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Twin Threats: The Short-Sighted US Response to Global Climate Change and Pandemics

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The Short-Sighted US Response to Global Climate Change and Pandemics

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ABSTRACT

This thesis examines the failure of the United States government to mitigate global climate change and the COVID-19 pandemic by comparing poor public reactions and governmental administration between the two threats. Using developmental constructs to serve as a framework for assessing public reactions to climate change and pandemics, this thesis implements a content analysis study of American news media from 2000 to 2020; it identifies the rhetoric embedded in communications that has directed the US public's focus of attention and shaped public opinion on these issues. The results indicate significantly less focus of attention on human health issues than economic issues, and that the risk of climate change and pandemics alike have often been understated.

The thesis qualifies the results of this content analysis with supplementary studies on the conditioning factors of this reality, namely political division and bias. By understanding the ways in which the American public has internalized certain biases and applies their values toward public health threats, behaviors and public policy actions that fail to prioritize long-term public health and financial well-being become clearer. Policymakers can adapt to these conditioning factors in order to develop more appropriate strategies for addressing global threats like climate change and pandemics.

The thesis examines current approaches to communications and policymaking, acknowledges their shortcomings, and proposes solutions that better interpret the varying reactions to global climate change and pandemics. Several examples are provided of successful and unsuccessful mitigation strategies that incorporate the insights from the analysis of the conditioning factors.

INTRODUCTION

The Mutual Relationship Between Climate Change and COVID-19

During the month of March 2020, several news outlets and individuals on social media favorably observed the effects of the COVID-19 pandemic on pollution and climate change. Because populations isolated to slow the transmission of the COVID-19 virus, pollution from transportation and other industries decreased, resulting in clearer skies in several parts of the globe. "Nature is healing. We are the virus", many remarked (some sincerely, others sarcastically) about animals returning to empty city streets (Keane, 2020). COVID-19 put the effects of human industry on climate change and the environment into perspective, providing a myopic example of the benefits of less consumption. Unfortunately, these effects turned out to be overblown, and particulate matter pollution from fossil fuel combustion remained the same when compared to the previous year, and even grew worse in some areas of the United States (Archer, 2020). People must do much more than isolate from each other for a few months to reduce their harm on the environment.

The relationship between the COVID-19 pandemic and climate change is much more complicated than this brief period of decreased pollution. Immersed in the new normal of the COVID-19 pandemic, isolated and gravely concerned about the risk of the virus, many Americans started noticing these connections. US policymaking decisions during the pandemic felt frustratingly familiar; the US public observed how US leaders continued to downplay the risk of COVID-19 as it developed, spreading misinformation and delegitimizing scientists. Many of the failures of the US government's reaction to the COVID-19 pandemic are similar to the failures of the US government's reaction to climate change, leading to this thesis:

The US public have mishandled public policy for two existential threats: global climate change and the COVID-19 pandemic. The novel period of a global pandemic in the 21st century may not only provide insights for how the United States should approach future pandemics, but also future urgent crises created by global climate change. These twin threats share several implications for US public health and economic wellbeing, and are also linked by similar underlying issues like groupthink and failure to heed scientific guidance. It is the responsibility of policymakers to increase the adequate perception of risk for both threats to compel more vigorous commitment to effective policy solutions that avoid catastrophe.

Understanding the psychology of addressing existential threats of different time scales is crucial for fashioning effective policies and communication strategies. By juxtaposing public reactions and policy responses to global climate change and global pandemics, this senior thesis reveals several underlying habits and values of the US public and the consequently poor policy response. The insights from this analysis are then used to suggest how to redirect the US focus of attention to create long-term action plans responding more adequately to these threats.

CHAPTER 1: THE THREAT OF PANDEMICS, GLOBAL CLIMATE CHANGE, AND US INACTION

The Urgent Threat of COVID-19 for the United States

The habits displayed by the US government during the COVID-19 pandemic may hold dire consequences for the future. It is very likely that other viruses will emerge, whether from animal sources or other sources (Gill, 2020). Unless actions are taken to limit their impact, the world may experience damages similar to or even worse than COVID-19.

According to an officially reported estimate by the CDC (2021), as of April 20, 2021, the United States ranks highest in the world for overall confirmed COVID-19 cases (31,484,148 cases) and deaths (564,292 deaths) since January 21, 2020. Because this only covers reported cases and death, this estimate is conservative, meaning that there may be many more. Additionally, scientific discoveries about the long-term health risks of contracting the virus are increasingly concerning. Research has shown that COVID-19 can cause long term health issues such as brain fog, lung complications, heart arrhythmia, and hypertension, among other debilitating conditions (Couzin-Frankel, 2020). This significant impact cannot be unmitigated, which requires preparation to avoid sluggish policy responses from governments that ignore expertise. The US government must anticipate consequences of future pandemics such as similar levels of economic clash and greater inequality that the COVID-19 pandemic has displayed to react accordingly.

Negligent reactions from the US government to COVID-19 also led to severe economic impacts, creating disparities for citizens across several different sectors of the country. States were not unified in their application of various responses to the pandemic such as requirements

for masks in public places, allowance of mass gatherings, stay at home orders, and paid leave and worker protections (Stateside, 2020). This disunity prolonged the effective containment of the virus, which resulted in major repercussions for the economy. A report published in 2020 by the Congressional Research service details many of the impacts (Miller, 2020). Even with the first analysis containing only one month that was significantly impacted by coronavirus (March 2020), the real GDP fell 4.8 percent during the first quarter of 2020 compared to a 2.1 percent growth rate in the fourth quarter of 2019. Thousands of businesses closed, and 6.9 million Americans applied for unemployment benefits. As the US government continued to lack a strong, unified response to flatten rate of infections, the economic conditions continued to worsen. In April, the Department of Labor reported that unemployment rose from pre-pandemic level of 4 percent to 14.7 percent (US Department of Labor, 2020). While the economy steadily recovered from 2020 to 2021, the unemployment rate as of February 2021 was still higher than pre-pandemic levels at 6.2 percent, and the number of unemployed Americans over 10 million (US Department of Labor, 2021).

Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, lamented the state of poor US policy throughout the pandemic. When the Trump administration instated travel bans in March 2020, but refused to administer more testing kits, Fauci said that the "system is not really geared to what we need right now" (BBC, 2020). Prior to the massive spike in coronavirus rates in the winter of 2020/2021, Fauci again reviewed that the United States "could not possibly be positioned more poorly" (Dawsey, 2020). Because the US federal government and several governors failed to heed science-based warnings about the threat of COVID-19, the country continues to experience these consequences. The United States could not

lead a unified response to the pandemic where other countries that used science as a guiding

model for policy, like Germany and South Korea, accomplished (Wernick, 2020). In addition to

the thousands of lives lost and the devastation to long-term financial well-being because of an

inadequate US response, these actions likely may result in loss of respect from allies, and

therefore global power and influence. This behavior of willful ignorance of scientific guidance is

not limited to the COVID-19 pandemic response. It is a behavior that has plagued the United

States long before 2020.

The Chronic Threat of Climate Change for the United States

That behavior is exemplified by the United States government's inconsistent response to

the climate crisis. By burning fossil fuels (coal, oil, and natural gas), greenhouse gasses released

into the atmosphere in staggering proportions facilitate climate change which dramatically alters

natural and societal order (Denchak, 2018). Climate change carries harrowing economic and

human health risks. In just the last decade, examples of measurable climate change include

extreme weather events decimating infrastructure and livelihoods, threatened food and water

security, and the rising loss of human life from extreme heat waves (Burrows, 2017). In 2019

alone, the United States lost an estimated $46.7 billion from climate related disasters of flooding

in the Midwest and South, Hurricane Dorian, Tropical Storm Imelda, and the California wildfires

(Ware, 2019). The Economist Intelligence Unit projects that by 2050, the global economy will be

three percent smaller because of a lack of climate resilience with North American harboring

1.1% of the decrease (Economist Intelligence Unit, 2019).

Burning fossil fuels also creates toxic air pollution, which directly blights human health.

In fact, the health-related costs of current effects from ozone pollution above national air quality

standards in the United States significantly impacts the US economy. In 2018, roughly three percent of the US GDP decreased from air pollution-related damages which amounts to about $600 billion (Myllyvirta, 2020). The highest costs are attributed to particulate matter (PM2.5) exposure causing early deaths. Air pollution increases risk for asthma, cancer, and various other pulmonary and heart diseases. In the United States, about 150 million people live in counties with officially designated "unhealthy" levels of ozone or particulate matter, meaning the air breathed could decrease life expectancy or cause harmful effects like lung cancer (American Lung Association, 2020). Air pollution is estimated to cause five to ten percent of total annual premature mortality in the United States (Dedoussi, 2020). As fossil fuels continue to be burned, injecting more unhealthy fumes and particulate matter into the atmosphere, these conditions are likely to worsen.

The US government consistently fails to comprehensively address global climate change. Decades of advocacy to mitigate global climate change met the same kind of resistance that undercut the efforts of those advocating rapid intervention to mitigate the impact of the COVID-19 pandemic. Much like the pandemic, the inclination to dismiss scientific concerns regarding the impact of climate change seems to be rooted in a significant presence of habits of short-term economic interest, expectations for small-government, and demands for limited regulations on business from much of the US population. In addition to this concerning trend, some public policy scientists theorize that cultural behaviors of high consumption and expanding material prosperity create a recipe for unimpressive response to global climate change (Collomb, 2014). These beliefs have created trends of climate science denial to downplay the risk of climate

change to maintain an idealized American way of life. However, the risks, like COVID-19, are grave and the need to address their causes are dire (if not doubly so).

To create policies that address global threats like climate change and global pandemics, these issues must be contextualized with an eye toward the past as well as the future. Understanding how the complexities of US values and how they have been applied to climate change and pandemics aids the process of creating responsive policy that prioritizes the long-term health and security of its citizens.

CHAPTER 2: THE THREAT OF US INACTION AND REDIRECTING THE FOCUS OF
ATTENTION

The Focus of Policy Attention: Communicating Timing and Urgency

Harold Lasswell defines the process of assessing the long-term trajectory of a public

policy issue as the analysis of developmental constructs. A developmental construct is a

projection of future patterns for a policy issue (Eulau, 1986). One crafts a developmental

construct with the principle of uncertainty, taking into consideration different scenarios and

weighing their likelihood to determine the best course of action. Furthermore, a developmental

construct identifies additional potential trends that may condition projections directly relevant to

the policy issue. The goal of creating a developmental construct is to identify alternatives to

achieve desired outcomes.

Global climate change response is a developmental construct. Human behaviors that react

to science indicating increasing global temperature from anthropogenic sources as well as the

direct physical effects on the environment and US society (natural disasters, food and water

insecurities) can be measured and projected as a factor that can be interpreted. Policymakers can

then institute policies hoping to influence the behavioral trends projected by this developmental

construct. Using the same methodology, the social and policy reactions to the COVID-19

pandemic can be categorized as a developmental construct and influenced as well. To create the

desired outcome of optimizing both the reduction of overall carbon emissions and dampening the

impact of pandemics, it is important to categorize and react to how human behavior interacts

with these global threats.

Despite their shared struggle with balancing conflicting demands and scientific uncertainty, the COVID-19 pandemic and climate change maintain a distinct difference: the timing of the issues and their level of apparent policy urgency. This difference is a primary influence on climate change because it can determine the level of policy attention climate change receives, and therefore influences the likelihood of effective policy. At least at the outset, the COVID-19 pandemic appeared to be a comparatively short-term crisis with easily distinguishable direct human costs, earning significant US policy attention, and therefore, significant urgency in the search for resolutions to virus transmission rate and the death toll. While the COVID-19 pandemic has since persisted over a year, and this vigorous mitigation period has certainly waned, in contrast, climate change is a long-term threat spanning decades with comparably less policy urgency, evidenced the United States' continued reliance on fossil fuels. This difference in timing and urgency plays an important role in the psychology of American voters and policymakers by influencing the degree of policy response.

This discrepancy between the focus of attention climate change receives versus the COVID-19 pandemic is illustrative of the concept of time horizons. Time horizons explain that human behavior often tends to forgo longer term rewards if they are not immediately apparent. Similarly, the longer the gestation period for the effects of a given issue to be experienced, the more people tend to discount the benefits of addressing said issue (Blake, 2013). Since climate change currently has less readily apparent effects in the short term compared to the COVID-19 pandemic—a longer time horizon—this explains why people tend to discount its impacts and prioritize short-term issues.

It is true, however, that the continued delay in US response has turned the COVID-19 pandemic into a much longer-term issue than it has been for other countries, as indicated earlier. However, in the frame of developmental constructs, about a year of a pandemic is much smaller than the decades of climate change mitigation efforts, and COVID-19 is more prevalent within current policy arenas than climate change. Reason being climate change is a longer-term issue— it has spanned decades and the costs may be prevalent for centuries—so its time horizon is not as important for several local governments in the United States to address. This is because politicians often fail to conceive of the long-term benefits of preventing damages from climate change because they do not tend to immediately apply to their current constituents.

As climate change is ignored, new sets of problems with longer gestation periods are created that cannot be resolved or may not be resolved until very far in the future. Even though climate change is a long-term issue, just like the long-term developmental construct of US reactions to pandemics, it has had and will continue to produce urgent threats (such as climate-caused wildfires, refugees fleeing sea level rise etc.). The question is how, despite US public behaviors of discounting or ignoring the future, the US government can prioritize climate change and perhaps make short term sacrifices for long-term gains during the time of the COVID-19 pandemic.

COVID-19 falls under the broader developmental construct of pandemics in general. With the properties of the COVID-19 pandemic being a short-term crisis and given immediate psychological precedence, it may be useful to analyze previous pandemics and epidemics that share these traits as well to project how COVID-19 may influence developmental constructs like climate change. Assessing the successes and shortcomings of US response to previous acute

disease crises can provide a learning opportunity to help steer predictions of and responses to the COVID-19 pandemic.

The COVID-19 pandemic is an opportunity to inform the prevention of and responses to potential global pandemics and other public health threats in the future. There are already appeals to bolster the ability to identify viruses, develop vaccines, and conduct contact tracing much more rapidly (Lu, 2020). Additionally, analysis of pandemics as a developmental construct can also inform the developmental construct of climate change by articulating patterns of US behavior reacting to long-term global threats.

Measuring American Focus of Attention Toward Global Threats: A Content Analysis

To capture long-term trends in the American public's attitude toward global climate change and pandemics, I conducted a content analysis on major American news publishers. A content analysis is a systematic process of collecting and assessing data on an author's or group of authors' foci of attention with the goal of measuring trends across a period (Weber, 1984). This process involves creating a codified list of words related to broader categories relevant to the research topic, collecting data on the words' frequency of use in a sample of texts across time, and finally running statistical analyses on the language usage to capture and interpret trends.

A primary goal of content analysis is to minimize the risk of a researcher's personal bias affecting the results of the study. However, there are some drawbacks to the process. It can be reductive to focus in isolation on words and phrases, making minimal room for context, nuance, or ambiguities (Luo, 2019). It also may still produce biased results as the interpretation of the

data is subjective to some level, affecting the validity and reliability of the results. Nonetheless, if a content analysis has a sound process, where the codified lists are scrutinized, the research process is systematic and completely adhered to, and the conclusions are drawn properly accounting for the aforementioned flaws and uncertainties, it is one of the best processes to measure trends in social interaction for a given issue.

This thesis will make use of a content analysis to demonstrate trends in social interaction with global climate change and pandemics. The content analysis seeks to provide some clarity on how American reactions to each of these topics have shifted over the last 20 years and whether audiences with different political leanings have consumed news with different foci of attention. I selected articles discussing global climate change and pandemics from *The New York Times* and *Fox News* due to their status as major American publishers representing liberal and conservative media, respectively.1

For both *The New York Times* and *Fox News* articles, I hypothesize that the climate change and pandemic articles will demonstrate a significantly higher focus of attention on economic security, American values, and skepticism over public health/safety and environmental concerns. The null hypothesis, the hypothesis that the relationship within the data is not statistically significant, will be rejected if there is a significant difference between any of the lists. If my hypothesis is supported, it would allow further analysis into the differences between issue areas,

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1 Global warming articles qualified for analysis when climate change articles were unavailable for a given year due to the topic's synonymity with climate change and their focus on fossil fuel use and the greenhouse effect. Epidemic articles qualified for analysis when pandemic articles were unavailable for a given year due to the topic's synonymity with pandemics and their focus on transmittable diseases.

potentially revealing trends in the overall focus of attention in American news media over the past 20 years.

I also hypothesize that there will be a greater focus of attention on economic security, American values, and skepticism for *Fox News* publications compared to *The New York Times* articles, which I hypothesize will have a greater focus of attention on public health/safety and environmental issues. The null hypothesis, the hypothesis that the relationship within the data is not statistically significant, will be rejected if there is a significant difference between any of the lists. If my hypothesis is supported, it would indicate potential differences in focus of attention on global climate change and pandemics between prominent news publishers with generally conservative or liberal audiences over the past 20 years.

Methods

I selected articles from *The New York Times* and *Fox News* due to their status as major American publishers representing liberal and conservative media, respectively. A random sample of 5 articles per year from 2000 to 2020 generally written about "Climate Change"/"Global Warming" and "Pandemic"/"Epidemic" were selected and analyzed from each publisher, yielding four sample sets in total of about 400 articles. There are gaps in available data for *Fox News* due to absences in archived articles for certain years, particularly the lack of articles from 2000 to 2002.

This content analysis records the frequency of word usage from five main categories: personal health and safety, economic security, American values, skepticism, and environment. Personal health and safety records instances of words generally associated with the physical and

medical well-being of persons, economic security records instances of words associated with

wealth and the economy, American values records instances of words discussing cultural US

philosophies and beliefs, skepticism records instances of words associated with doubt of science

and expertise, and environment records instances of words dealing with environmental issues

(table 1).

Table 1. *Content Analysis Word Lists*

Personal Health/Safety	Economic Security	American Values	Skepticism	Environment
Disease	Abundance	Ambition	Alarm	Atmosphere
Drown	Affluence	Ambitious	Alarmist	Biodiversity
Emergency	Bankrupt	American	Alarmism	Carbon
Epidemic	Budget	Dream	Authoritarian	Climate
Fitness	Business	Amendment	Blame	Climate change
Hazard	Commerce	Competition	Communism	Conservation
Health	Consumer	Conservative	Communist	Drought
Healthcare	Cost	Constitution	Denial	Ecology
Hospital	Debt	Democracy	Disbelief	Ecosystem
Infection	Deficit	Democratic	Distract	Emission
Injury	Depression	Freedom	Doubt	Environment
Medical	Dollar	Independence	Hoax	Extinct
Pandemic	Economic	Individualism	Myth	Flood
Patients	Economy	Individualistic	No consensus	Fossil Fuel
Prevention	Expense	Liberal	Reliability	Global Warming
Quality of life	Fiscal	Liberty	Reliable	Greenhouse
Safety	Income	Patriot	Scam	Habitat
Sanitary	Industry	Patriotic	Scheme	Natural
Sanitation	Insurance	Patriotism	Suspect	Nature
Starve	Money	Power	Suspicious	Ozone
Unsafe	Poverty	Privacy	Unreliable	Pollution
Vaccination	Producer			Recycle
Vaccine	Productivity			Renewable
	Prosperity			Resource
	Tax			Species
	Unemployment			Sustainability
	Wealth			Sustainable
				Waste

The full articles were manually copied into individual text files that were then loaded into

R for processing. The R package "Quanteda", a program designed for textual analysis, tracked

over time the words used in each of the lists for each of the four sample sets (*Fox News* Climate

Change articles, *Fox News* Pandemic/Epidemic articles, *The New York Times* Climate Change articles, and *The New York Times* Pandemic/Epidemic articles).

Three main methods of analyzing the results were employed. First, for each of the sample sets, the frequency of word usage was compared across each of the lists to measure any significant differences. Second, for both the Climate Change/Global Warming and Pandemic/Epidemic topics, word list frequencies for *Fox News* and *The New York Times* were compared to each other to measure significant differences. Finally, articles reacting to major events, years with higher than around ten-word usage frequencies for any of the lists, were catalogued and qualitatively analyzed. It is important to note that the Personal Health/Safety list was omitted from Pandemic/Epidemic article analysis and the Environment list was omitted from Climate Change/Global article analysis due to their redundancy. Because these lists contain words that would be unequivocally present across the articles searched for in the topics (i.e. "Climate Change", "Global Warming", "Pandemic", "Epidemic"), they do not add substantive value to the analysis.

The total list occurrence for each of the lists were compared to each other within each of the four sample sets (i.e. Fox Climate Change Economics Security list compared with the American Values list, etc.). A one-way analysis of variance (ANOVA) test was run for the internal sample set comparison to test for significance for each list pairing. If two samples have a p-value less than 0.05, the null hypothesis that the relationship between the lists is due to random chance is rejected in favor of the alternative hypothesis that one of the lists is significantly greater than the other.

The total list occurrence for each of the lists were then compared to each other between each of the four sample sets (i.e. Fox Climate Change Economic Security list compared with *The New York Times* Climate Change Economic Security list, etc.). The *New York Times* articles' significantly higher average word count than *Fox News* articles were compared by adjusting the analysis so that the samples were proportional. A one-way ANOVA test was run for the external sample set comparison to test for significance for each list pairing. If two samples have a p-value less than 0.05, the null hypothesis that the relationship between the lists is due to random chance is rejected in favor of the alternative hypothesis that one of the lists is significantly greater than the other.

Results

Fox News Climate Change/Global Warming Articles

The first sample set contained articles collected using "Climate Change" (or if none were available for the year "Global Warming") in the search bar of the *Fox News* online archive. The results of the content analysis of this sample are in Table 2, noting the total word list frequency from 2002 to 2020, the average word list frequency per year, and the highest frequency list total. The total word list frequency is also plotted in a line chart in Figure 1. The highest frequency list total is the total number of articles that were "definitively" focused on a certain list topic (i.e. whichever list had the highest number of mentions in an article equaled "1" and added to create the highest frequency list total).

The ANOVA test indicated that there was a significant source of difference between each of the group's total word list frequency, rejecting the null hypothesis ($f = 10.82$, p-value < 0.05). A

follow-up Tukey HSD test indicated that the Economic Security list had a significantly greater

word list frequency total than the Personal Health/Safety, Skepticism, and American Values lists

(p-value < 0.05). All other list relationships were non-significant.

Table 2. *Fox News* **Climate Change/Global Warming Articles Word List Frequency**

Year	Personal Health/Safety	Economic Security	Skepticism	American Values
2002	0	3	2	1
2003	5	19	5	7
2004	1	6	1	1
2005	2	16	2	3
2006	5	43	9	6
2007	20	11	3	4
2008	0	16	1	6
2009	8	23	0	5
2010	0	2	1	2
2011	3	15	2	14
2012	1	10	0	2
2013	1	4	1	3
2014	3	15	2	12
2015	8	3	3	10
2016	0	4	0	0
2017	0	12	0	1
2018	1	12	1	2
2019	9	18	1	5
2020	18	5	1	1
Total	85	237	35	85
Average list occurrence per article	4.473684211	12.47368421	1.842105263	4.473684211
Highest frequency list total	14	50	9	15
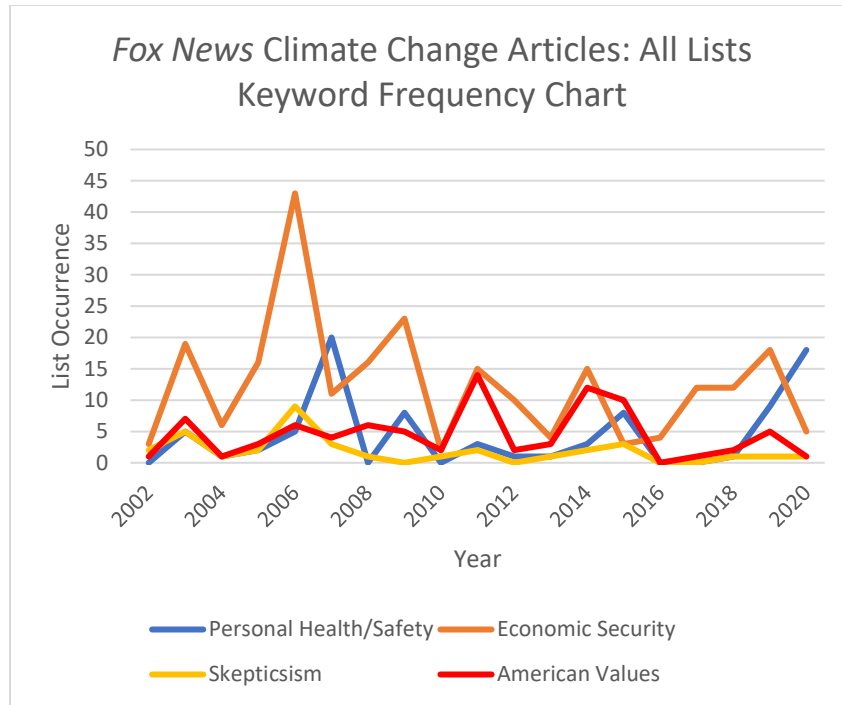
Figure 1. *Fox News* Climate Change/Global Warming Articles Word List Frequency plotted

from 2002 to 2020.

Fox News Pandemic/Epidemic Articles

The second sample set contained articles collected using "Pandemic" (or if none were

available for the year "Epidemic") in the search bar of the *Fox News* online archive. Articles not

discussing transmittable diseases were omitted, such as articles discussing an "obesity epidemic"

or a "drug epidemic". The results of the content analysis for this sample is in Table 3, noting the

total word list frequency from 2002 to 2020, the average word list frequency per year, and the

highest frequency list total. The total word list frequency is also plotted in a line chart in Figure

2.

The ANOVA test indicated that there was a significant source of difference between each of the group's total word list frequency, rejecting the null hypothesis ($f = 6.28$, p-value < 0.05). A follow-up Tukey HSD test indicated that the Economic Security list had a significantly greater word list frequency than the Skepticism list and American Values list (p-value < 0.05). All other list relationships were non-significant.

Table 3. *Fox News Pandemic/Epidemic Articles Word List Frequency*

Year	Economic Security	Skepticism	Environment	American Values
2002	2	0	0	0
2003	1	0	3	0
2004	5	1	2	0
2005	2	0	1	0
2006	8	2	1	2
2007	18	3	3	1
2008	11	0	6	0
2009	6	1	1	1
2010	6	0	0	1
2011	8	2	3	0
2012	1	1	6	0
2013	1	0	3	0
2014	1	1	2	0
2015	4	3	0	0
2016	22	1	4	3
2017	10	1	0	4
2018	0	2	4	0
2019	1	0	2	0
2020	3	3	23	3
Total	110	21	64	15
Average list occurrence per article	5.789473684	1.105263158	3.368421053	0.789473684
Highest frequency list total	33	9	22	5
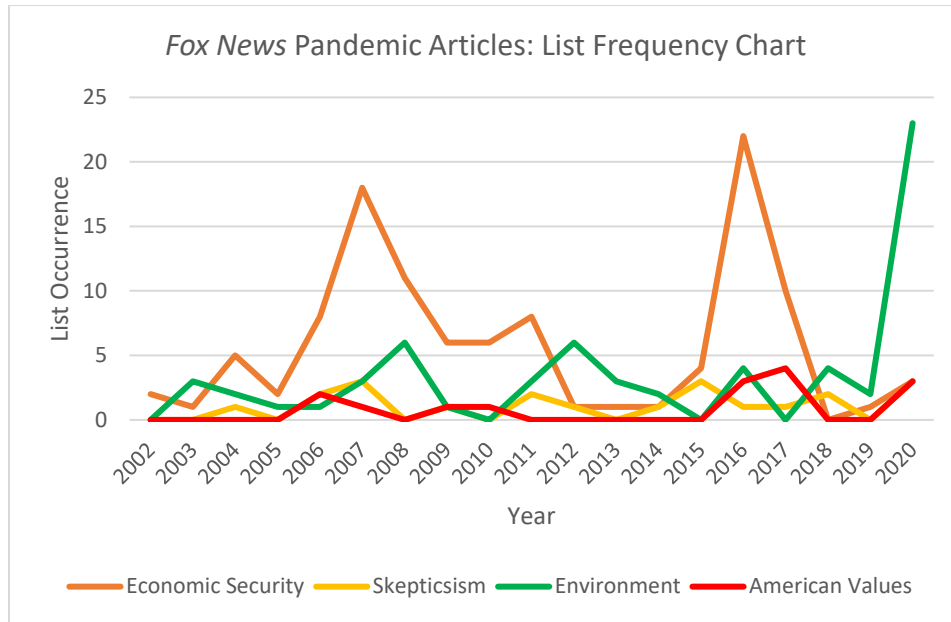
Figure 2. *Fox News* Pandemic/Epidemic Articles Word List Frequency plotted from 2002 to

2020.

The New York Times Climate Change Articles

The third sample set contained articles collected using "Climate Change" (or if none were

available for the year "Global Warming") in the search bar of the *The New York Times* online

archive. The results of the content analysis for this sample is in Table 4, noting the total word list

frequency from 2000 to 2020, the average word list frequency per year, and the highest

frequency list total. The total word list frequency is also plotted in a line chart in Figure 3.

The ANOVA test indicated that there was a significant source of difference between each of

the group's total word list frequency, rejecting the null hypothesis ($f = 15.53$, p-value < 0.05). A

follow-up Tukey HSD test indicated that the Economic Security list had a significantly greater

word list frequency total than the Personal Health/Safety, Skepticism, and American Values lists

(p-value < 0.05). The American Values list also had a significantly greater word list frequency

total than the Skepticism list (p-value < 0.05). All other list relationships were non-significant.

Table 4. *The New York Times Climate* **Change/Global Warming Articles Word List**

Frequency

Year	Personal Health/Safety	Economic Security	Skepticism	American Values
2000	2	15	0	0
2001	3	15	0	4
2002	25	30	2	6
2003	2	18	0	4
2004	0	17	1	4
2005	0	6	2	2
2006	2	8	2	7
2007	2	12	0	7
2008	1	8	3	3
2009	3	22	3	16
2010	3	26	1	7
2011	0	22	4	3
2012	0	7	2	4
2013	4	6	2	2
2014	1	11	0	6
2015	0	57	3	51
2016	0	20	4	10
2017	0	30	3	17
2018	3	34	4	15
2019	8	29	2	28
2020	5	2	1	20
Total	59	365	39	212
Average list occurrence per article	3.105263158	19.21052632	2.052631579	11.15789474
Highest frequency list total	9	62	7	23
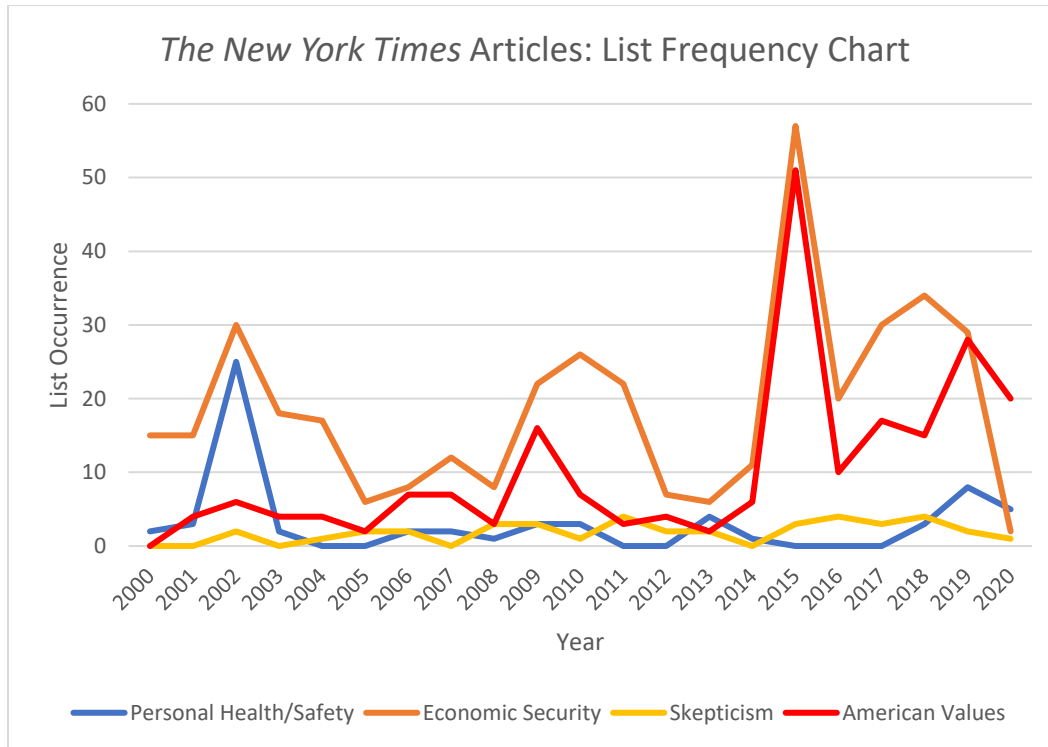
Figure 3. *The New York Times* Climate Change/Global Warming Word List Frequency plotted

from 2002 to 2020.

The New York Times Pandemic/Epidemic Articles

The fourth sample set contained articles collected using "Pandemic" (or if none were

available for the year "Epidemic") in the search bar of the *New York Times* online archive.

Articles not discussing transmittable diseases were omitted, such as articles discussing an

"obesity epidemic" or a "drug epidemic". The results of the content analysis for this sample is in

Table 5, noting the total word list frequency from 2000 to 2020, the average word list frequency

per year, and the highest frequency list total. The total word list frequency is also plotted in a line

chart in Figure 4.

The ANOVA test indicated that there was a significant source of difference between each of the group's total word list frequency, rejecting the null hypothesis (f = 5.44, p-value < 0.05). A follow-up Tukey HSD test indicated that the Economic Security list had a significantly greater word list frequency than the Skepticism, American Values, and Environment lists (p-value < 0.05). All other list relationships were non-significant.

Table 5. *The New York Times Climate Change/Global Warming Articles Word List Frequency*

Year	Economic Security	Skepticism	American Values	Environment
2000	20	1	2	2
2001	18	0	0	7
2002	9	7	3	7
2003	13	3	9	4
2004	9	0	5	0
2005	5	3	2	1
2006	3	1	0	1
2007	0	2	0	0
2008	5	3	0	0
2009	1	2	1	0
2010	6	3	1	0
2011	0	2	1	0
2012	8	4	1	3
2013	0	3	0	0
2014	0	7	2	1
2015	3	1	3	0
2016	10	0	0	2
2017	1	3	0	0
2018	5	3	5	0
2019	3	1	0	6
2020	0	1	9	2
Total	81	49	42	27
Average list occurrence per article	4.263157895	2.578947368	2.210526316	1.421052632
Highest frequency list total	37	19	12	11
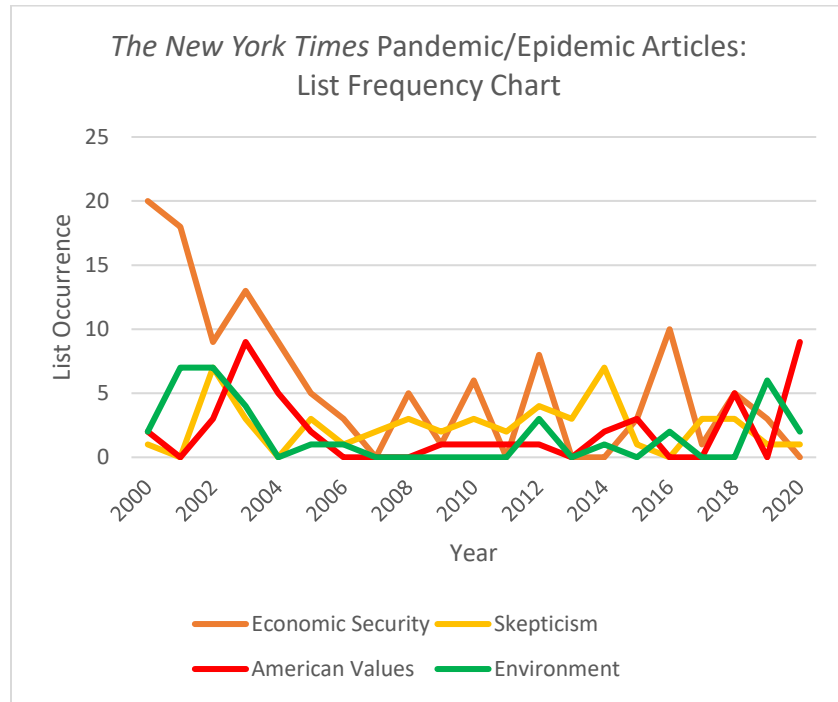
Figure 4. *The New York Times* Pandemic/Epidemic Word List Frequency plotted from 2000 to

2020.

Fox News Compared to The New York Times

The ANOVA test indicated that there were no significant differences in total list

occurrences between *The New York Times* and *Fox News* Articles, failing to reject the null

hypothesis. A post hoc Tukey HSD test indicated that there was no list pairing significantly

different than another, failing to reject the null hypothesis.

Discussion

Each of the three analyses reveal key takeaways from this content analysis. The first

analysis within sample sets indicates that there is a significantly higher level of Economic

Security list frequency occurrence when compared with other lists such as Personal

Health/Safety and Environment. This could be the result of several things.

First, the sample size of articles for each of the data sets could certainly be much higher

than 5 articles per year given more time and resources. With a higher sample size, the level of

confidence would increase, and the results may be different.

Second, the individual words within each of the category lists could be refined, whether

by increasing the number of words or the quality of which they accurately characterize the values

being measured. For instance, there may be certain words that are read into the analysis at a high

frequency when they should not be because they trigger unrelated definitions/contexts of use that

were not accounted for, significantly affecting the results.

Finally, after consideration of these confounding variables, this result could potentially

support the hypothesis that when discussing global climate change and pandemics, American

news media directs greater focus of attention on issues of economic security than other, arguably

more pressing matters of environmental security and public health and safety. If this hypothesis

is supported, it would provide precedence for communication strategies and policy approaches

that move the needle toward more considerations of these issues as physical threats.

The second analysis comparing *The New York Times* articles to *Fox News* articles

indicates that there is no significant difference between any of the lists for either global climate

change or pandemics. This does not support the original hypothesis that liberal media would tend

to have a greater focus of attention on public health and environment when discussing climate

change and pandemics compared to conservative media, nor the inverse that conservative media

would have a greater emphasis on economic security, American values, and skepticism. This result is striking, indicating that conservative and liberal media are aligned in their prioritization of focusing attention on economic security. Conscious or unconscious, this significant trend may provide precedence for news media to reevaluate the lens through which it evaluates global threats.

However, similar content analysis studies with greater research resources—and subsequently, greater sample sizes—indicate significant disparities between conservative and liberal media outlets. A content analysis study in 2019 comparing *Fox News*, *CNN*, and *MSNBC* coverage of climate change indicates significant differences with how the issue is framed in communications (McMeekin, 2020). Generally, the results indicate that *MSNBC* and *CNN*, two liberal-leaning news channels, tend to emphasize the severity of climate change, while *Fox News* downplays it.

The quantitative results indicate that *Fox News* aired the fewest number of climate change stories, supporting the researchers' hypothesis that the amount of climate change coverage would reflect the climate change beliefs of the primary political affiliation of the network's viewer base, which is predominantly Republican. The qualitative results indicate that *Fox News* often described climate change as "Leftist political agenda", "the religion of the Left", and would often describe Democrat proposals to mitigate climate change as "socialist" "immoral" and "fear-mongering". This study provides evidence that *Fox News* influences its viewers to view climate change as a non-issue and mitigation efforts to be harmful. A closer look at this thesis' content analysis of *Fox News* may indicate similar attitudes toward climate change and pandemics.

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Unique Events Articles

Under the Social Process Model, actors within a society participate in the resource environment selectively, approximately based on the maximization postulate (Lasswell, 1971), making decisions that they perceive will leave them better off in the context of their valued outcome. In public policy, this Social Process Model provides a framework for identifying who does what, and for what reasons.

The ability to identify trends related to a given developmental construct (i.e., a provisional projection of trends and/or circumstances) requires careful attention to the context under which major events relevant to the developmental construct occur and how the public discourse develops. After carefully analyzing major events related to a developmental construct, the underlying demands an actor either applies to or derives from these events become increasingly evident. Once normatively appropriate demands are identified, a policymaker can correct current policy approaches to influencing a developmental construct by catering to neglected values.

To apply the Social Process Model to this content analysis, analyzing the details of the article texts can reveal important aspects on which the statistical analyses do not pick up, and identify misleading codings. While it may not be feasible to do this for every single article, it is possible to look at distinctive periods of heightened list occurrences. This not only provides detailed sentiments expressed by different news media/audiences, but also important events that have driven the discourse in the news media on pandemics and global climate change over the past 20 years.

To qualify as an event to be analyzed, an article in the data set must have at least ten list occurrences. Due to the high volume of Economic Security list occurrences, only the articles with the highest list occurrence frequency for each of the four sample sets were selected for analysis. The eight identified articles are compiled in Table 6.

Table 6. Articles with Total List Occurrence Spikes

Year	Sample Set	Article Title	List(s) Identified
2001	*The New York Times*, Pandemic	Defensive Drug Industry: Fueling Clash Over Patents	Economic Security: 14
2006	*Fox News*, Climate Change	British Report Warns Global Warming Could Cripple World Economy; Gore Gets Adviser Post	Economic Security: 31
2007	*Fox News*, Pandemic	Laura Bush on Africa Trip	Economic Security: 13
2007	*Fox News*, Climate Change	Climate Change Brings African Disease to Europe	Personal Health/Safety: 18
2014	*The New York Times*, Climate Change	Industry Awakens to Threat of Climate Change	Economic Security: 29
2019	*The New York Times*, Climate Change	Climate Change Poses Threats to Children's Health Worldwide	Personal Health/Safety: 17
2019	*The New York Times*, Climate Change	Kathryn Murdoch Steps Out of the Family Shadow to Fight Climate Change	American Values: 12
2020	*Fox News*, Pandemic	UN warns coronavirus fallout will lead to the next pandemic--global starvation	Environment: 21

Economic Security Articles

The first Economic Security event article is the 2001 *The New York Times* article *Defensive Drug Industry: Fueling Clash Over Patents,* which is in the Pandemic data set and has a list occurrence of 14. This article assesses the debate over pharmaceutical companies and expensive drug patents, focusing on criticism on the high price of drugs exacerbating the AIDS

pandemic (Pollack, 2001). The event driving the news coverage seems to be from public announcements from European parliament and the US government of continued support despite public criticism of the international Agreement on Trade-Related Aspects of Intellectual Property Rights (Trips), which enforces drug patents.

The words appearing in the article, among others, include "industry," referring to the drug industry, "insurers," referring to an assessment by an organization supported by health insurers supporting increasing market power of pharmaceutical companies, and "economic achievement," referring to the Trips agreement and its success at enforcing drug patents. The article expresses points of view arguing for the support of lowering drug prices for the sake of making AIDS drugs more accessible to consumers as well as those concerned with harming the economic productivity of drug companies. There certainly is a disjointed lack of arguments discussing the public health impacts of an expensive AIDS drug (e.g. deaths, illnesses, statistics on the number of people untreated etc.) The article conveys opinions and analysis on economic security issues to a higher degree than public health issues, supporting the theory that there is a higher focus of attention on economic issues than health and safety.

The second Economic Security event article is the 2006 *Fox News* article *British Report Warns Global Warming Could Cripple World Economy; Gore Gets Adviser Post,* which is in the Climate Change data set and has a list occurrence of 31. This article assesses British Treasury Chief Gordon Brown's commissioned report on the long-term damage of climate change, highlighting its pressure on the Bush administration to join the Kyoto protocol to reduce global emissions as well as the Bush administration's subsequent resistance. (*Fox News*, 2006).

The words appearing in the article, among others, include "world economy," generally referring to the future damage of climate change in the climate report, "costs," referring to the reduction in GDP from measures to abate climate change, and "taxation," referring to arguments for taxes to regulate carbon. The article expresses points of view discussing the importance of action on climate as well as those who think the Bush administration's funding of sustainable technologies to be sufficient. A major point made in the article was a point of view discussing the insufficient commitment from developing countries like India and China to cut carbon emissions. This point of view seems to support the theory of US short-term prioritization of short-term economic issues because it side-steps the United States government's responsibility to curb its own emissions by shifting the blame to a different target.

The third Economic Security event article is the 2007 *Fox News* article *Laura Bush on Africa Trip, AIDS epidemic* which is in the Pandemic data set and has a list occurrence of 13. This is an interview transcript of First Lady Laura Bush discussing her visit to Africa with the Millennium Challenge Compact, an independent US Government foreign aid agency for education and economic development in Africa (*Fox News*, 2007).

The words appearing in the article, among others, include "economy," referring to Bush's opinion on the positive impact of Millennium Challenge Corporation's funding in Mozambique, "taxpayers' money," referring to Bush's endorsement of the use of taxpayer funding for the Millennium Challenge Corporation, and "poverty," referring to the effect the AIDS pandemic has on perpetuating poverty in African countries. It is interesting to note Bush's immediate endorsement of the nonprofit's involvement in African development as a good use of taxpayers' money, justifying the spending. This immediate assessment by Laura Bush to indicate the

financial viability of the program is indicative of the high priority of wealth and the economy as an American value, seeming to support the hypothesis of high economic prioritization.

The final Economic Security event article is the 2014 *The New York Times* article *Industry Awakens to Threat of Climate Change,* which is in the Climate Change data set and has a list occurrence of 29. This article documents a growing sentiment of American business leaders linking global warming to business disruption and long-term economic decline (Davenport, 2014).

The words appearing in the article, among others, includes "company," referring to Coca-Cola's embracing of climate change mitigation as an economically disruptive force after climate caused revenue loss from a water stock drought in regions like India. Other words include "economic self-interest," referring to an emphasis at the World Economic Forum on promoting climate mitigation policies to protect world economies, and "poverty," referring to the World Bank president Jim Yong King putting climate change at the center of the bank's mission, linking rising global poverty and GDP loss with global warming. The sentiments in the article seem to prioritize long-term economic security, promoting policies to mitigate climate change to avoid incurring long-term economic decline. This analysis supports the hypothesis that *The New York Times* tends to focus on more far-sighted economic concerns when discussing climate change.

Personal Health/Safety Articles

The first Personal Health/Safety event article is the 2007 *Fox News* article *Climate Change Brings African Disease to Europe,* which is in the Climate Change data set and has a list

occurrence of 18. This article discusses a chikungunya fever outbreak in Europe which was previously endemic to Africa and Asia and the World Health Organization categorizing the outbreak as a result of climate change (*Fox News*, 2007).

The words appearing in the article, among others, include "disease," referring to the CDC's remarks about chikungunya fever travelling because mosquito populations could breed earlier due to climate change and transmit the virus more effectively, and "dangerous," referring to the potential for future, more dangerous diseases like Dengue fever to transmit to Europe, and "taxation," referring to arguments for taxes to regulate carbon. The language in the article is generally neutral, reporting the official statements of governmental organizations. Although, it may be interesting to note the emphasis on characterizing the disease as an "African Disease," not entirely dissimilar to modern conservatives characterizing COVID-19 as the "Wuhan Virus" (Zimmer, 2020). This projection of fear for the disease based on the geographic origin of the disease may suggest underlying values of xenophobia in addition to fear of the disease itself.

The second Personal Health/Safety event article is the 2019 *The New York Times* article *Climate Change Poses Threats to Children's Health Worldwide,* which is in the Climate Change data set and has a list occurrence of 17. This article discusses the results of a medical journal report that health effects from climate change will be unevenly imposed, with children most of the harms (Pierre-Louis, 2019).

The words appearing in the article, among others, include "disease", referring to the report's prediction that failing to limit emissions would lead to infectious disease transmission, "killed", referring to the seven million deaths in 2016 from air pollution, and "illness", referring to heat related deaths in the United States. The language in the article is almost entirely focused

on the national and international health and safety of children due to climate change. This focus supports the hypothesis that *The New York Times* focusses viewers' attention on values of health and safety when discussing climate change.

American Values Articles

The only article that significantly evokes American Values is the 2019 *The New York Times* article *Kathryn Murdoch Steps Out of the Family Shadow to Fight Climate Change*, which is in the Climate Change data set and has a list occurrence of 12. This article is biographical coverage of Kathryn Murdoch, daughter-in-law of *Fox News* founder Rupert Murdoch, and her dedication to removing partisan obstacles to climate change progress (Schwartz, 2019).

The words appearing in the article, among others, include "democracy", discussing electoral solutions to partisan deadlock over climate change, "conservative", generally referring to *Fox News* coverage on political issues, and "constitutional law", referring to a professor's opinion on the laudable but infeasible task of changing American democracy. This article deviates from the hypothesis that *The New York Times* would have less of a focus on American values than *Fox News*. Although, the framing of American Democracy as something requiring change is certainly important context for this assessment. An article focused on shifting American democracy is an interesting tactic for mitigating climate change highlighted by *The New York Times,* one that almost certainly would not appear in a *Fox News* publication. This focus perhaps suggests a new focus of attention from the American public on changing fundamental democratic operations to engage climate action.

Environment Articles

The only Pandemic article featuring a high frequency of Environment words is the 2020 *Fox News* article *UN warns coronavirus fallout will lead to the next pandemic – global starvation,* which has a list occurrence of 17. This article discusses the impacts of the COVID-19 governmental lockdowns on African agriculture and health (McKay, 2018).

The words appearing in the article, among others, include "natural", referring to natural disasters in Africa compounding the effects of coronavirus. Other words are "planting", referring to coronavirus lockdown harming an already dwindling agriculture sector in Africa, and "population", referring to populations with food insecurity. This article deviates from the hypothesis *Fox News* does not have a focus of attention on the environmental implications of pandemics. However, the focus of this article is not on the virus itself, but the impacts of efforts to contain the virus, signaling a focus instead on delegitimizing actions to contain pandemic outbreaks.

Summary

Contextual analyses of these specific articles reveal key differences in event interpretations by *The New York Times* and *Fox News.* Each of the four issue areas demonstrate unique positions, perhaps reflecting how liberal and conservative audiences are directing their focus of attention on these issues.

For concerns of economic security, *The New York Times* article conveying general opinions on pandemic implications, economic security concerns appear more frequently. However, a second article highlighting global business leaders' opinions on climate change

signals a preference to prioritize long-term economic security with actions to contain climate change.

Similarly, the *Fox News* article discussing the Bush Administration's response to climate change, US responsibility to curb emissions is dismissed, signaling a prioritization of short-term economic interests. A second article discussing Barbara Bush's AIDS mitigation efforts in the pandemic, significant emphasis is placed on it being a good use of taxpayer money, catering to American voters with high economic valuation. However, there is no significant indication in *Fox News* articles that preventing pandemics or climate change is in the United States' long-term economic interest, showing a distinct difference from *The New York Times.*

For the Personal Health and Safety articles, a *Fox News* article discussing the effects of a chikungunya fever endemic, sentiments of geographical blame are used to compel fear of the disease, being referred to as an "African Disease". This suggests that *Fox News* viewers respond greater to threats of a regional origin rather than the direct threats of a disease itself.

In contrast, *The New York Times* discussing climate change damages, including infectious disease transmission, are significantly harming children health and safety, suggesting a focus of attention on addressing climate change for the sake of protecting children. The article notably uses examples of children from different nationalities, focusing on the impacts of climate change itself rather than garnering fears of tangentially related details such as regional origin of the harms.

The only American Values article reveals an important distinction in *The New York Times* focus of attention on climate change. *The New York Times* article discussing Kathryn

Murdoch's efforts to shift American Democracy to be more responsive to concerns about climate change demonstrates an unexpected development in *The New York Times* discussion of American values. While deviating from the hypothesis suggesting that *The New York Times* would not bring American Values into discussions of climate change or pandemics, it does provide an alternative opinion to *Fox News* articles, expressing that a change is needed to fundamental democratic practices to mitigate climate change.

Finally, the only significant discussion of environmental concerns in pandemic articles comes from *Fox News,* however, the focus of attention is not on the environmental implications of a disease itself. The *Fox News* article discussing the COVID-19 pandemic focuses on the impacts of lockdowns on African agriculture. While contradicting the hypothesis that *Fox News* would not have environmental concerns in discussions of pandemics, the focus of attention is on critiquing the efforts to contain the virus rather than concerns for the impacts of the virus itself.

CHAPTER 3: POLITICAL AND CULTURAL CONDITIONING FACTORS ON THE FOCUS
OF ATTENTION

Political Orientation and Reactions to Climate Change and Pandemics

The results of this content analysis reflect some of the key beliefs Americans hold that influence policy outcomes for climate change and pandemics, perhaps most notably, political orientation. Dissent of climate change mitigation is strongly linked with conservative audiences, which comprise a considerable portion of the US population. Due to the uneven distribution of political orientations across the United States, opposers to climate change policies can hold a majority influence in local governments, stifling progress. Additionally, the proliferation of the internet and social media creates an environment for the easy indoctrination of American citizens to adopt far-right, extremist beliefs, as demonstrated by the pro-Trump riot of the US Capitol on January 6th, 2021 (Wamsley, 2021). Among several other issues, COVID-19 and climate change mitigation are met with staunch opposition largely because of this prominent anti-governmental influence rhetoric. Therefore, it is important to characterize the positions of those who do not support climate change/pandemic mitigation just as much as those who do. Understanding how people perceive these global threats in the United States can provide the necessary context to influence positive developments in their mitigation.

In a poll from the World Economic Forum about people's beliefs in climate science in North America, only 59 percent of respondents say they believe in anthropogenic climate change while 32 percent believe only in non-human caused climate change and 9 percent believe climate change does not exist (Whiting, 2020). While this 9 percent opposition to climate science may seem insignificant on a national scale, it has a profound impact due to its uneven distribution across counties because county level belief can range from 49 to 86 percent (Marlon, 2020). For

example, in Salt Lake County, Utah, 75 percent of adults believe in climate change while only 50 percent of adults in Emory County, Utah believe in it. This is a significant enough population for lawmakers to represent anti-climate change mitigation policies. Unsurprisingly, disbelief in climate change is associated with significantly less support for climate change mitigation actions than those who believe in climate change (Akter, 2012).

Because this diversity of opinion is stratified across the United States, these survey data reveal an important need to identify the values of climate change deniers to respond with adequate climate change communications that compel action, even in areas with low belief rates. Concerning the prioritization of short-term economic growth, a Pew Research Center survey indicated that although most Americans believe the federal government is doing too little to address climate change, 62 percent of conservative Republicans believe that stronger climate policies would do more harm for the economy than good (Funk, 2019).

However, these general attitudes do not always prevent public policies that mitigate climate change in skeptical regions. For instance, local reactions to wildfires can result in significantly beneficial climate change adaptation strategies in conservative populations with general disapproval of climate change policies. The expectation for environmental catastrophe is significantly associated with the overall number of mitigation actions to reduce wildfires such as pruning limbs and reinforcing structures with more fire-resistant material (Brenkert-Smith, 2015). In many instances for this study, those who believed climate change was a hoax advocated more action at a local level to reduce fire hazard risk out of concern for their safety and property, ultimately contributing to a safer overall community.

Rather than denouncing skeptics and the people that believe in them, it may be useful to appeal to their values to convey the importance of addressing climate change. While it may not be particularly impactful to tell a corn farmer in Ohio about the impact that climate change will have on melting ice floes in Antarctica, messages can communicate the very real impact climate change will have on American agriculture and their livelihood as a farmer years from now.

Similarly, pandemics can elicit different reactions across the political spectrum. The COVID-19 pandemic is certainly indicative of this, during which mitigation efforts such as mask-wearing and social distancing became politicized. A cross-sectional survey of 1,030 US adults was administered on March 31, 2020, capturing opinions on early efforts to prevent the spread of the virus in the United States (Christensen, 2020). Results indicated that self-identified conservatives were more likely than liberals to believe that COVID-19 was overblown in the media and people's reactions to it were exaggerated, while liberals believed that the government was not doing enough to respond. Conservatives also were less likely to participate in social distancing methods than liberals. Follow-up studies using survey data later in the pandemic indicate that the rift between political parties and the risk of the pandemic persisted, where only 41 percent of Republican citizens say that the coronavirus outbreak is a major threat to the health of the US population compared to 82 percent of Democrats as of February 2021 (Deane, 2021).

The differences in reactions to these global threats may stem from differences in fundamental values and behaviors. One recent explanation for these differences comes from the field of neuroscience, which holds that conservative and liberal individuals may have distinctive physiological reactions of disgust to certain issues. A primary study positing this theory measures fMRI brain scans and biological mechanisms (i.e. bodily recoil, facial expressions) of

test subjects reacting to "disgusting" images, such as physical threats or contaminated food (Ahn, 2014). The study could reliably determine the political ideology of a participant with a 95% accuracy rate where conservative test subjects were more likely to exhibit higher levels of disgust reactions to the non-political, "disgusting" imagery. This does not necessarily mean that the reactions to disgust are substantially greater among conservatives, but that the interpretation and display of disgust are more intense.

The study certainly does not characterize the results to be a monolithic representation of American political ideologies. In fact, several neuroscientists have challenged this notion that disgust is inherently more present in conservatives than liberals, but rather, a response that can be exhibited by individuals of both ideologies under certain contexts (Elad-Strenger, 2019). Disgust can perhaps be better characterized as a physiological response that may be used by any political actor as a tool to compel voters to behave in a desired way. For the subject of climate change or pandemics, messaging that elicits disgust, for instance, individuals displaced and malnourished from climate-related strains or COVID-19 victim imagery, may be effective at compelling the necessary support needed to address these issues.

The Influence of Risk Perception

Understanding the psychology behind human responses to risks is paramount to creating communications that influence threat mitigation. Policy influencers cannot convey information alone to compel action during a threat; they must have a comprehensive understanding of the risks and individual reactions to them. People do not solely make decisions about health risks on a rational basis but also on emotional, psychological, religious, spiritual, philosophical, and intuitive bases (Evans, 1997). Individuals have a subjective perception of risk, formed from

individuals' values, beliefs, and attitudes in addition to wider social and cultural values (Ferrer, 2015). Behavioral scientists who have studied risk demonstrated that there are consistent and predictable patterns of heuristics (cognitive shortcuts or rules of thumb) that affect individuals' estimates of risk (Evans, pg. 5). The following heuristics are pertinent to developing communication's strategy for pandemics and global climate change.

Fear is an integral component of many individuals' risk perception formation. Individuals will have an inherent level of fear regarding a threat, shaped by their personal experiences and other cultural attitudes. The effects of the climate crisis and COVID-19 alike are terrifying prospects for many. Citing research on feelings of loss, helplessness, and frustration because of their personal inability to stop climate change, the Psychiatric Association defined the term "Ecoanxiety" to describe the "chronic fear of environmental cataclysm that comes from observing the seemingly irrevocable impact of climate change and the associated concern for one's future and that of next generations" (American Psychology Association, 2017). A global survey across 30 countries indicates that anxiety and fear about climate change are also rising, with 73% of participants indicating that they worry a lot or a fair amount about climate change" (GlobeScan, 2020). This just covers the number of people who are willing to acknowledge their fear about climate change, and the actual figure may be significantly higher.

Similarly, the threat of the COVID-19 virus and the subsequent societal living conditions of isolation during the pandemic inspired fear in many. Although not enough time has passed to accurately measure the extent of mental health impacts of the COVID-19 pandemic, some preliminary studies link the pandemic with increasing psychiatric conditions like anxiety and depression (Pan, 2021). The National Institute of Mental Health (2021) is currently enrolling

participants nationally for a survey to better quantify the changes in emotional reactions and assess motivation in people during the stressful period of the pandemic.

People may react to this fear in different ways. It may fuel some to vigorously pursue mitigation strategies to eliminate the source of their fear, or it may cause people to ignore the problem altogether and proceed with the status quo. The focus of psychological research on "approach/avoidance" covers these behavioral responses to a threat (Barker, 2019). For any given stimulus, an individual has an impulse to either move toward a desired stimulus, known as approach motivation, or seek to avoid an undesired stimulus, known as avoidance motivation. These motivation systems may also be activated at the same time for a given stimulus, leading to anxiety and an inability to engage in motivated, goal-directed behavior, known as inhibition. This response is especially present in individuals when the contextual factors of a stimulus include novelty, ambiguity, and unpredictability, all of which can be applied to pandemics and climate change. Many people freeze up and experience this approach/avoidance conflict when they are overwhelmed by the range of consequences from failing to address these threats, and feel powerless in their ability to mitigate them.

Climate change may lead to this dilemma even more so than the threat of COVID-19, because the success of mitigating climate change relies primarily on collective action rather than individual action. While the degree to which people follow it varies, there is a normative commitment that is readily apparent and specific during the pandemic; by wearing a mask and social distancing, a person can directly reduce the rate of people dying. With climate change, the normative commitment to reduce the risk of the threat is different because the effects of an individuals' actions require joining collective action initiatives, which often are not readily apparent, such as facilitating climate-neutral policy strategies, joining climate coalitions, and

several other actions. Because the individual's personal contribution to climate change mitigation is necessarily small, the feelings of hopelessness and frustration are likely to be greater. Public officials' communication model for climate change must incorporate this insight to evoke a normative response of individuals view their individual actions on climate change with just as much moral commitment as they do for their individual actions on COVID-19.

Threats as complicated as COVID-19 and climate change result in complicated emotions. Therefore, it is important to carefully calibrate the emotions of the public with effective messaging to motivate them to pursue mitigation strategies for each threat. The study of optimistic and pessimistic messaging may provide clarity for how to accomplish this.

A primary discussion among behavioral psychologists dealing with risk perceptions is the influence of optimism and pessimism. For instance, an individual may have a higher tolerance for risk if they have fared well in dangerous situations in their life. In this case, they may have "dispositional optimism," which may create a low general risk perception and lead to minimizing a threat's severity and neglect of health information (Ferrer, pg. 2). In contrast, an individual who has fared poorly in dangerous situations in the past may have a high general risk perception, or "dispositional pessimism", perhaps yielding an inappropriate response to a threat such as stagnation or avoidance.

Dispositional optimism and pessimism can be extended to the discussion of threat communications because they can be influenced to yield a desired outcome. While it may be impossible to facilitate the optimal average level of optimism/pessimism in a country responding to global threats, communicators can influence the outcome of risk mitigation by striving to create an appropriate level of optimism/pessimism through deliberate messages. Hornsey and

Fielding (2020) report that there is strong experimental evidence that support the hypothesis that the way a threat like climate change is framed through communications significantly influences individuals' motivation to mitigate a threat, specifically regarding framing of the severity of a threat, the efficacy of mitigation efforts, and the progress of mitigation efforts.

Growing evidence supports that in certain contexts, overly negative messaging—communications attempting to elicit fear or concern—on issues such as climate change can cause individuals to deny the threat or avoid or feel helpless about threat mitigation (Hart, 2014). Particularly, pessimism can be a policy inhibitor when it is directed at the actions to respond to a threat, potentially discouraging people to believe in their efficacy. In other words, if a threat seems too unmanageable and hopeless, individuals may not pursue mitigation strategies as vigorously, if at all.

Many young adults are susceptible to this effect regarding global climate change, already believing that mitigation is hopeless (Taylor, 2020). This phenomenon demonstrates that risk perception of global climate change can become so high that members of the public give up on pursuing solutions. This is particularly damaging for soft threats—in the sense that there is no external enemy as is the case with conventional hard security threats—like climate change and pandemics because their effective mitigation requires changes in personal behavior.

Messaging also does not have to be negative to make people pessimistic about the solutions. Conflicting and confusing information about the efficacy of a solution can sow doubt among a populace, such as the issue of mask wearing and social distancing during the COVID-19 pandemic. Americans were pessimistic about the efficacy of masks in containing coronavirus due to mixed messages from the government, particularly President Donald Trump's early and

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continued resistance to CDC advice (Taylor, 2020). As a result, several individuals grew

pessimistic about taking measures to slow the spread of the virus, maintaining these values long

after the president decided to finally wear a mask and encourage others to do the same. For a

global threat that certainly requires significant changes in lifestyle, these beliefs have severe

consequences, as the proportion of people wearing masks and social distancing is lower than it

could be, thus increasing the transmission of COVID-19 and death rates.

Optimistic messaging can also cloud individuals' risk perceptions. Optimistic messaging

can give people the sense that a threat is diminishing, which may garner complacency and cause

individuals to stop making personal sacrifices, lifestyle changes, or political choices necessary to

addressing a global threat. Experimental evidence demonstrates that in some contexts, optimistic

messaging—communications that downplay a threat or overstate the success of solutions—can

yield counterproductive outcomes in appropriate risk perception creation (Meijers, 2014). A

psychological study on participants' reactions to climate-related articles with positively worded

messaging about the progress of science showed that individuals' perception of disorder can be

effectively addressed without the individual's actions.

Similar consequences of optimistic messaging were present during the COVID-19

pandemic. Despite government access to early evidence in February from renowned

epidemiologists that more than 40-70 percent of the world would be infected with COVID-19 by

the end of the 2020, President Trump and other US government leaders continually reassured

citizens that the pandemic would be quickly dealt with (Axelrod, 2020). Many individuals' early

understanding of the virus was that COVID-19 did not pose a health risk greater than previous

diseases like H1-N1 or SARS or that a vaccine would effectively control the situation, leading to

low personal concerns of virus transmission and death. Without significant government intervention to communicate the risk of COVID-19—and with some messages of positive affirmation that the virus would be handled quickly and effectively—optimism about the effects of COVID-19 remained high and these risk perceptions persisted until it was too late to contain the virus.

"Technosalvation," a term coined by psychologists as the belief that human technological innovation is the essential solution to climate change, is a specific example of how optimistic messaging can manifest in inaction (Gifford, 2011). Several case studies demonstrate how overconfident beliefs in the ability of technology alone to solve the climate crisis serve as a barrier to mitigation; for example, manually injecting carbon into the ocean as a sink to counter the effects of greenhouse gas emissions (Jones, 2019). In many cases, these technological solutions can carry dangerous consequences, such as injecting aerosols into the atmosphere to reduce global surface temperatures by reflecting solar radiation (albedo effect) (Smith, 2018). However, at high concentrations, aerosols are deadly if breathed and can result in acid rain that poses a significant environmental harm, serving as major tradeoffs that disincentivize their use (Voiland, 2010).

While technology may serve as a critical component to addressing the climate crisis, communicators must decrease complacency and encourage urgent mitigation by asserting that technology alone cannot solve climate change. Similarly, pandemics do not have singular, technology-based solutions if health outcomes are to be maximized. A vaccine alone is not enough to prevent significant death and illness in a country; mitigation strategies also require behavioral and institutional changes such as social distancing measures and mask-wearing.

Therefore, the only way to comprehensively address global threats is by fundamentally changing the lens through which solutions people are focused, distinguishing promising combinations of behavioral changes from fruitless, harmful, or outlandish solutions.

Policy influencers seeking to reduce the negative impact of global threats like climate change or pandemics must carefully balance the language used when discussing a threat and mitigations strategies. On one hand, they ought to encourage individuals to be concerned and pessimistic about the consequences of inaction regarding these external threats. They must also encourage optimism about the efficacy of their own actions to mitigate them, but not so much that individuals become complacent. Meeting these criteria will ensure that everyone involved in the process of reducing a threat does not suffer from the effects of an overabundance of optimism, such as negligence or complacency, nor the effects of an overabundance of pessimism, such as avoidance, denial, or complacency.

Biases and Heuristics

Further nuance in the formation of risk perception stems from an individual's biases. Because the influence of these biases can be minimized to increase the overall average risk perception of the public for a given threat, it is important to assess each type of bias as a conditioning factor to incorporate into communication's strategies for climate change and pandemics.

'Socially driven optimism' bias is one such driver of people's varying risk perceptions, which is the tendency for an individual to perceive himself as less likely to experience a negative event than others in society when facing an identical risk (Costa-Font, 2009). For example, an

individual may perceive the act of driving while distracted as a risky behavior for someone else to do but will deem the activity as less risky when taking part in it himself, possibly due to overconfidence.

Perhaps because of social optimism bias, psychological studies on risk reactions to threats in society (such as climate change, radioactive waste, genetically modified food, etc.) demonstrate that the perception of risk to the individual tends to be considerably lower for new events as well as events that had not previously received much public attention, such as climate change or an ongoing pandemic. These findings are consistent with individuals' reactions in the United States during the first week of the COVID-19 pandemic (Wise, 2020). In a combined cross-sectional and longitudinal survey investigating perceptions of risk and behavior in individuals from the United States during the early stages of the COVID-19 pandemic, participants rated an average person in the United States to have the highest risk of being infected with COVID-19 but themselves to have the lowest risk.

Several other psychological conditioning factors related to media information consumption may amplify social optimism bias, such as representativeness heuristic, confirmation bias, and salience bias. Individuals apply the representativeness heuristic to a situation when they are confronted with a new subject and assume that it has the same characteristics as a subject the individual has previously encountered (Tversky, 1974). For example, at the outset of the COVID-19 pandemic, an individual may rely on previous experiences with epidemics or pandemics to create a perception of it. Unless informed otherwise, this individual may thus perceive it to be like the H1N1 virus (rather than a more appropriate comparison, say, the Spanish Flu), which ended up having a much lower human health risk than

COVID-19. In fact, early in the pandemic, President Trump represented the virus as not particularly deadly despite knowing otherwise. He repeatedly drew the inaccurate comparison that COVID-19 was "a little like a regular flu that we have flu shots for" and that "one day – it's like a miracle – it will disappear" on February 26 and February 27, 2020, respectively (Beer, 2020). By making this distinction, he may have influenced the way people interpreted the risk of the virus, filling in the absence of information with a low-stakes representation of COVID-19. Doing so may have resulted in increased transmission as people tailored their risk perception to President Trump's representation of COVID-19.

The striking difference for climate change is that there is no clear previous reference point for the issue as there is for a disease. While this may indicate that representativeness does not play a major role in individuals' risk perceptions for climate change, it also offers an opportunity for communicators to fill this absence with references of their choosing. Much like politicians' understatements of COVID-19, several influential public officials have misrepresented climate change. Former Texas Governor Rick Perry accused scientists of manipulating climate change data back in 2011, supplanting concern about climate change effects with affirmations that "our climates change…they've been changing ever since the earth was formed" (Graves, 2011). By referencing previous periods where humans have survived changing climates, Governor Perry and other communicators articulating this point create a false representation of the novel threat of climate change, potentially lulling listeners into a false sense of security regarding increasing fossil fuel emissions.

Individuals' representativeness heuristic is also related to their personal confirmation bias and salience bias. Confirmation bias is the psychological inclination to seek or interpret evidence

in a manner that is consistent with an individual's existing beliefs, expectations, or hypotheses about a subject (Nickerson, 1998). Without intervention via education on source scrutinization and bias self-reflection, an individual can easily seek out one-sided information about issues like climate change or pandemics.

Furthermore, salience bias, the process by which an individual overemphasizes the effects of vivid and perceptible stimuli that is diffuse and difficult to quantify, has significant influence on misinforming risk perception (Tiefenbeck, 2018). Because issues like climate change and a pandemic are not as easily visible as more traditional notions of threats, the American public often has high salience bias and fails to build valid risk perceptions of these less visible threats. With proper education strategies, these biases acknowledged and reduced.

The way people interpret information in the media is directly related to cognitive load theory (CLT), which is the study of instructional methods that efficiently use people's limited cognitive processing capacity to encourage proper task completion (Paas, 2010). Under this theory, an individual processes a given amount of information into long-term memory based on the limitations of their short term (i.e. working) memory, which in turn impacts effective decision-making. Because working memory has a limited capacity, proper communication is crucial to ensure that working memory information processing is optimized and encoding into long-term memory is facilitated. A primary inhibitor to this goal is "cognitive overload", which is when the presence of too much information hinders an individual's ability to incorporate proper information into long-term memory and make rational decisions (Shin, 2017).

Especially in the era of the internet and social media, there is a diverse array of sources where people derive their information, often containing biased, incorrect, or distracting

information. Because of this excess in information, cognitive overload is likely to occur, leading to people making poor decisions in the face of a threat, likely due to the compounding influence of social optimism bias, confirmation bias, and salience bias.

Much of this seemed to occur in the early stages of the COVID-19 pandemic when there was significant confusion over whether mask-wearing was a necessary measure to reduce virus transmission (Rubin, 2020). Top disease experts such as Dr. Robert Redfield of the Center for Disease Control, and even Dr. Anthony Fauci, Director of the National Institute of Allergy and Infectious Disease, issued initial guidance in March that medical masks were unnecessary for the public to use (C-SPAN, 2020; Brewster, 2020). This announcement primarily occurred to prevent mask shortages and preserve personal protective equipment for frontline workers, sick individuals, or those caring for the sick. On April 3, 2020, just weeks later, the CDC updated its position and indicated that every American should wear a mask. While this mixed messaging was the product of evolving information, many people were unaware of the reasons for this change and were led to doubt the effectiveness of masks and even mistrust the CDC and other health experts like Dr. Fauci. A Kaiser Family Foundation poll (Hamel, 2020) indicated that Americans with a "great deal" and "fair amount" of trust in the CDC decreased between April and September 2020 from 83 percent to 67 percent, and trust in Dr. Fauci decreased from 78 percent to 68 percent. Likely due to these conflicting messages in the early stages of the pandemic, only 45 percent of Americans as of May 2020 indicated that they wore masks whenever they left their homes (IPSOS, 2020).

Based on how the public perceives the magnitude of a threat and the efficaciousness of the reactions to the threat, the public may be compelled to action or inaction. The US

government ought to react to these conditioning factors in their communication plan to calibrate

the perception of the threat so that people are concerned about the consequences of inaction

while simultaneously striving to enhance efficacy of policy reactions.

CHAPTER 4: BUILDING RISK PERCEPTIONS AND DISRUPTING GROUPTHINK

To understand what kinds of government action are effective, it is important to capture possible dynamics in individuals' behavior to inform public policy. How a government reacts to a global threat like COVID-19 could be the difference between orderly containment of the virus and an armed protest in the Michigan capital and persistent outbreaks and death (BBC, 2020). When reacting to a global threat, policy influencers must create a public risk perception that is wary of a threat but is rational and motivated to pursue actions to mitigate it.

Communication Strategies to Address Major Threats

Incorporating the findings of the approach/avoidance conflict studies, the Substance Abuse and Mental Health Service created a guide for policymakers and public health officials to use the language necessary to inform and motivate the public in response to crises (SAMHSA, 2019). Public officials must first assess the landscape of reactions to a threat in order to tailor communications that informs appropriate risk perceptions and prioritization in addressing them. The public's general attitude toward a threat may evoke too much anxiety, requiring reassurance from public officials. The public may also be too optimistic about the resolution of the threat without the individual taking action, and require a warning about the severity of the threat. The public may also have both attitudes, leading to conflicting reactions and requiring careful consideration of when and how to communicate risk, such as in the case of the COVID-19 pandemic and climate change.

Once public officials identify these attitudes, they can determine their messaging goals to calibrate reactions. If a government's goal is to warn the public of a growing crisis, such as during the beginning of a developing pandemic like COVID-19, it must use clear, easy-to-

understand communication that informs the public of the threat. Public officials should immediately communicate the available basic facts about the COVID-19 virus, including "the risk of the virus is high for immunocompromised and older populations", "the illness is not currently treatable", "it is easily contracted", and "symptoms may not be easily recognized". Then, public officials should give guidance on how to respond, such as "isolate as soon as possible", "only go to public spaces for essential purposes", "if exposed or symptomatic, contact physician", "note possible symptoms to others with whom you have interacted".

Similarly, public officials can also counteract misrepresentations of the threat of climate change or COVID-19 with more accurate examples that people can easily interpret. For instance, it may be effective to reference previous climate related disasters like hurricanes or wildfires to represent potential future damages of climate change. It also may be useful to draw on previous periods of emphatic, unified US response to represent the capability of the nation to address a lofty threat like climate change. Representing the gravity of climate change mitigation as a compelling historical feat, such as by referencing similar periods of US spirit during events like the Cold War, the Space Race, or World War II, may invoke the American unity required to effectively confront climate change.

Public officials should then evaluate how to make complex, scientific, and technical information that needs to be communicated relevant and easily understood by a wide audience, especially when people are under high stress. This may involve avoiding acronyms and jargon that require previous experience or education to process, including clear visualizations with complete explanations that the media can reproduce, and using familiar frames of reference to

explain how much, how big, or how small a problem is to create a mental picture of measures like "parts per billion" or "nanometers".

Trust is a key component when exchanging information on a global threat (Evans, 1997, 14). Especially for highly technical and evolving issues like climate change and pandemics, there will be uncertainties associated with the extent of the threat. Clearly stating this uncertainty is beneficial to creating appropriate risk perceptions, because it demonstrates transparency and makes individuals more inclined to trust public health officials. Articulating that information is rapidly developing and that the public should act with an abundance of caution is critical to maximizing mutual understanding and will make action compelling when it comes time to engage in mitigation strategies.

Public officials can also build trust and create deliberate individuals who are motivated to mitigate a threat by advocating enthusiastically about the efficaciousness of response strategies. Pursuing rigorous education strategies and organizing information on a global threat in a well-organized, accessible communication site is critical to informing people about what they need to do to help mitigation. Increasing awareness on why the government is aggressively pursuing certain actions to mitigate a crisis will make individuals much more willing to comply with more regulatory policies that follow.

The focus of this caution must differ between COVID-19 and climate change, namely in the individuals' reactions to each threat. While the primary actions to mitigate COVID-19 became clearer over time (mask wearing, social distancing, using authorized vaccines), several ineffective and even damaging mitigation strategies, such as using aerosols as a cooling effect, have been proposed as climate change developed as a policy issue. Policymakers must exercise

caution when choosing the actions to endorse until sufficient scientific information is available, and which actions are worth communicating to mobilize public action on climate change mitigation.

Public officials must also temper this scientific guidance with emotional acknowledgement, appreciating the public's concerns. Being sensitive to individual's fears and worries and connecting the threats to people's personal values on a human level grounds the scientific discussion. Acknowledging the sadness of the effects of COVID-19 and climate change may better persuade people to accept the risk of the issues than ignoring them. This is not to say that officials should dwell on the tragedy, but that they ought to effectively communicate that the tragedy can be blunted or avoided by pursuing mitigation strategies.

While credible, trusted, and emotionally grounded communications may influence people's risk perceptions, members of the public will ultimately decide their own level of risk and their actions will be based on personal factors. Trying to coerce people to accept one strategy may therefore have perverse effects of amplifying people's fears, so officials must be careful not to make individuals feel like these risks are imposed.

Disrupting Groupthink to Promote Effective Leadership

To supplement this process of building trust and creating risk perception, government leaders must ensure that the information being communicated is well-developed and non-insulated. Social identity theory dictates that people tend to assimilate their beliefs and values to be part of a group that is important to them, such as political parties (Hornsey, 2020). As a result of this identification, people tend to interpret messages from their preferred group as truthful

much more willingly, known as "in-group" thinking, or "groupthink". Janis (1972, 9) coined the term groupthink in 1971, defining it as "a deterioration of mental efficiency, reality testing, and moral judgements at that results from in-group pressures". Groupthink stems from an overabundance of group cohesion, when a leader and members facilitate an environment that prioritizes camaraderie over scrutiny, potentially resulting in practical or moral failures.

The pertinent aspects of groupthink that Janis articulates are relevant to how some actors are addressing the twin threats of global climate change and pandemic. Relevant symptoms of groupthink include the illusion of invulnerability (i.e., excessive optimism and risk-taking), discounting warnings which might lead members to reconsider their position, unquestioned belief in the group's inherent morality, and pressure against group members who argue against the group's beliefs. Even as the weight of compelling evidence about the risk of these threats mount, many group members in opposition to them remain steadfast in their beliefs, maintaining barriers against any thought that contradicts the narrative of the group.

Most, if not all these conditions can be applied to much of the discourse in the Republican party, both among voters and politicians, regarding the containment of the COVID-19 pandemic and climate change mitigation. President Trump and the Republican Party displayed each of these symptoms, charismatically leading supporters into a state of unquestioned denial and ignorance about COVID-19's consequences in pursuit of unsafe economic activity.

Janis prescribed general methods with which policy actors can decrease the symptoms of groupthink, tailoring solutions to each symptom. The first relevant symptom of groupthink is the illusion of invulnerability. The illusion of invulnerability, much like optimism bias, is the belief

that dangers that may arise from a risky action will not have significant consequences (Janis, 1972, 36). In other words, if a leader and a group affected by groupthink decide that a course of action is preferable, they also believe that it is bound to succeed. Janis provides President Kennedy's advisory group's failure during the Bay of Pigs Invasion as an example of the illusion of invulnerability. Due to the talented policymakers assembled and their ill-conceived "unlimited confidence", the general attitude shared by the members of the advisory group was that with good ideas and hard work, nothing could stop them. In this euphoric state of optimism, Janis states that a policymaking group's decision-making and long-range planning abilities usually become impaired (pg. 37). Kennedy and his advisory group disregarded simple warning signals as well as the general significance of the threat, perceiving Fidel Castro to be a weak "hysteric" leader with an army ready to defect. Put simply, arrogance led to the group's downfall (pg. 37).

President Trump and several other Republican leaders' rhetoric toward the COVID-19 pandemic parallels Kennedy and his Bay of Pigs advisory team. Trump built an illusion of invulnerability among Republicans and his supporters; that the virus would not have a significant effect on the country, dismissing scientific evidence about the threat of COVID-19, in order to embolden Americans to take risky actions amid the pandemic. From February to November 2020, Trump over 40 times communicated that coronavirus would "go away," and claimed in September 2020 that it "affects virtually nobody", even though the United States had just surpassed 200,000 COVID-19 deaths (O'Kane, 2020; Rieger, 2020). Messages of overwhelming optimism about the risk of the virus such as these fueled feelings of invulnerability among many Americans, sowing doubts and conspiracies about the actors attempting to contain COVID-19.

Psychological evidence supports the notion that conspiracy theories are correlated with this symptom of groupthink to classify opposing messages to the group's beliefs as absurd or even evil. Studies on the role of narcissism indicates that conspiracy theories appeal to people who deem their positive image of their self or in-group to be threatened (Cichocka, 2016). Collective narcissism, which is an inflated view of an in-group's greatness and vilification of the group's dissenters, can account for conspiracy beliefs. Furthermore, experimental studies indicate that people who have been ostracized are more likely to believe conspiracy theories, which may be a way to cope with their experience (Lantian, 2018). Based on these findings, people may believe in conspiracy theories defensively to shield their group from criticism or avoid a sense of culpability for their questionable actions which may include immoral behavior.

Many Americans, typically far right-wing, turned to conspiracy thinking regarding the COVID-19 pandemic, including that COVID-19 was created deliberately, the death rates are extremely overstated, or that is a hoax and does not exist altogether (Henley, 2020). They may believe that actors attempting to contain the virus, such as Director Fauci, had nefarious intentions to fearmonger and control. Because many committed to the idea that COVID-19 is not real or not a threat, they developed a reason for why people would deny the obvious. Thus, conspiracy theories have been a major tool of many radical right-wing Americans to uphold the illusion of invulnerability against the COVID-19 pandemic.

To discourage the illusion of invulnerability, among other symptoms, leaders should begin with one of Janis's groupthink treatments, which is initially to present the challenges without stating his or her preferences. Janis (1972, 210-211) asserts that "when assigning a policy-planning mission to a group, [a leader] should be impartial instead of stating preferences

and expectations at the outset… limit[ing] his briefings to unbiased statements about the scope of the problem and the limitations of available resources, without advocating specific proposals he would like to see adopted" (Janis, pg. 210-211). The benefits of this approach are that group members operate within an atmosphere of inquiry, becoming more willing to both participate in the policymaking process and be receptive to a wider range of policy alternatives.

In the case of the COVID-19 pandemic, this directly relates to the type of messaging policymakers craft when communicating with their constituents. First, policymakers should avoid privileging or denouncing information at the expense of dismissing some information that others might correctly deem relevant. This may be best achieved by relying on the guidance of epidemiologists but also other experts (e.g., psychiatrists expressing concerns over children's issues in remote learning contexts) entirely, accurately communicating the risk of the virus and the options being considered for containment. Some states and cities effectively did this early in the pandemic, earning the trust of citizens with focused educational efforts. Facilitating a holistic communications process may be effective at disarming inclinations to seek out conspiracy theories or other methods of upholding an illusion invulnerability.

Then, to sustain this trust, policymakers must seek ways for constituents to feel involved in the process. Facilitating an open forum where citizens can express concerns and suggestions for policies in reaction to COVID-19 may help both with policy innovation and willingness to follow guidelines from health officials and policymakers. Certain populations require different policy prescriptions during a threat to adapt to unique constraints, so deferring some say to the citizens in these situations may enhance positive interactions and effective policy. With the right

level of productive participation and scrutiny in the policymaking process, leaders can help dissolve the illusion of invulnerability during a threat and prevent the errors of groupthink.

The illusion of invulnerability is reinforced by the second relevant symptom of groupthink, which is discounting warnings that may cause a group to reconsider its position. A leader's dismissal of warnings can bleed into the behavior of other group members attempting to maintain the group's agenda. The Trump administration consistently ignored CDC guidance about COVID-19 control, such as plans to reopen cruise-ship operations in 2021 despite public health expert warnings about the vulnerability to the spread of the virus (Swan, 2020).

President Trump also appointed negligent public health officials and emboldened other Republican leaders who discounted and misrepresented the threat of COVID-19. One of these officials was former Health and Human Services science adviser Paul Alexander, who Trump appointed in April 2020. Counter to the recommendations of prominent health officials on how the United States should contain COVID-19, Alexander advocated deliberately exposing non-high-risk groups to the virus and developing herd immunity so that the economy could re-open (Diamond, 2020). An even more explicit mirror of Janis's groupthink theory is the behavior of Alexander and the HHS to shape official statements to be more favorable to President Trump. Alexander directed HHS and CDC communication officials to downplay recent data about COVID-19's disproportionate impact on minority populations because "Democrat antagonists will use [it] against the president." By actively ignoring expert guidance on how to handle COVID-19, and instead, pursuing counterintuitive measures and disrupting transparent public health information channels, Trump and his allies drowned out threats to the groupthink.

US leadership can avoid these same mistakes by following Janis's treatments that seek to disrupt groupthink and encourage the flow of diverse thoughts and opinions. A potential solution to the inclination to dismiss warnings is "the leader of a policy-forming group should assign the role of critical evaluator… encouraging the group to give high priority to airing objections and doubts. This practice needs to be reinforced by the leader's acceptance of criticism of his own judgements" (Janis, 1972, 209). When policymakers fully commit to this approach, strongly endorsing critical appraisal and demonstrating the capability to be influenced by those who may disagree with a leader or the group's first inclinations, this approach can yield less groupthink. This approach is challenging, especially in the context of influencing political supporters given the scope and complicated nature of institutional forces in the American policy structure. However, in the context of growing threat, critical appraisal can certainly be fostered to decrease groupthink and mitigate a threat effectively if these principles are fostered early and aggressively.

For instance, group members in the context of COVID-19 are policymakers and the public health officials they work with may serve as critical evaluators. If public health officials can accurately and critically evaluate the decisions of policymakers and provide corrective guidance that is heeded, trust may be fostered among constituents regarding COVID-19 guidance. National Institute for Allergy and Infectious Diseases Director Dr. Anthony Fauci was feasibly in this position as the leading member of the White House coronavirus task force, assigned with providing guidance for mitigating COVID-19. The aspect of Janis's prescription requiring a leader that effectively defers his own judgement to guidance from a critical evaluator was not followed on the national level (Jankowicz, 2020). However, this model was very

effective in different state and local contexts, some examples of which are covered later in this thesis, when policymakers accepted guidance from critical evaluators.

The third relevant symptom of groupthink to address is unquestioned belief in a group's inherent morality. Due to Republican rhetoric condemning actions to mitigate the COVID-19 pandemic, such as mask wearing and social distancing, many Americans started perceiving those actions as un-American and "infringement of freedoms" (Collinson, 2020). As a result of these feelings, many Americans protested in the streets or opted to not wear masks or social distance altogether because they perceived doing so as morally laudable. Along the same lines, Trump and his supporters displayed the fourth relevant groupthink symptom of pressuring against group members who argue against the group's beliefs. One example of this is Trump's criticism of those who wore masks were doing so not to prevent COVID-19 transmission, but to display disapproval of his administration (Sheth, 2020). This implies that his supporters ought not to wear masks, inherently pressuring Republicans to avoid participating in an action that contradicts the party's growing anti-scientific perspective.

To counteract these symptoms, leaders must be open to alternative perspectives and solution strategies. Thus, Janis's third primary solution to groupthink is "setting up several independent policy-planning and evaluation groups to work on the same policy question, each carrying out its deliberations under a different leader" (Janis, 1972, 211). This solution is much like encouraging critical evaluation among members of a group. However, this treatment is targeted at altering the mechanisms of the group decision making process and directly institutionalizing third party groups to scrutinize thoughts or feelings that may cloud a group's judgement.

These practices should especially be implemented during times of crisis. For example, the Trump administration, including his inner circle of advisors, and leaders of the relevant health organizations responsible for providing information and guidance during a pandemic should have been required to meet regularly and challenge the ideas of those making important decisions. Epidemiologists like Fauci and experts who directly deal with data on COVID-19 spread should have been more involved in the decision-making process because they have a full grasp of the epidemiological risks, which would lead to less discounting of political warnings and groupthink of moral fortitude. Most importantly, no administrations should easily be able to bypass agencies that have expertise on a threat. Competent leaders recognize the importance of having CIA or State Department judgement during international briefings, for instance, to temper decision-making with careful consideration of those who may have more direct knowledge and robust response strategies on a subject. Future leadership ought to consider the mechanisms necessary to ensure proper expertise is consulted and groupthink is disrupted.

The same principles of groupthink apply to climate change, where conservative audiences denouncing efforts to mitigate the threat tend to harbor each of the same symptoms. However, the long-term threat of climate change requires even further scrutiny to disrupt the groupthink that has persisted over time. While Janis does not specifically make the distinction between short- and long-term threats, it is likely that strategies for addressing groupthink in longer-term developmental constructs like climate change differ from more immediate threats like COVID-19. People tend to act differently under the pressure of an urgent threat rather than threats that are not currently manifested as immediately urgent, such as global climate change. Leaders can contribute to long-term groupthink by permanently sealing off an issue as unimportant, causing

the faith that the climate-denial leader and followers are still correct to not be challenged within the group. Repeated assertion of climate denial reinforces this position.

This sustained groupthink is due, in large part, to the leaders that group members look to for leadership on issues like climate change. Because much of this criticism has relied on misinformation, right-wing communicators have gradually accomplished a position in the discourse on climate change such that they are free from criticism from their own followers. Mirroring Janis' explanation of groupthink, followers of right-wing media fail to be critical of their own leaders for spreading misinformation, thereby ignoring contradictory ideas that deviate from their mutual beliefs.

Supplementing the ideological position of the Trump presidency, right-wing leaders in the media have cast doubt on the presence and role of climate change. Many of these sources serve as authoritative sources of information on political topics for conservative Americans, including various right-wing publications and influencers. One of the longest existing and most prevalent sources of climate change misinformation was conservative radio host Rush Limbaugh (1951-2021). Featured across 650 radio stations and regularly having 15 million weekly listeners, the Rush Limbaugh Show was a major influence on conservative attitudes in the United States (Chmielewski, 2021). Many other conservative media outlets, such as the *Fox News* Channel, Red State, Breitbart, and Townhall credit Rush Limbaugh for their creation. Under this immense influence, Limbaugh denied the presence of global warming in 1984 and continued doing so for almost 30 years (Fong, 2011). Because Limbaugh was not rebuked by listeners for such baseless claims as the heat index being "manufactured by the government" or that NASA sabotaged its

own research satellite to influence climate data, he helped fortify a long-standing groupthink position of inaction on climate change based on false premises.

Unlike the dynamics of groupthink in urgent situations, longer-term threats permit complicated adaptations. Much like the aversion to engage in social distancing and mask-wearing developed during the COVID-19 pandemic due to pessimism regarding their efficacy, many adapted to attack the merits of climate mitigation efforts themselves. As evidence on the presence of climate change and its damages increased, many climate change denier arguments continued to evolve in order to maintain the justification for inaction. Climate deniers gradually shifted away from absolute denial of climate change to other criticisms of pro-climate change resolution arguments, such as downplaying the role of humans in climate change or claiming that mitigation costs are too high (2021, California Office of Planning and Research). This adapted denial argument—not that climate change is false, but rather that it cannot be feasibly addressed—effectively maintains the groupthink that climate change should not be addressed.

For example, some conservative communicators do not rely principally on false premises on the presence of climate change, but still accept the stance of climate change inaction. While absolute denial influencers still exist, other media influencers have more recently shifted to criticize the efficacy of actions to mitigate climate change's effects. Conservative media influencer Ben Shapiro is one leader of this shift, agreeing that climate change is real but arguing that "there are no good solutions to preventing it" (Shapiro, 2019). Shapiro and other conservatives who argue that the costs of addressing climate change outweigh the benefits are using more evolved arguments, yet still fortifying the same groupthink that the United States should not reduce greenhouse gas emissions.

Despite the stubborn persistence of denial in some quarters, effectively communicating new information can resonate with people with a seemingly deadlocked belief system and prompt the reevaluation of opinions. Americans increasingly believe in the presence of climate change over the last decade, growing from 63 percent of Americans in 2014 to 72 percent in 2020 (Howe, 2015; Marlon, 2020). This demonstrates that climate change advocates broke down barriers to disrupting groupthink in the past for a threat that some perceived to be insignificant or fake. The key factor that leads to these changes in belief is the continued reinterpretation of a threat under new evidence and persistent communication of these developments to policymakers and the public. To bring an issue back into relevance that, for some, seems non-urgent, those concerned with a threat must constantly innovate communications to change the frame of a debate to break through to dissenting audiences.

A primary example of this working for climate change mitigation is to focus on communicating climate change as a broader concept rather than simply global warming. Global warming messaging generally has explained the impacts of the greenhouse effect on a warming environment, which has not resonated strongly with conservative Americans. It also quickly became politicized. By expanding the scope of the effects of fossil fuel burning to include several more damages—most notably, damages pertinent to human health and welfare—acceptance of the threat grew, and disbelief waned. A national Qualtrics survey conducted in 2012 demonstrated how the terms global warming and climate change evoke different interpretations and influence the degree to which participants desired to mitigate the effects of the phenomenon, revealing that the term global warming was associated with lower desires to mitigate climate change harms (Benjamin, 2017). This may be because global warming is one

dimensional as a term, it focuses only on increasing temperatures, which many climate skeptics perceive to be disproven whenever cold weather occurs. The research suggests that global warming also carries emotional and frightening connotations, which can discourage people from accepting it. Therefore, by simply changing the term and adding dimensions to the effects of a threat, climate change mitigation advocates should continue to reframe the debate and effectively interrupt groupthink denial of climate change.

In addition to carefully considering the communication of climate science and mitigation strategies, US policymakers should also consider establishing further trusted authorities that provide such information. While the president has the capacity to strongly influence the country to rally behind climate mitigation, much like the Biden administration is attempting to do through his ambitious climate change commitments to cut US greenhouse gas emissions in half by 2030, it also has the capacity to stall or even reverse progress, much like the Trump administration's decision to leave the Paris Climate Accords (US News and World Report, 2021). In other words, the presidency may hold too strong of an influence on groupthink regarding a threat like climate change, because a president can singlehandedly shift the agenda on climate change every election cycle, an inconsistent process that the climate cannot afford.

Rather than leaving national policy on climate change predominantly in the hands of elected leaders, it may be useful to elevate other authorities on the science and mitigation strategies to whom citizens and policymakers can turn for alternative information in the event of a leader's dissent of scientific warnings. For example, on the federal level, the Council on Environmental Quality (CEQ) that coordinates federal policies to protect health and the environment under the National Environmental Policy Act (NEPA) could be bolstered to reduce

national groupthink on climate change. The CEQ provides a base for even more scientific input into executive strategies on climate change. For example, it also may be useful to increase the roles of scientific organizations such as the National Academy of Sciences, Engineering and Medicine, or US members of the Intergovernmental Panel on Climate Change, by regularly appointing representatives of such to coordinate communication of and suggest strategies for climate change within the CEQ. This can establish a precedent in which the president is effectively challenged by experts in the event of attempts to spread misinformation, helping dismantle groupthink on climate change inaction. Admittedly, because the CEQ is an organ of the White House, its role in effective climate change mitigation may shift drastically after an election because the Constitution restrains the Presidency from making more lasting policy changes. However, every instance of good leadership counts towards overall threat mitigation, and this is just one example of how to disrupt groupthink on climate change which may be applied to other regulatory entities.

If the CEQ—or other relevant environmental policy groups—are tasked with coordinating scientific information among groups throughout the United States, taking into consideration several points of view and tempering these concerns with scientific guidance, long-term trust in climate science and commitment to mitigation can be achieved. On the state and local levels, government leaders should seek similar institutional changes that solidify long-term authority on climate change communications and strategy, especially such that can be coordinated on a national level.

Ultimately, solutions to groupthink on a global threat require leaders to recognize that perspectives on moral actions differ among many people. Every leader will have a priority of

values, involving economic growth, optimizing health and wellbeing, or other goals, but leaders must recognize that many people will have very different priorities of their own. By aggressively committing to a narrow set of values during a crisis, such as President Trump did with economic growth and American sentiments of freedom during the COVID-19 pandemic and climate change alike, many people's values get left behind. If other independent policy-planning groups are tasked with developing arguments for the decision-making group's advocacy, it can help incorporate other positions.

Leaders should recognize groupthink and the power of their influence, both in word and action. Because, as the groupthink theory outlines, the members of a group with high cohesion will believe what a leader says is correct, it is the responsibility of a leader not to sow an illusion of invulnerability to avoid disasters. US policymakers ought to normalize embracing uncertainty, and fielding any doubts in communications during a crisis, both to gain trust among constituents as well as promote effective response strategies.

It may also be possible that groupthink cannot be feasibly disrupted. In this case, to facilitate greater trust in individuals reacting to a global threat, maximizing the level of in-group messaging among groups that are traditionally skeptical about these kinds of threats will yield greater risk perceptions. For global climate change and pandemics, encouraging Republican policymakers to communicate the intensity of a global threat is key to mitigation because it will garner trust in the general integrity of public health guidance.

CHAPTER 5: COMMUNICATIONS AND POLICY STRATEGY TO INFLUENCE THE FOCUS OF ATTENTION

An effective communication tool to demonstrate the need to bolster long-term soft security preparation is to promote communication of existing policies with clear benefits. Praising these efforts, and acknowledging governmental shortcomings as well, can provide the necessary information for policy actors to better prepare for both crisis prevention and mitigation. During the COVID-19 pandemic, there were some federal and state policies during outbreak crises that appropriately responded to citizens' needs for health and financial support, avoiding negative outcomes that would have occurred otherwise. Several states have also led the nation in reducing greenhouse gas emissions and adapting their populations to climate change.

Effective COVID-19 Crisis Response Policies

Poor responses to the COVID-19 pandemic from much of the United States versus differ in several ways from effective responses that have been derived from scientifically informed communication to the public. Much of the success of government actors during the pandemic stemmed from following public health official guidance and communicating to citizens the necessity to take certain actions to avoid illness. The US federal government failed at containing the pandemic because top leaders like President Trump downplayed the risk of the COVID-19 virus despite expert suggestions of its severe risk, resulting in confusing communication to the public about the risk of the virus and subsequently, poor policies in its containment (Poznansky, 2020).

With a growing public health concern, it is inevitable that there will be a lack of information and certainty about which measures are advisable to decreasing peoples' risk.

However, despite this lack of information, the COVID-19 pandemic demonstrates that prudent actions and strict adherence to the recommendations of health experts during a health crisis will result in better outcomes. Even when there was uncertainty during the initial stages of the COVID-19 pandemic, when officials were not confident but had some reason to believe in the efficacy of masks, clear and direct advisory to the population was necessary to eliminate fear, confusion, or misunderstanding during the pandemic.

Dr. Fauci has commended some states for their response to the COVID-19 pandemic, one of which was Vermont (Doherty, 2020). The Green Mountain State took aggressive action early on and never grew complacent, maintaining effective virus containment measures throughout the course of the pandemic. These measures included limiting occupancy at indoor facilities, reducing outdoor gathering limits during predicted high-transmission periods, such as college students returning home from campus, requiring a two-week quarantine from high-infection rate areas, and a state-wide mask mandate (Doherty, 2020).

Some health officials claim that the success of Vermont's low case rate is due to geographic isolation. However, when compared to areas with similarly rural (although in some cases, more densely populated), and geographically isolated populations, Vermont fares better in COVID-19 cases and deaths because of its emphatic and consistent policies. Inversely, other comparable communities with minimal or declining pandemic response, experienced devastating surges later into the pandemic. By August 2020, rural areas of the United States per capita case rates and death rates surpassed metropolitan areas (Leatherby, 2020).

Despite having a similar population size and rural presence compared to some other states, COVID-19 impacted Vermont (pop. 623,989) and South Dakota (pop. 884,659)

differently based on their policy response to the pandemic (US Census Bureau, 2020). Governor

Kristi Noem in South Dakota enacted no shutdowns and no mask mandate in her state, while

Vermont Governor Phil Scott embraced a statewide mask mandate and shutdowns. The

consequences emerged in November 2020: South Dakota had one of the worst infection rates in

the nation of about 8,000 cases per 100,000 people, compared to Vermont's 500 cases per

100,000 people (Tupper, 2020). South Dakota also had a death rate ten times higher than

Vermont. Additionally, counter to claims that pandemic containment measures harm the

economy, Vermont retained the third-lowest unemployment rate in the country throughout the

mandates. As of January, when COVID-19 rates spiked significantly in the United States due to

the winter season, Vermont retained the lowest overall case (8,967) and death (156) rates in the

country while South Dakota has more than ten times the cases (103,000) and deaths (1,585) (*The

New York Times*, 2021).

Because of the state's consistent effort dealing with the pandemic, keeping COVID-19

rates and deaths remarkably low, Governor Phil Scott of Vermont received an 84 percent

approval rating in August 2020 for his leadership during the pandemic (Davis, 2020). However,

the state policies to contain the virus were indeed met with opposition in the beginning of the

pandemic. Like much of the rest of the country, Vermont was met with anti-lockdown and anti-

mask protestors in response to the announcement of virus containment policies (Norton, 2020).

While empathizing with concerns over unemployment and other economic stressors of the

lockdown, Governor Scott continued to employ a cautious approach to reopening the economy.

It is particularly enlightening to the discussion of messaging strategy by focusing on

Vermont's approach to mask requirements. A considerable portion of Governor Scott's

Republican constituents pressured the state to refrain from instating a statewide mask mandate (Jickling, 2020). Governor Scott initially complied, delegating power to localities to create mandates. However, as concerns grew over rising COVID-19 cases in adjacent New England states and pressure from public complaints about citizens refusing to wear masks mounted, Governor Scott created an interagency team to facilitate a statewide public relations campaign focused on mask wearing. The state spent around $30,000 to create the campaign, spreading information about why Vermont citizens should wear face masks via radio messages, printed posters, TV advertisements, social media advertisements, and more. After the campaign, a survey revealed that about 85 percent of residents always or often wore a mask indoors and in public, higher than the US average of 65 percent of self-reported mask wearing (Vermont Department of Health, 2020), (Igielnik, 2020).

It was only after this significant public relations campaign that Governor Scott enacted a state-wide mask mandate prior to students returning to school in August, a period that health officials projected a surge in COVID-19 cases (Allen, 2020). By this time, Scott had already catered to strong sentiments of personal responsibility so that constituents initially resistant to COVID-19 containment policies were more receptive to the measure. Responding to critics of the mandate, Scott continued to encourage thoughtful education about the importance of the COVID-19 measures, emphasizing that "wearing a mask will protect the gains we have made" and that, "attacking, shaming, and judging isn't going to help [increase mask compliance], but understanding, educating, meeting people where they are, and maybe using a little kindness and understanding might.

Governor Scott's actions during the COVID-19 pandemic demonstrate the effectiveness of reducing groupthink and addressing the concerns of several different groups. With the help of his advisors, Governor Scott adequately made decisions "based on science", waiting to see what happened when other states that opened "too quickly", such as Georgia, to validate his measured process (Norton, 2020). By yielding authority to bipartisan groups of state decision makers to develop a robust policy approach to the pandemic, Governor Scott's administration protected a comparatively impressive amount of Vermont citizens from COVID-19 and simultaneously received significant public support.

Although Washington State struggled to keep COVID-19 infection rates down during the winter, the State can also receive some praise for its similar approach to controlling the pandemic. Despite being faced with the virus very early on, reporting the first COVID-19 case in the nation in January 2020, the government quickly created an effective response strategy (Doherty, 2020). Governor Jay Inslee determined early on that coherent public messaging about the risk of the virus was a top priority, delegating the task to health experts rather than politicians to communicate with the public and guide the state's response. The state also aggressively rolled out test kits for the virus and sharing data, enabling officials to optimize their response tactics, such as directing protective equipment and mitigating hospital surge capacity.

New York State, with an urban environment prone to high COVID-19 transmission risk comparable to Washington State, had a notably less emphatic response to COVID-19. Within the second week of April, Washington State had about one recorded fatality per fourteen thousand residents, while New York had six deaths per fourteen thousand residents (Duhigg, 2020). While this comparison may be misleading because New York has higher poverty and denser cities than

Washington state, New York's leaders had markedly different actions and communications during the initial stages of the pandemic. For both major cities, Seattle's leaders acted quickly to encourage people to stay home and follow scientists' warnings, but New York City's leadership moved sluggishly, provided vague, often contradicting messages, and was riddled with political infighting. Although New York State has comparable social-distancing policies and business closure policies to Washington today, New York State residents have already faced much more dire consequences than Washington due to inconsistent communication which took too long to influence resident behavior. Because of this stark contrast, Washington State's death per 100,000 residents is a quarter of New York State's as of January 29, 2021 (56 per 100k in Washington versus 222 per 100k in New York) (Elflein, 2021).

Effective Climate Change Response Policies

Some states have enacted climate change policies with similar goals as state actors during the COVID-19 pandemic to create deliberative, fact-based, expert-informed policy, potentially serving as a model for national policy. States like California and Washington have steadily mitigated climate change despite changing national agendas, effectively doing so by committing to greenhouse gas emission reduction targets, collaborating with other governments and policy actors, and establishing state agencies to assist governors with transitioning to a cleaner economy.

When President Trump rescinded US involvement in the Paris Climate Agreement to reduce global carbon emissions in 2017, Governors Jerry Brown (D-CA, now retired), Andrew Cuomo (D-NY), and Jay Inslee (D-WA) created the US Climate Alliance (US Climate Alliance, 2021). Now including 24 states and two territories representing 55 percent of the country's

population and 40 percent of its carbon emissions, the governments have remained committed to the Paris Agreement, some setting even more ambitious goals. Under the Alliance, states formed coalitions to engage in United Nations conventions on climate change to advance international partnerships that combat issues like coal plant pollution and ocean acidification (PPCA, OA Alliance).

In addition to partnerships, state governments have also looked inward to hold themselves accountable by embedding committees into the policymaking process that provide advisory and administrative support for climate change mitigation. Maine Governor Janet Mills established the Maine Climate Council in 2019, which includes policymakers, commissioners from agricultural, economic, environmental, transportation, health, and housing agencies, as well as other appointees who represent state interests affected by climate change. The Council is mandated to develop a strategy to reduce the State's greenhouse gas emissions by 2050 (Maine, 2019). Maine sets an example of effective leadership on climate change by incorporating a diverse array of interests, including scientific and economic concerns. It thus avoids groupthink in its climate policy, and better addresses all aspects of citizens' safety and wellbeing.

CONCLUSION

The COVID-19 pandemic and global climate holds several lessons about the US government's failure to address threats of this caliber, and how policymakers should go about things differently. The heart of both issues is their intangible nature, which deters people from viewing them as threats in the first place. Politicians and news media can capitalize on this confusion, breeding distrust of scientific guidance that would otherwise inform effective US policies that avoid immense economic strain, health damages, and death.

The content analysis in this thesis' second chapter likely only scratches the surface of the sentiments that led to climate change and pandemic inaction in the United States. Over the past 20 years, Americans have been primarily focused on the economic cost of solving both issues, but not so much on the human health and wellbeing effects from failing to solve them. Furthermore, *Fox News* often delegitimized climate change concern, cultivating an anti-science sentiment that leads to apathy for many conservatives during a crisis like COVID-19.

Several conditioning factors may explain some of what underlies this cultural block. Most obviously, political parties have played a significant role in shaping opinions on climate change and pandemics. The overwhelming majority of liberal Americans support the effective containment of COVID-19, as well as the mitigation of climate change. However, at best, most conservative Americans believe that these issues are poor funding targets, and at worst, many believe in conspiracy theories that these issues are linchpins for an authoritarian government to step in and fundamentally destroy the American way of life. The divided public leads to the ineffective, often negligent actions of policymakers during the critical moments when these issues should be addressed.

Addressing these concerns requires serious unpacking of underlying biases that may drive the passivity with respect to these threats. First and foremost, optimism bias may be hindering individuals' perceptions of the risk of inaction on climate change and pandemics. The added influence of confirmation bias and salience bias reinforces this position because people tend to seek out information that supports their initial optimism/pessimism. This generates a one-sided perspective in reaction to a threat and fails to challenge these preconceived notions because the threats are not easily perceptible. The appropriate goal for policymakers grows clearer: with the public messaging and adjustments to the administrative process, audiences can better engage with these threats from the outset, so that they are aware of the magnitude of their risk, but optimistic about the strategies to address them.

Policymakers can only do this effectively when their deliberations are not clouded by groupthink. If leaders set the precedent that their beliefs cannot be questioned, catering only to one-sided rhetoric, the constantly reinforced biases that lead to inaction during critical threats cannot be disrupted, and disaster is almost ensured. Instead, to combat groupthink, governments must institutionalize consultation with diverse groups of threat experts in order to establish well-informed and well-rounded policies.

Founder of 350.org and author of *End of Nature,* climate activist Bill McKibben articulates the need to disrupt the ignorance surrounding COVID-19 pandemic and climate change (The Tyee, 2020). McKibben observes that while President Trump sought to intimidate Americans to support his policies and beliefs, he failed to intimidate the COVID-19 virus or the greenhouse effect. This is because they are unalterable scientific processes. Claiming that these issues are hoaxes does nothing to address their effects. Instead, the United States must adjust to a

shifted reality sooner or later, hopefully before it is too late. McKibben observes that "physical reality is real… [and accepting this fact is] really hard for a lot of people in this modern world. But I've spent the past 30 years trying to convince people that physics and chemistry are real. You can't spin them. They won't compromise with you"

In several respects, the COVID-19 pandemic is a rehearsal for disruptions and crises in the future, whether pandemic, climate change, or otherwise. On a shorter timescale, the COVID-19 pandemic demonstrates how failure to heed scientific warnings and the ensuing delays for mitigation spells disaster for climate change, future pandemics, or threats that can only be understood and effectively addressed with solid science. In contrast to the decades of gradually increasing carbon emissions, the United States skyrocketed in COVID-19 cases, leaving over 500,000 Americans dead in a matter of months. This occurred because a significant portion of the public was not aware of, or concerned with, the risks, and policymakers followed suit or orchestrated this willful ignorance. It requires a combined effort of policy, science, and behavior to reverse this pattern of American ignorance in order to adapt to a changing climate, a global pandemic, or any other threat that arises in the future.

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