Data&Society

Who Controls the Public Sphere in an Era of Algorithms

Case Studies

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1) Facebook Experiments with Nudging Users to the Polls

For the 2010 U.S. midterm elections, Facebook researchers and engineers wanted to know if an alteration to their algorithm could nudge users to the voting booths. They designed an experiment with two conditions. In the experiment, millions of U.S. Facebook users were presented with new, election-specific features: graphics in their News Feeds showing them their designated polling place, a button they could press to show their friends and families they had voted ("I Voted"), and profile pictures of up to six friends who had already voted. The control group was not given any of these features. The results were small but significant. Users notified of their friends' voting were 0.39 percent more likely to vote than those in the control group. The researchers cross-referenced their results with actual voting records and found that 60,000 voters were directly mobilized, with another 340,000 votes potentially cast due to this ripple effect. Elections have been won by smaller margins.

What's at stake?

In an article for the *New Republic,* Jonathan Zittrain, Professor of International Law at Harvard, coined a term to describe one potential outcome of this experiment, "digital gerrymandering." The term conveys the power platform owners may have to alter algorithms to fit their own ideological agenda, showing "I Voted" messages to some users, and not to others. Though Zittrain agrees that it is difficult to imagine platform owners acting in such a "toxic" manner, users would have little way to tell if they had – the manipulation would be invisible to users – and virtually no recourse at present to stop it. Though Facebook's experiment was intended to positively serve democratic aims – the use of technology to "nudge" people to the polls could be perceived as politically neutral – this experiment also shows that platform owners have significant power to influence the outcome of political events.

Critical Questions

- Can we trust platform owners to make decisions that would serve the best interest of the collective, and not serve their own aims?

- How is this "nudging" different from how traditional media companies influence voting or taking a stance on candidates or political issues?

Further Reading

- Zittrain, J. (2014, June 1). "Facebook Could Decide an Election Without Anyone Ever Finding Out." *New Republic.*

- Sifry, Micah. (2014, October 31). "Facebook Wants You to Vote on Tuesday. Here's How it Messed with Your Feed in 2012." *MotherJones.com.*

2) Search Engine Manipulation Effects and Election Outcomes

Internet search rankings can influence more than click-rates. Being on the front page of Google has been shown to influence the formation of attitudes and beliefs, enhance perceptions, and increase purchasing behavior. The industry of Search Engine Optimization has been premised on this idea – depending on the structure of the algorithm, exploiting particular mechanisms like targeting keywords can raise a site through the ranks, further entrenching its position in the minds of individuals it has been able to reach. But what happens when this economic logic is introduced into the political system? Can voters be swayed by search engine manipulation techniques?

A 2014 study by Robert Epstein and Ronald Robertson suggests this could be true. Their studies in the United States, New Zealand, and India found that biased search rankings can shift the voting preferences of undecided voters by 20 percent – and up to 80 percent in some demographic groups – and that search engine manipulation often takes place without people knowing it's happening. This study shows that even when individuals engage in active information seeking (versus passive exposure through a feed), the design and gaming of algorithms could affect voting patterns.

What's at stake?

Epstein and Robertson likened biased search rankings to biases in television news, but contended it constituted a new kind of social influence occurring on an "unprecedented scale." Since one company controls the majority of search rankings (Google has 65.44% of the global market share, followed by Bing with 15.82%, Baidu with 8.30% and Yahoo with 8.28%), the authors contend there is a lack of diversity of sources (like with cable news) that could potentially compensate for the bias. This phenomenon the authors described could lead to questions about whether campaigns could potentially "game" SEO techniques to make news and sites presenting their positions favorably appear higher in search rankings. The authors also contend that search engine companies, such as Google, have a unique capacity to influence search rankings and voters.

Critical Questions

- What is the responsibility of the algorithm designer, the company profiting off of traffic, the SEO manipulator, and the viewer?

- Do Google (or other search engine companies) have a responsibility to include values such as diversity and pluralism into the algorithms that affect rankings on their front page? What would this look like?

Further Reading

- Epstein, Robert (2015, August 19). *"How Google Could Rig the 2016 Election." Politco.com*

3) U.S. Gov Asks Silicon Valley to "Disrupt ISIS/ISIL"

In early January, the Obama administration announced that it would be overhauling its current response to online propaganda from the Islamic State. In a closed-door summit, top U.S. government officials met with Silicon Valley executives from Apple, Google, Facebook and Twitter. A briefing sent around to participants before the meeting – and published online by The Intercept – demonstrated interest on the part of U.S. government to recruit Silicon Valley in building algorithms to identify and actively censor ISIS-related content, target and find supporters, and promote alternative narratives from the region. Silicon Valley executives have expressed willingness to work with government officials in counterterrorism efforts. A Facebook spokesperson said, "This meeting confirmed that we are united in our goal to keep terrorists and terror-promoting material off the Internet."

What's at stake?

The U.S. government has a standing relationship of cooperation with Silicon Valley – loose ties between the technology industry and the U.S. government have been present both in surveillance efforts, and in the recruitment of top-executives into U.S. government positions (and vice versa). This governmental request highlights new questions and concerns beyond censorship and privacy, regarding the role of networked communications platforms and algorithms in geopolitical events, and the role of the algorithm as a new "soft power" that could shape information practices for foreign policy aims, and the impact these algorithms may have on the right to privacy and freedom of speech both at home and abroad. Which governments can demand what of which global companies in their efforts to actively identify and censor content?

Critical Questions

- How does this mirror past efforts to shape information practices of major media companies during times of conflict?

- What impact will this have on ISIS supporters domestically vs. abroad?

- What effect could algorithms designed to identify and censor content have on user experience and how does corporate enforcement of governmental values affect users around the globe?

Further Reading

- Yadron, Danny. (2016, Jan 8). "Silicon Valley Appears Open to Helping U.S. Spy Agencies After Terrorism Summit." The Guardian.

- Greenberg, Julia. (2015, Nov 21). "Why Facebook and Twitter Can't Just Wipe Out ISIS Online." Wired.

4) Facebook - Algorithmic Censorship and International Compliance

Censorship policies of large networked platforms and search engines are increasingly becoming localized, the result of negotiations between countries and companies to adapt platforms to cultural and political norms and policies. After being banned for a short period in Turkey, Facebook agreed to censor images of the prophet Muhammed. In Russia, they have responded to pressures from the government to censor pages calling for protests or supporting opposition figures. Facebook representatives say they work with countries in lieu of being banned altogether, obeying local laws in an effort to maintain market share. International compliance standards have been added to Facebook's censorship policies, in addition to company-specific standards that prevent content featuring sex and nudity, illegal drug use, hate content, self-harm and bullying and harassment. To implement these policies, they design new algorithms to identify and restrict content listed in their policies.

What's at stake?

Around the globe, there are tensions between divergent conceptions of speech, how and when localized values and politics should become embedded inside algorithms, and how government policy and relationships with companies can shape what information should be visible or not visible dependent as a function of time and place. Though it evokes existing concerns regarding media censorship, this case highlights questions about how algorithms are used by major companies to comply with local/national rules and regulations regarding speech and communication, and how borders are becoming a function of software versus hardware.

Critical Questions

- How does the implementation of international compliance policies shed light on how Silicon Valley would "algorithmically control" other content, for instance, in counterterrorism efforts?

- When is it appropriate for activists to exert pressure on large companies to leave a country as opposed to collaborating with that country's government in enforcing local norms/local censorship policies?

Further Reading

- Chen, Adrian (2012, February 16). "Inside Facebook's Outsourced Anti-Porn and Gore Brigade, Where 'Camel Toes' are More Offensive Than "Crushed Heads."

- Caitlin Dewey - "Two weeks after Zuckerberg said 'je suis Charlie,' Facebook begins censoring the prophet Muhammad." *The Washington Post.*

- Gillespie, Tarleton (2015). "Platforms Intervene." *Social Media + Society.* (Link - Open Access)

5) The Quantified Newsroom

The way in which journalists and editors imagine their audiences impacts the form and content of the news they choose to produce, and the image of "the audience" is increasingly being constructed as a measurable and quantifiable entity through the use of audience engagement metrics. This move toward giving the audience what they want, as determined by relatively opaque measurements like clicks and views, has re-organized the values driving reporting in many newsrooms, including more traditional journalistic outlets like _The New York Times_, which compete through social media feeds with click-generating new media outlets like Buzzfeed, UpWorthy and Business Insider. Some outlets have re-structured incentives for reporting, using metrics and analytics like clicks to determine editorial decisions, instead of individual decisions made by reporters and editors.

What's at stake?

Scholars have argued that this shift to data-driven journalism has changed the role of the fourth estate, with critics arguing that the liberal values that have underpinned journalism in the past – for instance, the responsibility to create an informed citizenry – have been replaced by a logic that is ambivalent to this role of media, is profit-driven, and encourages emotional and viral content that does little to engage citizens in debate. However, this new era also represents a new trend of more active engagement with media and news events, with publics determining what they think is important, rather than editorial boards, which may lack diversity in representation and opinion.

Critical Questions

- Are direct audience engagement measurements making news more "democratic," or simply shifting the values that drive news content?

- While profit has always influenced journalistic content to a degree, is the shift toward algorithmic journalism placing a greater emphasis on profitability over information in the public interest?

Further Reading

- Michael Hudson and Katherine Fink, "The Algorithm Method: Making news decisions in a clickocracy." _Columbia Journalism Review_.

- C.W. Anderson, "Deliberative, Agnostic, and Algorithmic Audiences: Journalism's Vision of Its Publics in an Age of Audience Transparency." _International Journal of Communication_ 5.

- Mike Ananny. (2016). "Networked News Time: How slow – or fast – do publics need news to be?" _Digital Journalism_.

6) "Trending" Topics and #Ferguson

Following the fatal police shooting of unarmed teenager Michael Brown in August 2014, activists and residents of Ferguson, Missouri took to the streets in protest and were met with a significantly militarized police response. Many social media users in the area began posting information, photos, and video recordings of the protests online, well before mainstream media outlets were covering the story. Some social media users reported seeing a flood of information around the hashtag #Ferguson on Twitter, for example, but not on Facebook (which was populated instead with a viral campaign called the "ice bucket challenge"). Researchers, like Zeynep Tufekci, have pointed to each company's algorithm as being the cause for the difference, laying claim to an automated, *editorial* effect that determines what content is filtered through feeds. In the case of Facebook, this may be based on criteria like our past activity and that of our "friends," versus Twitter, which shows users everything the people they follow post in a reverse chronological timeline.

What's at stake?

Research finds that while the percentage of Americans who say they get news from Facebook is increasing (from 47% in 2013 to 64% in 2015), nearly twice as many users following *breaking* news on Twitter (59%) than on Facebook (31%). The way in which platforms use algorithms to decide what information to show an individual user can have a significant impact on the news and information people see in a network, and thus what news and information makes its way into public discourse. Other media, such as broadcast, has made this relationship between owners of media and content more visible, and owners have been held responsible for content, depending on the country's broadcast code. With automated media, content that seems significant and viral to some users may fail to trigger the algorithm that would send that content to a broader audience, thus limiting-- intentionally or not--the success of a mobilization campaign or the reach of a news story.

Critical Questions

- In what situations do we need remedies to algorithms acting as editors/curators, and what might those remedies look like? What are likely points of intervention?

- How can we measure and assess the harm of algorithmic editing and curation?

Further Reading

- Tufekci, Z. "Algorithmic Harms Beyond Facebook and Google: Emergent Challenges of Computational Agency." *Colorado Tech Law Journal*, 13.

- Ingram, Matthew. "Twitter vs. Ferguson as a news source: Ferguson shows the downsides of an algorithmic filter." Gigaom, August 18, 2014.

7) Spreading Misinformation through Algo-Curated Platforms

In an exposé for *New York Times Magazine,* Adrien Chen documents how pro-Kremlin forces in Russia are employing hundreds of people to spread false information on social networking platforms using fake identities and coordinated messaging strategies. The type of content that these "troll armies" post range from comments discrediting opposition politicians or anyone who detracts from the Kremlin stance on Crimea or Ukraine, to entirely fabricated news stories and elaborate hoaxes, some of which are directed beyond the Russian context, aiming at local communities in the United States. One such campaign attempted to convince local residents and reporters in Louisiana that there had been an attack on a nearby chemical plant, going so far as to fabricate images and video recordings and targeting other social media users with this content. These troll networks attempt to build off of algorithmic mechanisms (that may, for example, recognize an in-flux of information as relevant) as a way to spread misinformation, to provoke doubt in media representations of events, or to mobilize support for the Russian government.

What's at stake?

In some instances, these "troll armies" have created such distrust that average internet users can no longer discern truth from fiction. Several news outlets have reported closing their comments section due to the flooding on propaganda and divisive or irrelevant content. Some argue that this lack of trust in the online media environment plays into the hands of those in power who benefit from a pervasive sense of doubt, by placing propaganda and misinformation alongside "legitimate" content.

Critical Questions

- How are these kinds of misinformation campaigns that take place on social media platforms (in which algorithms, rather than editors, are playing a gatekeeping function) different from past examples of pro-government propaganda?

- What role do algorithms play in facilitating trust (i.e. do readers interpret information that they see on algorithmically-curated platforms as more likely to be true? For example, that the first few google search results will likely give you the "correct" answer to your query?)

Further Reading

- Chen, Adrian. "The Agency." *New York Times Magazine.* June 2, 2015.

- Gregory, Paul Roderick. "Inside Putin's Campaign of Social Media Trolling and Faked Ukrainian Crimes." *Forbes.* May 11, 2014.

- "From Cold War to Hot War." *The Economist.* February 14, 2015

8) Gaming Twitter with Political Bots in Mexico

Bots, defined by Phil Howard as "chunks of computer code that generate messages and replicate themselves," are increasingly becoming an essential tool for digital political communication. Twitter especially has become the site where political bots wage wars for public opinion – bots are used frequently to automate retweets amplify messages of political candidates, as well as their opposition, and can be used to pad followers and make a politician appear more popular. In Mexico, the use of bots by campaigns has become prolific. Andrés Monroy-Hernández has shown how Twitter in Mexico has been overtaken by bots retweeting particular words and phrases, as a way to game Twitter's trending topics. Bots have been used to flood hashtags with useless content, which can have an effect on organizers and protesters using hashtags to distribute information about political events, or can lead to the hashtag being pulled from Twitter, silencing any discussion that has already taken place.

What's at stake?

The case of political bots in Mexico is not unique. Similar tactics have been employed in several other countries, including Russia, Syria, and the United States. In many cases, such as the Mexico example, bots serve mainly as a way to increase 'noise' in channels being used for public debate, or they are used to amplify and exaggerate sentiment. Fake social media accounts retweeting political messages can, for instance, make a political sentiment appear more popular with the public than it is in actuality. Paid followers that pad a politician's meager online base can create an appearance of authority and increase feelings of trust in potential followers and voters. Howard has shown how candidates running for elected positions in Canada have used bots to to exaggerate their follower numbers. While Twitter ultimately decides how bots will be treated on their network, and prohibits automated gaming of trending topics, as well as automated following and unfollowing, critics have cited Twitter's inability to address bots as one of the reasons for Twitter's perceived decline.

Critical Questions

- Do bots create significant enough shifts in conversations to be considered dangerous to public discourse? Are there "good" bots vs. "bad" bots? Who should make this determination?

Further Reading

- "Forelle, M., Howard, P., Monroy-Hernandez, A., and Savage, S. (2015). "Political bots and the Manipulation of Public Opinion in Venezuela."

- Samuel, Alexandra. (2015, June 19). "How Bots Took Over Twitter." *Harvard Business Review*. https://hbr.org/2015/06/how-bots-took-over-twitter

- Woolley, Samuel, and Hwang, Tim. (2015 May 14). "Bring on the Bots."
  Civicist. http://civichall.org/civicist/bring-on-the-bots/

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