metelits and Dr. Craig Hayden, for the learning opportunities you provided, an environment that inspired critical thinking, and for the hours spent helping turn this idea into a thesis. Dr. Hayden, I would not be where I am today without your patience, immeasurable knowledge, and mentorship throughout SPCL and the Routes to Influence Elective.

To my daughter, Emma, thank you for sacrificing so much so I can get to the finish line. No words can sum up the gratefulness I have for you. You inspire me every day. Lastly, and most importantly, to my husband. Mike, you once again provided unfailing support and endless encouragement throughout another master's thesis. Thank you for teaching me, listening to me, and talking through all my ideas. Your love, support, and fortitude taught me more about sacrifice, discipline, and compromise – You and Emma are my strength in everything I do.

Introduction

With the highly publicized killing of George Floyd, the 2019 novel coronavirus, and the 2020 presidential election, levels of polarization in the United States are at an all-time high. Polarization is both a state and a process. As a *state*, polarization refers to the degree in which opinions divide and as a *process*, it is the increase of opposition over time.[1] A driving force behind the rise in polarization is social media. Social media's inherent disposition as a persuasion technology provides widely accessible platforms, rapid communication, and unconstrained capacities to influence a broad audience. Social media-induced polarization can be measured through content and network-based variances across platforms, networks, and users during a controversial event, like episodes of contentious politics surrounding the Black Lives Matter (BLM) movement.[2]

The BLM movement highlights how capabilities within social media's information ecosystem - the complex, adaptive system in which social media operates, people interact, and receive and disseminate information - play a significant role in increasing polarization.[3] What largely explains the linkage between increasing polarization and social media? Is it the work of foreign agents or online influencers? Or, does polarization emerge as a property of the social media platform itself and how people engage with social media? This paper explores these questions through the context of an episode of increasing polarization in the US: the unfolding contentious politics surrounding the BLM protests, from 2014 to 2020. The paper employs a mixed-methods approach to assess the linkage between the rise of polarization and the role of social media in an episode of contentious politics.

First, the paper provides analysis of the BLM case through an Analysis of

Competing Hypotheses (ACH) methodology, in order to isolate the most likely driving

force behind polarization via social media. As the analysis demonstrates, the social media

platform represents the most significant capacity in increasing polarization. Furthermore,

the connection between social media and polarization facilitates mobilization and

increases conflict. Most significantly, this link between social media and polarization

raises concerns for US national security as it worsens other foreign and domestic threats,

disables the US' ability to combat them, risks decision-making paralysis, and prevents the

US from effectively tackling great power competition.[4] Social media platforms provide

affordances to rogue actors and influencers within contentious politics to manipulate

social, psychological, and communication schemas in individuals, groups, and the system

and amplify frames, which increases polarization. The paper presents an in-depth case

study analysis of the BLM protests, highlighting pivotal points in the movement and how

polarization manifested between supporters and counter-movement political actors and

discourse online.

<center>The Problem</center>

As of January 2021, the number of social media users increased by over one

billion in just three years. Out of 7.83 billion people in the world, over half use social

media and as depicted by figure 1, Americans continue to increase usage across social

media platforms.[5] In addition, 86 percent of US adults get news from digital devices and

of that, 53 percent say they get news from social media across several different

platforms.[6] Major social media platforms have increasingly become the social fabric by

<center>2</center>

which billions worldwide live and think, which provides almost limitless access and

minimal restriction to post content.

Growing share of Americans say they use YouTube; Facebook remains one of the most widely used online platforms among U.S. adults

% of U.S. adults who say they ever use ...

Platform	%
YouTube	81
Facebook	69
Instagram	40
Pinterest	31
LinkedIn	28
Snapchat	25
Twitter	23
WhatsApp	23
TikTok	21
Reddit	18
Nextdoor	13
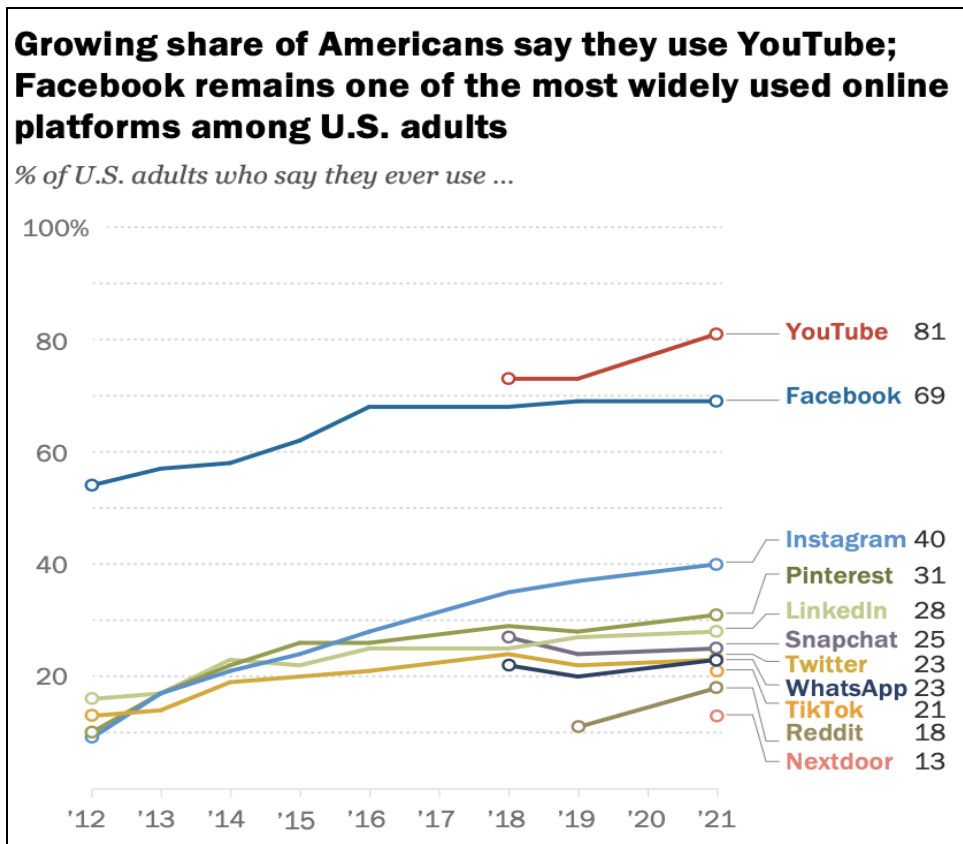
Figure 1: Social Media Use in 2021 and Increase Across Platforms
Source: Brooke Auxier and Monica Anderson, "Social Media Use in 2021," *Pew Research Center,* 2021.

Social media has an innate ability to influence, through the "machine" and its

users. Influence simply means "an ability to convince others to think or do something."[7]

It is any change to opinions, attitudes, or behaviors from an individual or a group caused

by an individual or a group in a specific framework.[8] Social media's ability to influence

human behavior and identity is argued in this paper to play a dominant role in

polarization within societies and has given rise to global mobilization, leading in some

cases to drive peaceful events to violence.

Political polarization is a significant threat to national security, and affective

polarization in the US has increased more radically in the last four decades than in any

other democratic state.[9] *Political* polarization generally refers to the disparity of political attitudes to ideological extremes and can be seen through the immense and emergent gap between liberals and conservatives.[10] *Affective* polarization is the condition of dislike, distrust, and avoidance of the other side [11]In 2019, partisan antipathy was at its highest compared to previous years. 79 percent of democrats and 83 percent republicans gave the other party a "cold" rating on a "feeling thermometer," highlighting how the divide is getting more intense and more personal.[12]As depicted by figure 2, cold feelings toward the out-party now exceed warm feelings to the in-party, and out-party hate increased over the last two decades. The rise of out-party hate demonstrates the convergence of *othering, aversion, and moralization* when it comes to the divide between ideological views and personal feelings among parties.[13] The link between social media and increased polarization can be seen throughout platform timelines full of stories of broken relationships, friendships ended, and fractured families, but most significantly highlighted through contentious politics within the United States.[14]

Warmth toward the opposing party (out-party) has diminished for decades

■ In-party ▲ Out-party

Out-party hate has emerged as a stronger force than in-party love
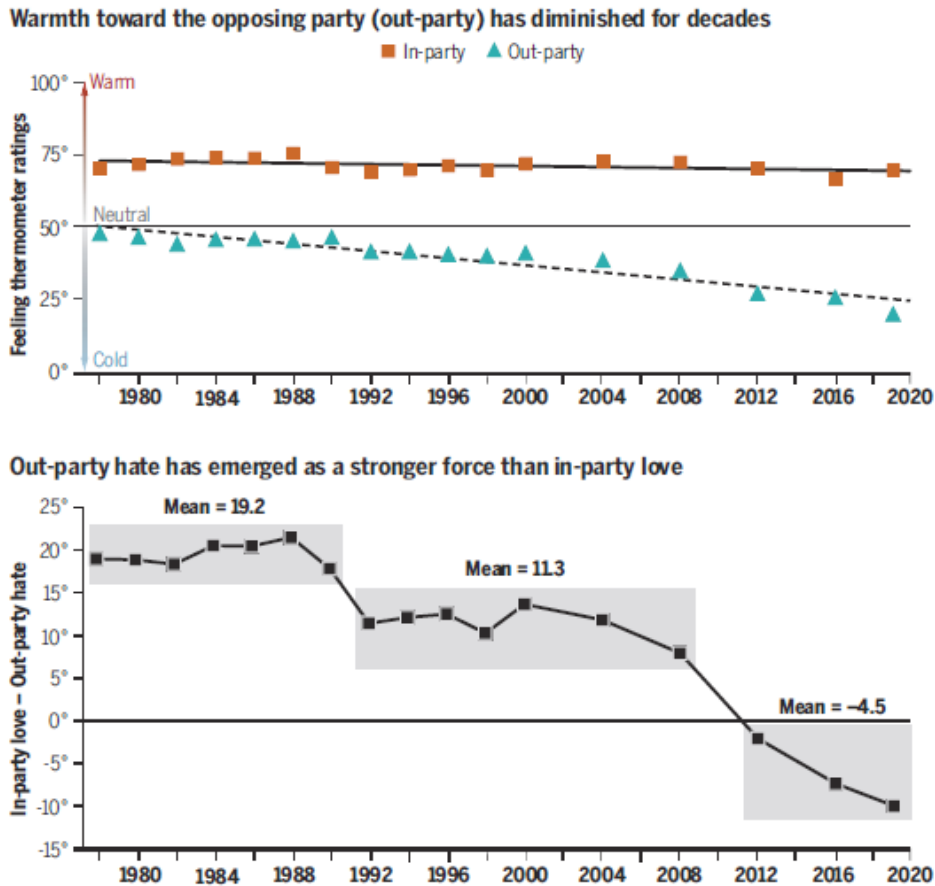
Figure 2: The Rise of Out-Party Hate

Source: Finkel et al., "Political sectarianism in America, A poisonous cocktail of othering, aversion, and moralization poses a threat to democracy," Social Science Policy Forum, Science Magazine, (2020).

Social media provides an exposed forum for the development of polarization, as well as consequences of polarization in contentious politics. Social media provides an important tool for social movement mobilization, exploitation by which rogue actors manipulate, and a vehicle for influencers to promote their cause and drive behavior. It can also act as an open domain for misinformation, disinformation, and propaganda as falsehood spreads significantly faster, reaches far more people, spreads deeper, and becomes more viral than the truth.[15] Social media accelerates the process of polarization due to our human vulnerability to influence increased by the affordances of the technology itself, or what social media invites people to do. Our cognitive biases,

heuristics, and social needs amplify the power of social media influence, especially when users are more likely to share and spread content that has an emotional response, or sort themselves along identity faultlines. Social media may polarize individuals, and thus may also foster the polarization of a network. As this paper will demonstrate, social media's ability to increase polarization emerge from different elements within its information ecosystem.

Social media's information ecosystem consists of a multifaceted organization of dynamic social connections through which people connect, communicate, and information moves and transforms.[16] It includes infrastructure, tools, information, media, curators, influencers, consumers, actors, and machines.[17] However, which element of social media's information ecosystem plays a greater role in increasing polarization?

This paper begins with the presumption that three aspects within the ecosystem stand out as playing a significant role in polarization online: the social media *platform* itself (the web design, algorithms, and capacity for users to share content) like Facebook, Instagram, Twitter, and YouTube, *rogue actors* such as Russia's Internet Research Agency, domestic extremists, bots, trolls, and other foreign activities, and *influencers* (highly connected "nodes" that generate and spread content across social media networks) like elites, celebrities, and social media influencers.

Rogue actors consist of malign users or machines. They encompass trolls, bots, malign, domestic actors, and foreign actors that interfere with US domestic issues. Bots, or software robots, are essentially algorithms that interact with humans on social media, influence discussion, sway opinion, and stimulate behavior.[18] Malicious bots fall into the category as "rogue actors" due to their design to harm and manipulate discernments and

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perception. Trolls are real people that provoke and insult users and disrupt the conversation.[19] Actors hire (and pay) trolls to influence information and users and drive conflict.[20] A single troll can lead to multiple users participating in the same inflammatory behavior.[21] Significant to rogue actors is the use and manipulation of humans, especially influencers, through the platforms.

Influencers are the people, organizations, and establishments that shape information flow, engage with various people and networks, have a strong community, build relationships to affect decision-making, and establish a reputation for their knowledge and expertise on topics.[22] "Social Media Influencers" (also known as "digital influencers") fall into multiple categories based on the number of followers they have, their motivation to act, the social media platform used, and the type of activity they engage in (Mega, Macro, Micro, and Nano-Influencers).[23] Micro and Nano-Influencers have a substantial appeal and power within their networks to influence. Smaller-scale influencers come off as more authentic, relatable, and engage directly with their audience leading to higher levels of trust.[24] Through trust, personal attributes, and values, influencers connect with their audiences to induce effects.

In order to narrow the scope of possible explanations for how social media drives polarization, particularly in the context of the Black Lives Matter protests, I conducted an Analysis of Competing Hypotheses (ACH) (See Appendix A for details on the methodology, the ACH matrix, and results of the analysis). This structured method of data evaluation surveyed the plausible causal mechanisms, data, theory, and research findings from previously published scholarship, in order to establish the element of the information ecosystem that likely was most important for the increase in polarization

during the BLM protests. While it is highly probable that all of the three hypothesized elements of the information ecosystem contributed to polarization in some way, the ACH methodology identified emergent evidence that the *platform* plays a more significant role. The following literature review examines relevant concepts and theories that can explain how social media platforms can increase polarization.

Literature Review

Understanding how social media platforms can contribute to polarization, particularly in the context of the Black Lives Matter episodes of protest, by necessity, will draw on research from across disciplines. This section examines relevant arguments and concepts in studies of social media influence, contentious politics, and polarization. While social media does more than cultivate polarization, such as building meaningful networks of connection and enable social movement mobilization, it also provides opportunities for contentious politics and polarization due to the properties of *how* it connects people. The platforms of connection have consequences that stem from how these technologies amplify or encourage existing social, psychological, or cognitive biases. Social media is not the sole cause of polarization.

The politics of contention and polarization come from decades of bitter divisions across the US. This is apparent in viral YouTube videos of interpersonal conflict against racial divides, with rogue actors and influencers actively stoking cultural conflict on social media.[25] However, polarization does not simply arise from actors promoting message content. Rather, polarization can be seen as a product of media usage and media effects that cultivate polarization over time. The following sections of the literature

review describe scholarship on polarization, its cause, and its relationship to social media. Then, the section discusses the consequences of social media echo chambers and algorithmic biases to illustrate how the information ecosystem can be distorted in ways that engender social and political conflict. Finally, insights from studies of disinformation provide clues to how polarization can be intentionally cultivated through social media by malign actors or other influencers.

What is Polarization?

Polarization is a "social process whereby a social or political group is divided into two opposing sub-groups having conflicting and contrasting positions, goals and viewpoints, with few individuals remaining neutral or holding an intermediate position."[26]. The study of polarization in the United States predates the rise of social media.[27] DiMaggio, Evans, and Bryson, for example, identified opinion polarization as a potential causal relationship to political conflict and social volatility. This study is significant for understanding the linkage between polarization and social media, because it found that polarization can increase when opinion distributions become dispersed, bimodal, associated, or linked to salient social identities or if political identities become linked to social attitudes. Additionally, DiMaggio et al. found a relationship between mobilization and polarization based on internal unification and distinct opinions among groups.[28] When opinions diverge, and these opinions are closely linked with identity-based groups – polarization can increase.

The concept of political polarization has been studied in behavior, such as voting patterns, and in expressed differences of ideology among political parties, individuals, or elites[29] Yarchi et al. organize political polarization into three types: interactional polarization, positional polarization, and affective polarization.[30] They define interactional polarization as the process

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whereby people in a debate progressively act with like-minded individuals and disengage with others holding opposing views. Positional polarization refers to the increase in "antagonistic and extreme political preferences."[31] Affective polarization, however, suggests a linkage between different ideas and how people identify with those ideas (and those that do not share them). Iyengar et al. see polarization from a social identity perspective. For them, polarization is more than just a difference in policy positions among Democrats and Republicans.[32]

According to Cuéllar et al., this kind of polarization forms between different identities that result from diverging ideas.[33] Affective polarization creates the conditions for more political and social contention, if disagreements are more than just matters of policy opinions, but more fundamental perceived differences. For example, McCoy et al. ground affective polarization as a matter of psychology, seen in observed "us versus them" opinions, in-group favoritism, and expressions of mutually exclusive identities. They further affirm that the psychology of polarization becomes vital as means of dehumanization, depersonalization, and stereotyping influence the emotional loathing, fear, and distrust of the out-partisans.[34]

McCoy et al. and Cuéllar et al.'s studies describe affective polarization as a condition where one group sees another as fundamentally threatening to that group's way of life, their nation, and who they are. While polarization is an element of contentious politics, it can also be dangerous to democracy, if polarized groups do not see the institutions of democracy as ensuring their interests and identity. As Iyengar et al. describe, affective polarization can be measured in self-reports of partisan affect, implicit or subconscious tests of partisan bias, and behavioral measures of interpersonal trust and group favoritism or discrimination based on partisan cues.[35] Polarization is not just apparent in what individuals or groups believe, but in what kinds of

messages they seek out and importantly, what kinds of messages (or cues from leaders or elites) they respond to.

What Causes Polarization?

Iyengar et al. argue that affective polarization is sustained from a variety of sources and social contexts: salient social identities, homophily, social distance, ideological polarization (stronger partisan affect), lack of balances content in media outlets, priming of partisanship, and cultivation of hostility among groups. They even emphasize that cross-cutting identities like race are at the root of affective polarization.[36] Cuéllar et al. highlight how the psychological schema of humans make polarization easy and quick., especially since identities within the US line up with one another (race, religion, partisanship, and geography) and if there is political gain to come from polarizing an audience.[37] A "schema "is the mental framework that describes a pattern of thought or behavior that an individual uses to organize knowledge and the relationships between them.[38]. This perspective suggests vulnerabilities that can be exploited and exacerbated by social media.

Garimella's work on the relationship between polarization and social media examines causes of polarization as stemming from biases in the individual, group, and the system. He argues that these biases get social media users stuck in the "cycle of polarization."[39] Biases reflect how thinking is shaped. They are qualities that predispose actors to certain beliefs, decisions, or actions that might not reflect rational thinking. Individual-level biases include cognitive dissonance, homophily, confirmation bias, selective exposure, and biased assimilation, echo chambers, and information overload. Group-level bias includes social identity complexity, in-group favoritism, and group polarization. System-level bias (media bias, algorithmic bias) also play a role in setting the conditions for polarization. All of these factors can lead to

polarization.[40] While these biases all matter in how social media can enable polarization, some matter more than others and correlate with processes, like *framing,* and how the system operates, as the following sections explain.

Polarization and Social Media

Qureshi et al. argued that episodes of contentious politics enabled by social media-induced polarization of opinions about information (misinformation or disinformation) related to socio-cultural activities and led to the destruction of property and human suffering.[41] This study affirmed that social media increased polarization, particularly through how false information was shared to increase perceptions of fundamental difference and the urgency of mobilization.[42] As argued previously, biases based on human psychology can be exploited by characteristics of the social media platform.

Vaccari, for example, described the relationship between online content and political polarization and found that elite behavior, rather than just the content of the message itself, drove polarization. Elites originate and shape frames to influence their target audiences and have a disproportionate portion of the power, resources, and influence throughout society.[43] They have direct links to social media companies and the government and can also bypass traditional media to speak directly to the public.[44]The credibility of political elites (and how people identify with those elites), a form of an influencer, made audiences vulnerable to effects of messaging online (cues), such as priming, and stereotypes that facilitate acceptance of inaccurate information. Elites can stoke emotions, like anger, which sets the conditions for audiences to accept and share inaccurate information that support one's views.[45] Such tactic is similar within hired trolls, which rogue actors hire to influence information and users and drive conflict.[46] A single troll can lead to multiple users participating in the same inflammatory behavior.[47]

Berger describes three significant tactics that social media platforms afford users, rogue actors, and influencers to use for spreading content that can reinforce polarization. The three methods include: smoke screening, misdirecting, and astroturfing. Smoke screening involves context-related hashtags that distract users from the main point (#blacklivesmatter but talk about something unrelated to the movement). Misdirection goes further by using context-related hashtags without referring to the topic in any way (use #blacklivesmatter and not talk about anything related to the movement or an episode).[48] Astroturfing is a political campaign disguised as a grassroots behavior that creates the impression that a majority favor a certain position. Stieglitz et al.'s article further amplifies how these strategies seek to influence public discourse and lead to a misleading perception of the accuracy and popularity of the information on the platform.[49] Significant to these affordances is the use and manipulation of humans on platforms by amplifying information that accentuates differences, increases distrust, and exploits cognitive schemas.

Because social media also amplifies certain voices because they are liked and shared, the volume of information also facilitates acceptance of inaccurate information. Controversial, provocative content goes viral, and audiovisual messages are more persuasive and spread easier.[50] Vaccari's study highlights partisan cues, group cues, emotional cues, exposures, recency, virality, and audiovisual content, all of which can be amplified through social media platforms. Due to the false equivalency of the platform, uninformed posts become equal to the opinions of experts.[51] Polarization is likely derived from "built-in" biases that predispose audiences to certain beliefs, making them more likely to share and engage with content that further amplifies polarization. The platform's positive feedback mechanism drives various forms

of polarization because it capitalizes on individual, group, and system biases enhanced through tailored content and emotionally driven responses. The feedback loop in which identities match those of the message defends the individual's inherent predispositions[52].

Echo Chambers, Filter Bubbles, and Algorithmic Bias – The Platforms

Yarchi et al. examined polarization across social media platforms. Based on platform affordances, what sites like Facebook or Twitter invite or enable users to do, their hypotheses show that these kinds of platforms enable more interactional and affective polarization. Their case study analysis of the various platforms emphasized that self-reinforcing homophilic interaction patterns (interactional polarization) exacerbate positional polarization and contribute to distinct antagonism (affective polarization) in cross-cutting social networks.[53] However, a more prominent effect of communicating through social media is the way that social media enables (and importantly, *constrains*) exposure to content to increase polarization. Garimella's analysis identified links between social media platforms and polarization observed across a number of other studies, including available information and ultra-personalized content, filtering power, and social feedback.[54]

Multiple studies have identified the role that social media has in creating political homophily (how individuals tend to seek others that are similar to themselves), filter bubbles, and echo chambers – whereby people only encounter information that confirms their existing belief, which is amplified by social media algorithms that further shape the content by which individuals make sense of their beliefs and their identity.[55] So-called "filter bubbles" and "echo chambers" are thought to be driven in part by the way in which social media audiences seek out content that conforms to their beliefs. Selective exposure and confirmation bias, in other words, drive individuals' thoughts, attitudes, and behavior. Vicario et al. argues that political and

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ideological echo chambers amplify the polarization of partisan groups of like-minded individuals. Social media users not only see "their side" of contentious issues, but lack of exposure to other perspectives, which can make them less inclined to consider or weigh different ideas. The information essentially goes unchallenged, strengthening beliefs and attitudes, while the algorithms within the system filter out any opposing views.[56] The algorithm is a property of the platform that fuels existing biases which reinforce polarization.

Algorithmic bias, generated in a way to maximize platform usage, plays an important role in how social media enables polarization. Sirbu et al. saw it as a mechanism that fostered interaction between like-minded individuals, hindered consensus across different populations, and favored opinion segregation online. Additionally, their results found an increased tendency towards polarization, despite the fact that social media could promote convergence over time.[57] Different platforms utilize algorithms to keep users engaged by showing particular forms of content. In other words, the platform algorithm incorporates human biases to drive user engagement. Algorithmic bias, therefore, plays a role in the formation of echo chambers for content, but research on echo chambers also has noted that many social media users do see opposing viewpoints.[58] However, because social media creates homogenous social networks that can be dominated by polarizing content, it can amplify frames that emphasize differences between in and out-groups. Frames represent how content represents news and information in ways that change how audiences to media content think about facts, issues, and beliefs. This is discussed in the next section.

However, according to some research, there are limits to the effects of social media on polarization as a result of filter bubbles or echo chambers. In 2017, Boxell, Gentzkow, and Shapiro argued how political polarization was greater among those that used social media less

often, and Bakshy et al. and Barberá found that Twitter and Facebook users see diverse views daily.[59] In 2018, the Oxford Internet Insitute published a study finding that most adults have multiple social media platforms, meaning that most social media audiences could have exposure to different kinds of information.[60] In 2020, Boxell et al. argued that in some countries polarization was already on the rise prior to social media use increased, which negated social media's impact on affective polarization.[61] This suggests that the *content* of the messages shared by social media may matter more, if we are still witnessing a rise in polarization. There is an incentive for social media platforms to amplify the most engaging content, which tends to be misleading or produce an emotional affect, and slants user attention towards polarizing content.[62] Such practices actually amplify extreme opinions even when users see information outside of their own filter bubble or echo chamber.

Bail et al., through a study done on Democrats and Republicans on Twitter using a Twitter bot posting opposing views, found that Republicans ended up being more conservative over time. Their research suggests that polarization could increase by seeing views users tend to disagree with.[63] It is not just exposure to like-minded information that drives polarization, nor is it just that social media tends to amplify the spread of inflammatory content. Sometimes, it may also be exposure to difference that enables polarization. Social media platforms afford the ability of individuals and groups to develop shared understandings of news and events. These *frames* are an effective means to shape understanding, and can be crucial to creating a shared sense of urgency or threat as a precursor to mobilization. The spread of these frames can also lead to polarization.

Framing

The Black Lives Matter social movement can be understood as an episode of online contentious politics, where different groups organized around narratives and counter-narratives online that were a call to action. Social media served a critical role in promoting different representations of justice, security, and political responsibility around issues of race and law enforcement. The millions of tweets and other shared content coalesced into differing worldviews, that define the "problem" of the Black Lives Matter movement in different terms, policy solutions, and value judgments. These representations reflect what sociologists and political communication scholars call "frames." Frames are "are organizing principles that are socially shared and persistent over time, that work symbolically to meaningfully structure the social world."[64] They are the "schemata of interpretation."[65]

Frames are an essential part of understanding the role of social media in polarization. Valenzuela et al., found that frames influence what people share on platforms through emotions, motivations, and psychological engagement. Frames impact sharing of news on social media by priming explicit motivations and gratifications that come with social media engagement (for example, by signaling membership in a community or expressing moral outrage). [66] Entman's characterization of frames stressed the selection of some aspects of an apparent reality and salience in communicating text to promote "a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described."[67]

Banks et al. examined how political polarization can stem from framing through two mechanisms. Framing can amplify perceptions of perceived ideological distance (in their study, how media framing on health care made presidential candidate Hilary Clinton polarizing in comparison to Donald Trump). Framing can also provide a heightened contrast effect that

highlights negative traits (rather than policy differences) of a political candidate, inducing a psychological response. Most significantly, they found that negative social media frames increased perceptions of polarization.[68]

Framing not only has impacts on social media audiences. They also become the *object* of political contests carried out on social media. Marwick and Lewis' study of media manipulation and disinformation illustrate how internet subcultures take advantage of the ecosystem to manipulate news frames, propagate ideas, and set agendas.[69] Entman and Usher argued that political communication research needs to rethink how frames propagate, given how important social media has become to political actors and media consumers. They examined five digital "pump-valves" through which political information and frames spread. They included platforms, algorithms, ideological media, and rogue actors. Entman and Usher's metaphor demonstrates how features within the system can "enhance (pump) and diminish (valve) communication flows." Perhaps most importantly, they take a systemic approach – where the platform itself is the location for political change. Additionally, they highlight the gaps within the system that facilitate exploitation by rogue actors and influencers, who seek to shape politics through social action.[70]

The concept of media "frames" is borrowed from the study of contentious politics and social movements.[71] This field had also recognized the importance of frames for movements like Black Lives Matter. Bonilla and Tillery found that social movement frames, especially intersectional messaging strategies and subgroup identities, generated segmented support for movements, which related to a deeper divide around the BLM movement.[72] Since the purpose of a social movement is often to spread a particular frame, mobilize, and get more people to see the world as they do (within the same frame), frames imply opportunities for either support or

opposition. Social media, in particular, can spread *collective action* frames to provide action-oriented meanings that inspire and legitimize the movement. Social media platforms do well in sorting and growing networks with shared identities and perspectives, like through the promotion of shared frames.[73]

Furthermore, Ferree et al. argue that, in effect, frames can function as discursive opportunity structures, as part of the broader set of political opportunity structures, to help shape public understanding of the ideas and meaning surrounding a movement. For contentious politics scholars, social movement actors seize on institutional and cultural access points to bring their claims into the political forum via social media discourse. Given what is known about how social media can spread information and drive audiences toward a reinforced sense of political identity, it is not surprising to see the key role of social media in the frequency and timing of protest events such as demonstrations and rallies.[74] In addition, since collective frames are socially constructed and conveyed through "a politics of signification," attempts to refute, invalidate, and neutralize a movement's (or individual or group) versions of reality or descriptive action include counter-framing.[75]

Information Manipulation

Another way in which social media platforms play a role in polarization is through how they enable actors to utilize the affordances of the platform for their own political ends, especially when polarization is a strategic objective, and how they allow frames to propagate. Iyengar's contention that the media, through episodic framing, propagates the existing state of affairs is widely substantiated by other scholars and relates especially to social media platforms.[76]Actors exploit platforms to manipulate audiences towards specific goals and can do this through misleading or false content that is more likely to be shared. People are vulnerable to

misinformation and disinformation, especially during crisis events, due to anxiety, uncertainty, collective sensemaking, distrust, and those that exploit political opportunity structures.[77] A 2017 Oxford research study of 22 million tweets showed that Twitter users had shared more "misinformation, polarizing, and conspiratorial content" than had shared actual news stories.[78] Vosoughi, Roy, and Aral concluded that false news was more novel and pronounced because it brought more emotion like fear, surprise, and distrust.[79] Disinformation is a critical element in information and influence warfare, especially to sow mistrust and confusion, and can be seen as a tool of both domestic and foreign actors seeking to shape the information environment.[80]

One such avenue for disinformation is the collaborative nature of sharing that is part of the social media platform itself. Starbird et al. discuss the participatory nature of social media, which enables collaborations among both organized actors and organic crowds, not just bots and trolls.[81] The spread of competing frames, even those derived from shared disinformation, gains credibility because it was shared within social networks. Moreover, disinformation can take many forms. According to Nemr and Gangware, disinformation messages range from biased half-truths to conspiracy theories and entire lies.[82] The potential of disinformation to shape attitudes and beliefs is derived as much from how it is shared as much as its plausibility.

Other properties of social media platforms can enable polarization through the spread of disinformation content. Sanovich and Stukal identify practices of censorship, hacking and sharing, manipulation of search rankings, and use of bots and trolls to directly share the information as ways in which online discourse can be shaped.[83] So called "data voids" are also a way that actors can manipulate content or spread disinformation in order to create social divides. Data voids occur when search engines, to include social media search functions, have gaps in authoritative content or where available relevant data is "limited, non-existent, or deeply

problematic."[84] Actors can exploit the search engine ranking through their ideological, economic, or political agendas, and data voids are challenging to detect.[85] This, in turn, distorts available information and can shape public understanding of controversies.

Siegel also found that influencers, conspiracy theorists, highly partisan media outlets, and the mainstream media spread disinformation, often through capabilities of the social media platform.[86] According to Kate Starbird's study of online disinformation surrounding the 2020 presidential election, she deduced that disinformation, more pronounced from the "right," consisted of "networks of politically-motivated information activists, social media influencers, and hyper-partisan media outlets." The networks were frequently "picking up 'evidence' of voting concerns, framing that evidence in misleading ways, and strategically amplifying that content to support meta-narratives that undermined trust in the election."[87] These activities fed broader distrust in political institutions and, arguably, increased polarization.

As the literature demonstrates, the linkage between social media and polarization is likely derived from multiple factors. The rise in political and affective polarization has encapsulated scholars and one significant correlation is the rise in social media usage and what the platforms provide to the users. The propensity for human biases in information consumption and reasoning, amplified by social media algorithms, fuels the sharing of content and political cues that in turn amplifies polarization. The content that drives publics toward more polarization views can take the forms of frames. Frames, in turn, can propagate quickly with methods like disinformation. The following case study examines the Black Lives Matter movement as a case of contentious politics carried out through the social media information ecosystem. The study focuses attention on the platform and the affordances it offers for information manipulation and increased polarization.

Case Study: Black Lives Matter

Over the last eight years, the BLM movement saw a divide across America driven by social media and its influence on the information ecosystem. This ecosystem demonstrates the capacity to increase polarization and can be linked to contentious politics. The case study provides evidence of the affordances offered by social media platforms and how they build on contentious politics. The BLM case study highlights divide across race, political affiliation, framing, and demonstrates a strong correlation between identities and polarization.

Created in 2013, Black Lives Matter began through a frustrated Facebook post turned Twitter hashtag. #BlackLivesMatter was in response to the acquittal of vigilante, George Zimmerman, who fatally shot black teenager, Trayvon Martin in 2012. The movement developed in 2014 after Michael Brown's police-related killing and became a global phenomenon in 2020 after the world saw George Floyd murdered.[88]

The BLM movement is a member-led, decentralized grassroots movement that organizes itself in several ways: through chapter-based groups, as the online #BLM and social movement, and through national organizing and training programs.[89] Members engage with politicians, the media, and the public through conventional and contentious methods.[90] BLM has led to several policy changes over the years but has also been heavily criticized. The divide in the US has made BLM a partisan issue, impacting both the 2016 and 2020 presidential elections, especially seen with how foreign and domestic actors leveraged the platforms for various strategic goals. This case study will focus on distinct episodes broken out by two major periods for the movement. First, Ferguson in 2014, followed by its global rebirth in 2020 after the murder of George Floyd. The

remainder of this section highlights the various ways social media facilitated an increase in polarization.

Ferguson 2014 and Counter-Protests

The use of #BlackLivesMatter began in 2013 after George Zimmerman's acquittal, but did not draw significant awareness until late 2014.[91] On August 9, 2014, Officer Darren Wilson shot and killed Michael Brown in Ferguson, Missouri. A photo of Wilson standing over Brown's body was one of the most shared Twitter images with over 40,000 shares. As references to the event on social media increased, so too did protests against the incident. In fact, the birth of BLM saw over 12 million tweets from 1.7 million unique users.[92] As protest participation multiplied, police response became increasingly militarized as police arrested several prominent figures in the demonstrations. Photos of police using tear gas on the public increased global interest in the events.

Twitter was the main platform for BLM to mobilize and expand; it sorted news and information chronologically, allowed the topic to dominate, and even saw comments from outside the US. Furthermore, due to algorithmic control of content, Facebook did not portray the events in Ferguson the same as Twitter and saw significant resistance in its initial phase.[93] In fact, Facebook reported little of the events at Ferguson, instead focused on the "ALS Challenge," the viral ice bucket challenge, where people videotaped themselves dumping buckets of water on their heads then sharing to Facebook to raise awareness and donate towards amyotrophic lateral sclerosis (Lou Gehrig's disease).[94]The differences among the platform algorithms shaped public knowledge and understanding of the unfolding movement.

#IfTheyGunnedMeDown

In the aftermath of Michael Brown's death, many young people of color used social media to express their feelings and open the discussion on how the media framed Michael Brown as a criminal to justify his killing. Figure 3 features examples of young people of color posting different images of themselves with the question, "if they gunned me down, which picture would the media use to portray me?" This hashtag was a discursive technique utilized on social media platforms to express the power of framing, identity, and stereotypes. As well, to highlight how the media portrayed black versus white people.

Figure 3: Black Twitter users created the #IfTheyGunnedMeDown to highlight misrepresentations of Black people within the media.
Source: Nummi et al., "#BlackLivesMatter: Innovative Black Resistance,"2019.

#IfTheyGunnedMeDown reframed those killed by the police into humane, contributing members of society and college students. This counterframe illustrated the positive statement of African Americans, gave voices to those voices often marginalized, and amplified identity and stereotypes portrayed throughout social media.[95] It was also a technique of emergent collaboration that drew individuals to collective action through the rapid dissemination of

personalized content reproduced and shared. As such, the creation of memes and hashtags, sharing of quotes and information also mobilized online protest, expressed solidarity, and fostered self-validation for participation within the movement. Cultivating emergent collaboration with one hashtag linked the entirety of the #BlackLivesMatter community to collection action and identity, increasing virality and reach through a common cause, and opened avenues for counterprotest.[96]

#BlackLiveMatter VS #AllLivesMatter, #TCOT, and #BlueLivesMatter

#BlackLivesMatter experienced different frames coming from the left and right, and various hashtags countered the movement. Framing from the left referred to injustice, highlighted individual and structural cases of police misconduct, called attention to victims, and positioned non-violent resistance ahead of conflict. On the other hand, framing on the right pushed an effort to make the movement detrimental to social order and anti-law, which capitalized the divide between protestors and police officers. Right-leaning frames attempted to focus on defining the problem surrounding shootings targeting police, attributed the shootings to BLM protests, linked the movement to violent acts, and morally evaluated police "retaliation" as justifiable.[97] Early episodes of BLM saw polarization as the function of complex, multi-layered social identities that intertwined with one's political identity. Several hashtags challenged #BlackLivesMatter by implying that the movement was promoting one race over others.[98]

#AllLivesMatter, for example, became a prominent counter hashtag to #BlackLivesMatter after the grand jury did not indict the police officer in the Michael Brown case. #AllLivesMatter focused on the rhetoric of deracializing and depoliticizing BLM. #TCOT (Top Conservatives of Twitter) was another well-known, early counter hashtag to BLM, which framed BLM protestors as radical terrorists, focused on validating justifiable homicides and

white victims of black criminality.[99] The use of the hashtag on platforms, most specifically Twitter, facilitated division through its use of hashtags, trending engagement, and essentially echo chambers that produced counter-narratives and alternate versions that directly and indirectly opposed the claims of BLM, those that identified with the movement, and those that supported it. The platform provided a portal that combined theoretical frameworks in identity formation and collective action with how the system operated.

Another counter hashtag to #BlackLivesMatter was #BlueLivesMatter, a reference to police officer deaths. The narrative of #BlueLivesMatter maintained that BLM endangered police officers and caused a divide between police and the public.[100] Some tweets connected #BlackLivesMatter to violence and referred to it as a terrorist organization. Some of the rhetoric about BLM and those that supported it induced fear and anger against the activists. Some comments on social media linked BLM to ANTIFA. The division came to reflect polarization, which helped link it to political identities, and saw manipulation through influencers (elites) and rogue actors with the intent to polarize and destabilize. Supporting police corresponded to supporting President Trump, which emphasized the partisan identity separating the two hashtags, and correlated to hijacking a genuine grassroots movement. Rogue actors, like IRA contributed content to polarized information networks that amplified political discord surrounding BLM, fostering division. The calculated form of social media manipulation exploited the user through the crowd-sourced nature of the platform and heightened polarization, specifically between police and BLM.[101] #BlueLivesMatter discourse exploited the well-built reservoir of antagonistic discourses thriving in politics, amplifying toxicity in public dialogue.[102]

Counter narrative frames helped shape the momentum of polarization surrounding BLM and correlated online behavior, social and political identities, episodic uses of hashtags, and

essentially offline behavior.[103] This can all be seen through content utilized online through various social networks (countless messages included false information), retweet volumes, and how a portion of protests turned violent with the increasingly militarized police response and elite online rhetoric. Various users, influencers, and actors collectively took advantage of how social frameworks dissect together on platforms, like Twitter, to propagandize or promote messages to specific audiences through different access points that played into pre-existing beliefs and biases of their audiences.[104] The relationship of mutual shaping between the affordances of the platforms, the social structures and behaviors of users and social networks, and the performances of influencers and rogue actors cannot be overstated. Nevertheless, the platform was a crucial component of the social controversy surrounding the movement, allowing actors to manipulate public perceptions, and the episodes to occur in the way they did.

BLM 2020

The largest BLM demonstrations occurred in May and June 2020 in response to the police killing of George Floyd. Protests spread around the world when the video of Floyd's murder went viral on social media.[105] As seen by figure 3, 8.8 million uses of #BlackLivesMatter spread with protests across the nation and globe on a single day, May 28, 2020.[106] Between 80-90 percent of adults followed BLM demonstrations protesting the death of George Floyd and 67 percent supported the movement, which increased by 24 percent from 2016.[107] In addition, 23 percent of adult social media users in the US say they changed their views about political and social issues, political parties and ideologies, citing BLM, which increased across all Republican and Democratic users from 2018. 12 percent of those users specifically changed their views on BLM – either positively or negatively.[108]
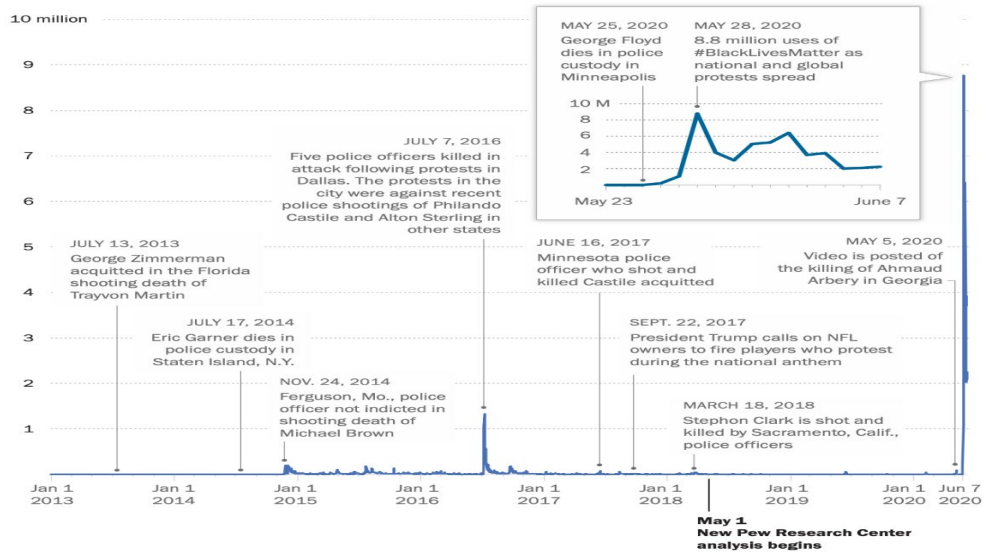
Figure 3: Use of the #BlackLivesMatter hashtag hits record levels amid global protests over George Floyd's death while in police custody. Number of public Twitter posts mentioning the #BlackLivesMatter hashtag, Jan 1, 2013 – June 7, 2020.
Source: Anderson et al., "#BlackLivesMatter surges on Twitter after George Floyd's death," *Pew Research Center*, 2020.
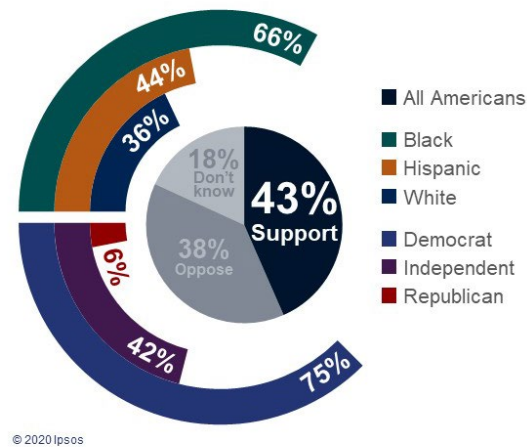
George Floyd was not the first black man killed by police or who had a video or photo amplified online. However, the sheer response on social media and mobilization throughout the world related heavily to the quarantine-induced life of increased social media use and consumption of negative media driving an emotionally charged, receptive audience. With COVID-19 and economic hardship impacting minorities more significantly, Floyd's death connected health inequities, unemployment, police brutality, and systemic racism. His murder represented the "cumulative injury on top of the sustained acuity of health inequities playing out in the horrifying details through the COVID-19 pandemic," which the world saw through multiple platforms and felt through the experience of the pandemic.

George Floyd's murder intensified the interconnectedness of individuals' vulnerabilities during the pandemic and online engagement, which helped individuals and groups find purpose and salience in supporting BLM. Most support through social media, through sharing a picture,

requesting information about protests, encouraging others to take action, or using BLM hashtags came from Black, democratic, young adults.[109] The spread of videos and photos helped spread information as well as disinformation about events, but Floyd's murder was clearly recorded and posted online publicly, for the world to see.[110] It was timely, graphic, and indisputable to ignore. Though, it eventually exacerbated the previous frames and narratives amongst the movement and counter-protests providing a forum that prompted greater emotion and a call for change.[111]

In August 2020, Kenosha police officers responded to a domestic incident that resulted in the shooting of Jacob Blake. Blake's encounter with police officers was quite different than Floyd's, but still followed with civil unrest, protests, rallies, and riots. By September 2020, support for BLM decreased; though, remained strong among Black Americans and Democrats. This decline in support came from the polarization across protests and discourse on social media, and as depicted in Figure 4, highlights deep divisions among Americans, particularly on race and partisanship.[112] Still, George Floyd's murder and the shooting of Jacob Blake were the last straws for many after other police-related killings of unarmed black Americans, and it happened right before the presidential election, getting more political elites to take part in the discourse on social media.

Percentage of Americans who *support* the
protests and demonstrations taking place across
the country following the shooting of Jacob Blake

66%
44%
36%
18% Don't know
43% Support
38% Oppose
6%
42%
75%

- All Americans
- Black
- Hispanic
- White
- Democrat
- Independent
- Republican

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Figure 5: Support for protests sharply divided by race, partisanship
Source: Ipsos' Knowledge Panel, "Support for protests after Jacob Blake shooting sharply divided by race, partisanship," Racial Justice and the Jacob Blake shooting, *Ipsos Poll* (2020).

Meanwhile, political elites used social media to comment on the protests and reinforce their political positions.[113] Democratic politicians connected Floyd's death to police brutality, while Republican discourse on police brutality was noticeably absent. Additionally, when Republicans condemned the death of Floyd, they quickly pivoted to criticizing what they called rioting, looting, and violence that they claim subsequently ensued. [114] Social media facilitated the perceived use of violence on the part of protestors during BLM demonstrations despite the fact that ninety-three percent of the protests were peaceful.[115] Social media platforms afforded individuals the use of a system to spark offline decisions and behavior through how they framed Floyd's murder, police action, administrative response, and protests versus riots on the ground.[116] BLM protests for police reform and racial justice were seen as "props for left-wing radicals" and the message often dissipated among the framing contests across identities and political partisanship. When former president, Trump, referred to protestors as "thugs" or when

#ACAB (All Cops Are Bastards) trended on Twitter, both sides on the left and right were not actually engaging with the other, but purely signaling to their particular bases, which only further divided Americans.[117]

Analysis

BLM demonstrates how polarization is a result of an interdependent and complex set of phenomena – individual, group, and system biases, which reinforce each other. Polarization can exist independently of these mechanisms, but these mechanisms reinforce polarization and allow it to manifest. The increase in social media use for news correlates to the rise in polarization today. During a global pandemic, where more people found themselves behind their digital devices using social media for connection, information, and news, BLM saw both increased support and a rise in polarization. As political polarization increased over time, especially across the divide over race, so did affective polarization, as represented in figure 6. Affective polarization increased in part due to the rise in partisanship of racial affect intensified on social media, portrayed in figure 7.[118] Social media enhanced superclusters of identity-based networks, heightened by frames that drove a wedge between Americans.
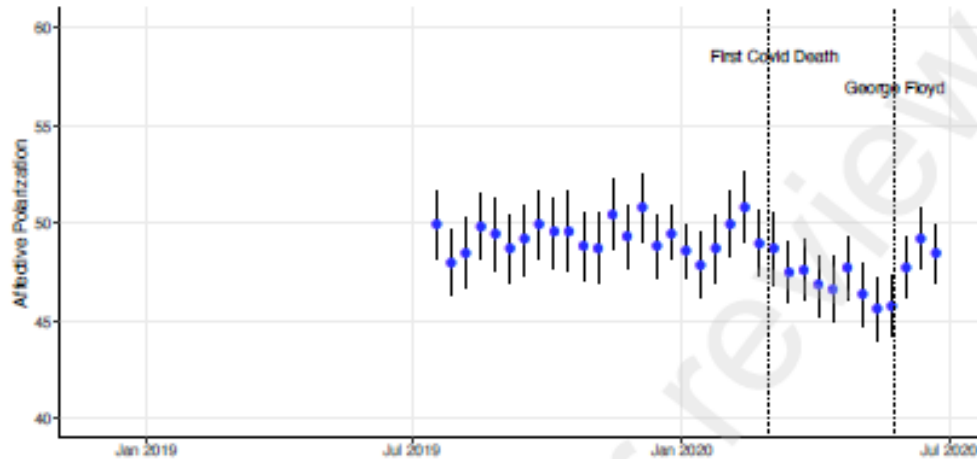
Figure 6: Affective Polarization Surrounding COVID-19 and George Floyd's Murder
Source: Boxell et al., ""Affective Polarization Did Not Increase During the Coronavirus Pandemic," National Bureau of Economic Research, (Cambridge, MA 2020).
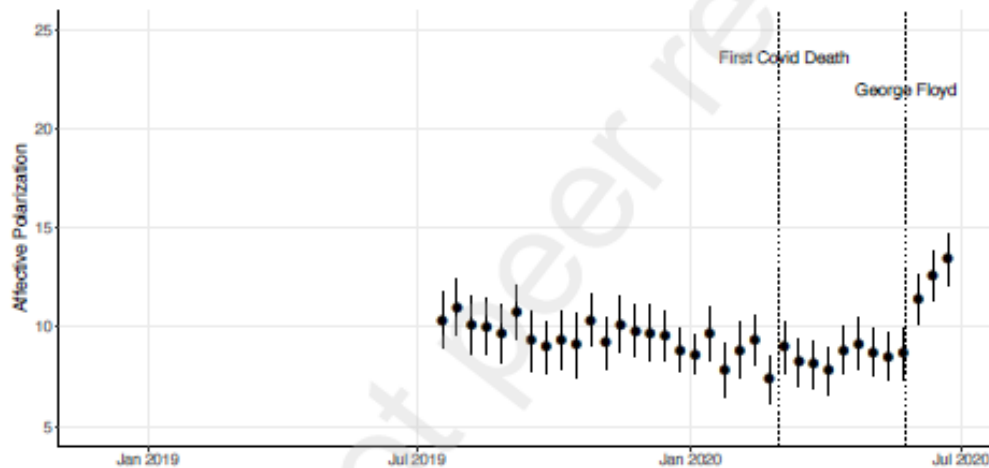
Figure 7: Trends in Partisanship of Racial Affect
Source: Boxell et al., ""Affective Polarization Did Not Increase During the Coronavirus Pandemic," National Bureau of Economic Research, (Cambridge, MA 2020).

The emotional, moralized content found throughout BLM attained more engagement and virality, and the content that drove publics toward more polarization views took the form of frames. The platform itself provided affordances to amplify frames and counterframes throughout BLM, and served as the vehicle for influencers and rogue actors to exploit their narratives. Identity cues mobilized people online, drove people to the streets, and those same cues drove polarization as salience to identity increased. BLM became polarized because of the

way social media platforms amplify information, audiovisuals, priming, and framing. Framing

during episodes of BLM ranged from opposition to the movement, severity of racism,

criminalization of the victim, militarized police, and President Trump's rhetoric on the

movement and episodes. Social media allowed frames to propagate because they condensed

schemas into short hashtags, phrases, and images algorithymically amplified by the platforms.

Figure 8 emphasizes the protests and counter-protests through episodic-driven frames and how

they propagated over time, which correlated to highly polarized discourse.[119]
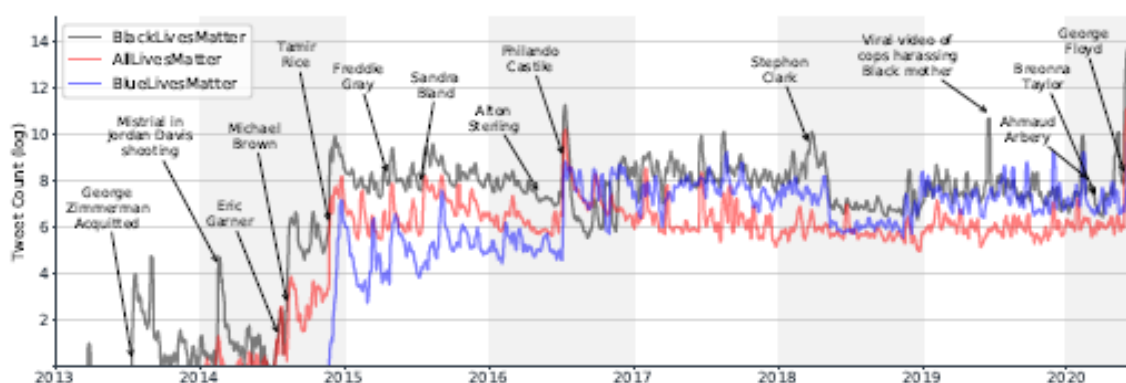
Figure 8: Monthly tweet count from 2013 to 2020 of #BlackLivesMatter and two counter hashtags - #AllLivesMatter and #BlueLivesMatter during high profile events associated with the BLM movement.

Source: Giorgi et al, "Twitter Corpus of the #Blacklivesmatter Movement and Counter Protests: 2013 To 2020," National Institutes of Health, National Institute on Drug Abuse, Bethesda, MD Computer and Information Science Department, University of Pennsylvania, Philadelphia, PA Center for Digital Health, Penn Medicine, Philadelphia, PA, (2020).

Discourse, specifically its polarized terminology, understanding, hate, vulgarity,

conspiracy theories, and disinformation demonstrated significant concerns for the state of

democracy and affective polarization's role in America. The propensity for biases in information

consumption and reasoning, amplified by social media algorithms and biases, fuels the sharing of

content and political cues that in turn amplifies polarization. Both the left and right used various

slogans and memes on social media that perpetuated violence. Left-wing and right-wing

networks on platforms increased (greater increase on right-wing).[120] People saw Michael

Brown's and George Floyd's death and the entire BLM movement through their own, polarized identities.[121] The platform's affordances created an environment conducive for polarization. Facebook's personalized algorithms, activist-focused pages, and group-based networks and Twitter's availability of cross-cutting contents, breaking news design, YouTube's recommendation engine, and multiple platform's group-based identities and shared interests underline how platforms shaped online discourse and drove polarization.

BLM polarization fell in line with the literature on the concepts of polarization, what causes polarization, its relationship with social media, and how individuals, groups, rogue actors, and influencers use the platform. Online performance drove polarization and influenced offline behavior. Priming, stereotypes, emotions, controversial content, memes, videos, and photos increased the flow of inaccurate information, enhanced virality, and made polarizing information more persuasive. While rogue actors and influencers had a role, they utilized the platforms available to them to meet their end state. Through the platforms, actors exploited individual, group, and platform-biases while manipulating information to drive affect in audiences. A key difference in disinformation from 2016 and 2020 was the shift from mainly foreign, inauthentic, coordinated campaigns to domestic, authentic, and organic/cultivated campaigns, which underscores the vulnerablities within America and existing gaps among citizens amplified by social media.[122]

BLM is more than just an episode of contentious politics and polarization. It presents significant challenges for the US due to the way its movement sparked divide and affective polarization, and the use of information manipulation techniques from both foreign and domestic actors and influencers. Specific challenges emphasize long withstanding racial inequality and social injustice within the United States that provides a receptive audience, especially through

false amplification and how rapid false information spreads across platforms. BLM opened the world's eyes to disinformation, false perceptions, and a serious divide across the nation.

The platform's affordances create opportunities for rogue actors, especially state-sponsored actors, and increase US vulnerability to combat global interests. It enables those who would spread questions online about America's character and reputation domestically and globally regarding human rights and democracy. Domestic disinformation campaigns along with state-sponsored actors using US unrest to further their own narratives presents a significant concern on the stability of democracy and global power. Cross-pollination of inflammatory disinformation across states and foreign and state-sponsored collaboration against America amplifies one another and gives more visibility and credibility to global competitors and rogue state messages, like China, Iran, and Russia. The participatory nature among domestic and foreign exploitation efforts spread confusion and distrust between US citizens, law enforcement, and the government. Increasing polarization causes more significant strategic messaging challenges and makes it more challenging to validate accuracy. The confusion and distrust bleed globally and destabilize American democracy.

The recent episodes of BLM amplify the tools required to combat misinformation and disinformation and provide a firsthand lesson on what the US needs to do to stay ahead. By capturing truth and communicating that globally, the US can fully denounce evil, propaganda, and disinformation. However, the US cannot fix the problem without the private companies making significant changes to how their platforms operate. The current environment and divide in America provide an easily influenced audience, which BLM highlighted. The audience remains emotionally charged with the information received through social media, which intensifies change or validates beliefs and behavior, as well as accentuates division. To truly see

a positive change, it will take frameworks agreed upon by democratically accountable policymakers working hand in hand with transparent social media companies. In addition, the gap in understanding information manipulation and false material only perpetuates the need for media literacy across the nation.

Limitations

The topic of social media-induced polarization is evolving, as social media technology continues to develop rapidly. The subject presents minimal limitations to the research; however, due to the ease of disinformation/misinformation, perception, and bias online, data may be partial. Nevertheless, the available open-source information online provided adequate resources for the project and the chosen analysis method worked to minimize bias, even with only one analyst, while utilizing findings and data pulled from various scholars. Further studies could enhance understanding of social media-induced polarization literature by focusing on intersectionality, domestic disinformation campaigns, social media influencers, and the impact it has on the military.

Conclusion

Social media has revolutionized how people access information and news, mobilized activists (and extremists), and changed how people form opinions.[123] Connections online are generally unconstrained by geographical obstacles, cost is low for information construction and consumption, and users can post content unhindered (recent changes began restricting user content). Social media's data-driven personalized services empower people with the means to express themselves and to communicate with others on an unprecedented scale while providing means to exploit users. The affordances of social media platforms make them influential and a powerful foundation for mobilization,

manipulation, computational propaganda, misinformation, conspiracy theories, and disinformation.

The BLM movement created an environment for information exploitation through its use of social media. Social media is not the sole cause for the increase in polarization across the US, as the individual and group-level schemas can be seen without the platforms. However, social media amplifies individual, group, and system-level biases coupled together with the various schemas and takes advantage of human vulnerabilities. The affective, identity-based nature of polarization across America increased through social media's affordances. Political polarization, worsened by affective polarization across partisan identities and groups throughout the US is detrimental to society and democracy.

The problem of polarization fueled by social media affordances requires an integrated effort to combat the challenges of the current environment and divide in America. Less broad and more specific approaches and integration will facilitate a successful operation to learn, expose, and counter social media-induced polarization that tears the US apart and highlights the need for the development of media literacy capacity across the nation. The polarization manipulated with the BLM movement significantly demonstrates the severity of an internal examination and required resolution for systemic racism and injustice, along with the power social media holds over people. Social media empowers marginalized voices but also provides an outlet for those that can do harm. Understanding the influence of social media on polarization and conflict within the United States is relevant to preserve democracy, safeguard national security, and ultimately work towards a more humane technological practice.

Appendix A

Analysis of Competing Hypotheses

..I selected ACH based on its capacity for decision analysis, cognitive psychology, and its multi-variable, qualitative technique that aids in the determination of the significant issue that social media and polarization bring to contentious politics by weighing alternative explanations. ACH also prevents common analytical pitfalls and biases.[124] Because of its thoroughness and systematic approach, ACH was the appropriate choice for BLM due to the controversy surrounding the movement and its polarization. To identify the linkage between polarization and BLM, I conducted a preliminary ACH to assess the causal mechanism between polarization and social media. Through Richard Heuer's eight-step process, I identified the following three hypotheses to test: H1: The Social Media Platform plays a greater role in increasing polarization; H2: Rogue Actors play a greater role in increasing polarization; H3: Influencers play a greater role in increasing polarization.

ACH enabled a systematic examination of each alternative hypothesis and facilitated proper consideration of multiple types of evidence relating to each potential determinations of inconsistencies.[125] This method does not provide a probabilistic basis for comparing the hypotheses but focuses on disconfirming evidence for each hypothesis to ensure an accurate, qualitative analysis on which hypothesis is least consistent with the research question and determines the most consistent hypothesis. The ACH project selected evidence that referred to factors that had an impact on judgment towards the hypotheses. Types of evidence included specific episodes and performances from BLM, observation data from social media, network analysis, derived/compiled data from numerous studies, and scholarship findings surrounding

polarization and the BLM case study. Additional types of evidence included assorted posts from influencers and rogue actors, examples of disinformation and misinformation, logical deductions, and assumptions/judgments that I made after reviewing the literature on polarization. As well, I included the absence of evidence, in this case, posts or commentary on BLM. After analyzing the content, I used logical deductions to identify the intentions or focus behind specific posts or lack of posts by individuals and groups.

Based on Heuer's ACH method, each piece of evidence was given a credibility rating of "CC" – Very Consistent, "C"– Consistent, "I" – Inconsistent, or "II" – Very Inconsistent. This project used a weighted inconsistency counting algorithm to narrow in on evidence that either decreased or increased its influence based on its credibility and relevance weight compared to its inconsistency with the hypothesis. Table 1 provides the values utilized to formulate the algorithm. Peer-reviewed scholarship had high credibility, while perceived-biased reports were either medium or low. Based on the values assigned, high-weighted evidence had more influence over low-weighted evidence. The credibility and relevance weight values were multiplied together to determine the aggregate weight for each piece of evidence. Distribution of weights allowed for the ranked order of hypotheses to remain stable. The below link details the consistency application and results of ACH using over 400 pieces of evidence.

Table 1: Weighted Inconsistency Counting Algorithm Values

Credibility	Relevance	I	II
H (High)	H (High)	2	4
M (Medium)	H (High)	1.414	2.828
L (Low)	H (High)	1	2
H (High)	M (Medium)	1.414	2.828
M (Medium)	M (Medium)	1	2
L (Low)	M (Medium)	0.707	1.414
H (High)	L (Low)	1	2
M (Medium)	L (Low)	0.707	1.414
L (Low)	L (Low)	0.5	1

Source: Good et al., "ACH1.1: A Tool for Analyzing Competing Hypotheses, PARC AI3 Team, DRAFT, 2005.

Results of ACH

Steps two through six of ACH identified that H1: The Social Media Platform was the most consistent with the evidence selected and had the greatest capacity to increase polarization. H2's weighted inconsistency value of -218.4581 presents the circumstance that Rogue Actors are least consistent with increasing polarization. The number of consistent and very consistent results across each hypothesis demonstrates the close relationship among the three in increasing polarization that will be seen throughout the case study. Rogue actors and influencers play a role in influencing their audience, which can correlate to increased polarization. Nevertheless, the platform has the strongest correlation to increased polarization.

See ACH Matrix at link:

https://docs.google.com/spreadsheets/d/1udkCJPkf1AvmSdXcrOEzp8dj7wRJx1JBb0E454 pcQIw/edit?usp=sharing

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