

**Actionable Insight into Aligning Political Targeted Advertising with Deliberative
Democracy**

A Research Paper submitted to the Department of Engineering and Society

Presented to the Faculty of the School of Engineering and Applied Science
University of Virginia • Charlottesville, Virginia

In Partial Fulfillment of the Requirements for the Degree
Bachelor of Science, School of Engineering

Brian Tufts

Fall 2022

On my honor as a University Student, I have neither given nor received unauthorized aid on this
assignment as defined by the Honor Guidelines for Thesis-Related Assignments

Advisor

Kathryn A. Neeley, Associate Professor of STS, Department of Engineering and Society

Introduction

In recent years, productive political discussions have been limited. In a Pew Research poll, 85% of respondents agreed that “over the last several years the tone and nature of political debate has become more negative” (Pew, 2019). As a reaction to this, they also found that a majority of people said that “talking about politics with people they disagree with politically is stressful and frustrating” (Pew, 2019). The cause of this recent public opinion is not definitive; however, another current trend that has been observed is the increase in digital political advertising spending, such as online advertising through Facebook or Google.

According to Homonoff, digital political advertising spending exploded from about 2-3% of their advertising spending in the 2015-2016 political cycle to about 18% of their spending in the 2019-2020 political cycle (2020). This is important to consider when analyzing how targeted advertising influences the political environment. Campaigns and advertising companies are able to identify specific groups of people with increasing accuracy by utilizing data collected from numerous sources and artificial intelligence models. With increased access to large data, campaigns may target specific ads towards certain subgroups in order to create the best possible chance of turning their money into a vote (Nickerson and Rogers, 2014). However, campaigns are only interested in advertising to voters who are more vulnerable, and thus, more likely to flip their vote (Nickerson and Rogers, 2014). This means that the vast majority of citizens will not see advertisements, or at the very least, they will see exclusively different advertisements than people with differing ideologies. Thus, this offers a potential explanation as to why the political climate is increasingly negative.

Problem Statement: Actionable Insights to Positively Change Political Targeted Advertising

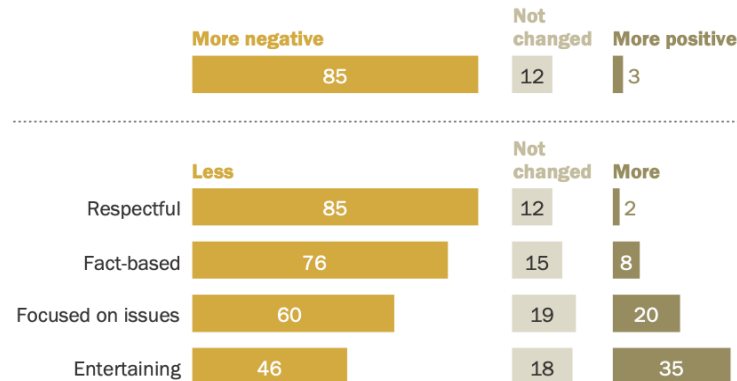
The Encyclopædia Britannica states that “Deliberation is a necessary precondition for the legitimacy of democratic political decisions” (2022, Deliberative Democracy). As the public finds discussing politics to be “stressful and frustrating,” deliberation is lost, resulting in a detrimental impact on the effectiveness of democracy (Pew, 2019). It is very important to preserve the ability to maintain a calm, reasonable, and productive deliberation amongst citizens in order to uphold democracy. Political targeted advertising has played an increasing role in the economy and politics, and although we cannot get rid of it, we need actionable insights for how to improve the negative impact it has on deliberative democracy.

The Negative Impact of Political Targeted Advertising on the Political Climate

As described earlier, there is a common perception amongst Americans that the status of political debate is worse now than it has been in the past. More specifically, as shown in Figure 1 below, a majority of people feel that political debate in the U.S has become less respectful, fact-based, and focused on issues, while 35% percent find it more entertaining. Figure 1 also shows another poll where a majority of respondents said that Donald Trump played some role in the changing political atmosphere. That was unfortunately the only question asked during this poll that attempted to gain insight as to why people felt that political debate was deteriorating. Some may argue that people are becoming less focused on issues and increasingly voting along party lines. However, party affiliation as reported by Gallup, shows that since 2004 there has not been any significant change in respondents identifying as “independents” rather than as “Republican” or “Democrat” (Gallup, 2022).

Most Americans say political debate in the U.S. has become less respectful, fact-based, substantive

% who say over the last several years the tone and nature of political debate in this country has become ...



% who say Donald Trump has changed the tone and nature of political debate in the U.S. ...



Note: No answer responses not shown.

Source: Survey of U.S. adults conducted April 29-May 13, 2019.

PEW RESEARCH CENTER

Figure 1. American's Opinion on Political Debate, Pew 2019. Americans find current political debate to be more negative, less respectful, fact-based, and focused on issues.

While it would be tough to determine whether people are less focused on issues now than in the past, a lack of change in the number of independents is some indication that there is limited change in the amount of people that care more about issues than the party. If voters are not becoming more focused on the party they identify with, then there must be another reason why people feel as though the political climate is deteriorating.

The main factor causing voters to feel like the political climate is deteriorating is the use of targeted advertising. Most Americans do not agree with the use of their personal data for political targeted advertising online (Baum et al., 2021). However, this view shifts a little bit when they think it may be beneficial for their political party. For reference, in an online survey of 1549 people who identified as Republican or Democrat showed that the majority believed

targeted advertising was disproportionately benefitting the opposing party (Baum et al., 2021). When a random sample of respondents were selected and informed that targeted advertising in fact benefits Republicans more, the Republicans' opinions towards it changed. Suddenly, they were less favorable of regulation than the previous respondents who did not know this fact (Baum et al., 2021). This experiment indicates that while political affiliation may not have changed much over the last 18 years, there is currently a portion of citizens willing to give up certain liberties if they feel that their party will benefit from it. Political campaigns are taking advantage of this by pouring over a combined 1 billion dollars in digital political advertising in hopes to get their party elected more (Homonoff, 2020). It seems that there is a general consensus that voters typically do not like political targeted advertising, however, political campaigns continue to use it. Thus, there is a disconnect here that is leading to a negative political climate.

Political targeted advertising starts with campaigns gathering massive amounts of data about voters. Some of it is public data such as voter registration lists and some of it is more personal data that they utilize through companies such as Facebook and Google. They use this data to attain “predictive scores” for each voter which includes behavior scores, support scores, and responsiveness scores (Nickerson and Rogers, 2014). Then, they are grouped based on these scores and decide on certain groups that they would like to target and put together representative focus groups. Each of these focus groups is targeted with a particular advertising campaign. Whichever campaign performs the best is then rolled out to the larger demographic of that group (Nickerson and Rogers, 2014). By using this method, campaigns are able to systematically target people with advertisement campaigns that are designed specifically for them and known to work on people similar to them. Moreover, as Nickerson and Rogers state, “Sophisticated use of these

predictive scores allows campaigns to simultaneously broaden the populations targeted while pruning away groups they believe will be cost ineffective” (2014, p.62). This means that certain groups may never even see an advertisement for a campaign because they are deemed “cost ineffective,” making it very difficult for them to engage in a productive political debate.

Furthermore, an actual analysis of Facebook advertisements provided evidence of systematic targeting of advertisements in action. In an article by Merrill, they explain how their Facebook Political Ad collector collected over 100,000 political advertisements and gathered interesting insight into targeted political advertisements. Among a number of other statistics, they found in particular that “only about 18 percent of political ads were seen by anything close to an even ratio of liberals and conservatives” (Merrill, 2018, What We Learned from Collecting 100,000 Targeted Facebook Ads). Unsurprisingly, campaigns, armed with Facebook’s ability to gather heaps of personal information on people and group them as needed for customers, are able to pick exactly who will see and will not see their advertisements with a good accuracy. This can lead to some dangerous circumstances because Facebook allows advertisers to target people not only based on political beliefs, but also on “multicultural affinity,” contributing to systemic discrimination (Merrill, 2018). When campaigns utilize targeted advertising in this way, it creates a separation in knowledge for the general public with the potential for some sensitive groupings such as by race and income. This separation could either reduce the political engagement of people or at the very least make it more difficult for them to engage in political conversations.

As a result of how targeted advertising is used, it does not have a positive impact on democracy. First, when discussing democracy, this paper will be using the concept of deliberative democracy. Deliberative democracy is based on the idea that there is an equally informed public that is willing and able to respectfully discuss and debate ideas before coming to

a reasonable policy decision (Eagan, 2022). For reasons aforementioned, this cannot be perfectly achieved in America today. However, it should arguably be exactly what any democracy strives to achieve. If targeted advertising is shown to be contributing to the degradation of political conversation amongst Americans, then it can be argued that it also goes against some fundamental goals of democracy. As mentioned earlier, Eagan states, “Deliberation is a necessary precondition for the legitimacy of democratic political decisions” (2022, *Deliberative Democracy*). Such deliberation cannot occur if there does not exist some amount of common knowledge amongst deliberators. The specifics of how targeted advertising interacts with the pillars of deliberative democracy and the importance of these interactions is still unclear.

Deliberative Democracy and Social Theories

As with any analysis, there must exist some sort of guidelines to use as a comparison. When analyzing how targeted advertising fits into the modern American democracy, I must first declare what exactly that democracy is. As to whether the American government actually is a democracy would require an entirely separate research paper, so this research will operate under the assumption that the goal of the American government is to emulate a democracy. As defined by Merriam Webster: a democracy is “a government in which the supreme power is vested in the people and exercised by them directly or indirectly through a system of representation usually involving periodically held free elections” (Merriam-Webster). Unfortunately, that is a very broad definition that does not exactly help in our analysis. Instead, this research will utilize a democratic framework known as deliberative democracy in order to analyze targeted advertisements effects on democracy.

Deliberative democracy is a framework that requires there to be a fair and equally informed representation of the public that will deliberate prior to making policy decisions. This

is in contrast to a popular held belief that policy decisions should be made by an aggregate of citizens' opinions. As shown in figure 2, rather than just voicing opinions and taking the majority opinion, the citizens should come to a decision after discussing differing arguments and perspectives (Eagan, 2022). Deliberative democracy is shown in a circle because that's exactly how it should be practiced. Each of the actions shown should be repeatedly performed until a consensus is eventually reached. While this framework is effective to define the actions taken by actors in the system, the framework alone is not enough to perform a complete analysis. Methods for analyzing the effects of specific aspects of political targeted advertising are also necessary.

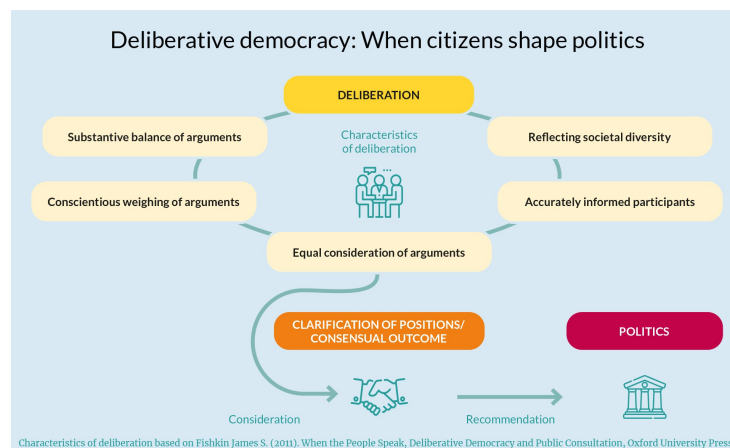


Figure 2. Deliberative Democracy, Diebold and Wortmann, How it Works. Deliberative democracy consists of a circular process that leads to a consensual outcome. The most important processes include accurately informed participants and equal consideration of arguments

The first method that will be utilized for analysis is the social exchange theory. The social exchange theory proposes that people evaluate their social exchanges in terms of costs and rewards (Sophie, 2017). More specifically, people are only likely to engage in a social exchange when the rewards outweigh the costs. This is shown in Figure 3 where the larger of the two competing sides, positives and negatives, will win over. The simple figure emphasizes that the positives should outweigh the negatives, but it lacks information regarding how the positives and

negatives are determined. Social exchange theory has been used in a similar manner by Lawler and Thye (2016) in their discussion on emotions. They argued that the emotions invoked by a particular social exchange will affect future exchanges with the same party and ultimately determine what the future of their relationship will be. In this context, social exchange theory claims that the emotions invoked by a particular interaction between individuals are factored into the cost benefit analysis of said interaction. This in turn causes a person to consider that emotional experience into their future cost benefit analysis of interacting with the same party. In this research, social exchange theory will be utilized in a very similar manner. Deliberation is inherently a social exchange and is therefore not exempt from the effects of social exchange theory. Therefore, when analyzing the aspects of political targeted advertising through the lens of deliberative democracy, we can use this theory to evaluate the exchanges that people make with both the targeted advertisements and with other voters within the democracy and predict likely outcomes from them.

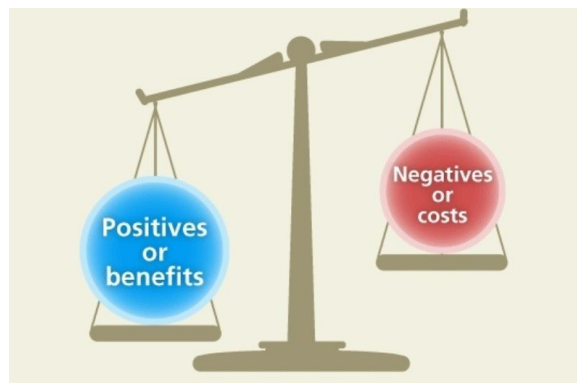


Figure 3. Social Exchange Theory, Kaur, What is Social Exchange Theory? Individuals weigh the positives and negatives of every situation and whichever weighs more will tell them what decision to make.

The second method this research will utilize is the information boundary theory. Information boundary theory claims that people have a well defined barrier surrounding their personal information and understanding that they then decide whether or not to open up to external entities (Xu et. al, 2008). As shown in Figure 4, people are surrounded by a boundary

that allows some external actors to cross, while rejecting others. The emphasis here is that the actors choose what information to absorb and what information not to. Actors also decide what personal information to allow external entities to access. This decision process is not simply based on what is true, but rather what fits their predetermined view or what is perceived as safe. This theory is described in a context more specific to this research by Sophie (2017) as suggesting that people view the collection of personal information as crossing a privacy boundary, and therefore, perceive it as a cost that is not outweighed by the benefits of online behavioral advertising. Xu et. al (2008) uses this theory to evaluate how individuals form their opinions regarding privacy risk, control, and intrusion. The specific aspect of that research that I will draw on here is how individuals determine if something is a privacy risk. More specifically, the information boundary theory has been used many times in this way when discussing targeted advertising. However, this research will focus its analysis on political targeted advertising.

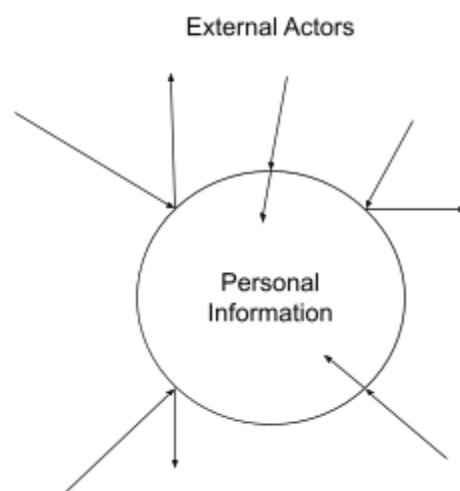


Figure 4. Information Boundary Theory, Created by Author. Individuals choose what is allowed to access their personal information and what is not through their information boundary.

Social exchange theory and information boundary theory are both important social theories to consider when discussing political targeted advertising and its interaction with

deliberative democracy. Specifically, these theories play a major role in both the “deliberation” and “accurately informed participants” principles of the deliberative democracy diagram shown in Figure 2. As a result, these are the features of deliberative democracy that we discuss the most and also happen to be where targeted advertising has its largest impact.

Utilizing Methods to Analyze Effects of Targeted Advertising

As people’s knowledge about Online Behavioral Advertising increases, they are more likely to overestimate the effects it has on others, while underestimating the effects it has on themselves. Additionally, consumers reported that when they were unaware that their data was being collected, they felt more vulnerable when they were confronted with personalized advertising (Sophie, 2017). In a survey, 62% of US respondents stated that using data to present targeted political ads was unacceptable, while only 47% of those respondents said the same thing in regards to product advertisements (Baum, 2019). This alludes to an issue with the current political atmosphere, and how the public’s view of something can change when it is seen as beneficial to them. This provides support for the Social Exchange Theory playing a role within targeted advertising. However, even though participants stated that they view targeted ads for political gain more negatively when compared to product ads, this did not significantly affect their interaction with the app in which they viewed those ads (Baum, 2019). This particular insight expands the range of relevant data to the topic of targeted political advertising. Because the knowledge of an advertisement being politically motivated does not change how a user interacts with it, the data regarding the effects of general targeted advertisements can be extrapolated to the effects of political advertisements as well.

There has been extensive research exploring the effects online targeted advertisements on the general public. Interestingly, despite people being averse to targeted advertisements when

asked about it, the lack of understanding and recognition leads to people being less likely to avoid advertising that is relevant to or personalized for them (Aiolfi, 2021). Suggesting that while social theories claim that people should be performing some sort of cost-benefit analysis, in many cases they are not able to properly evaluate the cost or benefits. More recently, advertisers are beginning to use a form of targeted advertising known as trait-based advertising which is a customization that is less noticeable than traditional targeted advertising resulting in it being more persuasive. This is a significant innovation because when people feel a lack of control over their personal data, which is caused by noticing targeted advertisements, it diminishes the effectiveness of the targeted advertisements (Aiolfi, 2021). In particular, targeting advertisements on Facebook based on gender, location, and partisanship significantly increased the chances of undecided voters to vote for the advertised candidate. These facts suggest that political targeted advertising has a significant edge on traditional methods of targeted ads resulting in a change in the political atmosphere. As Baum (2019) explains, this likely contributes to the common view by many researchers that targeted advertising is a threat to democracy, free exchange of ideas, and political polarization. This requires an analysis into if and how policy makers and citizens can regulate or interact with politically targeted advertising to mitigate or remove these negative effects.

Features of Deliberative Democracy Opposed by Political Targeted Advertising

As targeted political advertising becomes more popular, its effects will scale with it. We have seen that while it may be beneficial as a marketing tool for political campaigns and a fruitful source of income for advertising companies, it has numerous downsides for the general public. The most commonly discussed negative effect is the lack of privacy; however, that is a sacrifice that people are willing to make as long as they benefit in some way. This benefit

typically means that their candidate gets more votes, or as it relates to a product, they get either free use of something (i.e social media) or specialized discounts. More importantly, the negative effects that targeted advertising has on the political atmosphere is not something that can be left up to individuals to analyze when they make their cost benefit analysis as defined by social exchange theory. This is because it is generally an unknown cost, and even if it were known, it would be of relatively minor concern as defined in the behavioral theory. Thus, if citizens cannot be convinced to reject targeted advertising, as it is here to stay, we need more insight into how it interacts with deliberative democracy so policy makers can begin to consider policies to help.

One primary principle of deliberative democracy is the need for common ground. Having a common ground is a prerequisite to deliberation, which is another key component of deliberative democracy. However, current political targeted advertising strategies prevent a common ground from being created. As we have seen, targeted advertising uses behavioral and physical data about a person to determine if they are worthy of being targeted, meaning that they may potentially switch their vote. Data collected through focus groups is used to modify advertisements to achieve the optimal response from each larger group. As a result, radicals view radical advertisements for a campaign while more moderate individuals see moderate advertisements for a campaign, within the same party. This further amplifies the separation in information even within political parties by creating two opposing images of a campaign based on a citizen's views. Thus, it makes it difficult for groups within a political party to deliberate on policies, which is not supportive of deliberative democracy.

Moreover, with voter data on hand, campaigns are able to target with increasing accuracy such that there is hardly any overlap in the type of advertisements that people in opposing political parties see. The current goal of targeted advertising is to gain as many votes per dollar

as possible. This goal results in political advertisements being shown to only people who have been flagged as vulnerable (potential to switch their vote), excluding both definitive proponents and definitive opponents as those votes are either already secured or seen as too difficult to get. This leads to one group of people knowing one set of information and other groups knowing a nearly exclusive set of information. Therefore, targeted political advertisements do not establish a common ground, and without a base common knowledge, individuals are not able to initiate the process of deliberation.

Another important principle of deliberative democracy is deliberation. As discussed, a common ground is necessary to engage in deliberation, however, having a common ground does not necessarily mean that deliberation will occur. Although the goal of political advertisements is to inform as many people as possible about their campaign message, these advertisements also tend to be divisive. More specifically, these political advertisements aim to not only gain a vote, but also discourage the viewer from engaging with their political opponents. This type of advertising simply does not fit into the framework of deliberative democracy because it is not informing equally and does not encourage deliberation. Since the political climate has become increasingly frustrating, individuals in one political party often view others in a different political party as not worthy of engaging in conversation with. Deliberation is absolutely vital to creating policies that are beneficial for a majority of constituents. If not all voices are heard, then there will be perspectives that are ignored in the policies. Thus, political targeted advertising leads to a difference in knowledge, and also prevents people from wanting to engage in deliberation which directly opposes deliberative democracy.

As this paper has shown, there are a number of negative effects that political targeted advertising has on the political environment, and mitigating these effects is not an easy task.

Common ground and deliberation are fundamental pieces to the process of deliberative democracy. Thus, it is important to ensure that they are supported in politically targeted advertising. While it is challenging to create policies to support deliberative democracy, the chief area that is worthy of regulation is simply the data that campaigns are allowed to access and utilize. Most conversations surrounding this topic argue for regulation on privacy from the perspective of a citizen whose data is being collected. While there are many good arguments from that angle, there are also reasons to regulate what data the political campaigns should be allowed to collect. This is not for the privacy of the individual, but rather for the betterment of democracy. With the data that campaigns collect, they are able to undermine some of the fundamental features that make a democracy actually representative of its people. Furthermore, it is necessary for this regulation to come from a political entity because the people have indicated that they are either unaware of the damage being caused by politically targeted advertising or are simply willing to make that sacrifice for the benefits provided by it. Either way, there is an inherent incentive for politicians to utilize tools that advantage them in an election such as targeted advertising which means that without any sort of regulation, a common ground and deliberation cease to exist.

Conclusion

The actors involved in politically targeted advertising are only interested in it for their own political or financial gain. The political campaigns creating the advertisements use large amounts of personal data and focus groups to create personalized advertisements that net them the most votes per dollar spent. The companies offering the method of targeted advertising are interested in providing the best targeting possible such that campaigns continue to use their services as they see it as effective advertising. Lastly, the voters that see these advertisements

generally do not like the idea but are okay with it as long as it benefits their political views or party. However, one thing that none of these groups take into account is how politically targeted advertising affects the overall atmosphere of a democracy. It is shown to be detrimental to many of the attributes that make up a deliberative democracy by reducing the amount and effectiveness of deliberation. The way in which targeted advertising currently operates must be changed to have a better interaction with democracy and that all starts with creating better incentives.

The key areas of deliberative democracy that are most affected by targeted advertising are common ground of knowledge and the incentive to deliberate. These features of deliberative democracy are important to sustaining a political atmosphere that listens to and values the views of its constituents. While political targeted advertising has been recognized as being harmful, there has not been any ground made on resolving it. This research provides a new perspective by observing targeted advertising in combination with deliberative democracy in hopes to add more insight to the conversation. However, insight alone will not make a difference. Further research is needed to analyze how different policies might interact with the relationship between targeted advertising and deliberative democracy as described in this research. Democracies are meant to work for the people and as is, some things will need to change to make that happen.

Works Cited

- Aiolfi, S., Bellini, S., & Pellegrini, D. (2021). Data-driven digital advertising: Benefits and risks of online behavioral advertising. *International Journal of Retail & Distribution Management*, 49(7), 1089–1110. <https://doi.org/10.1108/ijrdm-10-2020-0410>
- Baum, K., Meissner, S., & Krasnova, H. (2021). Partisan self-interest is an important driver for people's support for the regulation of targeted political advertising. *PLOS ONE*, 16(5). <https://doi.org/10.1371/journal.pone.0250506>
- Baum, K., Meißner, S., Abramova, O., & Krasnova, H., (2019). "DO THEY REALLY CARE ABOUT TARGETED POLITICAL ADS? INVESTIGATION OF USER PRIVACY CONCERNS AND PREFERENCES". In Proceedings of the 27th European Conference on Information Systems (ECIS), Stockholm & Uppsala, Sweden, June 8-14, 2019. ISBN 978-1-7336325-0-8 Research Papers. https://aisel.aisnet.org/ecis2019_rp/77
- Diebold, C., & Wortmann, M. (2022, May 16). *Shortcut 1 - deliberative democracy: More than just voting*. Startseite. Retrieved October 25, 2022, from <https://www.bertelsmann-stiftung.de/en/our-projects/democracy-and-participation-in-europe/shortcut-archive/shortcut-1-deliberative-democracy-more-than-just-voting>
- Eagan, J. L. (n.d.). *Deliberative democracy*. Encyclopædia Britannica. Retrieved September 17, 2022, from <https://www.britannica.com/topic/deliberative-democracy>
- Endres, K. & Kelly, K J. (2018) Does microtargeting matter? Campaign contact strategies and young voters, *Journal of Elections, Public Opinion and Parties*, 28:1, 1-18, DOI: [10.1080/17457289.2017.1378222](https://doi.org/10.1080/17457289.2017.1378222)
- Gallup. (2022, June 21). *Party affiliation*. Gallup.com. Retrieved September 26, 2022, from <https://news.gallup.com/poll/15370/party-affiliation.aspx> [Website]
- Goldberg, M. H., Gustafson, A., Rosenthal, S. A., & Leiserowitz, A. (2021). *Shifting Republican views on climate change through targeted advertising*. Nature News. Retrieved May 12, 2022, from <https://www.nature.com/articles/s41558-021-01070-1>
- He, A. (2020). *EMarketer digital political advertising forecast for 2019/2020 presidential cycle*. Insider Intelligence. Retrieved September 15, 2022, from <https://www.insiderintelligence.com/content/digital-political-advertising-to-cross-1-billion-mark-for-2019-2020-cycle> [Website]
- Homonoff, H. (2021, December 10). *2020 political ad spending exploded: Did it work?* Forbes. Retrieved September 26, 2022, from <https://www.forbes.com/sites/howardhomonoff/2020/12/08/2020-political-ad-spending-exploded-did-it-work/?sh=3de6dc593ce0> [Article]

- Kaur, G. (2022, June 1). *6 social exchange theory examples*. StudiosGuy. Retrieved October 26, 2022, from <https://studiousguy.com/social-exchange-theory-examples/> [Website]
- Lawler, E. J., & Thye, S. R. (2016). Social Exchange theory of emotions. *Handbooks of Sociology and Social Research*, 295–320. https://doi.org/10.1007/978-0-387-30715-2_14 [Website]
- Merriam-Webster. (n.d.). *Democracy definition & meaning*. Merriam-Webster. Retrieved October 6, 2022, from <https://www.merriam-webster.com/dictionary/democracy> [Website]
- Merrill, J. B. (2018). *What we learned from collecting 100,000 targeted Facebook ads*. ProPublica. Retrieved September 15, 2022, from <https://www.propublica.org/article/facebook-political-ad-collector-targeted-ads-what-we-learned> [Article]
- Nickerson, David W., and Rogers, Todd (2014). "Political Campaigns and Big Data." *Journal of Economic Perspectives*, 28 (2): 51-74.
- Pew Research Center. (2021). *Public highly critical of state of political discourse in the U.S.* Pew Research Center - U.S. Politics & Policy. Retrieved September 15, 2022, from <https://www.pewresearch.org/politics/2019/06/19/public-highly-critical-of-state-of-political-discourse-in-the-u-s/> [Website]
- Sophie C. Boerman, Sanne Kruikemeier & Frederik J. Zuiderveen Borgesius (2017). Online Behavioral Advertising: A Literature Review and Research Agenda, *Journal of Advertising*, 46:3, 363-376, DOI: [10.1080/00913367.2017.1339368](https://doi.org/10.1080/00913367.2017.1339368)
- Speicher, T., Ali, M., Venkatadri, G., Ribeiro, F. N., Arvanitakis, G., Benevenuto, F., Gummadi, K. P., Loiseau, P., & Mislove, A. (2018). Potential for Discrimination in Online Targeted Advertising. *Proceedings of the 1st Conference on Fairness, Accountability and Transparency*, 81(1).
- Xu, Heng; Dinev, Tamara; Smith, H. Jeff; and Hart, Paul, "Examining the Formation of Individual's Privacy Concerns: Toward an Integrative View" (2008). ICIS 2008 Proceedings. 6. <https://aisel.aisnet.org/icis2008/6>