How Algorithmic Discrimination Exacerbates U.S. Partisan Tensions on Social Media Platforms

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Abstract

Social media algorithms have reshaped mass media consumption, raising important questions about its effect on the fragmented practice of source triangulation and how algorithms are able to increase party polarization. This study explores how people trust social media algorithms in dispersing reliable political information and whether social media algorithms represent their party of choice in a positive or negative manner. Using survey data from 164 respondents across different political affiliations, I will be measuring party strength on a seven point scale. The study will measure party affiliation in accordance to strength, which will then measure opinion based on how individuals feel strongly towards their party. Findings suggest that strong to moderate Republicans are more likely to distrust social media algorithms compared to Democrats. The study concludes that skepticism towards social media algorithms are more prevalent for Republicans, who feel a strong affiliation with their party, over Democrats and Republicans who have a weaker association with their political party.

Key Words: Ideological Sorting, Mass Media, Algorithmic Bias, Social Media Polarization, Hyper-Partisanship

Introduction

In an interview with David Letterman, Former President Barack Obama once said, "One of the biggest challenges to our democracy is that we don't share a baseline of facts… [at] a certain point, you must live in a bubble… and that is why our politics is so polarized right now."[1] Recommendation systems make a big difference in tailoring our news consumption. As algorithms become increasingly ubiquitous in our daily internet use, discussions about the amplified spread of media grow complex, as it is able to restrict who sees the media and controls what kinds of media gain public visibility.

Government interventions on social media platforms have sparked debates with the role of social media as a "digital marketplace of ideas," an idea that suggests that speech and content must remain unregulated in order for ideas to compete and evolve in online spaces. However, concerns of social media algorithms have highlighted potential political biases in algorithmic recommendation systems, which can have a large influence in online communities who share similar values. The effect of algorithms is relevant especially during election cycles, where political viewpoints seem to be more polarized by partisanship.

Conversations of social media usage are important, as algorithms have been the target of regulation. Social media algorithms have become a global risk in the spread of disinformation, as the spread of intentional, false information can erode public trust and undermine democratic processes.[2]

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[1] Alana Abramson, "'We Don't Share a Common Baseline of Facts.' Barack Obama Reflects on Divisiveness in Politics," *TIME*, January 12, 2018, https://time.com/5099521/barack-obama-david-letterman-interview/.

[2] Content Hacker, "Algorithms and Agendas: Navigating Election Disinformation and Misinformation in Southeast Asia - Tech for Good Institute," Tech for Good Institute, February 19, 2025, https://techforgoodinstitute.org/blog/articles/algorithms-and-agendas-navigating-election-disinformation-and-misinformation-in-southeast-asia/.

Literature Review

Artificial intelligence programs operate on a system that finds patterns based on training data and improve their performances accordingly. An "algorithm" is defined as a process or set of rules to be followed in problem-solving mechanisms by computer computation.[3] Ideally, these algorithms are supposed to demonstrate a high level of objectivity and accuracy. However, the literature has identified that algorithmic systems have demonstrated a degree of "algorithmic bias." Discrimination occurs, on the part of algorithmic selection and visibility, which can create tight knit communities and individualized "echo chambers." Due to the echo chamber effect, scholars find that users are starting to interpret political content on social media. Instead of cross-referencing sources and fact-checking information online, users have the tendency to agree with viewpoints that align with their predisposed beliefs and either discredit or shut out viewpoints that do not. When algorithmic bias intertwines with partisan communities in online spaces, especially on social media discrimination can pose problems in shaping and influencing public opinion.

Algorithmic bias is an issue across information systems, finding relevance in specific areas, such as job recruitment, healthcare, education, and criminal sentencing. When algorithms extract data, they operate on a selective system that sets a hierarchy between favored and undesirable types of information. Algorithmic bias has gained relevance in applicant training systems (ATS), which extract potential candidates, based on the system's ability to recognize specific words, tailored by employers, on their resume. Although algorithmic bias seems to operate on an inevitable curve of selection, it poses a severe problem when it falls in line with

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[3] Silva Selena and Martin Kenney, "Algorithms, Platforms, and Ethnic Bias: An Integrative Essay," *SSRN Electronic Journal*, August 21, 2018, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3246252.

discrimination practices. In 2022, a study was conducted to survey RFI respondents to biometric algorithms, who have highlighted concerns of the discriminatory biases and harms the software has replicated for the distinct demographic groups of gender, rage, age, and disability.[4] To use the example race to demonstrate how algorithmic biases contribute to real life harms, numerous respondents described instances of false arrest and detainment because of false, racially-biased biometric identification. This instance could be credited to the oversaturation of Black people in criminal databases, which is most likely where the training data derives from.

Social traits, such as gender, race, ethnicity, age, and socioeconomic class are important in identifying our political biases. However, the biases that come with these traits are integral to the data collection process that algorithms pick up because these algorithms replicate and implement said biases.[5] When algorithmic political positions are detected, it becomes easier to find like-minded communities online due to the system's ability to make predictions. The algorithmic construction of online partisan communities comes with the possibility of a contingent, tight knit network of people who can share and expose news sources to their closest connections.[6] What is commonly observed is the concept of "political tribalism," a term based on the premise that tribes operate on a settled set of beliefs.[7] When these beliefs are adopted and cemented within an enclosed community, there is a possibility that beliefs can be amplified to the extreme. Political amplification, through the use of social media, could lead towards concerns of the visibility and amplification of domains such as misinformation, hate speech, and abusive

[4] Yogesh K. Dwivedi et al., "Metaverse Beyond the Hype: Multidisciplinary Perspectives on Emerging Challenges, Opportunities, and Agenda for Research, Practice and Policy," *International Journal of Information Management* 66 (July 16, 2022): 102542, https://doi.org/10.1016/j.ijinfomgt.2022.102542.
[5] Uwe Peters, "Algorithmic Political Bias in Artificial Intelligence Systems," *Philosophy & Technology* 35, no. 2 (March 30, 2022), https://doi.org/10.1007/s13347-022-00512-8.
[6] Ulrik Franke, "Algorithmic Political Bias—an Entrenchment Concern," *Philosophy & Technology*, 2044.
[7] Jason Brennan, *Against Democracy*, 2016, https://doi.org/10.1515/9781400882939.

content.[8] Artificial intelligence systems become an issue once traits turn into artificially created political biases, where algorithms can curate political orientations with a saturation of media on one's personal feed, creating an "echo chamber" of opinions and talking points that may permeate in "real-life," in-person conversations. The concern at hand truly rests on how social media algorithms have the opportunity to saturate a person's feed, consuming them into a "pipeline," or a "rabbit hole" of radicalization towards extremist ideologies.

Theories of partisan polarization and media exposure are diverse and complex. One of the main arguments supports the idea that the major political groups, Democrats and Republicans, are polarized because they actively subscribe to media outlets who publicize one sided, biased information.[9] Link recommendation systems, on social media platforms, suggest new online connections for social network users, thus allowing you to find friends and family to follow based on mutual connections and online interactions.[10] Selective exposure and the narrow scope of opinions, because of social media algorithms, creates the inadvertent creation of echo chambers and can create more cross-cutting barriers that segregate salient identities and amplify public opinion to an extreme.[11] Social media can be seen as a mechanism to drive mass polarization because of its capacity to eliminate discourse from opposing viewpoints.

Groups use social media to gain support and recruit members to their causes, and governments are able to monitor these platforms to weaponize news of protests to antagonize the

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[8] Ferenc Huszár et al., "Algorithmic Amplification of Politics on Twitter," *Proceedings of the National Academy of Sciences* 119, no. 1 (December 21, 2021), https://doi.org/10.1073/pnas.2025334119.
[9] Barrett, "Political Polarization and Social Media."
[10] Fernando P. Santos, Yphtach Lelkes, and Simon A. Levin, "Link Recommendation Algorithms and Dynamics of Polarization in Online Social Networks," *Proceedings of the National Academy of Sciences* 118, no. 50 (December 6, 2021), https://doi.org/10.1073/pnas.2102141118.
[11] "Political Polarization and Its Echo Chambers: Surprising New, Cross-disciplinary Perspectives From Princeton," Princeton University, December 9, 2021, https://www.princeton.edu/news/2021/12/09/political-polarization-and-its-echo-chambers-surprising-new-cross-disciplinary.

"other side." The incentives that underlie the media dynamics are problematic, as depictions of political groups in the media can create a diverging effect in public opinion. Misrepresentation of opposing parties can also generate new content, which users can engage and partake in particular discourse, which can then amplify filtering systems even further. The hostile out-party interactions on social media may also reinforce in-group predispositions and enclose community ideologies into accepting news information without question. Scholars argue the reinforcement effect can be used to justify polarization because the constant corroboration of extreme, online political content, oftentimes disinformation, pushes individuals towards their own epistemological bubbles.[12]

Polarization then leads to the development of partisan "echo chambers," which are defined as environments where people seclude themselves to interacting with only like-minded individuals of their political party.[13] Intrapersonal inadvertent sorting plays a huge role in online polarization and social group sorting, which create a reinforcing effect that solidifies public opinion.[14] Those who are effectively polarized are more likely to prefer interaction with in-party members, while suppressing diverse information from out-party members. Scholars argue several justifications for political sorting, when environmental factors can influence political ideology, as neighbors can expose and shape a commonality of ideas.[15] These community bonds, whether they are formed inside or outside the internet sphere, suggest that partisan polarization occurs

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[12] C Thi Nguyen, "Escape the Echo Chamber," Aeon, 2018, https://aeon.co/essays/why-its-as-hard-to-escape-an-echo-chamber-as-it-is-to-flee-a-cult.
[13] Sara B. Hobolt, Katharina Lawall, and James Tilley, "The Polarizing Effect of Partisan Echo Chambers," *American Political Science Review*, December 1, 2023, 1–16, https://doi.org/10.1017/s0003055423001211.
[14] Ascensión Andina-Díaz, "Reinforcement Vs. Change: The Political Influence of the Media," *Public Choice* 131, no. 1–2 (December 11, 2006): 65–81, https://doi.org/10.1007/s11127-006-9105-1.
[15] Christopher Weber and Samara Klar, "Exploring the Psychological Foundations of Ideological and Social Sorting," *Political Psychology* 40, no. S1 (February 1, 2019): 215–43, https://doi.org/10.1111/pops.12574.

because of personal, emotional ties to their in-group political party, rather than polarization occuring because of an array policy disagreements.[16] We often find characteristics such as race, sex, ethnicity, region, and social class as social identities, yet we identify these identities inherently political into our social categorization. With social media algorithms, these personal categorizations become statistical predictions, in which individual algorithms recognize and replicate the training data, or collection of information used to train a machine learning model, of the individual who is using a social media platform.

The literature on affective polarization explains how online political communities form and reshape public opinion on a partisan level. Affective polarization, or the effect of in-group attachments manifesting towards out-group hostilities, raises an alarming concern in today's politics because people are more exposed to homogenous political views within online partisan echo chambers.[17] Humans are inclined to discount information that conflicts with their own judgements. This effect, called "confirmation bias," then leads to people perceiving information and arguments that support their own views, confirming their own biases and habitually engaging with content that affirms their views.[18] Through this effect, people are more likely to accept claims within their scope of personal opinions whilst ignoring dissenting opinions, either through a personal or group setting.[19] We see this phenomena go into effect with declining beliefs

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[16] Donald Green, Bradley Palmquist, and Eric Schickler, *Partisan Hearts and Minds: Political Parties and the Social Identities of Voters*, *Yale University Press* (Yale University Press, 2002).
[17] Shanto Iyengar et al., "The Origins and Consequences of Affective Polarization in the United States," *Annual Review of Political Science* 22, no. 1 (December 11, 2018): 129–46, https://doi.org/10.1146/annurev-polisci-051117-073034.
[18] Andreas Kappes et al., "Confirmation Bias in the Utilization of Others' Opinion Strength," *Nature Neuroscience* 23, no. 1 (December 16, 2019): 130–37, https://doi.org/10.1038/s41593-019-0549-2.
[19] Longzhao Liu et al., "Modeling Confirmation Bias and Peer Pressure in Opinion Dynamics," *Frontiers in Physics*, 2021.

of climate change as a man-made issue, a trend found mostly amongst Republican politicians, in which a baseline of scientific facts is declined for the sake of political incentive.

Reinforcement in public opinion can also raise alarms for the way news media is interpreted. Selective perception suggests that people interpret media to reinforce their attitudes because it is easier to digest content than to change or question it, inducing viewers to accept opinions they are unfamiliar with.[20] The act of confirming one's biases can lead to what is known as the "selective exposure effect," where people seek out and overvalue information that aligns with their predisposed beliefs. Through engaging with and seeking like-minded content, the following actions often lead into opinion adjusting to fit the common attitudes generated within a person's partisan community.[21] Peer pressure can be a possible justification to personal opinion and adjustment, where opinion shifts to conform to dominant political ideologies, seeking membership in groups, which lead to the formation of either impressionable members to alter their opinions if they receive a vast amount of opposing views to counter their original opinions[22]

Some scholars may suggest that affective polarization can undermine support for democratic norms. McCoy, Rahman, and Somer argue that polarization poses a risk towards democratic collapse or erosion, making societies more vulnerable towards authoritarian governability, using countries such as Hungry, the United States, Turkey, and Venezuela as case studies as warning signs of democratic erosion due to heightened political mobilization.[23]

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[20] Ascensión Andina-Díaz, "Reinforcement Vs. Change: The Political Influence of the Media," *Public Choice* 131, no. 1–2 (December 11, 2006): 65–81, https://doi.org/10.1007/s11127-006-9105-1.
[21] Cass R. Sunstein, "Going to Extremes: How Like Minds Unite and Divide," *Choice Reviews Online* 47, no. 05 (January 1, 2010): 47–2869, https://doi.org/10.5860/choice.47-2869.
[22] Longzhao Liu et al., "Modeling Confirmation Bias and Peer Pressure in Opinion Dynamics," *Frontiers in Physics*, 2021.
[23] Jennifer McCoy, Tahmina Rahman, and Murat Somer, "Polarization and the Global Crisis of Democracy: Common Patterns, Dynamics, and Pernicious Consequences for Democratic Polities," *American Behavioral Scientist*, 2018.

Through their findings, they understand that the polarization process occurs through rhetoric and tactics that are implemented to uniting and strengthening groups to disarm and produce a backlash towards their opposing parties, suppressing in-group differences and blending diverse identities among group members to create a blend of partisan identity amongst a cohort. The consequence of severe polarization is the inability to make compromises, conscious decision-making, and tolerance for new, innovative ideas for individuals and political actors to consider when taking political action.

Expectations & Hypothesis

The sorting of news is the discriminatory element that amplifies users' polarization of opinion by restricting how information is circumscribed in individual feeds. In replicating user consumption habits and generating more content, exacerbated information can easily be introduced and deliberate misinformation can amplify opinion to its extreme. Through my experiment, I will test to see if survey respondents agree or disagree with the accuracy of political information on social media and the fairness of media centered and representative of their party affiliation.

The literature review has demonstrated that engagement increases the strength of social media algorithms and their recommendation systems. High engagement encompasses the target selection criteria, as the expectation is that those who are highly engaged should be the most politicized, as they are assumed to be the most exposed to politics and political media. However, partisan strength is measured on a different scale and will be used to determine the strength of polarization. My hypotheses are outlined through the following:

1.) Respondents who have a strong affiliation towards their political party of choice are most likely to trust social media algorithms to spread political information.

2.) Respondents who have a weak affiliation towards their political party of choice are less likely to trust social media algorithms to spread political information.

3.) Respondents who have a moderate affiliation towards their political party of choice are moderate in trusting social media algorithms to spread political information.

Research Design

In order to test the validity of my research, I created an original survey for respondents to take and distributed my Google Form to the multiple subreddits such as: r/samplesize, r/surveyexchange, r/surveylinks, r/politicalscience.

Selection Criteria

Though exclusively using Reddit for surveying may be seen as a limitation in my research design, it is actually perfect in gaining an substantive insight as people are normally responsive and thorough because of the platform's forum-based nature. Selecting highly informed respondents is essential to seeking answers to test how strong partisanship affects attitudes of information technology, as public opinion literature has demonstrated that highly informed individuals are often the most polarized in their political positions.[24]

In measuring engagement, I asked respondents a series of questions such as:

#	
1	How much time do you typically spend viewing or engaging with a single piece of political content on social media?
2	How often do you thoroughly read, watch, or interact with political content on social media?
3	"How often do you engage in political discourse on social media platforms via commenting or posting?"

[24] John R. Zaller, *The Nature and Origins of Mass Opinion*, 1992, https://doi.org/10.1017/cbo9780511818691.

From a nominal scale from 1 to 5; 1 = least engagement and 5 = most engagement. Using Google Sheets, I filtered each question and selected scores 3, 4, and 5. From this sample, I am able to work with 93 out of 164 total respondents.

Measuring Partisan Strength & Weighting

In order to measure partisan strength, I used a seven point scale where 1 = Strong Republican 2 = Moderate Republican 3 = Weak Republican 4 = Independent 5 = Weak Democrat 6 = Moderate Democrat 7 = Strong Democrat. This way, I can test to see how one's association with their party can affect attitudes towards social media algorithms. Since my sample had an overabundance of Democrat respondents, I decided to weight and cut down my sample so that each party is represented proportionally. In my sample, I gained 40 total Democrats and 31 total Republicans and needed to cut down 9 Democrats to make the proportions even. Hence, I cut down 4 weak democrats and 5 moderate democrats, leaving the total number of respondents to 83.

Measuring Trust in Social Media Algorithmic Systems

In measuring trust, I used the same nominal scale of 1 to 5, where 1 = disagree and 5 = agree. From a series of questions, I used the aggregate scores to measure trust on a new scale, where 1 = least trustworthy and 5 = most trustworthy. Using these scales, we can see how trust in algorithms influences political attitudes based on party strength. From my selection of questions, I chose to graph the following responses because they best demonstrate the effect of party strength on trust in social media algorithms.

#	Statement
1	Social media algorithms promote the spread of misinformation and sensationalist media.

2	Social media algorithms are systematically biased and promote conservative content in favor of the Republican party.
3	Social media algorithms are systematically biased and promote liberal content in favor of the Democratic party.

Creating Graphs

Most of the graphs created for the study are pivot tables. I chose this method because it best illustrates how each group responds to the questions at hand. In order to generate graphs, I used Google Sheets and its filtering process to translate scores from the 7-point scale to label the party strength according to each respondent ID. Then, I took the scores from each output and generated estimated scores based on the calculated averages. I repeated the same process for other questions, so that I can observe if groups responded differently to different questions. Although I use pivot tables for most of my graphs, I chose to reduce my independent variable to the three major political parties (Democrat, Independent, and Republican) to illustrate the frequency of used social media platforms for news consumption on a bar graph. Then, I applied the same method by aggregating the data I collected, so that I can demonstrate which platforms are susceptible to arbitrary news sourcing.

Results

The results of my survey reveal that Republicans demonstrate the most skepticism towards algorithmic systems on social media, regardless of partisan strength or one's affiliation with their political party. These results are indeed surprising because of the diverse outcomes I have produced. I found that the hypotheses I have outlined are incorrect, as Republicans with a strong affiliation with their political party demonstrate distrust in algorithms, based on responses to the statements in my survey. Through this, I attempt to construct a cohesive narrative that is direct and conclusive, using survey responses that stood out in my observations.

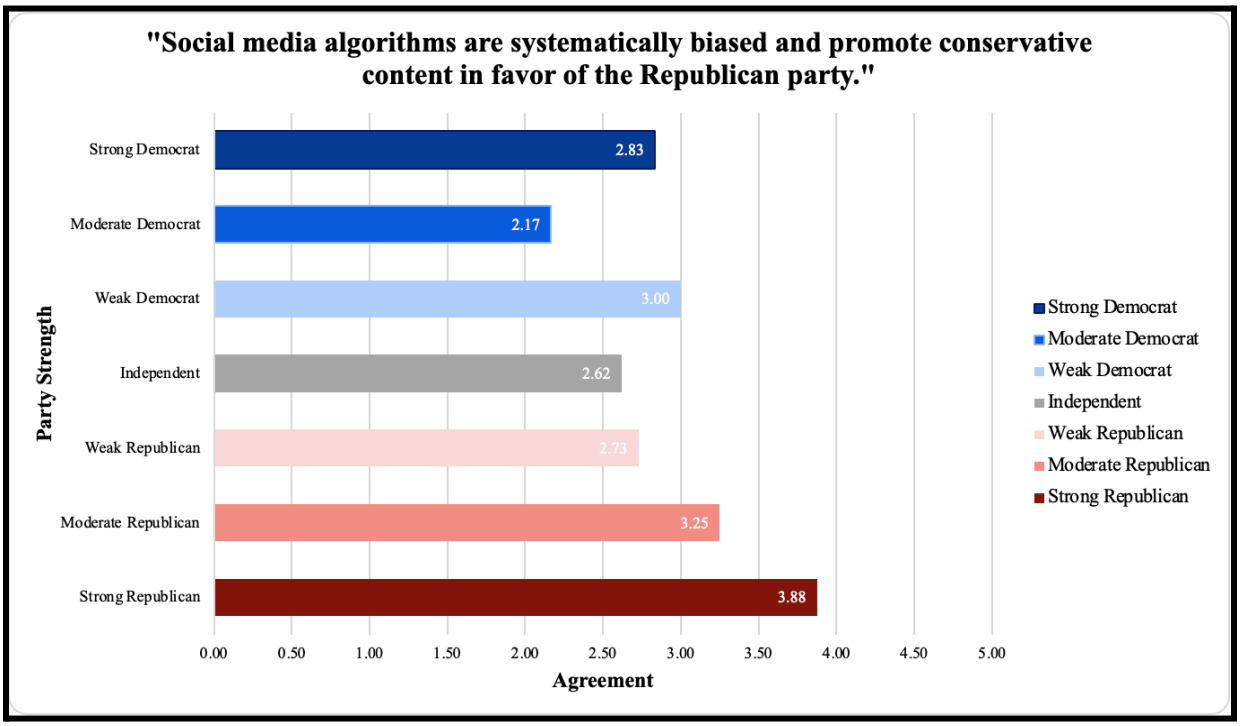


Figure 1: Average responses to whether algorithms are systematically biased towards the Republican party. Strong Republicans (3.88) demonstrate the highest agreement to the statement.

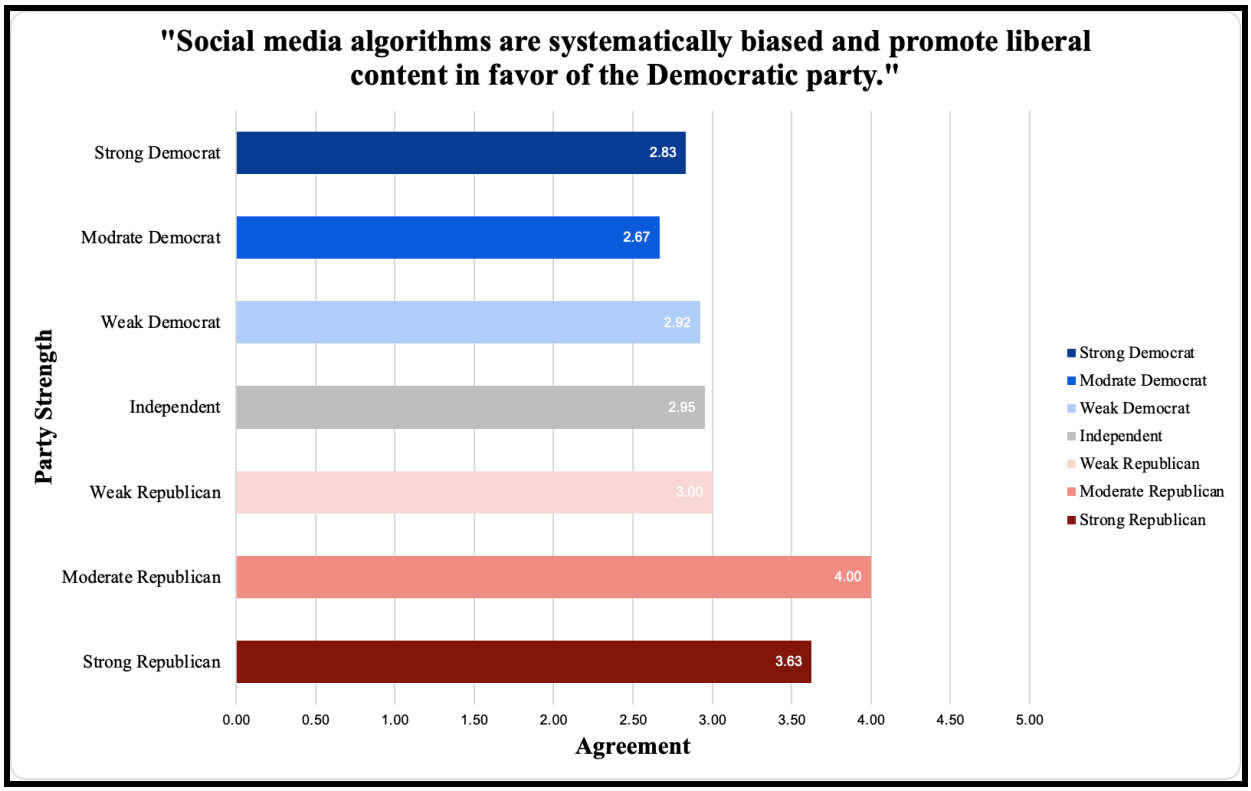


Figure 2: Average responses to whether algorithms are systematically biased towards the Democratic party. Moderate Republicans (4.00) and Strong Republicans (3.63) demonstrate the highest agreement to the statement.

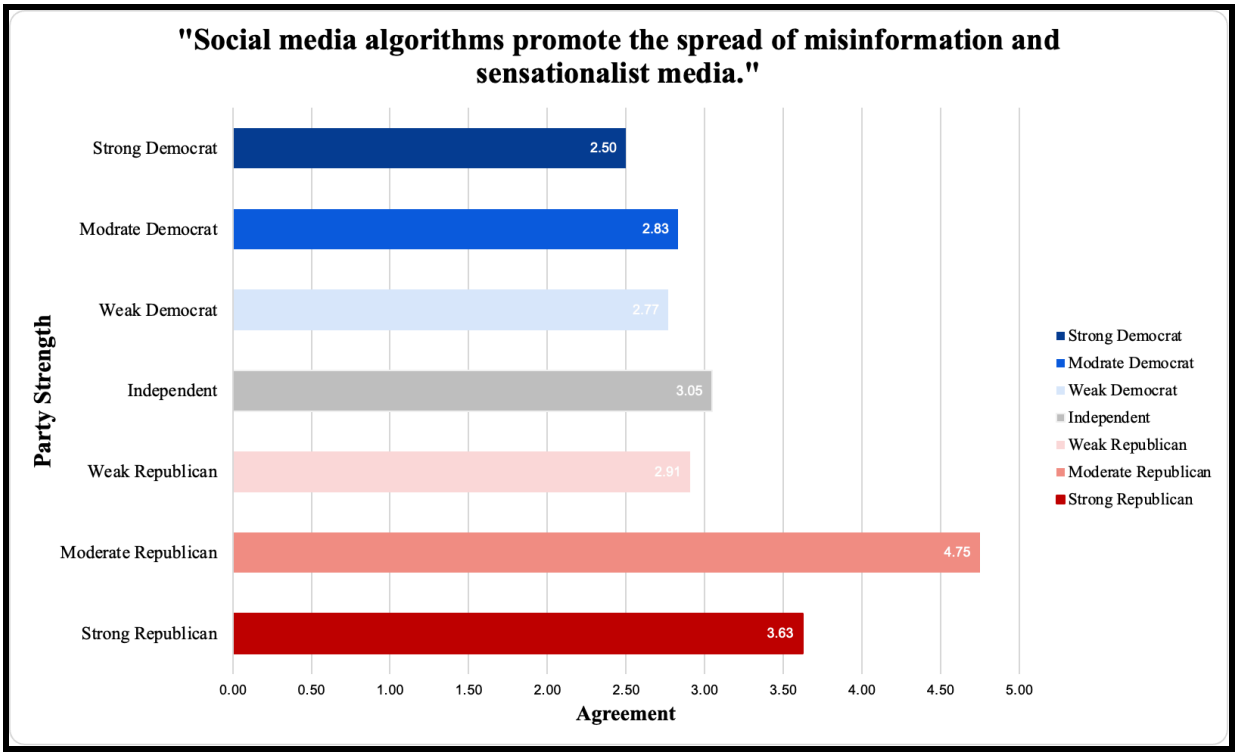
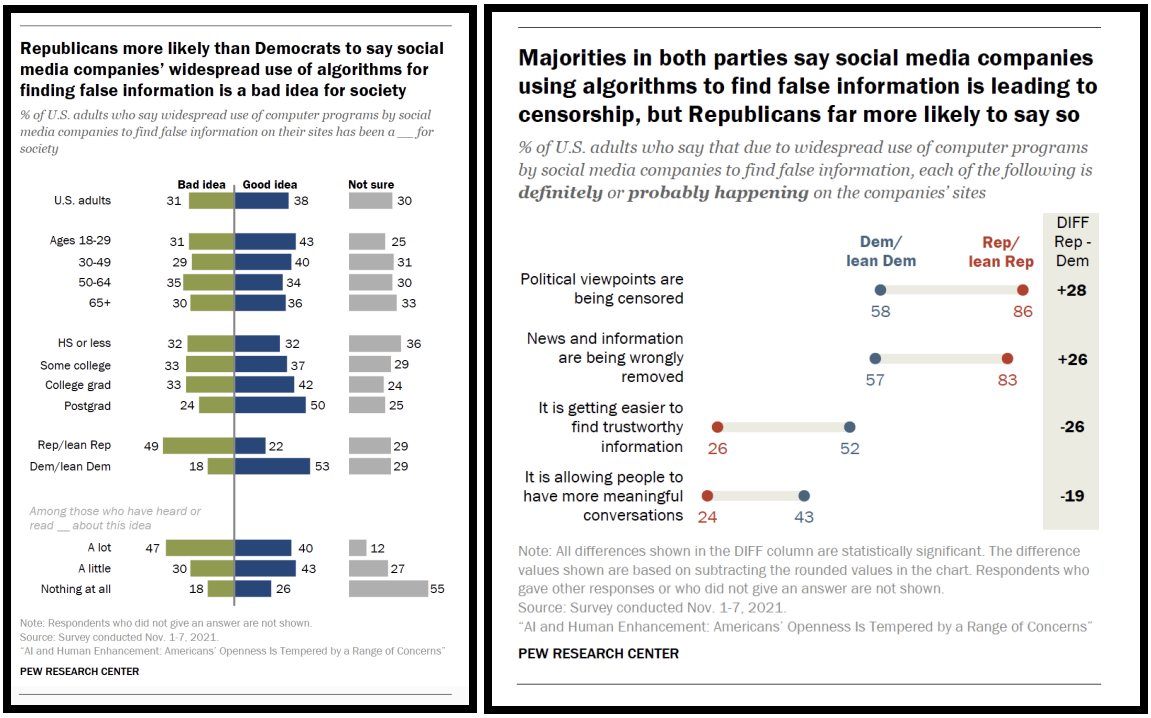


Figure 3: Average responses to whether social media algorithms promote the spread of misinformation. Moderate Republicans (4.75) and Strong Republicans (3.63) demonstrate the highest level of agreement to the statement.

Responses to both statements above demonstrate that Republicans agree that social media algorithms are in favor of either Democrat or Republican parties. Strong and moderate Republicans, who take up 65% of overall Republicans, showcase stronger results compared to other groups who responded to these statements. Agreement demonstrates that respondents with a strong affiliation with the Republican party are less likely to trust algorithms, regardless of which political party is predicted to gain more visibility on social media.

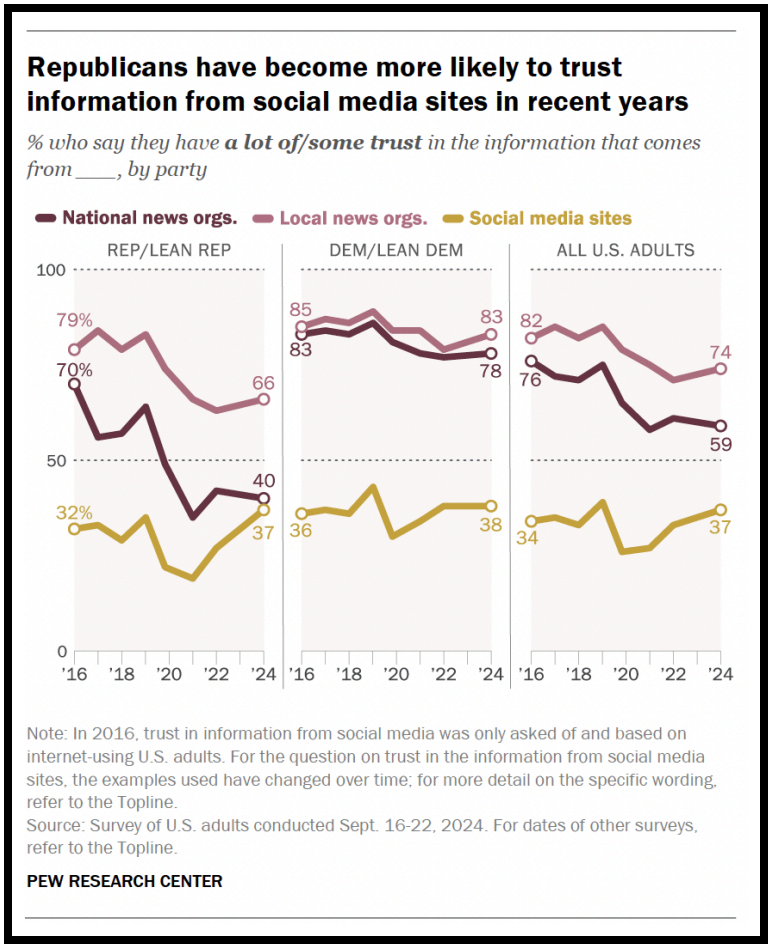
The results of my survey conflict with general expectations of how Republicans would most likely behave, especially after the results of the 2024 presidential election. It would be safe to predict that Republicans would be more likely to trust information because the election results were in favor of their political party. The following data from the Pew Research Center demonstrates a change over time with Republican attitudes towards social media algorithms.



Figures 4 & 5: Republicans likely to distrust social media algorithms in 2022, data before the 2024 election.[25]

The data above is evidence of Republican skepticism towards social media algorithms and its contribution to spreading misinformation. In 2022, Republicans were likely to distrust social media algorithms because of their election loss in 2020. Republican accusations of how Democrats committed acts of election fraud contributed to discussions of how social media platforms should update their terms of service for regulating free speech online. Thus, it was uncommon to see disagreements from Republicans that social media platforms should be trusted in suggesting political news online.

[25] Reem Nadeem and Reem Nadeem, "3. Mixed Views About Social Media Companies Using Algorithms to Find False Information," Pew Research Center, July 22, 2024, https://www.pewresearch.org/internet/2022/03/17/mixed-views-about-social-media-companies-using-algorithms-to-find-false-information/.



Figures 6: Republicans suddenly more likely to trust social media algorithms in 2024, months before the election. [26]

Since Republicans had a strong sense of distrust towards social media and its capacity to recommend accurate information, it is surprising to see that they are more likely to trust recommendation systems more recently than in 2022. Though the results I have generated contradict the findings from the Pew Research Center, it must be noted that my results come from a biased sample of highly-informed respondents on Reddit, who are most likely to be aware of how social media algorithms work. The following results have been an interesting look into the different ways people can interpret Republican attitudes towards an objective mechanism

[26] Janakee Chavda, "Republicans, Young Adults Now Nearly as Likely to Trust Info From Social Media as From National News Outlets," *Pew Research Center*, October 16, 2024, https://www.pewresearch.org/short-reads/2024/10/16/republicans-young-adults-now-nearly-as-likely-to-trust-info-from-social-media-as-from-national-news-outlets/.

over time and how both discussions and usage of social media algorithms can influence public opinion.

Conclusion

In my final analysis, my research question reveals that the rise of online contingent spaces, due to social media algorithms, poses a threat to democratic norms in the United States. Although most of the literature and quantitative research pins the issue to right-wing spheres, the patterns of polarization and social seclusion could happen to any political party and partisan community. The discussion of social media algorithms and partisan polarization is limited in academia, as many scholars continue to study this topic today with the evolution of social media algorithms and how people are shaped and influenced by the content they see online and how it approaches them.

In studying the polarization patterns of Democrat, Republican, and Independent spaces, I find that these spaces have the capacity to amplify and exacerbate said polarization. To identify as "political" is now different, as social traits such as race, gender, age, disability, etc. can be synthesized into a new political identity, and perhaps, aligning with a political party could even be a new social identity of its own. These traits make it easy to emotionally tie to a community, which can be the leading cause of polarization, as we see new social media spaces generated exclusively for partisan communities – BlueSky for Democrats and Parler for Republicans.

Despite my research capacities being limited to an undergraduate collegiate level, my personal experience of being on social media for almost a decade has made it easy to observe online political communities evolve and behave on social media. Tight knit political communities have always been extreme, but now that social media algorithms have become more developed, it is now easy to keep yourself in an enclosed space of content that aligns with your personalized views and to abide by a community who agrees with you.

Through my findings, the consensus I have reached is that there needs to be more interdisciplinary collaboration between the disciplines of computer science and the social sciences. Although collaboration between scholars across disciplines and universities is common on this specific topic, I would hope that my findings spark new discussions of how technological advancements that exist in our daily lives can permeate into our personal lives, especially in how these advancements can find relevance in our politics. Finally, I conclude that algorithmic accountability starts with both design and usage, for developers to become more transparent with the effects of social media algorithms within online partisan communities and for online partisan communities to become more self aware of the mechanisms that influence them.

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