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Susceptibility to Online Disinformation

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Abstract

In this article, I address the importance of finding tangible and viable solutions in minimizing susceptibility to online disinformation. I identify three main types of causal factors that lead to susceptibility: political, psychological, and technical; recognizing the implications of political polarization, news media, cognitive phenomena, algorithms, and online behavior that leads to saturation and susceptibility to false information. I argue that by thoroughly compartmentalizing causal variables into three main factors, each can then be addressed and solved in their own unique way. I analyze each factor, deriving reinforcing theories and evidence from various articles, experiments, and publications. I propose that universalizing online regulations and policies, reforming social media algorithms from less biased developers, lessening online activity, and training ideologically impartial journalists and users to reverse more immediate and prominent causal factors. I predict that each solution will naturally saturate into each factor if successful. I conclude by addressing the severity of online disinformation and that similar or adjacent proposals will accelerate the fight against disinformation.

Keywords: disinformation, propaganda, fake news, polarization, susceptibility, algorithms, behavior

MONTCLAIR STATE UNIVERSITY

Susceptibility to Online Disinformation

by

Ryan Christopher Lesica

A Master's Thesis Submitted to the Faculty of

Montclair State University

In Partial Fulfillment of the Requirements

For the Degree of

Master of Arts

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SUSCEPTIBILITY TO ONLINE DISINFORMATION

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Montclair, NJ

2022

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INTRODUCTION

Information has always been a potent factor in everyday life; in an ever-increasing globalized world, populations are attuned to the rapidly growing consumption of information from seemingly endless news and social media sources which we tend to base much of our opinions and assumptions on. Information itself is a powerful tool that has proven through history to make and break powerful groups and figures, turn the tides of behavioral consensus, and change the perspectives of everyday life. The very means by which information can be accessible to the public has been ever-evolving for centuries, with new and advanced communication technologies being implemented by the most cutting-edge technology companies. Now in the modern age of the online digital world and the intensifying dependence on machines and social media, information has become instantaneously accessible to anyone with a cellphone and web connection. Since the early 1990's, our social structures have shifted dramatically away from community-level, face-to-face interactions and toward online interactions. Online social media such as Facebook, Instagram, and Twitter have dramatically increased the amount of social information we receive and the rapidity with which we receive it.[1] However, with so much of an abundance of information literally at one's fingertips, how can one precisely decide which information is the most authentically accurate? With this surge in the amount of information available so rapidly and continuously, it is almost impossible to completely filter and keep track of it all. One is simply a Google search away from articles, blogs, opinion pieces, and websites that not all come from credible sources. Without the proper utilization of proper fact-checking and research, misinformation too often leaks into our peripheral vision and online activity. False

[1] Cailin O'Connor and James Owen Weatherall "The Misinformation Age: How False Beliefs Spread" *Yale University Press* 2019 (16)

information that is not presented in an ironic or parodying entity has led to detrimental and damaging results if not kept in check. But while misinformation is categorized as wrongful information that simply may not have been properly fact-checked or researched, possible results of unintentional human error, disinformation is by contrast a different and more malicious entity. Disinformation is identified as intentionally false information which is meant to mislead, confuse, or distort objective facts, news, and information. The term propaganda falls into a similar category but differs in the sense that propaganda can actually spread truthful information occasionally while also knowingly withholding certain truthful information to justify a certain agenda based on those implementing it. Both disinformation and propaganda are meant to garner public attention, alter perception, and pivot selected information, but disinformation specifically focuses on upright fake and false facts to distort the reality of a situation. Steps have been taken in cooperation with leading tech companies and legislation in implementing proper policies and regulations, but the approximate pace required for such laws to take effect is unfortunately too slow and cannot keep up with the influx of new technology and the surge of information and misinformation online. Loosening user regulations and activity on online platforms is problematic given that most of the population spends not just an alarming rate online on a weekly or even daily basis, but the majority depend on websites and apps for everyday use. According to a 2018 report from the *Pew Research Center*, over two-thirds of Americans get their news from social media platforms[2] with one-quarter of adults estimated to be online in some way, shape, or form nearly all the time.[3]

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[2] Samuel Woolley "The Reality Game: How the Next Wave of Technology will Break the Truth" *Public Affairs* 2020 (35)
[3] Ibid (199)

POLITICAL CONTENT

Within the realm of social media activity, 66% of social media users are engaged in political-related posts, a majority compared to all other forms of content combined.[4] In a comparison of subject matters that disinformation is spread through, political-related content is overwhelmingly the highest estimate among social media platforms at 71%.[5] The high abundance of political disinformation through social media platforms is at least recognized as an epidemic within itself. Brooke Auxier at the *Pew Research Center* conducted a survey in 2020 finding that nearly 64% of Americans agreed that social media has had a negative effect on the spread of political information.[6] Those surveyed expressed concern over users believing everything they see online or not even being sure of what content to believe. Among the participants, Democrats were about three times as likely as Republicans to say these sites had a mostly positive impact (14% vs. 5%) and twice as likely to say social media had neither a positive nor negative effect (32% vs. 16%). Only about 10% of Americans believed that social media had a mostly positive effect on everyday life with one-quarter in that 10% believing that social media helps them stay informed and aware. If such a vast majority of the public are aware and agree that social media harbors damaging disinformation, why then are so many people susceptible to their tools and tricks used for manipulation?

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[4] Patrick Monnin "Fakebook: Why Social Media Companies Need to Curb the Spread of Misinformation" Loyola Phoenix September 30, 2020

[5] Ritua Aryan, Garima Ganghariva, Rubal Kanozia, Sumit Narula, & Satwinder Singh "A Study on Fake News Subject Matter, Presentation Elements, Tools of Deduction, and Social Media Platforms and India" *Asian Journal for Public Opinion Research* February 28, 2021

[6] Brooke Auxier "64% of Americans say social media have a mostly negative effect on the way things are going in the U.S. today" *Pew Research Center* October 15, 2020

POLITICAL DISINFORMATION

Many would argue that due to the rising awareness of the existence and implementation of fake news, the public should be able to distinguish true news from false ones. However, even within the context of the everyday general consumer, only 9% of users say that they are confident in authenticating true articles.[7] When participants at the *Pew Research Center* were asked to identify six sources in 2020, nearly 23% could not properly identify them. Many Americans say that following the news is "very important"[8] to being a good citizen, and those who say this are more likely than others to overestimate their news consumption when their survey responses are compared with passive data tracked on their devices. The spread of political disinformation is statistically clear as demonstrated by Canadian journalist Craig Silverman, who found that the top twenty fake news stories in the three months before the 2016 election were shared or liked a total of 8.7 million times on Facebook. Over the same period, the top twenty news stories from reputable sources got only 7.3 million Facebook shares or likes.[9] In correlation with a study published in *Science*, MIT researchers found that false news and lies spread significantly more quickly online than truthful information.[10] A prominent example revolves around a false story that was published in *The Denver Guardian* mere days before the American 2016 Presidential election. Written by Californian resident Jestin Coler, the article titled "*FBI Agent Suspected in*

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[7] Michael Barthel, Dorene-Asare Marfo, Amy Mitchell, & Kirsten Worden "Measuring News Consumption in a Digital Era" *Pew Research Center* December 8, 2020

[8] Ibid

[9] Cailin O'Connor and James Owen Weatherall "The Misinformation Age: How False Beliefs Spread" *Yale University Press* 2019 (4)

[10] Samuel Woolley "The Reality Game: How the Next Wave of Technology will Break the Truth" *PublicAffairs 2021* (36)

Hilary Email Leaks Found Dead in Apparent Murder-Suicide" was completely fabricated, but was shared over a hundred times a minute shortly after its publication. In an analysis of Coler's effective implementation of his fake news article, he had succeeded in capitalizing on people's desire to think deeply, tugging on the same cognitive mechanisms that spur critical thinking. Coler effectively exploited the leveraging of social media and political garbage to spread conspiracy theories to his liking.[11] The influx of biased, false information is churned out from unreliable sources at an accelerating rate. Researchers from *Nature Communications* led by Giovanni Luca Ciampaglia deduced that low-credibility sources publish an average of 100 articles per week.[12] The popularity distribution of false articles and fact-checked articles are typically indistinguishable from each other, meaning that false information is just as likely or even more so to spread alongside real information.

In order to properly form and articulate tangible solutions to the disinformation epidemic, the purpose of this thesis will be to identify and examine key contributing causal factors that ultimately lead to susceptibility to online disinformation. On the following pages, I will provide a critical review of various sources examining polarization, biases, technology, and cognitive phenomena in understanding susceptibility to online disinformation. From the compiled research and analysis of a wide variety of publications and peer-reviewed articles, the bulk of most causes can be classified into three main factors: political factors, psychological factors, and technical factors. Each of the classified factors will be further broken down and explained not only how they each cause susceptibility individually, but how they relate and contribute toward one another that make up grander constructs that propel online disinformation. Once all relevant

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[11] Ibid (46)

[12] Giovanni Luca Ciampaglia, Alessandro Flammini, Filippo Menczer, Chengcheng Shao, Onur Varol, & Kai-Cheng Yang "The spread of low-credibility content by social bots" *Nature Communications* November 20, 2018

literature is properly examined, we can then provide possible analysis and recommendations for combating susceptibility to online disinformation based on the results of the following published literatures on this topic.

LITERATURE REVIEW

POLITICAL FACTORS AND POLARIZATION

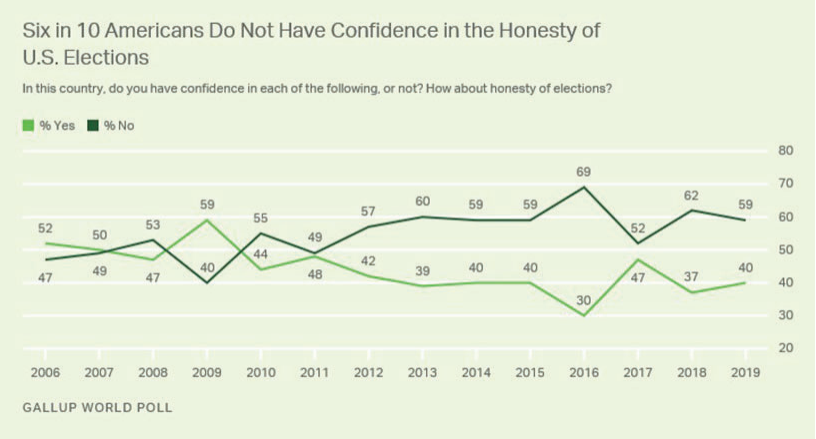
When examining contributing factors to susceptibility to political-related disinformation specifically, we must scrutinize the effects of the already heated environment of the political landscape; particularly as it pertains to the American two-party system. Those who pull closer toward either end of the spectrum will undoubtedly have more dissenting views when compared to those on the other end of the ideological spectrum. As such, political polarization has driven increasingly negative views towards opposing parties. In a public poll conducted by the *Pew Research Center* in 2019, results found that 87% of those who identify with the Republican party view the Democratic Party unfavorably. The same is nearly mirrored with 88% of identified Democrats who view the Republican party unfavorably. In both parties, the shares of partisan identifiers with unfavorable impressions of the opposing party are at or near all-time highs.[13] With the political climate becoming consistently more heated with the results of every passing election, the ideological extremes have begun to harbor increasing resentment towards the other. As you can see from the data compiled by the *Gallup World Poll* in **Figure 1**, the tense distrust

[13] Pew Research Center "Political Independents: Who They Are, What They Think" *Pew Research Center* 2019

within the two opposing parties has greatly affected the levels of confidence in the honest outcomes of the past US elections.

Figure 1

Six in 10 Americans Do Not Have Confidence in the Honesty of U.S. Elections

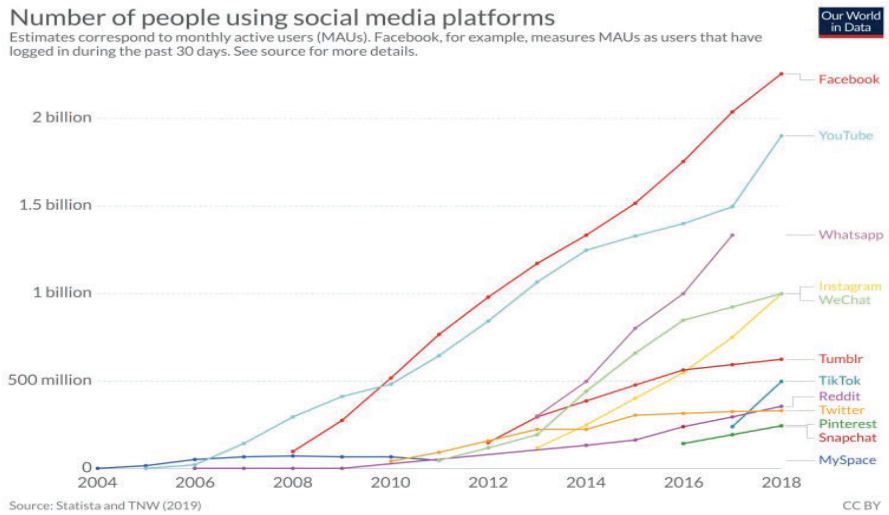


Note. Figure taken from RJ Reinhart "Faith in Elections in Relatively Short Supply in U.S." *Gallup* February 13, 2020

The results of the poll actually visualize the increasing gap in those who are confident in the honesty of elections. Note that this gap and pattern really begins to symmetrically take shape at the start of the 2010's, around the same time where the most influential social media sites used today began to take off in popularity over the years since as compiled by *Our World in Data* in **Figure 2**. I suggest adding a descriptive title to all Figures.

Figure 2

Number of people using social media platforms, 2004 to 2018



Note. Figure taken from Esteban Ortiz-Ospina "The Rise of Social Media" *Our World In Data* September 18, 2019

Rather unanimously, the buildup and conclusion of the 2016 US election led to the widest chasm in confidence among citizens in **Figure 1**, an election that truly divided America down the middle within the two parties. Since then, rather than a consistent flow predating 2016, there has been a sharp rise and fall with each passing year. By 2020, only 14% of Americans were fully confident that the election that year would be conducted fairly and accurately.[14] Seeds of doubt have already begun to grow into cynical distrust of opposing parties that only fuel the biases of misinformation. It appears that the more one side views the other side more negatively, the more that they will feel the need to justify their own and become convinced that their side is more just, creating further biases in an all-or-nothing mentality.

[14] Carroll Doherty "Voters anxiously approach an unusual election – and its potentially uncertain aftermath" *Pew Research Center* October 7, 2020

In a society heavily influenced by the choices and actions of those in the executive office and the policies implemented in legislation, aspects of everyday life have gradually become more politicized. In an age of shifting social norms and political correctness, the polarizing reactions by the general public have propelled those with differing views to seek solace online with those who help to reinforce their positions. Researchers Cameron Brick, Lee De-Wit, and Sander Van Der Linden from *Berkeley College* conducted a study, measuring how much aligned political beliefs have seeped into everyday life. They tested participants who were tasked with categorizing geometric shapes, and were encouraged to seek help from their peers if they struggled. The results showed that the participants preferred to seek advice from people who shared their political views despite the task being not political in any form.[15] Participants found those they reached out to be more competent and helpful, reinforcing the increased negative viewpoints of opposing political parties.

The amount of online content propelled by politically-motivated subjects has become so consistent that nearly 55% of social media users say they are "worn out" by the influx of politics in their feed.[16] Conducted by the *Pew Research Center* in 2020, Monica Anderson and Brooke Auxier additionally found that most social media users do not find common ground with other online users due to heated online discussions about politics. Roughly 72% of participants said that discussing politics on social media with people they disagreed with actually led them to find that they had less in common than they had expected.

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[15] Cameron Brick, Lee De-Wit, & Sander Van Der Linden "Are Social Media Driving Political Polarization?" *Greater Good Magazine* January 16, 2019

[16] Monica Anderson and Brook Auxier "55% of U.S. social media users say they are 'worn out' by political posts and discussions" *Pew Research Center* August 19, 2020

One would think that exposure to opposing views would help in building understanding and tolerance to dissenting opinions, but the case is actually the opposite according to an experiment done by the *National Academy of Sciences*. Using online bots to inject dissenting views into participants' social media feeds on Twitter, the results found that after viewing and following the differing political feeds from the bots, Republican participants expressed having more conservative views after following the liberal bot. The same outcome occurred with the Democrat participants who expressed slightly more liberal views after following the conservative bot. There is a growing concern that such forums exacerbate political polarization rather than patch it because of social network homophily, or the well-documented tendency of people to form social network ties to those who are similar to themselves.[17]

This in turn correlates to the 'backfire effect' as coined by researchers Brendan Nyhan and Jason Reifler who observed that when certain online content is flagged as false and later changed, viewers become less convinced of proper content filtering and are rather more convinced that some kind of agenda or conspiracy took place in order to hide certain content from the public.[18] That level of mistrust in elections speaks volumes to the amount of increasing distrust in government, corporations, and dissenting online content. Even when steps are being taken to address political misinformation, the ideology of the flagged content will generate further distrust and resentment from those supporting parties more than anything else.

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[17] Lisa P. Argyle, Christopher A. Bail, Taylor W. Brown, John P. Bumpus, Haohan Chen, Fallin Hunzaker, Jaemin Lee, Marcus Mann & Friedolin Merhout, & Alexander Volfovsky "Exposure to opposing views on social media can increase political polarization" *PNAS* September 11, 2018

[18] Samuel Woolley "The Reality Game: How the Next Wave of Technology will Break the Truth" *PublicAffairs* 2020 (115)

NEWS OUTLETS

Further distrust is occurring now, particularly as it pertains to news outlets that have their own biases towards one end of the ideological spectrum or the other. Mark Jurkowitz, Amy Mitchell, Elisa Shearer, and Mason Walker of the *Pew Research Center* focused on this perspective of trust and mistrust in a survey of adults in 2019. The results showed that Republicans' views on heavily relied sources across a range of platforms were overwhelmingly seen as untrustworthy. At the same time, Democrats see most of those sources as credible and rely on them to a far greater degree.[19] The results of the survey suggest that Republicans are more likely to believe conspiracy theories from less reliable sources but Democrats are more likely to trust mainstream sources; being more confident but less likely to spot disinformation. It will be especially evident when it comes to sources and outlets that support their own political party ideology.

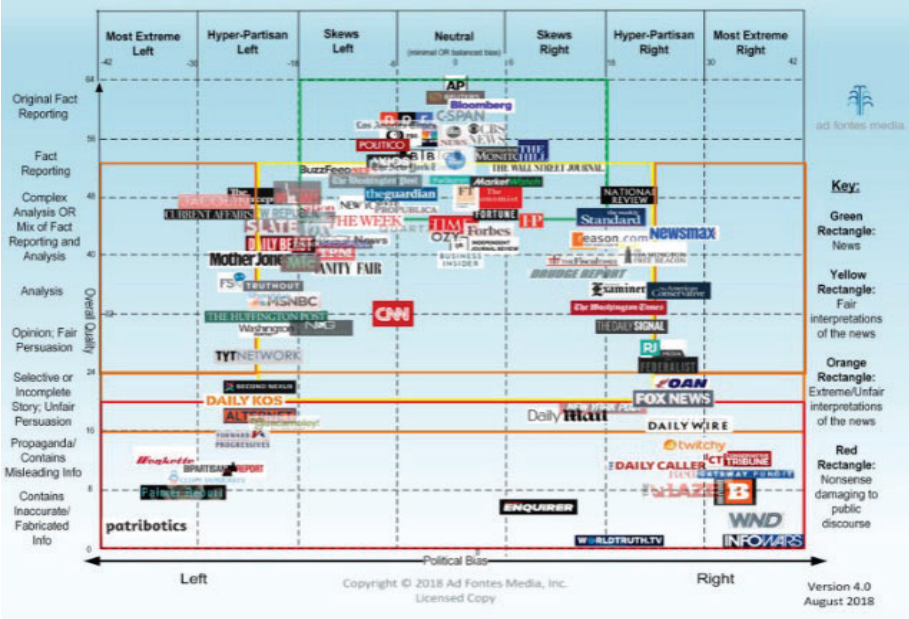
In examining biases, *Ad Fontes Media* produced a media bias chart for many of the most popular online news sources as seen in **Figure 3**. By categorizing said sources by their political biases as well as their reliability and quality, we see an inverted bell curve rising and falling within the two political extremes. As expected, there is an abundance of sources that range throughout the ideological spectrum. Notice how the most neutral-leaning sources fall within the "Original Fact Reporting" and "Fact Reporting" sections in the top middle of the chart. As we gradually pull out towards either end of the extremes, their sources become less credible and accurate. Many of the sources on the outer end of the curve generate successful clicks and views annually, proving that those on the ideological extremes with higher biases are consuming information from less reputable sources. A recent meta-analysis by *Ditto* in 2019 summarized

[19] Mark Jurkowitz, Amy Mitchell, Elisa Shearer, & Mason Walker "US Media Polarization and the 2020 Election: A Nation Divided" *Pew Research Center* January 24, 2020

studies in which participants were presented with information that contradicted their political beliefs and found that liberals and conservatives were equally biased in their acceptance of opposing data.

Figure 3

Media Bias Chart



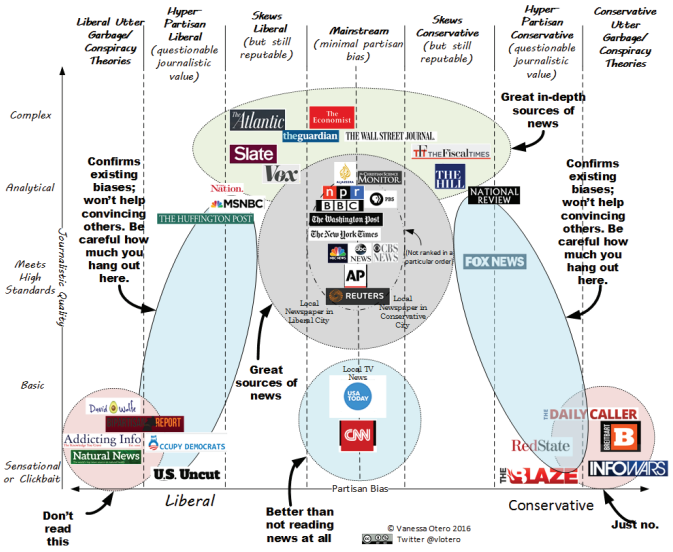
Note. Figure taken from Stuart Vyse "Who Are More Biased: Liberals or Conservatives?" *Skeptical Inquirer* March 19, 2019

Researchers at Belmont University assembled a similar graph pairing online news content with their political leaning and credibility as seen in **Figure 4**. As expected, the more complex sources are those that display minimum partisan bias and are deemed less sensational or clickbait compared to the less credible and far-leaning sources located in the bottom corners. As its name suggests, clickbait articles and images from these sources need to be capable of capturing the

viewer's eye and attention long enough to generate views and revenue. Typically, a catching title or a popping (sometimes photoshopped) image of a political figure from the dissenting party will propel in capturing audience attention long enough to share their proposed information, real or otherwise. The more neutral news outlets like *The Wall Street Journal* know their audience enough to minimize visual manipulation, but the lack of surface-level novelty and no ideological bench to bounce off of keeps more credible sources from reaching a wide-enough audience as it should. Those with persistent left or right views, and hence more of a consistent ideological identity, will garner more views and attention.

Figure 4

Leaning and Credibility Chart



Note. Figure taken from Lila D Bunch Library "Keepin' It Real: Tips & Strategies for Evaluating Fake News" *Belmont University* August 30, 2021

Political parties in the US that are consistent in fully left or fully right leanings are gradually increasing in presence and influence, particularly more than mixed parties; parties that share

ideological qualities from either end. In the past two decades the percentage of consumers who consistently hold liberal or conservative beliefs jumped from 10% to 20%. The number of Americans who view the opposing party as "a threat to national wellbeing" doubled in the past decade.[20] Such a dramatic perspective towards members under the same country has undoubtedly led to the rise in violent protests, riots, and attacks on government officials.

ECHO CHAMBERS

As individuals continue to seek justification for their own ideological beliefs, they gradually align themselves with like-minded individuals who simply agree and regurgitate what they already perceive as true. Confined within the tight atmosphere of the echo chamber effect, shared consistent values that are never questioned within the confines of a particular online environment, viewers are never being exposed to other points of view that may give objective facts more dimension and weight.

In an observation of Democrat and Republican activity, members from the *Pew Research Center* found little overlap in the types of sources they each turn to and trust. Those with consistent ideological views seek sources that are distinct from more neutral and mixed sources; sources that are more neutral and credible as categorized by the above-mentioned figures. The results of the study found that consistent conservatives were more tightly connected to only a handful of news sources and expressed greater distrust in two-thirds of popular news sources and were more likely to be in online groups with opinions that aligned with their own. Consistent

[20] Cameron Brick, Lee De-Wit, & Sander Van Der Linden "Are Social Media Driving Political Polarization?" *Greater Good Magazine* January 16, 2019

liberals were found to be less unified in media loyalty, expressed more trust in popular news sources, and were more likely to block or unfriend people on social media who opposed their political beliefs. Both sides had constructed their own manifestations of the echo chamber effect with consistent conservatives limiting themselves to groups they agree with and consistent liberals simply blocking out or ignoring groups they don't agree with. The researchers found that those at both ends of the spectrum combined makeup roughly 20% of the population and have a greater impact on the political process.[21]

Based on the combined results previously discussed, this means that nearly a quarter of the general population is considered to hold more biased ideological views which will in turn skew their ability to deduce the authenticity of political-related content. The solution then would be to free those entrapped within their online echo chambers and to be more open to dissenting points of view. This process is tricky and delicate as expressed earlier by Brendan Nyhan, Jason Reifler, and those at the *National Academy of Sciences* with their results showing that viewing dissenting information can garner the opposite effect.

How then can we sway the opinions of more headstrong individuals set in their ways? While the overall majority of the population collectively remain within their affiliated parties, it is not only common to see sudden switches right before and after term elections, but a particular shift has been on the rise since 2016. In a study conducted in 2021, researchers Sean Bock and Landon Schnabel discovered that although most partisans remained stable in their identifications, a significant proportion of respondents either shifted to the opposing party or became

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[21] Jeffrey Gottfried, Kiley Jocelyn, Katerina Eva Matsa & Amy Mitchell "Political Polarization & Media Habits" *Pew Research Center* October 21, 2014

independents.[22] While 70% of partisans remained in their lanes between 2016 and 2020, a rather significant portion of Democrats and Republicans (around 10%) had swayed to the opposite party. Nearly 15% of both parties in 2016 went on to identify as Independents in 2020. This is not to suggest that simply switching political parties will improve or diminish one's susceptibility to disinformation, but if a driving factor of susceptibility is political bias, Bock and Schnabels' results show that openness to dissenting views are not only slowly seeping through, but are enough to persuade opinions.

PSYCHOLOGICAL FACTORS

Compared to the more instinctual habits of more primitive mammals, human beings are often regarded as rational and intuitive. This unique evolutionary phenomenon has gifted us with the ability to analyze, contemplate, and reflect most given situations, other individuals, and even ourselves. Despite these evolved traits made to improve both our survival instincts and understanding of the world around us, we are often fooled and duped not just by misinformation, but by misunderstandings, misinterpretations, and distorted reflections and memory. Misinformation excels not only by its complex and brilliant autonomous implementation and presentations (see **Technical Factors**) but by exploiting our more cognitive and psychological faults.

These mental hiccups are often the result of our brains' miscalculated need to rationalize and justify certain phenomena in our lives that are of our own making. Disinformation itself and

[22] Sean Bock and Landon Schnabel "Visualizing Partisan Identification Switching in the General Social Survey Panel, 2016-2020" *SAGE journals* November 12, 2021

those implementing it are not the engineers of these mental glitches, but they take advantage of these opportunistic loopholes our brain function leaves open for them. The following is a collection of psychological phenomena that present various causal factors that can contribute to our susceptibility to disinformation.

ILLUSORY TRUTH EFFECT

Individuals' perceptions of memory are major contributors that can affect their deducing abilities when trying to authenticate facts from lies. One of the most notable of memory exercises is the repetition of teachings and practices that eventually become second nature and common normality if habitually repeated enough times. A study in 1977 at Temple University coined a phenomenon known as the ‘illusory truth effect’ in which statements can generally be regarded as true as long as the statement has been repeated and exposed for a long-enough period of time. While we typically evaluate a statement's truth based on the trustworthiness of their sources, repeated exposure and repetition to disinformation can increase one’s susceptibility regardless of the source’s credibility. By constantly increasing exposure to disinformation, the perception of that information to be true increases.

This is why propaganda and indoctrination work so well in the long-term not simply by the deceptive quality of false content but by the consistency of driving a particular agenda continuously. Unless properly addressed, the false information will continue to cycle itself within news media and curricula, eventually earning its place in normalcy and worst-case scenario will become a fact and common knowledge in everyday life. The cycle of online media exacerbates

the repetition and exposure of such content and allows entire masses into eventually believing the very content they are continuously exposed to.

According to a 2010 meta-analytic review of the truth effect, while the perceived credibility of a statements source increases one's perceptions of truth as we might expect, the effect even persists when sources are unreliable or unclear. The illusory truth effect tends to be strongest when statements are related to a subject about which we believe ourselves to be knowledgeable, and when statements are ambiguous such that they aren't obviously true or false at first glance.[23] With our perceived biases already in place, we become more or less susceptible to certain recycled content based on topics that we have a particular investment in.

Rumors work in a similar fashion to the illusory truth effect in which one individual will hear or interpret something that may not be so and they tell one person who in turn tells two people and then each one of them tells three people. As more people pass along a bit of information, not only does the content itself become more distorted – each adding their own "flavor" to the mix – but eventually they will hear about this information repeatedly from multiple sources until it becomes a common fact. In attempting to understand more ludicrous claims like Bigfoot or the Jersey Devil, one sighting isn't enough for justification. It's only when enough people begin to come forward claiming to have seen the same thing, giving credibility to the consistency of a claim.

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[23] Joe Pierre "Illusory Truth, Lies, and Political Propaganda: Part 1" *Psychology Today,* January 22 2020

MANDELA EFFECT

There is another particular phenomenon in which distorted memories themselves can alter the certainty of one's recalling of people and places. The Mandela Effect is the outcome of one confidently recollecting something differently than how it had actually occurred. Many people will tell you the mascot on the board game *Monopoly* wears a monocle or that the monkey from the children's book series *Curious George* has a tail, but neither are in fact true; just to name a few examples. This term was coined when millions of people around the world were convinced that the political leader Nelson Mandela was (at the time) deceased; many even recalled seeing his funeral broadcast on TV. Misconceptions such as these are relatively harmless, but when such false recollection is attributed to a detail or event that was deliberately distorted for pivoted political audience reaction, then they can become ultimately damaging and long-lasting.

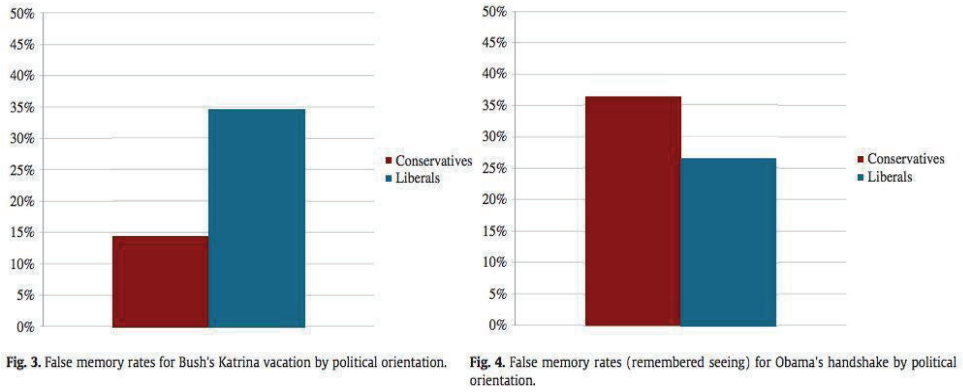
In 2010, *Slate Magazine* asked around a thousand of its readers to determine whether they recalled the authenticity of a photo that was gaining traction online. The photo showcased Barack Obama shaking hands with the former President of Iran, Mahmoud Ahmadinejad. The picture itself was photoshopped and the event never took place, but 21% of the readers confirmed and remembered seeing the photo, and 25% said they remembered the event taking place, but couldn't directly recall seeing the photo.[24] Even more enlightening, the *Journal of Experimental Social Psychology* composed these results seen in **Figure 5** that measure the false memory rates of both the Obama handshake photoshop and one of George W. Bush allegedly vacationing during the Katrina crisis. Both altered images paint each political leader from differing political parties in a negative light. As you can see, more liberals recalled the doctored

[24] Brian Resnick, "We're underestimating the mind-warping potential of fake video" *Vox Media* July *24* 2018

memory of Bush than conservatives (34% to 14%), while more conservatives recalled the doctored memory of Obama than liberals (36% to 26%). Their political biases skewed their otherwise interpretive, rational thought and implanted a false memory based on the accusations of a dissenting party.

Figure 5

False Memory Rates by Party Affiliation



Note. Figure taken from Brian Resnick, "We're underestimating the mind-warping potential of fake video" *Vox Media* July *24* 2018

The Mandela Effect is further amplified by preconceived assumptions used to rationalize and fill in the blanks of a distorted memory. Looking back at the phenomena with the *Monopoly* mascot and the *Curious George* monkey, the mascot fits the caricature of a suave, rich tycoon while George bares a simplistic resemblance to a monkey. Donning a top hat and cane, people naturally assume that the Monopoly Man wears a monocle as well based on his other notable accessories. As for George, most simply assume he has a tail given that most known species of monkeys commonly have tails. Though not majorly common, some species of primates like the *barbary macaques* actually have no tail at all.

Neuropsychologists Michael Miller and Michael Gazzaniga conducted an experiment in which participants were shown several landscape images of various locations, one being a scene from a beach. Half an hour later, the participants were read a list of items and were asked whether these items had appeared in the pictures they saw. Participants had recalled seeing items like umbrellas, beach balls, and sand castles – common staples of beach scenes – when in fact they were not in the image. Just as the mechanisms of perception are often best revealed by means of perceptual illusions, the normal mechanisms of memory are often revealed by tricking them into producing false recollections.[25]

But what happens when false recollections become based on more severe profiling and stereotyping of marginalized groups and ethnic communities? In 2018, Alek Minassian drove a van through a crowd of people in Toronto Canada, killing ten and injuring dozens more. In the hours after the event, multiple unreliable eyewitnesses falsely identified him as Middle Eastern when in fact he was Caucasian. Even worse, the false report gained enough momentum that reporter Natasha Fatah published an article that referred to Alek as an "angry Middle Eastern".[26] Despite the article eventually being retracted and corrected, not only did the first, false article garner more views and shares than the corrected article, but the testimonies of the initial witnesses remained consistent despite the corrections. Given the statistical quantities of Muslim-related attacks by vehicle-ramming, witnesses falsely assumed and recalled the ethnicity of the assailant by repetition association, internal prejudice, or even a combination of the two. Such false reports and recollections have been detrimental to publishing the correct content online.

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[25] Hugo Mercier and Dan Sperber "The Enigma of Reason" *Harvard University Press* 2017 (61)
[26] Chris Meserole "How misinformation spreads on social media-And what to do about it" *Brookings* May 9, 2018

CONFIRMATION BIAS

We have established that those who passionately gravitate toward dissenting extremes display the tendency to seek information that simply confirms their integrated beliefs and values; this process is in psychological terms known as the confirmation bias. As observed, those who settle toward either end of the ideological spectrum are more prone to experiencing this inclination as they themselves are more inclined to believe that their side is more objectively true rather than speculatively subjective. In their attempt to justify headstrong beliefs, any sources that support a position will suffice, including less credible, low-quality news.

The confirmation bias is irrational and thwarts the ability of the individual to maximize utility. It is the bias most pivotal to ideological extremism and inter and intra-group conflict.[27] Thomas Hills and Filippo Menczer from the *Scientific American* observed in their models that in the abundance of information that is viewed and shared on social media, even when we want to see and share high-quality information, our inability to view everything in our news feeds (see **Technical Factors**) inevitably leads us to share things that are partly or completely untrue.[28]

The term "information overload" refers to our inability to properly process the exceedingly high volume of information we have access to online. With various articles, blogs, and opinion pieces – each with conflicting views – we often do not have the time or capacity to accurately quantify and interpret every piece of dissenting information we are given. In order to rationalize the overflow of data, we allow our cognitive biases to step in and decide where to pivot our attention toward. The process works as an adjustment of understanding new information so that

[27] Hugo Mercier and Dan Sperber "The Enigma of Reason" *Harvard University Press* 2017 (215)
[28] Thomas Hills and Filippo Menczer "Information Overload Helps Fake News Spread, and Social Media Knows It" *Scientific American* December 1, 2020

it may fit comfortably in the realm of information that we may already know, reassuring our biased perspectives on political topics. Humans already adhere to certain biases based on their environment, so it makes sense to associate believable content with other content we already perceive to be true.

This does not suggest that we are unequipped to process dissenting information, more so that the abundance of information stacked up along with it makes such processing difficult; our biases simply serve as a crutch in dealing with the overload of information we are given. Information overload impacts the psychological state of information seekers and their behavioral intention to continue their search[29] which then calls for an adjustment of searches. By this logic, in a more condensed environment with fewer selections, we would be able to properly interpret the given content more and make a more accurate decision based on the set given.

ZEIGARNIK EFFECT

In a phenomenon called the Zeigarnik Effect, incomplete experiences are often more remembered than complete ones. Pioneered by psychologist Bluma Zeigarnik in 1927, she conducted a series of experiments in which participants were asked to complete a series of tasks such as puzzles and math problems; half were able to complete their tasks while the other half were interrupted. When each was asked an hour later what task they were doing, those who had been interrupted were twice as likely to remember what they had been doing compared to those who had completed their tasks. Zeigarnik found that adult participants were able to recall their

[29] Tahir Hameed, Iris Reychav, Bobby Swar “Information Overload, psychological ill-being, and behavioral intention to continue online healthcare information search" *ScienceDirect* May 2017

unfinished tasks 90% more often than their finished tasks.[30] Typically, we tend to be more consciously mindful of pending, unfinished business over completed ones. As our mind constantly attempts to rationalize the environment around us, we seek to close gaps in information to provide catharsis of pending questions and unresolved endings. Serialized TV shows have mastered and exploited this technique with what are called "cliffhangers". When we become so invested in a story or set of characters, we are driven to learn as much as we can, especially when an episode ends with an unexpected twist or unresolved turn. How often do you become so invested in a book or show during versus once it's completed? Unless left with an influential impact, we are more likely to lose interest or even forget what we were invested in once we have reached its climax.

Investment doesn't necessarily mean you have to like or enjoy the content you are consuming, you just need to hold some level of personal or emotional investment in order to keep you coming back. In a very peculiar case, there is a subgroup of viewers who "hate-watch" shows. With the accessibility to binge shows on streaming platforms, it has become common to watch shows you don't like all the way to the end. If no enjoyment is being derived from the program, then why watch? Communications professor Paul Levinson reinforces the emotional aspect of this phenomenon stating "Once our emotions are unleashed, whether it's because we're very attracted to something or very repelled by something, if we feel strongly enough about it, we want to know more."[31] He furthers his point with the very tabloid-like behavior of news stations before and during Donald Trump's presidency. Given his rather controversial term, the public gradually split between idolizing approval or active resentment; either way it kept the people

[30] Kendra Cherry "An Overview of the Zeigarnik Effect and Memory" *VeryWellMind* July 4, 2021
[31] Brittany Levine Beckman "Why we binge-watch stuff we hate" *Mashable* January 24, 2019

talking and it kept them glued to their news feeds. Before the closure of the end of his term, news stations and political social media content had a rather captive audience invested one way or the other, providing them with the opportunity to share their both objective and subjective content.

Not just with Trump's presidency, news stories have become ideal outlets for people to latch onto, particularly stories that have not been officially completed or closed. Once a story has reached a conclusive end, there is the remedy of closure and our minds will eventually find another topic to occupy. But when a story is ongoing or ideally never-ending, news stories will never run short of clicks and views, leaving the consumer to be endlessly updated on the facts, true or otherwise. A continual story will always have an audience coming back for more.

CONTRAST PRINCIPLE

In Robert Cialdini's *Influence: The Psychology of Persuasion*, a bulk of the text examines the effects of what is called the contrast principle, which serves as a significant value in human perception that affects the way we see the difference between two things that are presented one after another. Simply put, if the second item is fairly different from the first, we will tend to see it as more different than it actually is.[32] Individuals and events of significant importance tend to be perceived as more objectively good or bad when directly compared to another content of importance. As we've explored how consumers already hold consistently biased beliefs and reinforce them with supported content, belief in such content is increased when the first content is propped up against a second, more dissenting content. By contrast between these two sources,

[32] Robert B. Cialdini "Influence: The Psychology of Persuasion" *HarperCollins Publishers Inc.* 2007 (11-12)

susceptible viewers now not only regard their supported sources as more morally and objectively true, they now view the dissenting sources as less truthful and more morally wrong.

Dictators have made excellent practice of this principle, propping up their own ideals when stacked up against a perceived lower ideal by comparison. The Kim family of North Korea effectively vilifies South Korea in their propaganda, projecting that not only the South has become corrupt and depleted from capitalistic ideals, but that as bad as things are in the north, the south is faring much worse. This was an attempt to rationalize and justify the Kim's relevance and influence even after their famine in the '90's, which nearly killed half the population. "People were told that their government was stockpiling food to feed the starving South Korean masses on the blessed day of reunification. They were told that the United States had instituted a blockade against North Korea that was keeping out food. This was not true, but it was believable,"[33] as commented by an anonymous North Korean defector. It is not enough to highlight one value on its own, it must be compared to another that draws a fine line that ergo identifies the level of quality of the first value.

Mudslinging campaigns during presidential elections work in a very similar fashion by broadcasting PSA's that slander the opposing party with truth or fabrications. Articles and headlines exploit similar techniques through syllogisms making deductive-sounding conclusions that have no relevant bearing when carefully examined. While it's simple and easy to compare one number with another number, such comparisons are limited and weak. No comparisons between only two values can be universal; a simple comparison between the current figure and some previous value cannot fully capture and convey the behavior of any time series.[34]

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[33] Barbara Demick "Nothing to Envy: Ordinary Lives in North Korea" *Spiegel and Grau* 2015 (69)

[34] Donald J. Wheeler "Understanding Variation: The Key To Managing Chaos" *SPC Press* 2000 (1)

Facts of actual quality are based around numerous, sometimes alternating, factors and perspectives that make up the richness of the full picture that the comparison of only two values lack. But in an attempt to compartmentalize and filter information to us, we are often automatically given information and data tailored individually to us that attempt to make us more satisfied and entertained rather than informed. In the next section, I will discuss the processes and implementation of social media sites themselves and how their autonomous and automated mechanisms ultimately spread and cause further susceptibility to disinformation.

TECHNICAL FACTORS

In our ever-evolving globalized world, there is quite literally an endless abundance of online content used for entertainment, information gathering, and networking. It has now even become a mandatory requirement in certain businesses for people applying to positions to not only have an online social media account for work, but also preferably an already pre-existing account to showcase what kind of person you are to the recruiter. This concentration could serve as its own case study, scrutinizing the authenticity and believability of online profiles to give the illusion of ideal candidates, creating its own form of misinformation and deception on the part of the individual. As noted by cognitive scientist Hugo Mercier, deception is a common trait even in generally honest people by way of exaggerating their public image and achievements.[35] But here, we will focus on social media sites themselves and how their implementations and policies contribute – intentional or not – to the spread of disinformation.

[35] Hugo Mercier and Dan Sperber "The Enigma of Reason" *Harvard University Press* 2017 (190)

ONLINE BEHAVIOR

Before we understand the behaviors of the online platforms which house misinformed content, it is necessary to first understand the behavior of online users themselves. As previously established, the majority of the general population seek their daily news not just online, but on social media platforms specifically; platforms that house more disinformation than other online sites or sources. According to Katerina Eva Matsa and Mason Walker, nearly half of U.S. adults get their news from social media over cable and online news platforms combined. In their study conducted by the *Pew Research Center* in 2021, it was discovered that around 48% of the 11,178 adults surveyed use social media as a form of news consumption, most notably from the social networking service Facebook. Of the collected adults surveyed, 31% got their news from Facebook, 22% from YouTube, 13% from Twitter, and 11% from Instagram.[36]

Laura Ceci from *Statista,* estimated that as of 2019 Facebook was still consecutively the most popular social networking app used for news consumption in the United States with an average of 169.76 million users[37] with a dominating 63% of global active usage as of 2020. (YouTube ranked shortly behind at 61%, making Facebook and YouTube the only online sites to breach the 50% majority compared to other social media sites).[38] Among the most notable of social media sites notorious for the spread of disinformation, Facebook is consistently ranked the greatest proprietor of fake news sources with YouTube once again at a close second.

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[36] Katerina Eva Matsa and Mason Walker "News Consumption Across Social Media in 2021" *Pew Research Center September 20, 2021*

[37] Laura Ceci "Most popular mobile social networking apps in the United States as of September 2019, by monthly users" *Statista* July 6, 2021

[38] Statista Research Department "Global active usage penetration of leading social networks as of February Statista 2020" *Statista* January 28, 2021

Andrew M. Guess, Brendan Nyhan, and Jason Reifler from *Nature: Human Behavior* tracked the internet use of over 3,000 Americans leading up to the 2016 US election. Facebook users were found to be referred and led to false or untrustworthy news sources over 15% of the time while on the platform. By contrast, users were referred by Facebook to more trustworthy news sites only 6% of the time. The authors concluded that compared to that of Google (3.3%) and Twitter (1%), Facebook is by far the worst perpetrator when it comes to spreading fake news.[39]

Now that we've established which social media sites to be the most untrustworthy, we now turn to a trend-pattern fact sheet by the *Pew Research Center* in 2021 to break down who is most exposed to false news on these sites. To begin broadly and then narrow down, the number of US adults who admitted to frequently using at least one social media site was a mere 5% back in 2005. With the advancement and implementation of technology and newly founded popular social media sites, that estimate rose to 72% in 2021. Within the 2005-2021 timespan, all of the different age demographics rose in social media use; but while those aged 65 and older went from 3% to 45%, the 18-29 age range went from 7% to a staggering 84%. Since 2013, Facebook has consistently remained the most popular site, with 70% of the 18-29 age range still logging into that site.[40]

With online activity being the most popular among younger demographics, they have therefore become the most ideal candidates for exposure and susceptibility to disinformation. Their vulnerability is greatly affected not just by mere exposure to false news alone, but by their excessive use and dependence on online activity itself. The increasing dependency of both online

[39] Mark Travers "Facebook Spreads Fake News Faster Than Any Other Social Website, According To New Research Forbes March 21, 2020
[40] Pew Research Center "Social Media Fact Sheet" *Pew Research Center* 2021

activity and presence, making it more of a driving factor in our everyday lives being either for work or leisure, has greatly affected our cognitive abilities in both focus and performance. It is justified to say that an entire generation of younger viewers have become absolutely hooked to their phones and by extension online media with both being as accessible as they are in this modern day.

Professor of Marketing at NYU Stern School of Business Adam Alter, discusses in his analytical publication *Irresistible: The Rise of Addictive Technology and the Business of Keeping Us Hooked,* the very serious and detrimental tolls online activity and social media have had on its users. According to his studies, up to 40% of the population suffers from some form of internet-based addiction.[41] One chapter scrutinized a recent study by Microsoft who asked young adults to focus their attention on a string of numbers and letters that appeared on a computer screen. At the end of the session, those who spent less time on social media ended up faring better at the task. When asked about their online activity, the participants stated that they all spent an average of five to seven hours online a day. To stress the dependency of online activity further, 91% of respondents described their phones as "extensions of their brains" with the majority saying they would search online for answers to questions before trying to generate an answer from memory.[42]

As the stimuli saturating our lives continue to grow more intricate and variable, we have to depend increasingly on our shortcuts to handle them all.[43] The increased excess and extremes of

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[41] Adam Alter "Irresistible: The Rise of Addictive Technology and the Business of Keeping us Hooked" *Penguin Random House* 2017 (26)

[42] Ibid (242)

[43] Robert B. Cialdini "Influence: The Psychology of Persuasion" *HarperCollins Publishers Inc.* 2007

behavioral addiction add to the dependency of increased online behavior and thus, exposure and susceptibility to disinformation.

In the data-heavy publication, *Everybody Lies: Big Data, New Data, and What The Internet Can Tell Us About Who We Really Are* by Seth Stephens Davidowitz, there is a heavy concentration on the targeted focus towards impressionable youths online. Ages 14-24 are regarded as key, crucial periods by which the most influential imprints are often cemented into ones shaping of moral and ideological character. It is statistically during this time period that Americans will habitually form their political views based on the popularity of the current president. A popular Republican or unpopular Democrat will influence many young adults to become Republicans, while an unpopular Republican or popular Democrat puts this impressionable group in the Democratic column.[44] With the highest amount of misinformation being generated from political-related content, it is all the more likely that those within this impressionable time period coupled with their overconsumption of online content will undoubtedly lead toward more biased views based on skewed news and data.

ALGORITHMS

From Google to Facebook to YouTube, online search engines and websites rely on carefully constructed and maintained algorithms and data filters. Algorithms follow specific calculations and problem-solving operations to properly quantify the endless streams of data that are fed into their inputs every single day. When we search for something online, every word and every letter

[44] Seth Stephens Davidowitz "Everybody Lies: Big Data, New Data, and What The Internet Can Tell Us About Who We Really Are" *HarperCollins Publishers Inc.* 2017 (170)

typed into the search engine is stored away and added to the already complex filters made in an attempt to help find the best possible results you are ideally searching for.

Through a process called “deep learning”, the search engines gradually become more accurate in predicting and recommending content and results; simply put, the more data the engine has to work off of, the more precise its answers can be. In specific search engines like Google, billions upon billions of data have already been fed into its algorithms which allows itself to make predictions and recommendations of what you are searching for. Often for these types of search engines, they tend to cater to the most widely mainstream results or what is considered “trending” at that moment. But in more personalized sites such as Facebook, Instagram, and YouTube, they become eerily accurate based on the profile of yourself that you have given them through your personal information and activity. Through a deep learning algorithm catered directly to you, the engine learns specifically from what data you feed it; search with a specific keyword and your results will apply toward those specific keywords even if they don’t mean the same of what you intend or even its context.

The purpose of these algorithms is to find out what kind of person you are and then present you with content that it thinks you would like the most. To do this, it must filter through so much data and content so that it may bring into surface-level view the content you wish to find buried under all of that data. But in doing so, as certain content is surfaced to you, others are buried and left unseen. As we’ve established, people are already predetermined to hold pre-existing biases and beliefs that are much harder to crack and are more polarizing when they are politically based. So it is of no surprise that more left-leaning individuals will search for more left-leaning content and vice-versa. In doing so, the algorithms contribute to the catering and reinforcement of our already confirmed beliefs (see **Confirmation Bias**).

Search engines and social media platforms provide personalized recommendations based on the vast amounts of data they have about users' past preferences. They prioritize information in our feeds that we are most likely to agree with—no matter how fringe—and shield us from information that might change our minds.[45] As users continue to search for content solely to confirm their biases, the algorithms make dissenting or opposing content less likely to appear in their fields and results. At the alarming rates that individuals spend online in a given week, those hours are spent being exposed to only agreeable content that gradually makes users more susceptible to content that is less likely to be truthful.

A more disturbing factor is the algorithm's ability to mimic a user's prejudices and biases along with their tastes and preferences. Studies have shown that algorithms learn less pleasant associations for traditionally African American names than for traditionally European American names. They learn the same kinds of biases that have been measured in humans without ever being explicitly told about them.[46] One AI program was tasked with creating a review for a Mexican restaurant all on its own; the result was a scathingly negative review. Pondering why, the experimenters realized the AI had utilized word associations to complete its sentences and based on the datasets accessible from the web, the word "Mexican" was most associated with the word "illegal". They don't know that imitating biases is wrong, they just know that this is a pattern that helps them achieve their goal.[47]

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[45] Thomas Hills and Filippo Menczer "Information Overload Helps Fake News Spread, and Social Media Knows It" *Scientific American* December 1, 2020

[46] Janelle Shane "You Look Like a Thing and I Love You" *Voracious/Little, Brown and Company* 2019 (175) [47] Ibid (147)

SHOCK AND AWE

Social media sites are a business and unfortunately are more concerned with making the customer satisfied and happy above all else. The amount of clicks, views, likes, and shares generates revenue for both the corporations and affiliated content creators. As long as creators follow the designated user guidelines from each site, they can for the most part get away with some pretty alarming material. Facebook, "for example," has a set of community standards and policy details that are made to detect and remove hateful and inflammatory content or those that may cause imminent physical harm. They draw a very fine line between that is considered factual and what is considered "hate speech." However, when it comes to defining terms of misinformation, Facebook's Policy Rationale admits:

> "The world is changing constantly, and what is true one minute may not be true the next minute. People also have different levels of information about the world around them, and may believe something is true when it is not. A policy that simply prohibits "misinformation" would not provide useful notice to the people who use our services and would be unenforceable, as we don't have perfect access to information."[48]

Because there is a very blurred line between truth and false from the rationalizations and perspectives of its users, it complicates what can be flagged and blocked under the fair use of content uploaded. With this leeway, there is now an open window for users to maliciously or unintentionally upload and spread false content that has not been properly fact-checked.

While processes are being made to address and improve these kinds of policies, much content becomes fair game. Because these social platforms act like the business that it is, creators

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[48] Transparency Center "Misinformation" *Meta* 2022

become fluent in generating views and likes in a very similar manner. Much like news stations, creators understand the "novelty" of dressing up their content to stand out to be the most appealing or alarming amid the flood of other content to click on. Much "clickbait" content relies on surface-level gimmicks like misleading titles and thumbnails, which can exploit the merits of vagueness through what is known as the "relevance theory" in which a linguistic sense of words and sentences are used not to encode what the speaker means but merely to indicate it in a precise way but with room for interpretation.[49]

But others understand the emotional incentive to drive views and shares. To see what types of political messages were more likely to be shared, scientists in 2019 ran a test and found on Twitter that tweets with more emotive and moral words were more likely to be retweeted and that all voters responded more to words showing moral outrage.[50] Because of the strong receptive nature of emotional stimuli, content that plays on people's emotions rather than 'facts' are proven to generate more attention.

A similar test was run in 2018 that showed that playing on the emotion of fear works the most when garnering attention. Dread risk—involving uncontrollable, fatal, involuntary, and catastrophic outcomes (e.g., terrorist attacks and nuclear accidents)—may be particularly susceptible to amplification because of the psychological biases inherent in dread risk avoidance.[51]

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[49] Hugo Mercier and Dan Sperber "The Enigma of Reason" *Harvard University Press* 2017 (161)

[50] Cameron Brick, Lee De-Wit, and Sander Van Der Linden ``Are Social Media Driving Political Polarization?" *Greater Good Magazine* January 16, 2019

[51] Thomas T. Hills and Robert D. Jagiello "Bad News Has Wings: Dread Risk Mediates Social Amplification in Risk Communication" *Wiley Online Library* May 29, 2018

YouTube is especially effective in exploiting the emotional responses of its users not just from the content provided, but from the implementation of video over text. According to research, video is a more potent tool than text for spreading ideas because it more effectively stays in one's memory. The brain processes video 60,000 times faster than it does text.[52] Because of this, as well as its leniency in policies, YouTube is notably infamous for its amount of defamation and conspiracy theories its site holds. Alongside its tailored recommendation algorithms, YouTube has an 'Auto-Play' function where – unless manually disabled – will automatically play the next video in its recommendation feed. As stated before, these filters aren't perfect, so oftentimes YouTube will recommend and – if you let it – play a marathon of videos that may slowly but surely lead to alarming and often misinforming content that lies under the surface of YouTube's more mainstream videos. *Mozilla* asked YouTube users about the times they felt as if the algorithm suggested extreme content and thousands responded about the eventual content they were led to. From searching simple dance videos that led to videos about bodily harm to self-esteem videos that transitioned eventually to anti-Semitic content.[53]

Every time a video plays it is considered a view, regardless of whether the user has watched the entire thing or not; prompting the algorithm to think that you are enjoying the content based on the views, prompting it further to recommend related content. As much as users have reported and complained about the disturbing and wrongful content on these sites, it is regardless considered a win because they are still generating viewership revenue; the more alarming and

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[52] Woolley, Samuel "The Reality Game: How the Next Wave of Technology will Break the Truth" *PublicAffairs* 2020 (118)

[53] Xavier Harding "Why Does YouTube Recommend Conspiracy Theory Videos?" *Mozilla Explains* June 8, 2021

shocking the content is, the more it gets people talking; preying on the emotions of viewers to spread disinformation.

MALICIOUS ACTORS

Many online users and content creators more often create and spread misinformation which explained earlier is a degree of misinformed information and sources that are mainly spread through the same degrees of misinformed people who may not even know what they are spreading is false; not always, but often. Disinformation involves the intentional spread of blatantly false information to achieve some sort of objective or agenda. These sources and creators are much more sinister online players who seek to misinform the public for personal, political, and economic gain. They know exactly how to exploit the political, psychological, and technical factors explored thus far here and many more. While there are many creators and users who spread their own share of disinformation, many in this category are independent lone wolves or "trolls" who merely seek to stir the online pot. This branch of users has indeed caused detrimental outcomes and deserves its own case study, but here we will instead focus on more powerful online actors who effectively thrive on a grander scale through disinformation.

The government of Russia has an active state-sponsored "Russian web brigade" whose sole task is to work round the clock to flood Russian internet forums, social networks and the comments sections of western publications with remarks praising Vladimir Putin, and raging at the depravity and injustice of the west.[54] . They have gradually become sophisticated in their tactics of undermining their own citizens and other foreign powers. There have been irrefutable

[54] Shaun Walker "The Russian troll factory at the heart of the meddling allegations" *The Guardian* 2015

effects of Russian collusion during the US 2016 and 2020 elections with the National Intelligence Council having "high confidence"[55] that President Vladimir Putin took extensive action in attempts to undermine public faith in the U.S. democratic process through disinformation strategies. Russia's interference activities have exploited vulnerabilities in the information ecosystem, cyberspace, and the global financial system, and used the openness and transparency of democratic societies against both sides of the Atlantic.[56]

Very recently their intelligence entities have been targeting Ukraine, spreading disinformation and propaganda in an attempt to paint Ukraine in a bad light in the ongoing Russia-Ukraine conflict. Such measures are intended to influence Western countries into believing Ukraine's behavior could provoke a global conflict and convince Russian citizens of the need for Russian military action in Ukraine.[57] False stories have included that Ukraine and Ukrainian government officials are the aggressors in the Russia-Ukraine relationship, the west is pushing Ukraine toward a conflict, and that Russia's deployment of combat forces is a mere repositioning of troops on its own territory.

The People's Republic of China implements its own similar and insidious cabinet called the "50 Cent Party" who utilize social media to manipulate public opinion and disseminate pro-Chinese Communist Party propaganda. The *American Political Science Review* estimated that the "50 Cent Party" fabricates around 488 million social media posts annually.[58] Similarly to Russia, China exploits their online propaganda domestically and internationally. Their

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[55] Intelligence Community Assessment "Assessing Russian Activities and Intentions in Recent US Elections" *National Intelligence Council* 2017

[56] Alliance for Securing Democracy "Authoritarian Interference Tracker" *The German Marshall Fund of the United States* 2022

[57] Fact Sheet "Fact vs. Fiction: Russian Disinformation on Ukraine" *U.S. Department of State* January 20th, 2022

[58] Gary King, Jennifer Pan, Margaret E. Roberts "How the Chinese Government Fabricates Social Media Posts for Strategic Distraction, Not Engaged Argument" *American Political Science Association* 2017

government has orchestrated cyber-attacks and invested in campaigns to "tell China's story well"[59] that regularly resorts to manipulated narratives and disinformation. China's main campaign narratives as of late have been the attempt to distort the origins of the coronavirus pandemic. China engaged in significant efforts to suppress early reports of the virus, from censoring coverage to arresting whistleblowers. Initial Chinese media coverage of the virus focused on the positives of Beijing's response and refrained from displacing the blame to the extent that Chinese reporting confirmed the Wuhan Seafood Market as the origin of the outbreak.[60]

Note the patterns of behavior prevalent in the styles of disinformation Russia and China are implementing. They pivot attention away from themselves and toward hot-button issues to incite an emotional reaction from the targeted masses. As noted in the Zeigarnik effect, users are more likely to be attached and invested in current, developing stories that have yet to be resolved. This is the ripe moment for them to strike, exploiting and flooding pages and accounts with false information, using precise hashtags and keywords that will be filtered into the feeds of susceptible users. By extension, the contrast principle aids the investment of the Zeigarnik effect by having the novelty of vilifying a certain state or group; this case being the United States and Ukraine. By painting a clear-cut us-versus-them mentality, the information becomes all the more accessible and digestible.

Powerful non-state actors have also utilized social media for their benefit. Extremist groups and terrorist organizations have been notorious for using social media to enlist and indoctrinate

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[59] Alliance for Securing Democracy "Authoritarian Interference Tracker" *The German Marshall Fund of the United States* 2022

[60] DFR Lab "Weaponized: How Rumors about Covid-19's Origins Led to a Narrative Arms Race" *Atlantic Council February, 2021*

people domestic and overseas into their cause. *The National Consortium for the Study of Terrorism and Responses to Terrorism* ran a series of datasets in 2018 and found that Facebook was the most commonly used platform by extremists with nearly 65% using Facebook for radicalization or mobilization between 2005 and 2016. As expected, YouTube was the second most used platform with a usage rate of 31%. Islamist extremists were by a large margin the group most likely to engage with social media as a primary means of consuming extremist content or communicating with other extremists.[61]

Several factors and variables play a role in how extremist groups and powerful state actors are able to exploit social media policy loopholes and get away with propaganda and violent content. One such case is the unfortunate lack of proper reaction time to recognize and pull extremist content, one such example was when a gunman opened fire on a mosque in New Zealand in 2019 and livestreamed his attack on Facebook. The platform responded by deleting the gunman's account shortly after the incident, but the damage was already done; by then it had already been recorded, copied, and released back on Facebook and other social media accounts. In a 15-minute window, members from the *Reuters Institute* found five copies of the footage on YouTube uploaded under the search term "New Zealand" and tagged with categories including "education" and "people & blogs". In another case, the video was shared by a verified Instagram user in Indonesia with more than 1.6 million followers.[62] This unfortunately showcases how quickly such content can have longevity online once it has been uploaded with the platform providing such easy access to express and share hateful ideologies. In less extreme cases, more subtle and textualized forms of disinformation are able to bypass platform policies by

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[61] Michael Jensen "The Use of Social Media by United States Extremists" *The National Consortium for the Study of Terrorism and Responses to Terrorism* 2018

[62] Jack Stubbs "17 minutes of carnage: how New Zealand gunman broadcast his killings of Facebook" *Reuters* 2019

convincingly juxtaposing their false information amidst truthful ones. In 2020, researchers from the *Reuters Institute* tracked online engagement, comparing totally fabricated information with reconfigured information; information that is mostly true, but contains nuggets of falsity. Judging from the social media data collected, reconfigured content saw higher engagement than content that was wholly fabricated.[63] In short, the most powerful types of lies are ones that have a hint of truth in them.

ANALYSIS & RECOMMENDATIONS

In review of everything we have examined, disinformation itself and in-turn susceptibility to its content is driven by various factors and variables that alter and coincide with one another to make its believability and susceptibility all the more potent. As we've seen, politically-driven disinformation is vastly the most widely spread and used by state and nonstate actors for the purpose of altering perception and driving certain ideas and agendas. The degree of party leaning affects and distorts one's ability to view and obtain political content objectively, and this polarization is clearly exploited by certain ideologically-leaning media outlets. The biases of political polarization are driven and reinforced by cognitive and psychological factors that confirm biases, distort memories, and hinder rational comparisons of online content. The online content itself is filtered and tailored to users based on sophisticated augmented algorithms, deep learning, and policies and drive disinformation into recommendation homepages and bury more authentic content. The filtering of what users see and don't see coupled with information

[63] J. Scott Brennen, Philip N. Howard, Rasmus Kleis Nellson, and Felix Simon "Types, sources, and claims of COVID-19 misinformation" *Reuters Institute* April 7, 2020

overload and repetition only reinforces the more negative tendencies and behaviors of online activity. These separate but compatible political, psychological, and technical factors all play distinctive roles in spreading disinformation. As such, no universal policy nor strategy will completely eradicate disinformation and thus susceptibility to it. Each must be tackled head-on in its own way that will also similarly be compatible with each other in combating susceptibility. By narrowing all of these complex factors into more digestible compartmentalized features, each can be tackled more usefully head-on. If political, psychological, and technical factors are causal factors, then it would be ideal to focus on certain concentrated policies, platforms, and behaviors as ways to make a noticeable change.

Fortunately, online disinformation hasn't captured the minds of all users nor gone completely unnoticed. A nationwide survey by *Statista* in 2021 found that 74% of participants agreed that false or misleading information should be completely removed from social media platforms.[64] Brooke Auxier from the *Pew Research Center* in 2020 found that 54% of participants agreed that political advertisements should not be allowed on social media platforms and a much larger 77% found it not very or not at all acceptable for social media companies to use data about their users' online activities to show them ads from political campaigns.[65] Another study by the *Pew Research Center* in 2021 found that 59% of adults agreed that technology companies should take steps to restrict misinformation online, even if it puts some restrictions on Americans' ability to access and publish content.[66] A notable footnote in this study found that 70% of Republicans

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[64] Statista Research Department "Share of adults in the United States who believe false or misleading information users post about coronavirus vaccines and cures should be removed from social media platforms as of July 2021" *Statista* August 23, 2021

[65] Brooke Auxier "54% of Americans say social media companies shouldn't allow any political ads" *Pew Research Center* September 24, 2020

[66] Amy Mitchell and Mason Walker "More Americans now say government should take steps to restrict false information online than in 2018" *Pew Research Center* August 18, 2021

said that the freedoms of publishing content should be protected, even if it means allowing some false information to be published while 65% of Democrats said that the government should take steps to restrict false information, even if it means limiting freedom of information. Even certain leading pioneers of social media companies have been vocal of their ultimately destructive nature. Chamath Palihapitiya, former vice president for user growth for Facebook stated "the short-term, dopamine-driven feedback loops that we have created are destroying how society works. No civil discourse, no cooperation, misinformation, mistruth."[67] So this much is clear: the people have spoken!

POLICIES

Some steps are already being taken in response to the flood of disinformation overflowing social media pages. Twitter currently fully prohibits the promotion of political content on its site for the time being. As of the writing of this thesis, business magnate Elon Musk bought the company for forty-four billion dollars, a move which has been explicitly conditioned as a critique of Twitter's censorship policies.[68] While he makes his conditions for Twitter to "adhere to free speech principles",[69] we will gradually see how he goes about defining those principles when they exist in different, alternating contexts

Meanwhile, Facebook and YouTube implement authorization processes that require advertisers and publishers to complete a checklist of requirements and entails that their content contains no

[67] Julia Carrie Wong "Former Facebook executive: social media is ripping society apart" *The Guardian*
[68] Holman W. Jenkins "As We Speak, Elon Musk Rebrands Twitter" *The Wall Street Journal* April 29, 2022
[69] Vivek Ramaswamy and Jed Rubenfeld "How Elon Musk Can Liberate Twitter" *The Wall Street Journal* April 26, 2022

blatant falseness or upfront biased candidate leanings during upcoming elections. There have however been some exceptions, such as when Facebook temporarily lifted its ban to allow some advertisers to run political issue and candidacy ads in Georgia in December 2020. These platforms have taken further steps to moderate microtargeting from political advertisements who generally reach specific groups of users based on their geographical location and personal interests.

To combat this, Facebook utilizes a similar filtering of a classification system to categorize users' preferences and pivot their dissenting content. This would make sense being that most disinformation is political-based, but this exacerbates the bigger problem of eliminating dissenting content from users' feeds. This may hinge opposing biased content, but the approach should filter a more balanced array of content that should be encouraged. This is an example of a technical factor issue being regarded as a political factor issue. The focus is on political content being lumped together as grounds for exclusion when the focus should be on the tech being used and how it is affecting what users see. Strategies become more accessible when they are more accurately approached and when, for example, the more complicated political aspect is separated.

Facebook has taken technical steps in removing more obvious derogatory content where in 2016 Facebook launched "Deeptext", an AI-based tool used to combat online trolling and hate speech. According to a 2017 article on the algorithmic arbiter, it helped the company delete over 60,000 hateful posts a week.[70] This is an excellent step in the right direction where tech implementation has been more effective than policy reworkings. California for example, passed a

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[70] Samuel Woolley "The Reality Game: How the Next Wave of Technology will Break the Truth" *PublicAffairs* 2020 (100)

law in 2019 against using deepfakes for porn and for manipulating videos of political candidates near an election,[71]

But how effective will this be in the long run in an age where manipulating technology doubles in advancement every year while policies can take twice as long to take effect? Many laws are currently already implemented at the state and federal levels around the world to crack down on the misuse of technology on social media, but they end up being ineffective or too vague and open for opportunistic interpretation such as Facebook's Policy Rationale (see **Shock and Awe).**

PLATFORMS

Examples like Facebook's classification system for its handling and filtering of content demonstrates the need to tweak some of the less desirable functions of the social platforms site and its augmented algorithms. We've discussed the damaging effects of artificial intelligence (A.I.) and its filtering and catering of information exclusively for each user (see **Algorithms)**. Many people and governments are worrying about technology's potential for creating fake but damaging videos, like realistic yet fake videos of a politician saying something inflammatory.[72] Realistic AI-driven fakes like the Obama photoshop (see **Mandela Effect**) are only the beginning and are becoming more sophisticated and genuinely lifelike as technology advances with each passing year. As such, they need to be routinely updated and kept in check like any other functioning mechanism to avoid pitfalls like the spread of disinformation; the algorithms need to be fixed. A very important factor to keep in mind is that algorithms and AI itself don't

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[71] Kai-Fu Lee and Qiufan Chen "AI 2041: Ten Visions For Our Future" *The Crown Publishing Group* 2021 (64)

[72] Janelle Shane "You Look Like a Thing and I Love You" *Voracious/Little, Brown and Company* 2019 (35)

generate false and hateful content all on its own. Modern models and especially primitive training models need to be physically fed data into its input by its developers, aka humans. Early developmental tests go through hundreds of trials and errors, gathering millions upon millions of data to sort through. Due to the plethora of objective and subjective data out there, AI developers need to juggle the right balance between too much and too little data. In other words, algorithms will only learn that you feed it, and need to be taught in very literal terms; example being that if I fed an AI "2+2=", I must explicitly lay the ground rules of addition and state that two two's make four, or else it will only tell me that I have two twos. Algorithms filter and sort through such information and data through word and numerical associations that will gradually make predictive shortcuts the more it correlates new data with existing data, which explains why less than flattering terms are lumped together with more marginalized groups. An algorithm is only as good and useful as its creator and what they feed it; if an AI is in the hands of a biased or incompetent developer, it will learn the wrong information. Since we've established that humans are predetermined to harbor biased thoughts, those biases can unconsciously and detrimentally spill into their algorithms if left unchecked. That's why you'll get algorithms that learn that racial and gender discrimination are handy ways to imitate the humans in their datasets. It's up to the programmer to supply the ethics and the common sense[73] The best way to clean the muddied datasets would be to thoroughly train well-rounded and reflective developers who can gather factual data objectively. The transparency of an individual's online information and profiles will in fact come in handy in hiring and training people who we will get to know from their public voice and activity. In order to filter and train the right algorithms, it is apparent to filter and train the right people. Even now, companies implement and offer training such as Google Cloud's

[73] ibid (147)

"Machine Learning and artificial intelligence";[74] an online course that offers technical insight into operating tools such as BigQuery, TensorFlow, and Cloud Vision. This is an excellent starting point in allowing citizens to become fluent in relevant applications. Better training of individuals is a recommendation that I will extend in the next section.

In an attempt to discourage users from accessing false information, certain social media platforms have taken it upon themselves to flag such content if removal is out of their control. But as we've seen from researchers Brendan Nyhan and Jason Reifler, such labeling and exposure hits users with the 'backfire effect' (see **Political Polarization**). This results in the very opposite intent of flagging content; instead of keeping people away, will persuade them to seek such content instead. Even worse, the increasing distrust in government and privatized businesses in the United States encourages and leads users to believe the flagging of such content is a conspiracy to silence "the truth" from the public. This tactic only exacerbates susceptibility even further.

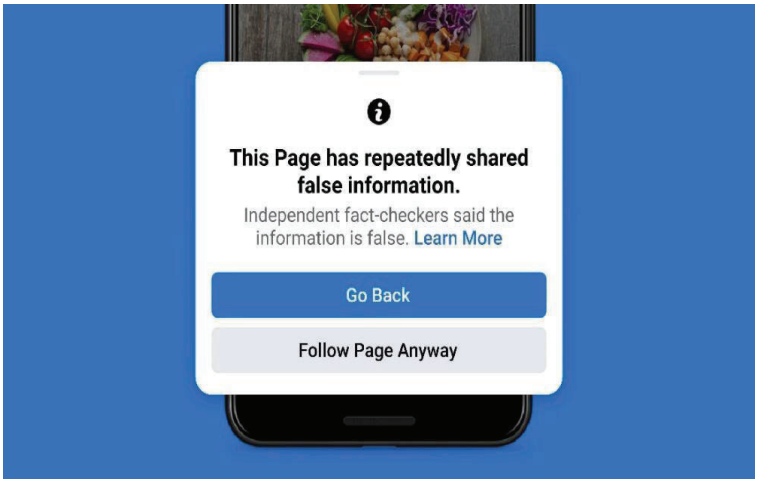
In the biased and opinionated environments made possible by online echo chambers, it is sadly no longer enough to flag or refute certain content as false; new steps need to be taken if possible and accessible. For sites like Instagram and Facebook, a user is hit with a pop-up block if they happen to come across flagged content, a common example can be seen in **Figure 6.** The headline transparently states that the content in question contains false data which gives the user the option to follow the page anyway, go back, or to 'learn more' which will lead the user to information about the platform's fact-checking program. This approach merely acknowledges the flagging of the content but still allows the user to access it; the only viable source to go by is the

[74] Training "Machine learning and artificial intelligence" Google 2022

link in the description which gives an account in vague terms about the program, not the content. Much like how politically biased users gravitate toward similar like-minded individuals, and much like how people normally associate confirmation and trust with familiar people and groups, the information provided is a cold, unfamiliar hindrance on the senses of familiarity and trust.

Figure 6

Sample of Typical Pop-Up Block



Note. Figure taken from Company News "Taking Action Against People Who Repeatedly Share Misinformation" *Meta* May 26, 2021

With the general public aware of the presence of misinformation as well as the collective mistrust of a platform many know to harbor misinformation, why should users take the program's word when they say this content is false? The fact-checking program is by association an extension of the already mistrusted platform which renders explanations and elaborations as rather mute. Similar to how developers of AI should be thoroughly trained before hiring, users should instead be sent to profiles and websites of those professionals who have flagged the content. In addition to their credentials, an array of alternative pages and sites that backup their case and ideally refute the false content in question will give users something to properly chew on and interpret instead of simply being told something is false; back that up with evidence and

alternatives that demonstrate how false the content really is. As we've learned from the contrast principle, one value alone cannot objectively represent a position, perspective, or explanation. In order to sway users in the right direction, they must be pivoted and compared with diverse and alternative information.

In a society that celebrates individuality, U.S. citizens don't want to be told what is right and wrong, they want the obtainable freedom to create their own realities and form their own conclusions. A single refuting of a page's content will not leave enough interpretation open; by providing an array of alternative sources – preferably ten or more – users will then assume the perspective of control and draw their own conclusions from the facts given. A more thorough analysis and experiment would be ideal to properly test this theory. It may not be 100% effective, but I believe this tactic will improve the chances of users believing in the right information.

BEHAVIORS

In junction to altering online behavior as a result, let it serve as a functional strategy and cause as well. By changing users' behaviors online, the very cognitive functions that have been used to ensnare people toward false information may also serve as tools to deliver more positive opposite effects. The best advice one could give to keep people from succumbing to online disinformation on social media platforms would be to just not be online at all, or at the very least not rely on social media as news and instead seek out more objective and fact-based media. Total disassembling from online activity and social media is very likely a pipe dream whose chances dwindle every year as we integrate online activity into our lives further and further. Instant connectivity, convenience, and even requirements from certain career applications is too much of

a temptation – or even gamble – to give up entirely. We don't need to be rash and completely eradicate internet use from our lives, but a conscious effort to limit our screen time – not just from the internet – will benefit us in the long run in a plethora of ways.

Countless studies have found excessive TV and internet use to affect memory, posture, sleep, weight, and cognitive function. We've explored how prolonged use has affected the performances of younger demographics (see **Online Behavior**) and how excessive use allows repetitive exposure to false information that gradually becomes convincing over time (see **Illusory Truth Effect**). By limiting the amount of online consumption, we will begin to experience positive changes that will gradually slide into diminished susceptibility.

In a comparison of reading books vs. watching TV, reading calms the nerves, increases language and reasoning, and can even keep you mentally alert as you age. TV, on the other hand, has the opposite effect.[75] Reading is a more active activity while TV is generally passive and demands very little effort in consuming its content. As such, memory and performance are affected which as we've demonstrated increases susceptibility. When we exercise our brains and cognitive functions into more demanding situations, they adapt and grow like any other muscle in our body. Such exercises support us into adapting healthier decisions and lifestyles; and as our performance and memory improve, we will then become more utilized to reflectively critically think about certain online content. Our improved memory and rationalizations from limiting online use will make users less receptive to misinformation.

This exercise in critical thinking serves as an added bonus when consuming dissenting content. By allowing ourselves to be challenged by opposite views we can engage in the reflective

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[75] Jeff Haden "Everything You Thought You Knew About Reading (and Watching TV) Turns Out to Be True" *Inc.* July 13, 2016

abilities of experiencing and emphasizing both sides of an argument. One must not have to agree with a dissenting view but understanding it allows one to properly deconstruct how true and false news emerge and evolve as they do.

Researcher Hugo Mercier and cognitive scientist Dan Sperber provide the benefits and pitfalls of such rationality in their incredibly recommended 2017 publication, *The Enigma of Reason*. Their studies argue that when individuals proceed to understand and rationalize a question, decision, or dilemma independently, we follow an "intuitive inference" in which we generate hypotheses from the sensory data applied to us exclusively. This "data" is unique to each of us as we come to such rationales bestowed to us from nature and nurture outlets. Mercier and Sperber argue that we are not truly bound by formal and rational norms because reason in and of itself is biased and opportunistic whose sole purpose is for the individual to come to terms and understand a situation in their own way. The conclusion may not coincide with what is truly or objectively happening or may not even have a true grasp on reality; as such, our reasons can be misleading and lead us astray from what is true. Mercier and Sperber opt for an "interactionist approach" to reason. People end up formulating better, more pointed arguments in the back-and-forth of a dialogue than when reasoning on their own.[76] People may think that those who disagree with them are irrational, but how rational is it to think that only you and the people who agree with you are rational?[77]

Our biases and reinforcements of beliefs often lead us to believe that we ourselves are the most rational and morally justified, but such intuitive inferences only strengthen our distortions of reality. As heated as dissent may be, and no matter how uncomfortable opposing sides may be to

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[76] Hugo Mercier and Dan Sperber "The Enigma of Reason" *Harvard University Press* 2017 (228)
[77] Ibid (172)

one's self-esteem and ego, it is a healthy variable for the overall betterment of one's mental health, critical thinking, and self-reflection. We should actively rail against the comfort zones of "yes-men" who merely reinforce what we want to hear, we should be challenged and even taken aback from opposing ideas and viewpoints which serve to strengthen our capacity to understand. Oftentimes, those "yes-men" are the very actors who exploit and manipulate context for their own gain, and should be recognized as such. If this approach and attitude is actively exercised and reinforced, we will improve not just our rationalizations, but our ability to not be undermined by disinformation.

In one of several electoral reform propositions, political scientists Bruce Ackerman and James Fishkin have proposed what they call a "Deliberation Day" in which registered voters would be invited to partake in public community discussions regarding upcoming elections. Such an approach is a step in the right direction to get dissenting extremes to cooperate. In searching for the truth, it may be our best plan to start by criticizing our most cherished beliefs.[78]

As stated earlier, these alternatives are recommended to be exercised and practiced by a much larger portion of the general population in order to combat susceptibility to disinformation. Formal training and education need to be at the forefront of related concentrations and curriculums. It is important for the average citizen to become familiar and fluent in not just the causal variables but proposed tactics and solutions. But in no other demographic is it more urgent and required than in journalists and surveyors of media.

Amy Watson of *Statista* interviewed a vast array of journalists in 2019 and were questioned in both their natural ability to spot disinformation and what related formal training they've had

[78] Ibid (211)

from their organizations and institutions. The results showed that the vast majority of responding journalists stated that they had not taken part in any formal training regarding the spread of false information, with just 15% saying that they had been trained in this area and 81% not formally trained.[79] In the era of disinformation saturating our newsfeed and lives, this is an unacceptable estimate. Technology companies and the firms in their orbit should require all employees to pass a course on potential misuses of technology.[80]

As long as computer literacy has become an integrated part of education, so must literacy in understanding the contingencies that much more citizens and journalists need to be more aware and fluent in. Fellow journalist and assistant professor Samuel C. Woolley supports a similar form of transdisciplinary leadership and education, calling for scientists who understand social problems and policymakers who understand technology. We need public interest technologists and technologically savvy politicians.[81] Much like how we need citizens who emphasize and identify with both sides of an argument, we need experts fluent in a variety of fields; this should be apparent in such an integrated and globalized world that we live in. Diverse groups and individuals with various backgrounds and fields that open opportunities for different perspectives and interpretations which prevent like-minded echo chambers. The very different and diverse avenues of causal factors elaborated here in this text reinforces how truly complex and multilayered tackling a situation such as this is. Only when we engage and become fluent in multiple avenues can we draw more neutral and objective rationalizations and conclusions.

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[79] Amy Watson "Share of journalists who have been formally trained regarding the spread of false information in the United States in 2018" *Statista* June 24, 2019

[80] Samuel Woolley "The Reality Game: How the Next Wave of Technology will Break the Truth" *Public Affairs* 2020 (198)

[81] Ibid (38)

CONCLUSION

In an analysis of our findings in the literature review, we have deduced not only the overwhelming evidence of the existence and spread of disinformation, but the versatile ways in which they affect users as well. The multilayered embodiment of these forces is crucial in understanding the complexity and severity of the situation. By deconstructing and compartmentalizing the factors and notable findings as we have, we can grasp a better understanding of the advantages and disadvantages of the evidence and theories proposed in them.

The polls and figures quantified by the *Pew Research Center* and the *Gallup World Poll* (see **Figure 1**) showcase the distinct polarization and distrust between the two dominant political parties in the United States. Despite notable distrust and contrasting ideologies between the two even beforehand, it seems too great a coincidence that distrust and polarization increased in annual sizes around the same time as the most contemporary and influential social media platforms as recorded by *Our World in Data*. (see **Figure 2**) As they have evolved in sophistication, these social platforms have become havens for hive minds of ideological extremes to reinforce their dissent and remain in unquestioned echo chambers that are filtered and tailored by faulty algorithms.

The findings of Hugo Mercier and Dan Sperber suggest that interactionist approaches to confrontations and dissent can help alleviate the tensions of polarization, but prove to be rather tricky in an online setting as proven by Brendan Nyhan and Jason Reifler's backfire effect theory. Other psychological phenomena such as Temple University's illusory truth effect, Fiona Broome's Mandel effect, and Bluma Zeigarnik's Zeigarnik effect all demonstrate the ramifications of mental barriers and defense mechanisms that are amplified in an online social

setting. The psychological and technical factors that spread disinformation are relentlessly compatible and effective in increasing susceptibility.

The studies of Katrina Eva Matsa and Mason Walker from the *Pew Research Center* and Laura Ceci from *Statista* prove the increased activity and reliance of social media and online use for social interaction and news consumption. The studies of Adam Alter showcase that memory, rationality, and performance are severely disrupted by online dependency, making susceptibility all the more likely.

Those who have the most to gain from the exploitation of these factors are often malicious state actors and extremists who seek to disrupt, undermine, and indoctrinate the masses. The factors that sow and spread disinformation have been effectively weaponized by these individuals and organizations and the severe lack of sufficient countering has brought about detrimental consequences.

Although such advances have disrupted society, they can still be used for good. Despite the rather controversial stances in recent years, globalization and integration have arguably had more positive effects on the world's population. Thanks to its celebration of progress and technology, civilization and society have evolved unprecedentedly faster than any century prior, which has led to an acceleration and accessibility in food production, trade, technology, health and medicine, societal development, and communication most of all. Critics and scholars have criticized and scrutinized the online world for making our Earth a much smaller place, with the internet and social media providing instant connectivity to family, friends, and a never-ending ocean of information. This tool is no different than any other technological achievement in history in that for all of the positive results, there have been negative repercussions as well when this tool is mistreated or abused. This compilation and observation of theories, experiments, and

publications have demonstrated the strong effect that the misuse of these tools have had on multiple layers of fields and concentrations and have permeated the perceptual view of reality that citizens often take for granted. It is paramount to use these instruments of communication to spread the word and the right information. Because our world has become so small and integrated, this relationship has made stability more fragile than ever before. Misinformation, disinformation, fake news, and propaganda have had very serious and destructive consequences. It has affected our elections and caused massive political rifts in our communities, it has lowered the optimal happiness of online users, it has led to the highest estimate in unvaccinated children in history thereby spreading more illnesses, it led to the persecution and mass genocide of Jews in Nazi Germany and of the Tutsi population in Rwanda, it has indoctrinated otherwise educated individuals into joining violent extremist and terrorist organizations, it has allowed regimes like North Korea to continually oppress and isolate its people, and it has saturated our news feeds and algorithms with negative and hateful content.

If we are to continue to have a harmonious relationship with online activity and technology, we must become that much more aware and critical of the dangers that it could wield. We've explored its capacity to affect users politically, psychologically, and technically. It is all the more reason to come up with policy, platform, and behavior-based solutions in order to recognize, combat, and minimize susceptibility to online disinformation. If we productively break up their causal factors accordingly, we can tackle each field each in its own way to come up with viable solutions that will hopefully and in theory cross and saturate into each other and finally close the gap that only seems to open each passing year.

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