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Communication Technology and Threats to Democracy: We the People are (Also) the Problem

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Department of Political Science Texas A&M University American democracy faces serious challenges. Partisan polarization is at historic highs, policymaking is in gridlock, and neither policy makers nor citizens can agree with out-partisans on a shared set of facts. Nearly 30% of Republican voters do not believe the current president, Democrat Joe Biden, was legitimately elected to office. One of the few sentiments opposing partisans share is that American democracy is in peril (Vinopal 2021). At the same time, the digital media environment is serving as a scapegoat for these problems. Even though billions of users spend significant amounts of time on social media, people are increasingly likely to report that they don't trust the information they encounter there. People love to hate social media, and politicians, the punditry, and many researchers blame these trends on various aspects of the changing media environment (Pariser 2011; Sunstein 2017).¹

While there might be some truth to those assessments, they are incomplete. Placing blame almost entirely at the feet of the media environment underappreciates other important factors that are contributing to these trends. One problem is that related research focuses primarily on things that drive exposure—exposure to partisan media, exposure to misinformation. Because of their impact on media choice and selective exposure, researchers tend to focus primarily on the infrastructures, affordances and features of the media environment that affect the market of content offerings in the information climate (e.g., Feldman et al. 2014; Van Aelst et al. 2017). While uncovering how alternate media structures impact exposure is critical, it tells only part of the story. In ways that go beyond their impact on exposure, individual level cognitive biases and the rapidly proliferating menu of platforms and content structures also influence how information is processed once exposure occurs (e.g., Dunaway et al. 2018; Brugnoli et al. 2019; Dunaway and Soroka 2021; Nelson and Lei 2018). Moreover, the nature

¹ Various parts of this chapter draw on arguments made in Dunaway (2021) and Dunaway and Settle (2021).

and impact of that influence is conditional on whether exposure is motivated instead of incidental or targeted (Prior 2007; Stroud 2011). In addition, there are media system-level drivers – unchanged from earlier eras of information technology – that are also behind these trends.

The central conclusion of this chapter is that to better understand the challenges the digital media environment poses for news and democracy, currently distinct approaches that emphasize either structural or cognitive elements need to be synthesized, and with system-level factors in mind. Elaborating on the market-structural factors that drive exposure without due consideration for how context operates in tandem with individual level differences to shape processing does little to shed light on political behavior and outcomes. We are not arguing that digital and social media do not play a role in exacerbating these trends, but we stress the need for a full account of the various contributing factors and the conditions under which these threats to democracy will continue to intensify. Drawing from both structural and cognitive explanations underscores that *exposure* to information does not necessitate its *processing, acceptance,* or *endorsement.* Rather, beliefs and predispositions drive information consumption and processing as much as they are shaped by them. Without incorporating structural, cognitive, and system-level explanations, attempts to understand and meet challenges for news and democracy will be fruitless.

Defining the Threats

As Lawrence and Napoli highlight in the opening chapter of this volume, information plays a critical role in most conceptions of a well-functioning democracy. That's one reason the contemporary media environment is at the center of scholarly efforts to understand rising polarization and the rampant dissemination and acceptance of misinformation. It follows that a major objective of this volume is to ask whether and how research can help us identify paths

forward for combating these threats. We certainly think it can, but only if the broader research endeavor recognizes the multi-faceted nature of their underlying causes. Most research trying to understand our polarized, misinformed citizenry centers around changing media structures. In this chapter, we challenge what we see as a lopsided focus in this body of work, which places a disproportionate emphasis on structural explanations rather than cognitive and affective processes.

To be clear, structural changes to the media environment are important drivers of these phenomena. The highly fragmented state of today's media certainly allows for exposure to partisan sources of news and political information, and the peer-to-peer sharing affordances of social media networks enable widespread sharing and exposure of misinformation. But we underscore the importance of individual-level and system-level factors--such as cognitive biases and the commercial nature of our media system--both of which are also contributing to the crisis. Even if the implementation of policy remedies is only feasible at the media platform, outlet, or market levels, they should be developed with individual and system level drivers in mind.

Evidence for structural arguments is evaluated in the next section, followed by a review of the theories explaining the rise of polarization and misinformation through cognitive and affective processes. The following section advocates for a reconciliation between the two approaches in consideration, and the penultimate section emphasizes that this needs to be done with system level influences in mind. We conclude with a discussion of areas for future research.

Structural Explanations

Two main characteristics of the digital media environment form the foundation of the leading structural theories of the current democratic, informational crisis. The first is its expanded level of media choice or high rate of media fragmentation. When we say the

contemporary media environment is high choice, or highly fragmented, we refer to the expansion of channels, websites, and programming made available with the arrival of cable and the internet (Stroud 2011; Arceneaux & Johnson 2013). Though many readers may not remember the days when most households had access to only about five channels on television, five was peak choice for years. Following the arrival of cable, channel offerings expanded rapidly (Prior 2007). Between the years of 1985 and 2008 the average number of channels grew sixfold to nearly 130 channels her household. By 2013, the average number of channels per household it was 189 (Webster 2014; Guess 2014).

Later, the arrival of the internet only hastened the expansion of choice and points of access for consuming media content. Not only did consumers have countless channels and programs from which to choose, they could suddenly do so on their computers, too. Broadly, the expansion of content offerings was great for consumer audiences because it provided something for everyone (Prior 2007). However, the flexibility and choice afforded by a fragmented media environment also had its downsides - one being its potential for encouraging media selectivity and ideological segregation (Stroud 2008). Researchers quickly recognized the potential for encouraging polarization. One prominent theory, for example, posits a causal relationship between polarization and the development of "partisan echo chambers" and "partisan enclaves," alleging that selective exposure produces create informal silos that discourage incidental exposure to alternative or oppositional perspectives (Stroud 2011; Sunstein 2017). And if the high-choice setting and the threat of selectivity were not enough, online consumers of news can find themselves isolated too, segregated by algorithmic filtering based on prior online behavior and predictive models of partisanship (Pariser 2011). These "filter bubbles" and "echo chambers" are worrisome because they reduce the likelihood of exposure to alternative views

and sources of information. That is problematic in the eyes of many observers because according to democratic theory this kind of exposure to oppositional perspectives should be associated with tolerance and support for compromise (Pariser 2011; Sunstein 2017).

Social media platforms are also characterized by structural features associated with polarization (Settle 2018) and exposure to misinformation (Lazer et al. 2018). In addition to offering high (but limited) levels of choice and filtered exposure, their peer-to-peer networking structures and sharing capabilities allow for the possibility of routine exposure to misinformation and polarizing political content (Sunstein 2017). Extant research demonstrates how rapidly and frequently inaccurate information spreads online and through social media networks (Boxell et al. 2017; Lazer et al. 2018).

Misinformation and polarization can also exacerbate one another. Strong partisan identities and polarization often facilitate selective exposure, which occurs when people to seek out information sources in line with their existing views (Jerit and Zhao 2020). Here the highchoice media structure promotes misinformation exposure by encouraging regular engagement with in-party media via selectivity, algorithmic filtering, or homogeneous social networks (Sunstein 2017). These can assist in the spreading and acceptance of misinformation because perceived credibility is ostensibly higher within homogeneous networks and among in-partisans.

However, research on the effects of the high choice media environment and algorithmic filtering tell a more complicated story. Evidence for online ideological segregation through partisan enclaves, network homophily, and low exposure diversity is inconclusive (e.g., Weeks et al. 2017; Bruns 2019), as is evidence about its effects (Flaxman et al. 2016; Peterson et al. 2018). Even though the structural arrangements of social networking sites promote exposure to agreeable political views more often than oppositional views, exposure to information from

opposition-party friendly sources occurs regularly. Up to half of user exposure involves crosscutting material (Bakshy et al. 2015). Some research finds that social media use – via network ties and endorsements – increases exposure diversity rather than reducing it (Goel, Mason, and Watts 2010; Messing and Westwood 2014). Research examining web traffic data reveals a very high proportion of the internet audience is highly concentrated on mainstream sites (Hindman 2018; Flaxman et al. 2016).

Even historical and demographic patterns challenge the notion of a causal relationship between recent changes to the media environment and polarization. Polarization started its climb in the mid-20th century, temporally preceding even the arrival of cable and the internet (Prior 2013), not to mention social media. Further, the demographic groups using digital media least and spending the least amount of time online are most polarized (Boxell et al. 2017).

Extant research also challenges the premise that exposure to oppositional views encourages moderation and support for compromise (Kunda, 1990). In fact, when partisans are exposed to perspectives challenging their own, the effect is to strengthen existing predispositions as opposed to moderating them (Arceneaux and Vander Wielen 2013; Bail et al. 2019). This may explain one reason why there is little evidence of attitudinal or behavioral effects even when echo chambers are found (Peterson et al. 2018).

Discerning their impact on political attitudes and behavior is also difficult because the structures of social media platforms were developed with social – and not necessarily political – considerations in mind. This complicates researchers' ability to find direct causal linkages between social media use and polarization (Messing and Westwood 2014; Settle 2018). Thus, even though research can establish that the opportunity for exposure and attention to polarizing

information in the contemporary media environment is high, its true impact on attitudes and behavior is still unknown (Bail et al. 2019).

The emergence of digital media introduced many disruptive structural changes, some with the potential to encourage polarization or lead to the development of misperceptions (Sunstein 2017; Weeks 2018). Thus, structural accounts are understandable, yet scholars have unearthed a significant amount of evidence to refute the notion that these structures are the primary drivers of an increasingly polarized and misinformed public (e.g., Prior 2007; Webster & Ksiazek 2012; Arceneaux & Johnson 2013). Nevertheless, for many, the fact that expanding media choice and rising polarization incentivize media selectivity and fact avoidance raises the possibility that they are also increasing audiences' vulnerability to misinformation. This view is certainly warranted, but we contend – and other research suggests – structural changes at the market level only provide a partial explanation for these problems.

Processing Explanations

In contrast to structural accounts, processing-based explanations for a polarized and misinformed public portray the structural features of the media environment as more handmaiden than driver of misperceptions. Specifically, they point to the importance of cognitive biases and polarization in terms of how they affect the processing of information upon exposure (Flynn et al. 2017; Weeks and Garrett 2014).

Motivated reasoning theories, for example, posit that the both the collection and consumption of information is motivated by certain goals. Accuracy goals are aimed at coming to an informed decision, while directional goals seek support for attitude-consistent conclusions. Directional goals are guided by partisanship in the processing of political information (Druckman et al. 2013; Taber and Lodge 2013). For this reason, the development of

misperceptions is often attributed to directional motivated reasoning (Jerit and Zhao 2020). Structural theories emphasize that directional motivated reasoning can guide how people *seek* information to yield attitude consistent conclusions, and cognitive explanations emphasize its influence on how people *process* information to yield attitude consistent conclusions.

We focus here on how motivated reasoning affects processing. One way is through motivated reasoning in support of partisanship as a social identity. According to social identity theory explanations of partisanship, party identification is an affective and psychological attachment. As such, partisans interpret information in ways to support a benign view of the partisan in-group (Lelkes, 2018). The development of inaccurate beliefs is often a response to identity threat. This explains why people interpret economic information in ways that are consistent with defense of their partisan identities, regardless of its accuracy (Schaffner and Roche, 2017). It's also why partisans endorse conspiracies consistent with their political views (Miller et al., 2016). Identity protection even extends to motivated reasoning about information aimed at correcting or retracting misinformation. Partisans are reluctant to dismiss misinformation even in the face of corrections if that misinformation is consistent with their political predispositions (Kunda, 1990; Arceneaux & Vander Wielen, 2013; Bail et al., 2018).

However, when it comes to exposure to misinformation or disinformation, it is important to recall that under motivated reasoning, directional motivated reasoning goals should condition the effect. If directional motivated reasoning is occurring, congenial or attitude-consistent misinformation should be accepted, and disagreeable misinformation resisted. In other words, exposure to counter-attitudinal misinformation is not likely to exert persuasive influence because it is inconsistent with in-group arguments and consistent with those of the out-group. In fact, some research suggests it should have a backlash effect where exposure to counter-attitudinal

information prompts counter-arguments as part of a defensive strategy, ultimately increasing ingroup identity salience (Kunda 1990; Arceneaux & Vander Wielen, 2013; Bail et al. 2018). If anything, pre-existing attitudes should emerge stronger after such exposure and identitythreatening misinformation should be dismissed or rejected. Political identity conditions the acceptance of misinformation more than mere exposure to misinformation (Thorson 2016; Nyhan and Reifler 2010).

Recent lines of work on affective polarization and partisan sorting (e.g., Iyengar et al. 2012; Iyengar and Westwood 2015; Mason 2015; 2016) also highlight the importance of cognitive processing. This work illustrates how cognitive biases and existing predispositions shape responses to encounters with political information. Affective polarization – defined by Druckman and Levendusky (2019, 119) as "the tendency of Democrats and Republicans to dislike and distrust one another," is on the rise in America (Iyengar et al. 2012; Iyengar and Krupenkin 2018; Mason and Wronski 2018). At the same time, the public is becoming more sorted along partisan and ideological lines. Partisan-ideological sorting describes a process by which political identities are becoming more consistent and better organized. As sorting occurs, party identification gets further entwined with other social and cultural identities, strengthening the partisan identity and affect (Mason 2015; 2016). These patterns are reflected in higher levels of in-group favoritism and out-group dislike (Huddy et al. 2015; Iyengar and Krupenkin 2018; Mason and Wronski 2015).

A polarized and sorted political context should only exacerbate the influence of cognitive biases when people are exposed to political information. Sorted and affectively polarized citizens are those especially likely seek out and process information as highly motivated reasoners. Whether they ignore or process misinformation will depend on its direction and

relationship with existing beliefs (Lewandowsky et al. 2005; Gaines et al. 2007; Nyhan and Reifler 2010). Research on misinformation supports this view. Misinformation is commonly used to support existing opinions and beliefs (Reedy et al. 2014). When misinformation is consistent with political identity, it is more likely to be accepted or endorsed in support of inparty evaluations (e.g., Flynn et al. 2017; Weeks and Garrett 2014; Marsh and Yang 2018; Garrett et al. 2016; Gaines et al. 2007; Schaffner and Roche 2016).

Research on expressive responding examines whether agreeing with political misperceptions reflect partisan cheerleading or expression rather than sincere beliefs (Bullock et al. 2013; Khanna and Sood 2018; Schaffner and Luks 2018). Evidence for this argument is still inconclusive (Berinsky 2018; Jerit and Zhao 2020; Peterson and Iyengar, 2021). Similarly, related work on the measurement of misperceptions (Cor and Sood 2016; Jerit and Zhao 2020) asserts that misperceptions expressed in survey responses reflect inconsistencies associated with top of the head responses, rather than true misperceptions, consistent with early work on response instability (Zaller and Feldman 1992). This work questions whether misperceptions reflect beliefs about facts or fact-bending to fit existing beliefs.

Either way, these perspectives illustrate how the challenges of rising polarization and misinformation are borne from more than just structural changes occurring in the media environment. Structural changes might allow for more exposure to partisan information and misinformation, but exposure does not necessarily equate with attention, and the impact of information exposure is conditional on whether and how it is attended to and processed (Zaller 1992; Dunaway and Searles 2022). Even as the media landscape and information technologies have continued to evolve, they've done so in ways that influence more than just market offerings or content choice. Information is now delivered in different volumes through many different

platforms or venues throughout the day (Molyneux 2018). Even if the content to which various users are exposed is not entirely different, its presentation is. Whether through differences among platforms or differences between televisions, desktop machines, and mobile devices, the structure of the information as presented to us has most certainly changed, and it has done so in ways that are likely to affect how we process it (Dunaway and Searles 2022). This suggests that any complete explanation for the problems of polarization and misinformation must consider how cognitive biases and individual differences shape information seeking and processing. The need for a richer theory, one that incorporates the constraint on attention wrought by devices, platforms, and other structural facets with research on cognitive and affective processing, is detailed in the next section.

Combining the Two: Structured Processing

The same cognitive biases leading us to avoid effortful processing induced by exposure to counter-attitudinal information also deter us from effortful processing induced by affordances and features of new communication technologies (Dunaway and Searles 2022). For example, mobile news consumers spend far less time reading news stories (Dunaway et al. 2018), even when exposed to them several times a day (Molyneux 2018). They also tend to be less cognitively and emotionally engaged (Dunaway and Soroka 2019). Do the fleeting attention spans of mobile users make them more or less susceptible to effects of misinformation or polarizing content?

Research on attentiveness to digital, social, and mobile news suggests attention scarcity in the digital media environment might limit the impact of exposure (Dunaway et al. 2018; Hindman 2018). Facebook and other social media referrals drive traffic to news websites, but many referred users only stay for fractions of a second (Hindman 2018; Kamerer 2020).

However, it is worth noting that most platforms use "dwell time" as a quality signal; high bounce rates and quick user returns to social media platforms indicate poor content, which is then downranked (Yoshida et al. 2019). Such platform features will aim to prioritize content that will capture and keep attention.

Much information sharing and re-sharing via peer-to-peer social networks also occurs without much attention to content. Senders take cues from headlines and make inferences from social and endorsements in lieu of attending to actual content (Pennycook et al. 2020; but see Beam et al. 2016). Thus, while widespread sharing of information might be indicative of engagement, it can often reflect mere expression based on such cues, and therefore it is not necessarily indicative of consumption or anything more than brief exposure (Pennycook et al. 2020). We have far less evidence on behavior and reactions among recipients of shares and reshares. The limited evidence we do have suggests we cannot assume informational cues will work similarly on social and traditional media (Messing and Westwood 2014).

What effects should we expect if exposure is fleeting on digital, social, and mobile media? Messages must capture attention if they are to affect attitudes or behavior. We are only just beginning to understand the limits of the typical digital media attention-span. Moreover, platform specific content formats such as news feeds also affect exposure and processing. Newsfeeds, for example, restrict choice and selectivity, thereby increasing the likelihood of incidental exposure through algorithmic filtering and network effects. Several studies suggest that restricted choice through news feed structures increase rates of incidental exposure and facilitate learning (Bode 2016) and agenda setting effects from media (Feezell 2018).

News feeds can also blend and display social and political information in ways that shape cognitive and affective responses to encourage polarization. At present, there is mixed evidence

on the question of whether the social aspects of social media make us polarized. While social endorsements on social media sites can override partisan source cues in ways that are ostensibly depolarizing (Messing and Westwood 2014), Settle's (2018) work suggests the blending of social and political information on Facebook is a driver of polarization. The structural effects of news feeds provide a clear example of how changes to communication technology can affect information processing and opinion formation.

Structured Processing in Context

While so many things have changed to affect how we encounter and process messages in today's information environment, the economic, profit-based nature of our media system has stayed largely the same. Though the metrics for measuring audience interest and attention have changed significantly, the underlying economic model has not – media companies earn revenue by attracting and capturing audience attention (Napoli 2011; Webster 2014). As such, perceptions about what will capture audience attention exerts influence over the information we encounter. Such perceptions are influenced by metrics based on previous audience behaviors, as well as inferences made from those behaviors and what is known about our common cognitive biases.

Facebook's recent struggles make for a good case in point. Since 2016, the social media giant has been in and out of trouble with lawmakers and the public for its problems with misinformation. Most recently, the company earned negative publicity for tweaking its algorithm for determining who sees what in ways that created troubling – even if unintended – social and political consequences. The tweak was a solution Facebook for what the company viewed as an "engagement problem" -- they were losing users for the first time, and the engagement metrics were showing it. The objective of the tweak was to adjust the algorithm to allow for more

"meaningful social interactions" by changing the way content – posts, reactions, shares and reshares – were scored for engagement. Put simply, the new algorithm prioritized material that earned higher levels of engagement (i.e. comments and responses going beyond the usual likes). In practice, the effect was to amplify the most divisive content such as misinformation, heated exchanges, and violent content (Hagey & Horwitz 2021).

According to an internal Facebook report and investigative reporting by the *Wall Street Journal* the new algorithm's heavy weighting of reshared material in its News Feed made heated voices and exchanges louder. By prioritizing views of high-engagement content, it also had the effect of incentivizing media, political actors, and individual users to produce even more of this kind of content. European political parties, for example, reportedly shifted their policy positions in more extreme directions to resonate more on the platform. Similarly, party leaders relied increasingly on negative and inflammatory rhetoric to maintain high engagement on the site (Hagey & Horwitz 2021). CEO Mark Zuckerberg and other Facebook executives were criticized heavily for failing to act in response when confronted with this information, expressing concern about what changing it back would mean for engagement numbers. But this should be no surprise. Because Facebook's revenue model is based on sustained engagement on the site, they have an economic incentive to structure content in ways that sustain time on site, likes, and shares (Hagey & Horwitz 2021).

Facebook's recent struggles make for a timely example, but they exemplify an age-old problem: the temptation media companies face when forced to choose whether to prioritize content with earning potential or content with societal value. All too often, profit considerations win out, but such choices are not specific to any one company or CEO. It's a choice dictated by perceptions of audience tastes. If more audiences tune in or stay on the page in response to

negative, sensational, or inflammatory content, the temptation to prioritize it difficult to resist absent other incentives to do so. For similar reasons, research documents an inverse relationship between the profit-motives of media outlets and informativeness in news reporting (Hamilton 2004). Entertainment and crime news stories typically attract and retain more audiences than in depth reporting on public policy-related news. The same incentives are also apparent in studies of media reporting on political advertising during campaigns. When news media started covering negative attack ads at much higher rates than neutral and positive ads, campaigns aired more attack ads in response. Because media coverage amplifies the messages in campaign ads (Ridout and Smith 2008), the free airtime the negative ads earned created the incentive to produce them more (Geer 2012).

Scores of studies document humans' psychological tendency to pay more attention to negative information than neutral or positive information; research also shows this pattern of attention allocation applies to how we consume news and political information (Soroka 2014). The cognitive bias for negative and inflammatory content is one reason why "if it bleeds, it leads" on local television news. It is likely for the same reasons that polarizing and inflammatory content is prioritized on Facebook. In other words, such decisions are likely attributable to the fact that they are incentivized by the predominantly for-profit nature of our media system, audience tastes, and the metrics we use to track those tastes more than anything else. While the evidence to suggest this is true for the Facebook case is only anecdotal, decades of research on traditional media show that news values born from the need to attract and retain audiences often produce lowest common denominator type content (McManus 1994). Whether we get infotainment, hard news, objective, or slanted news is largely determined by perceptions about

what audiences want (Hamilton 2004; Gentzkow and Shapiro 2010). Market demand is powerful, and audience preferences are known to shape media content.

Discussion and Conclusion

Researchers and democratic observers are intensely concerned about polarization and misinformation (e.g., DiFonzo et al. 2016; Flynn et al. 2017; Pennycook et al. 2018; Thorson et al. 2018; Weaver et al. 2007). Both play a role in the widespread formation of misperceptions and inaccurate beliefs, and both loom as threats to democracy. The contemporary digital media environment is a natural place to look for causal explanations, but research suggests there is more to the story.

While the structural components of digital media orchestrate opportunities for avoiding facts and encountering misinformation, peoples' beliefs and predispositions motivate what information is sought and how it is processed. Put differently, beliefs and predispositions influence the processing and consumption of information to a greater degree than they are altered by them. In the U.S. context, currently characterized by growing affective polarization and elite polarization, the effects of motivated reasoning and political identities should only increase their influence over how people seek and process information. If partisanship is rigid enough to shape how we *evaluate* information to which we are exposed, the likelihood that oppositional misinformation will have persuasive is likely minimal (Bennett and Iyengar 2008; Iyengar 2017).

Yet, whether there are important behavioral effects from such exposure remains an open question. Far less work focuses on how exposure shapes actual behavior relative to studies of exposure itself. Even though extant work suggests that the direct effects of factual misinformation might be minimal – or at the very least conditional, despite high rates of mass exposure – our ability to make this kind of conclusion depends on several questions that are yet

unresolved by the literature. One possibility is that high rates of motivated exposure to political information may result in an increase in information that is processed and accepted but with little effect on currently held attitudes and beliefs. Similarly, rates of incidental exposure may be high, especially on some platforms, but not sufficiently high to encourage those with little interest to engage in processing to produce acceptance or behavioral change. These are answers to important questions we do not yet know.

We should also consider what cultural, political and institutional processes are strengthening political identities and increasing affective polarization, and we need to question whether and how the continual strategic misuse of political information by elites is going to exacerbate those trends and their effects. To do this successfully, we need to go beyond questions about who will be exposed to what and to move toward understanding how misinformation is processed across individuals, platforms and contexts, and to what effect.

We must also consider how different platforms and devices will impact likelihood, duration, and nature of exposure. Today, political information is shared, displayed, blended, and presented in many forms, affecting attention and processing in consequential ways. At the same time, we need to reconcile how cognitive biases shape content on the front end, by creating the market demand for it, and what this means for the strategic communication incentives for media companies and political elites. Many new affordances and features characterize the contemporary digital media environment. They have a clear impact on citizens' willingness and ability to process information upon exposure (Molyneux 2018; Dunaway et al. 2018; Settle 2018; Dunaway and Soroka 2019). Yet our limited digital attention spans only mean that digital media companies and other generators of content will continue to seek means by which to attract and retain our attention.

People worry about partisan news and other partisan sources of information on social media, but the system incentivizes media to amplify negative and sensational content because many of our cognitive biases create a market demand for it. While digital and social media may vastly expand our opportunities for exposure to negative, polarizing or inaccurate content, it is important to remember that the audience appetites incentivizing its use existed well before the dawn of digital and social media. When it comes to understanding the various drivers of polarization and misinformation, we the people are also part of the problem.

References

- Ahler, D. J., & Sood, G. (2018). The parties in our heads: Misperceptions about party composition and their consequences. *The Journal of Politics*, 80(3), 964-981.
- Allcott, Hunt, Gentzkow, Matthew and Chuan Yu. 2019. "Trends in the diffusion of misinformation on social media." *Research & Politics* 6(2).
- Althaus, S. L., & Tewksbury, D. (2000). Patterns of Internet and traditional news media use in a networked community. *Political communication*, *17*(1), 21-45.
- Arceneaux, K. and Johnson, M., 2013. *Changing minds or changing channels?: Partisan news in an age of choice*. University of Chicago Press.
- Arceneaux, K., & Vander Wielen, R. J. (2013). The effects of need for cognition and need for affect on partisan evaluations. *Political Psychology*, *34*(1), 23-42.
- Badawy, A., Ferrara, E., & Lerman, K. (2018, August). Analyzing the digital traces of political manipulation: The 2016 Russian interference Twitter campaign. In 2018 IEEE/ACM international conference on advances in social networks analysis and mining (ASONAM) (pp. 258-265). IEEE.
- Bail, C.A., Argyle, L.P., Brown, T.W., Bumpus, J.P., Chen, H., Hunzaker, M.F., Lee, J., Mann, M., Merhout, F. and Volfovsky, A., (2018). Exposure to opposing views on social media can increase political polarization. *Proceedings of the National Academy of Sciences*, 115(37), pp.9216-9221.
- Bakshy, E., Messing, S. and Adamic, L.A., (2015). Exposure to ideologically diverse news and opinion on Facebook. *Science*, *348*(6239), pp.1130-1132.
- Berinsky AJ. 2018. Telling the truth about believing the lies? Evidence for the limited prevalence of expressive survey responding. *J. Politics* 80:211–24.
- Bode, L. (2016). Political news in the news feed: Learning politics from social media. *Mass communication and society*, 19(1), 24-48.
- Bode, L. and Vraga, E.K., 2015. In related news, that was wrong: The correction of misinformation through related stories functionality in social media. *Journal of Communication*, 65(4), pp.619-638.
- Brugnoli, E., Cinelli, M., Zollo, F., Quattrociocchi, W., & Scala, A. (2019). Lexical convergence and collective identities on Facebook. *arXiv preprint arXiv:1903.11452*.
- Bruns, A. (2019). Are filter bubbles real?. John Wiley & Sons.
- Bullock, J.G., Gerber, A.S., Hill, S.J. and Huber, G.A., 2013. Partisan bias in factual beliefs about politics. Quarterly Journal of Political Science, 10:519–78.
- Carpini, M.X.D. and Keeter, S., 1996. *What Americans know about politics and why it matters*. Yale University Press.
- Converse, P.E., 1964. The nature of belief systems in mass publics. Ideology and discontent. *Ideology and Discontent*, pp.206-261.
- Cor, M. K., & Sood, G. (2016). Guessing and forgetting: A latent class model for measuring learning. *Political Analysis*, 226-242.
- Druckman, J. N., & Levendusky, M. S. (2019). What do we measure when we measure affective polarization?. *Public Opinion Quarterly*, 83(1), 114-122.
- Dunaway, J. (2021). Polarisation and misinformation. In *The Routledge Companion to Media Disinformation and Populism* (pp. 131-141). Routledge.
- Dunaway, J.L. and Searles, K.N. (2022) *News Attention in a Mobile Era*. Under contract with Oxford University Press.

- Dunaway, J. L., and Settle, J. E. (2021). "Opinion Formation and Polarization in the News Feed Era: Effects from Digital, Social, and Mobile Media." In, The Cambridge Handbook of Political Psychology, D. Osborne and C. Sibley, Eds., New York, NY: Cambridge University Press.
- Dunaway, J.L. and Soroka, S.N. (2019). "Smartphone-size screens constrain cognitive access to video news stories." *Information, Communication, & Society*, DOI: 10.1080/1369118X.2019.1631367.
- Dunaway, J. L., Searles, K., Sui, M. and Paul, N. (2018). "News Attention in a Mobile Era." *Journal of Computer-Mediated Communication*, 23(2):107-124.
- Feezell, J.T., 2018. Agenda setting through social media: The importance of incidental news exposure and social filtering in the digital era. *Political Research Quarterly*, 71(2), pp.482-494.
- Feldman, L., Myers, T. A., Hmielowski, J. D., & Leiserowitz, A. (2014). The mutual reinforcement of media selectivity and effects: Testing the reinforcing spirals framework in the context of global warming. *Journal of Communication*, 64(4), 590-611.
- Flaxman, S., Goel, S. and Rao, J.M., 2016. Filter bubbles, echo chambers, and online news consumption. *Public opinion quarterly*, *80*(S1), pp.298-320.
- Flynn, D.J., Nyhan, B. and Reifler, J., 2017. The nature and origins of misperceptions: Understanding false and unsupported beliefs about politics. *Political Psychology*, *38*, pp.127-150.
- Gaines, B.J., Kuklinski, J.H., Quirk, P.J., Peyton, B. and Verkuilen, J., 2007. Same facts, different interpretations: Partisan motivation and opinion on Iraq. *The Journal of Politics*, 69(4), pp.957-974.
- Garrett, R.K., Weeks, B.E. and Neo, R.L., 2016. Driving a wedge between evidence and beliefs: How online ideological news exposure promotes political misperceptions. *Journal of Computer-Mediated Communication*, 21(5), pp.331-348.
- Geer, J. G. (2012). The news media and the rise of negativity in presidential campaigns. *PS: Political Science & Politics*, 45(3), 422-427.
- Gentzkow, M., & Shapiro, J. M. (2010). What drives media slant? Evidence from US daily newspapers. *Econometrica*, 78(1), 35-71.
- Geuss, Megan. 2014. "on average, Americanas get 189 cable TV channels and only watch 17," Arse Technica, May 6, 2014, https://arstechnica.com/information-technology/2014/05/on-average-americans-get-189-cable-tv-channels-and-only-watch-17/
- Gil de Zúñiga, H., Weeks, B. and Ardèvol-Abreu, A., 2017. Effects of the news-finds-me perception in communication: Social media use implications for news seeking and learning about politics. *Journal of computer-mediated communication*, 22(3), pp.105-123.
- Grabe, M. E., Lang, A., Zhou, S., & Bolls, P. D. (2000). Cognitive access to negatively arousing news: An experimental investigation of the knowledge gap. *Communication research*, 27(1), 3-26.
- Goel, S., Mason, W., & Watts, D. J. (2010). Real and perceived attitude agreement in social networks. *Journal of personality and social psychology*, 99(4), 611.
- Hagey, K. and Horwitz, J. 2021. 'Facebook Tried to Make Its Platform a Healthier Place. It Got Angrier Instead.' Internal memos show how a bit 2018 change rewarded outrage and that CEO Mark Zuckerberg resisted proposed fixes. *The Wall Street Journal*, https://www.wsj.com/articles/facebook-algorithm-change-zuckerberg-11631654215?mod=article_inline
- Hindman, M., 2018. *The Internet trap: How the digital economy builds monopolies and undermines democracy*. Princeton University Press.
- Huddy, L., Mason, L., & Aarøe, L. (2015). Expressive partisanship: Campaign involvement, political emotion, and partisan identity. *American Political Science Review*, 109(1), 1-17.

- Iyengar, S., 2017. A typology of media effects (pp. 59-68). In The Oxford Handbook of Political Communication. Kenski, K., & Jamieson, K.H. (Eds.), Oxford University Press.
- Iyengar, S., Sood, G. and Lelkes, Y., 2012. Affect, not ideology a social identity perspective on polarization. *Public opinion quarterly*, *76*(3), pp.405-431.
- Iyengar, S. and Krupenkin, M., 2018. The strengthening of partisan affect. *Political Psychology*, *39*, pp.201-218.
- Iyengar, S., Lelkes, Y., Levendusky, M., Malhotra, N. and Westwood, S.J., 2019. The origins and consequences of affective polarization in the United States. *Annual Review of Political Science*, 22, pp.129-146.
- Jerit, J. and Barabas, J., 2012. Partisan perceptual bias and the information environment. *The Journal of Politics*, 74(3), pp.672-684.
- Jerit, J. and Zhao, Y., 2020. Political misinformation. Annual Review of Political Science.
- Kamerer, D. (2020). Reconsidering bounce rate in web analytics. *Journal of Digital & Social Media Marketing*, 8(1), 58-67.
- Khanna, K. and Sood, G., 2018. Motivated responding in studies of factual learning. *Political Behavior*, 40(1), pp.79-101.
- Kim, Y.M., Hsu, J., Neiman, D., Kou, C., Bankston, L., Kim, S.Y., Heinrich, R., Baragwanath, R. and Raskutti, G., 2018. The stealth media? Groups and targets behind divisive issue campaigns on Facebook. *Political Communication*, 35(4), pp.515-541.
- Kuklinski, J.H., Quirk, P.J., Jerit, J., Schwieder, D. and Rich, R.F., 2000. Misinformation and the currency of democratic citizenship. *Journal of Politics*, 62(3), pp.790-816.
- Kunda, Z., 1990. The case for motivated reasoning. Psychological bulletin, 108(3), p.480.
- Lazer, D.M., Baum, M.A., Benkler, Y., Berinsky, A.J., Greenhill, K.M., Menczer, F., Metzger, M.J., Nyhan, B., Pennycook, G., Rothschild, D. and Schudson, M., 2018. The science of fake news. *Science*, 359(6380), pp.1094-1096.
- Lelkes, Y. (2018, April). Affective polarization and ideological sorting: A reciprocal, albeit weak, relationship. In *The Forum* (Vol. 16, No. 1, pp. 67-79). De Gruyter.
- Lewandowsky, S., Ecker, U.K. and Cook, J., 2017. Beyond misinformation: Understanding and coping with the "post-truth" era. *Journal of applied research in memory and cognition*, *6*(4), pp.353-369.
- Lodge, M. and Taber, C.S., 2013. The rationalizing voter. Cambridge University Press.
- Lopez, J., & Hillygus, D. S. (2018). Why so serious?: Survey trolls and misinformation. Why So Serious.
- Lupia, A., McCubbins, M.D. and Arthur, L., 1998. *The democratic dilemma: Can citizens learn what they need to know?*. Cambridge University Press.
- Marsh, E.J. and Yang, B.W., 2018. Believing things that are not true: A cognitive science perspective on misinformation. *Misinformation and mass audiences*, pp.15-34.
- Mason, L., 2015. "I disrespectfully agree": The differential effects of partisan sorting on social and issue polarization. *American Journal of Political Science*, *59*(1), pp.128-145.
- Mason, L., 2016. A cross-cutting calm: How social sorting drives affective polarization. *Public Opinion Quarterly*, 80(S1), pp.351-377.
- Mason, L. and Wronski, J., 2018. One tribe to bind them all: How our social group attachments strengthen partisanship. *Political Psychology*, *39*, pp.257-277.
- McManus, J. H. (1994). Market-driven journalism: Let the citizen beware? Sage Publications.
- Messing, S. and Westwood, S.J., (2014). Selective exposure in the age of social media: Endorsements trump partisan source affiliation when selecting news online. *Communication research*, *41*(8), pp.1042-1063.

- Miller, J.M., Saunders, K.L. and Farhart, C.E., 2016. Conspiracy endorsement as motivated reasoning: The moderating roles of political knowledge and trust. *American Journal of Political Science*, 60(4), pp.824-844.
- Molyneux, L. (2018). Mobile news consumption: A habit of snacking. *Digital Journalism*, 6(5), 634-650.
- Napoli, P. M. (2011). Audience evolution: New technologies and the transformation of media audiences. Columbia University Press.
- Nelson, J. L., & Lei, R. F. (2018). The effect of digital platforms on news audience behavior. *Digital journalism*, 6(5), 619-633.
- Nyhan, B. and Reifler, J., 2010. When corrections fail: The persistence of political misperceptions. *Political Behavior*, *32*(2), pp.303-330.
- Pariser, E., (2011). *The filter bubble: How the new personalized web is changing what we read and how we think.* Penguin.
- Peterson, E., Goel, S. and Iyengar, S., 2018. Echo chambers and partisan polarization: Evidence from the 2016 presidential campaign. *Unpublished manuscript. https://5harad. com/papers/selecfive-exposure. pdf*.
- Prior, M., (2007). Post-broadcast democracy: How media choice increases inequality in political involvement and polarizes elections. Cambridge University Press.
- Redlawsk, D. P. (2002). Hot cognition or cool consideration? Testing the effects of motivated reasoning on political decision making. *The Journal of Politics*, 64(4), 1021-1044.
- Reedy, J., Wells, C. and Gastil, J., 2014. How voters become misinformed: An investigation of the emergence and consequences of false factual beliefs. *Social Science Quarterly*, 95(5), pp.1399-1418.
- Reeves, B., Lang, A., Kim, E. Y., & Tatar, D. (1999). The effects of screen size and message content on attention and arousal. *Media Psychology*, 1(1), 49-67.
- Ribeiro, F. N., Saha, K., Babaei, M., Henrique, L., Messias, J., Benevenuto, F., ... & Redmiles, E. M. (2019, January). On microtargeting socially divisive ads: A case study of russia-linked ad campaigns on facebook. In *Proceedings of the conference on fairness, accountability, and transparency* (pp. 140-149).
- Ridout, T. N., & Smith, G. R. (2008). Free advertising: How the media amplify campaign messages. *Political Research Quarterly*, *61*(4), 598-608.
- Schaffner, B.F. and Luks, S., 2018. Misinformation or expressive responding? What an inauguration crowd can tell us about the source of political misinformation in surveys. *Public Opinion Quarterly*, 82(1), pp.135-147.
- Schaffner, B.F. and Roche, C., 2016. Misinformation and motivated reasoning: Responses to economic news in a politicized environment. *Public Opinion Quarterly*, 81(1), pp.86-110.
- Settle, J.E., (2018). Frenemies: How social media polarizes America. Cambridge University Press.
- Simonsen, Kristina B. and Bart Bonikowski. 2022. "Moralizing Immigration: Political Framing, Moral Conviction, and Polarization in the United States and Denmark." *Comparative Political Studies* 0(0), 1-34.
- Stroud, N. J., (2011). Niche News. Oxford University Press.
- Stroud, N.J., (2017). Selective exposure theories. In *The Oxford Handbook of Political Communication*. Kenski, K., & Jamieson, K.H. (Eds.), Oxford University Press.
- Swire, B., Berinsky, A.J., Lewandowsky, S. and Ecker, U.K., 2017. Processing political misinformation: comprehending the Trump phenomenon. *Royal Society open science*, *4*(3), p.160802.

- Sunstein, C. R., (2017). #Republic: Divided democracy in the age of social media. Princeton University Press.
- Taber, Charles. (2003). "Information Processing and Public Opinion." *Handbook of Political Psychology*.
- Tewksbury, D., & Althaus, S. L. (2000). Differences in knowledge acquisition among readers of the paper and online versions of a national newspaper. *Journalism & Mass Communication Quarterly*, 77(3), 457-479.
- Thorson E. (2016). Belief echoes: the persistent effects of corrected misinformation. *Political Commun.* 33:460–80.
- Thorson, E. A., Shelbe, L., & Southwell, B. G. (2018). An agenda for misinformation research. In B.G. Southwell, E. A. Thorson, & L. Sheble (Eds.), *Misinformation and mass audiences*, 289-293. Austin: University of Texas Press.
- Van Aelst, P., Strömbäck, J., Aalberg, T., Esser, F., De Vreese, C., Matthes, J., ... & Stanyer, J. (2017). Political communication in a high-choice media environment: a challenge for democracy?. Annals of the International Communication Association, 41(1), 3-27.
- Vinopal, Courtney. 2021. "2 out of 3 American believe U.S. democracy is under threat," Retrieved at: <u>https://www.pbs.org/newshour/politics/2-out-of-3-americans-believe-u-s-democracy-is-under-threat</u>
- Vosoughi, S., Roy, D. and Aral, S., 2018. The spread of true and false news online. *Science*, *359*(6380), pp.1146-1151.
- Waisbord, S., 2018. The elective affinity between post-truth communication and populist politics. *Communication Research and Practice*, *4*(1), pp.17-34.
- Webster, J. G. (2014). *The marketplace of attention: How audiences take shape in a digital age*. Mit Press.
- Webster, J. G., & Ksiazek, T. B. (2012). The dynamics of audience fragmentation: Public attention in an age of digital media. *Journal of communication*, 62(1), 39-56.
- Weeks, B.E., 2018. Media and political misperceptions. *Misinformation and mass audiences*, pp.140-156.
- Weeks, B. E., & Garrett, R. K. (2014). Electoral consequences of political rumors: Motivated reasoning, candidate rumors, and vote choice during the 2008 U.S. presidential election. *International Journal of Public Opinion Research*, 26, 401-422.
- Weeks, B. E., Lane, D. S., Kim, D. H., Lee, S. S., and Kwak, N. 2017. Incidental Exposure, Selective Exposure, and Political Information Sharing: Integrating Online Exposure Patterns and Expression on Social Media. *Journal of Computer-Mediated Communication*, 22(6), pp. 363-379.
- Yoshida, A., Higurashi, T., Maruishi, M., Tateiwa, N., Hata, N., Tanaka, A., ... & Fujisawa, K. (2020). New performance index "attractiveness factor" for evaluating websites via obtaining transition of users' interests. *Data Science and Engineering*, 5(1), 48-64.
- Zaller, J. R., (1992). The nature and origins of mass opinion. Cambridge university press.
- Zaller, J. and Feldman, S., 1992. A simple theory of the survey response: Answering questions versus revealing preferences. *American journal of political science*, pp. 579-616.