Analyzing Twitter's Influence on the 2020 Election

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Introduction

The goal of our Capstone project was to analyze data from Twitter to determine if certain groups were making attempts to manipulate the presidential election of 2020, and to what effect. Accomplishing this goal required various methods of data collection and sorting, sentiment analysis, data visualizations, and disruptive user identification. We chose this topic for our project because of its increased relevance following the Russian propaganda operation conducted on social media sites during the 2016 election. We believe that malicious users who find ways to manipulate and abuse various social media platforms are a threat to the American election process, national security, and our democracy as a whole. While completing the capstone project, our group was able to use the technical skills we had learned during our time in the Cyber Operations major. Additionally, we are well versed in cyber law and policy: fields that were frequently used throughout the project. In this paper, we will strive to connect the technical analysis we conducted, the events of the 2016 election, and recent policy changes of Twitter. By analysing research of social media's impact during the 2016 presidential election, gathering data from the most recent election, and taking into account the actions of Twitter and government agencies, we found Twitter had a negligible effect on the outcome of the 2020 presidential election.

Review of 2016 Election

After the 2016 presidential election, the diffusion of misinformation on social media and the negative impact it could have on the United States' democratic processes became a common concern amongst many. Political discussions on social media platforms were severely distorted by bots: automatic online accounts. Analysis of the 2016 election has shown researchers that the percentage of bots participating in political forums on social media platforms was quite large, making up approximately one-fifth of the conversation. A study conducted by Alessandro Bessi and Emilio Ferrara over a month-long period leading up to the election used a Twitter API to show that 400,000 bots were actively tweeting about the presidential candidates, accruing a total of 3.8 million tweets. Although the effect that the bots had on the 2016 presidential election is hard to determine, their immense involvement is unquestionable.

Either as a result of the bots and their actions, or an unrelated aspect of online environments, social media experienced an influx of misinformation during the 2016 presidential election. In a study conducted by Hunt Allcott, Matthew Gentzkow, and Chuan Yu, 569 fake news sites and 9540 fake news articles were tracked to show that "user interactions with false content rose steadily on both Facebook and Twitter through the end of 2016." The growth began in 2015, and social media sites saw a drastic decrease of fake news content after the 2016 election.

Many believe the abundance of bots and circulation of false information throughout social media platforms poses, "a potential threat to democracy and broader society" (Allcott, Gentzkow, and Yu 2019,

6). The bots that were found infiltrating political discussions of the 2016 presidential election have the ability to change public opinion, damaging the integrity of the election itself. Bots can further polarize political conversations, and work hand in hand with fake-news sites to enhance the spread of misinformation. Misinformation and false news articles were difficult to mitigate on Twitter during 2016, mainly because of the limited interaction between peoples of differing political views. Hunt Allcott and Matthew Gentzkow describe this phenomenon as an echo chamber: a social construct on the internet where, "like-minded citizens…[are] insulated from contrary perspectives" (Allcott and Gentzkow 2017, 211). The echo chambers on Twitter, with the help of bots, have the ability to constantly circulate false information throughout thousands of users who are most likely to believe the phony headlines. During the 2016 election, it was found that 62 percent of adults received their news from social media, and that false news would commonly become more popular than authentic news. It was also found that, "many people who [saw] fake news stories report that they believe them" (Allcott and Gentzkow 2017, 212). This is likely a result of the echo chamber effect, in which groups of people often repost news articles they believe because they want the story to be true. The real danger to democracy is how easy it is to propagate misinformation that will be seen by hundreds of thousands of social media users that do not conduct their own fact checking. "An individual user with no track record or reputation can in some cases reach as many readers as Fox News, CNN, or the *New York Times* ((Allcott and Gentzkow 2017, 211).

Currently there is no conclusive research that shows the effect that social media platforms experienced due to bots and misinformation had any tangible impact on the 2016 presidential election results. Regardless, it is easy to see that the combined impact of bots, fake news, and echo chambers have the potential to threaten our democratic processes.

Twitter's Response

The potential of bots and misinformation to influence the United States election process prompted Twitter to implement many changes to their policies before the presidential election of 2020. Twitter's Civic Integrity page sums up their efforts to maintain a secure, informative, and safe site: "We work alongside political parties, researchers, experts, and election commissions and regulators around the world, all while investing in our proactive detection and enforcement efforts on the platform" (Twitter, n.d.). Following the 2016 election, an investigation was launched by Twitter to determine if Russia was operating a propaganda campaign against the United States through their site and other social media platforms. The investigation was successful, and enabled the, "identifi[cation] and suspen[sion of] a number of accounts that were potentially connected to a propaganda effort by a Russian government-linked organization known as the Internet Research Agency (IRA)" (Twitter 2018).

Twitter's first act of reparations was to increase transparency to the users. They began by notifying any user who came into contact with a verified IRA account that they had done so. As of the

beginning of 2018, nearly 1.4 million Twitter users received such a notice. Twitter officials began reaching out to the public as well by notifying congressional committees and the press on the findings of their investigation into Russia's potential impact on the election. To help preserve this level of transparency, one of Twitter's goals is to, "maintain open lines of communication to federal and state election officials to quickly escalate issues that arise" (Twitter 2018). By taking these steps, Twitter has allowed the government, public, and its own users to be aware of what has occurred in the 2016 presidential election, and remain informed in the future.

Next, Twitter focused on the investigation of the Russian manipulation that took place on their platform. Throughout their retroactive investigation, Twitter found and suspended 3841 accounts that they linked to the IRA (Twitter 2018). These accounts were suspended for violating Twitter's user Terms of Service, specifically the Platform Manipulation and Spam Policy which clearly forbids the use of fake accounts (Twitter 2020). Twitter continued banning users they believed to be abusing the platform, banning over 220,000 users in less than a year (Twitter 2018). To aid in the investigation and further employ transparency, Twitter made the datasets gathered throughout the case accessible on a public archive (Twitter, n.d.).

Finally, Twitter began making lasting changes to the operation of their platform to ensure that future elections throughout the world would not be affected by malicious activity from their site. They launched the Information Quality Initiative hoping to, "further develop strategies to detect and prevent bad actors from abusing our platform." Twitter further developed their bot detection capabilities by developing new automation identification algorithms, phone verification methods, and reCAPTCHAs. Over a two month period in late 2017, Twitter reported a 60% increase in bot detection. They also reported that around 523,000 fraudulent login attempts were detected and blocked every day, showcasing the need of such preventative measures (Twitter 2018). In addition to improving bot catching capabilities, Twitter began implementing new service improvement measures. One specific measure was giving users a new tool which allowed them to report "misleading election-related content" as well as suspected fake accounts. After the tool was integrated, an election in the European Union received 49,945 user reports showing it to be a successful measure (Twitter, n.d.).

Analysis of Twitter Data

The thousands of Tweets analyzed by our group supports that Twitter's efforts to limit the spread of misinformation during the 2020 election were successful. Our group utilized the online tool Bot Sentinel to aid in visualizing this effect. Bot Sentinel is a nonpartisan platform that uses machine learning to classify Twitter accounts, analyzing them based upon disinformation and targeted harassment. These accounts are given a score from 0% to 100%, the higher end meaning the account is more disruptive (Bot Sentinel Inc., n.d.). Stopping the accounts on the higher end of the disruptive spectrum was a major goal

for Twitter. Limiting the dissemination of misinformation by these accounts helps Twitter attain their goal of upholding the democratic process of the 2020 election.
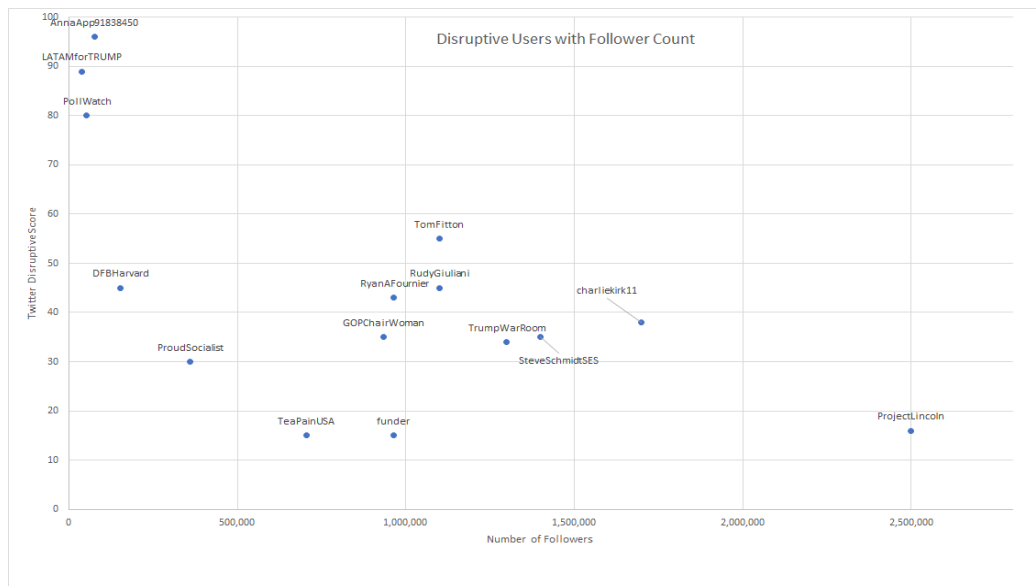

Figure 1

Figure 1 above shows disruptive scores and number of followers for some of the main accounts discovered during our analysis. The higher the score for the account the, "more likely the account engages in targeted harassment, toxic trolling, or uses deceptive tactics engineered to cause division and chaos (Bot Sentinel Inc., n.d.). This graph shows that the users with the highest disruptive score had far less than 500,000 followers. As the number of followers rose above 1 million the disruptive score rarely exceeded 50%. This data reinforces that Twitter was stopping accounts from spreading disinformation. The extremely disruptive accounts reached less than 1% of the almost 70 million Twitter users in the United States (Tankovska 2021). If these accounts had more followers and influence, Twitter would most likely take notice and ban these accounts.

Twitter's Impact on Elections

It appears that Twitter was successful in 2020 in thwarting the spread of misinformation. However, it is important to explore the actual impact Twitter and social media in general can have during an election. Dhiraj Murthy analyzed Twitter during the 2012 Presidential Primary Elections. Murthy found through his research that tweets are reactive instead of predictive during elections (Murthy and University of London 2015, 25). Tweets show a general sentiment for how people feel about the actions of a candidate, but cannot tell those viewing the tweets over a large scale who is going to win the election. Murthy also found that tweets help create a buzz around the candidates. However, this buzz has no

relation to outcomes in the election. It was found that viewers are more interested in tweets about candidates than the candidates themselves (Murthy and University of London 2015, 26). This could mean people are more interested viewing the drama on Twitter but this might not sway their opinion on who to vote for. The reactive and buzz generating attributes of political tweets reinforce the idea of echo chambers on Twitter.

One group of researchers believes that Twitter could have potentially swayed voters during the 2016 election. Thomas Fukiwara found that most Twitter users are young, educated, and lean more to supporting the Demoratic party. The strong pro-Democrat leaning on Twitter led to a much greater volume of tweets criticizing the Republican candidate (Fujiwara, Muller, and Schwarz 2020). This relates to Murthy's findings that Twitter is reacting to what candidates do and creates a buzz around them. On Twitter, the buzz was against the Republican candidate. Fujiwara believes that pro-Democrat sentiment on Twitter could have caused independents or moderate Republicans to vote for the Democratic candidate (Fujiwara, Muller, and Schwarz 2020).

There is no concrete evidence of voters changing their based upon what they saw on Twitter. We believe that echo chambers lead to the pro-Democrat leaning on Twitter. These like minded users were repeating the same pro-Democratic message to each other and creating buzz around their ideals. Twitter users with different opinions would probably not join these pro-Democratic echo chambers, they would follow accounts that support their own opinions. We agree with Fujiwara et al. that Twitter could sway independent voters, but it might not affect Republicans because they will follow users that support their own ideas. Our group argues that the number of voters that could be swayed by information they view from echo chambers on Twitter will not be enough to change the outcomes of an election.

While pro-Democratic or pro-Republican sentiment might not change the election outcome, Social media did create a massive pro-election sentiment. The "Get out the vote" initiative led to a large increase in voter turnout. The number of first-time voters in the 2020 election was more than double that of the 2016 election (Moore and Hinckle 2020). The goal behind this initiative was to counteract the spread of misinformation and have users go out and make their own decisions. The "Get out the vote" program encouraged and protected the democratic process.

The U.S. Government's Response

Twitter was not the only organization taking extreme initiative and precautions in protecting the 2020 election. The Cybersecurity and Infrastructure Security Agency (CISA), the Federal Bureau of Investigation (FBI), the Department of Homeland Security (DHS), and the Office of the Director of National Intelligence (DNI) played a large role during the election. CISA launched the #Protect2020 campaign that educated American citizens about the potential dangers of misinformation and provided actual facts surrounding the 2020 election (Cybersecurity and Infrastructure Security Agency, n.d.). The

FBI, DNI, and DHS worked together to create Protected Voices, an educational campaign centered around the 2020 election. This campaign includes videos explaining why foreign countries would want to influence an American election and some of the tactics they could employ (Federal Bureau of Investigation, n.d.). These government agencies aided in protecting American citizens from disruptive Twitter accounts that could have slipped through the cracks. The agencies taught people to be skeptical of what they read online and search for facts. The work of these agencies combined with Twitter's efforts helped stop the effect of misinformation on the 2020 election.

Closing Remarks

Due to the combined efforts of Twitter and the U.S. government to stop the spread of misinformation, researching the effects of Twitter during elections, and conclusions drawn from our group's data analysis, we believe that Twitter had a nominal impact on the 2020 election. Both Twitter and the government educated Americans about the dangers of misinformation and encouraged them to vote, thus reinforcing the democratic process. The tendency of users to create echo chambers and surround themselves with like minded individuals renders Twitter unlikely to sway opposite opinionated voters during election season. It appears that Twitter's bot detection algorithms are effective at finding and removing disruptive accounts before they have a significant impact on millions of Twitter users. Twitter was able to turn the negative connotations about social media from the 2016 election into a driving force for protecting voters and their elections.

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