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Publication Date

2023

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UNIVERSITY OF CALIFORNIA,
IRVINE

Better than Bias: The Power of and Alternatives to Descriptions of News Media as Biased

DISSERTATION

submitted in partial satisfaction of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

in Education

by

Joseph Aubele

Dissertation Committee:
Professor Young-Suk Kim, Chair
Assistant Professor Nia Nixon
Assistant Professor of Teaching Fernando Rodriguez

2023

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Acknowledgements

I would like to express the deepest appreciation to my committee chair, Young-Suk Kim, whose unwavering support, guidance, and mentorship has led me to be the researcher I am now. Without her, I am not sure how successful my doctoral studies would have been, or if I would have gotten to this point today.

I would like to thank my committee members who provided me with thoughtful, useful, and constructive feedback every step of the way. Because of them this dissertation is a much-improved product from its original form.

Thank you to my cohort, friends and colleagues that have helped to foster a love of research in me over the past five years and provided me with the support and kindness that made this doctoral program an incredible experience.

Finally, thank you to my parents, friends and to Mallory for their unending support of me in every facet of life. Mallory often had to listen to the ramblings of a madman late into the night while I figured out what to research and how. She showed the bravery to start dating a graduate student at the start of school, and I am so grateful for that.

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- Xu, Y., **Aubele, J.**, Vigil, V., Bustamante, A., Warschauer, M., & Kim, Y.S.G. (2021). Dialogue with a Conversational Agent Promotes Children’s Story Comprehension Through Enhancing Engagement. *Child Development*, 93(2), e149-e167. 10.1111/cdev.13708
- Butterfuss, R., **Aubele, J.**, & Kendeou, P. (2020). Hedged Language and Partisan Media Influence Belief in Science Claims. *Science Communication*, 42(2), 147-171.

Book Chapters

- Kendeou, P., Harsch, R., Butterfuss, R., **Aubele, J.**, & Kim, J. (2020). The Challenge of Fake News: Intellectual Survival in the Context of Multiple Representations and Perspectives. In P. Van Meter, A. List, D. Lombardi, & P. Kendeou (Eds.) *Handbook of Multiple Representations and Perspectives*. New York, NY: Routledge
- Kim, J., Butterfuss, R., **Aubele, J.**, & Kendeou, P. (2019). From Theory to Practice: Implications of KReC for Designing Effective Learning Environments. In P. Kendeou, D. Robinson & M. McCrudden (Eds.). *Misinformation, and Fake News in Education*. Charlotte, NC: Information Age Publishing, Inc

Presentations

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2020 - **Teacher Research Group for Media Literacy**
Audience: Educators

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- 2022 **Digital Citizenship and Civic Engagement**
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- 2022 **Building Students' media Literacy for Civic Engagement (3 session workshop)**
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Number of Attendees: 123
- 2021 **Building Students' media Literacy for Civic Engagement (3 session workshop)**
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Teaching Experience

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¹ Graduate Level Course

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 Course: *EDUC 10: Education Research Design*
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 Course: *EDUC 107: Child Development in Education*
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 Course: *EDUC 30: 21st Century Literacies*
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- 2021 **Guest Lecturer**
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- 2018 **Guest Lecturer**
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 University of Minnesota
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 Course: *PSY 394: Roadmap to Graduate School*
 Arizona State University
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2016 **Undergraduate Teaching Assistant**
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2022 **Using Data to Build Teacher Efficacy for Teaching Media Literacy (\$5,000)**

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Role: Co-PI (Co-PIs: Jacob Steiss, Nicole Gilbertson & Daisy Martin)

2022 **Collaboratively Building Students' Media Literacy for Civic Engagement (\$5,000)**

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Abstract of the Dissertation

Better than Bias: The Power of and Alternatives to Descriptions of News Media as Biased

by

Joseph Aubele

Doctor of Philosophy in Education

University of California, Irvine, 2023

Professor Young-Suk Kim, Chair

Mis- and disinformation are rampant issues in our world today which has led to a huge increase in the number of studies researching the topic and its potential solutions. One area that has received attention is how to evaluate media sources and often times, how to evaluate bias in media. Despite past research largely not deciding a joint understanding of this phrase, it has persisted in the research field and in teaching practices. This dissertation had two primary goals: 1) better understand the power that perceptions of bias have on our ability to evaluate information 2) utilize three different methodologies that could replace the term bias in favor of more concrete and identifiable practices and criteria. Study 1 examines the power that perceptions have and specifically the relationship between source perceptions and epistemology. Studies 2 and 3 utilize agenda setting, framing and sentiment analyses to compare various media types to online partisan media. Findings from these studies have strong implications on the research field and how to better teach evaluation of media in today's highly dynamic informational spaces.

Introduction

Historically, one of purposes of schooling is to prepare students to be good citizens (PDK, 2016). Scholars and society at large have noticed a rise in the prevalence of misinformation in recent years with some citing misinformation as one of the biggest threats to society and democracy (World Health Organization, 2019). While the onus of responsibility to solve the problems around misinformation should not be entirely on individual consumers, ensuring that people feel agentic and knowledgeable to combat misinformation is important to ensure a healthy democracy and well-informed citizenry (Augenstein, 2022). Given one of the purposes of schooling is to prepare good citizens, ensuring that people have the ability to combat misinformation and form opinions and stances based on high-quality information should be a primary goal for schools.

There is a need to provide the skills and dispositions necessary to ensure people at large are well-informed and able to utilize critical thinking skills to decipher high-quality from low-quality and even false information. Despite this need and its importance, instruction across K-12 schooling has been scattershot, with some schools or districts teaching media and news literacy directly, while others do not at all. One reason why this may be the case is because misinformation and discerning the quality of information online is a dynamic problem. Creators of misinformation often employ a variety of different and evolving strategies to promote the wide dissemination of misinformation. Another reason may be the complexity of skills necessary to be “media literate”. To be media literate, people must not only have sourcing skills, but also employ evidence evaluation, critical analysis, synthesis skills and many more. The final reason why these skills may not be taught is due to a lack of consensus around what it means to be media literate and sometimes, the best skills to employ. A lack of clarity around key terms or

ideas in the field can be an inhibitor to the progression of research and impact of practice in classrooms. One key term in which there is a lack of clarity is the term bias, which is often used to describe and evaluate media entities.

“Bias” to Describe Media

A common sentiment one may hear in the public today is that a particular news source is “biased”, which often means that whoever has called the source biased believes that source to not be credible. In recent years, the public has grown increasingly concerned regarding the pervasiveness of biased reporting in the United States. In fact, approximately 37% of Americans reported that they believed there is a great deal of bias in news today (Pew Research Center for the People and the Press, 2012). In addition to the general public, scholars have taken a great deal of interest in media bias and its effects on the United States. One Google Scholar search for “media bias” will result in thousands of articles approaching the topic from a variety of angles and content areas.

Despite the term being widely used by the public and studied by scholars, the concept of media bias lacks a shared definition and attempting to create a universal definition has been difficult (Ardevol-Abreu et al., 2017). There is a great range of definitions of bias with some defining media bias as, “a portrayal of reality that is significantly and systematically distorted” (Groeling, 2013) to seeing bias as an “imbalance of inequality of coverage rather than as a departure from the truth” (Stevenson et al., 1973). These two definitions paint very different pictures of bias, and it is of note that there are numerous other types of definitions that address aspects such as word choice (Gentzkow & Shapiro, 2006), and differences in how news outlets frame events (Entman, 2007). Even if one were to choose one of these definitions, there are countless ways to interpret the terms used in these definitions and countless dimensions upon

which to evaluate for media bias. The lack of unanimous agreement upon a single definition of media bias and the inherent ambiguity within these definitions both are issues for the public in agreeing what is “biased” and for the scholarly field in creating scales or evaluating for bias.

Often, bias is seen as a negative and when writing a piece of news, the goal is for the article, video or story to be unbiased and perfectly objective. However, this poses another issue because being perfectly objective, which has historically been seen as fundamental for good reporting (Farnsworth & Lichter, 2007), is essentially an impossible goal. Research has begun to rethink the idea of objectivity as something that journalists should help to guide them, instead of a steadfast rule they must achieve (Fox & Park, 2006). This is because the very nature of journalism is “biased” in some way. Journalists select what to and what to not report on; and they select salient details to report on and details to leave out and make numerous other decisions during the reporting process (Gitlin, 1980). These selective practices are ones central to journalism, and yet previous definitions of what bias may have included “selective omission” (Gentkow & Shapiro, 2006). In essence, the notion of the biased journalist also creates the notion of the unbiased journalist, a standard that may be unattainable due to the duties of journalism. Importantly, people often use the heuristic of a “biased” media source or journalist as a way to discount information from that source all together (Metzger et al., 2010). Therefore, since being perfectly objective or “unbiased” can be unattainable, people will often use other criteria to determine media bias such as belief congruence or political alignment (Metzger et al., 2010). Not only has media bias been a prevalent topic in the public, and research, but has also been a prevalent topic of discussion in media and news literacy education.

To add to this problem, people also have more distrust in the media than ever before (Pew Research, 2020). Because of this general distrust bias as a term has been used to categorize

media very widely where any media source one may disagree with is regarded as biased and bias has been used to create a false equivalency between many different types of media (Hassell et al., 2020). This creates another problem with using bias as a term to evaluate media because not all media sources are universally biased and even in the case where they may be, the often times binary criteria of “biased vs unbiased” instead of examining the habits and dispositions of different news entities in a more nuanced way. This has become an especially prevalent issue when understanding the role that highly partisan or politically motivated media has played in the media landscape recently. The term “bias” has created a false equivalency across many different types of media, including a false equivalency between highly partisan media and other more traditional forms of media (Hassell et al., 2020). The stronger reliance and trust in fringe and highly partisan media outlets have had detrimental effects on democratic institutions and civic action more generally.

Beyond civic engagement and democratic institutions, the use of bias and stronger endorsements of partisan and fringe media has made its way into the classroom as well (Clark et al., 2020). The negative effects of the term bias and the false equivalencies it can create across different types of media sources have negatively influenced the classroom as well (Clark et al., 2020).

Bias as Teaching Tool and Term

Widely known sources for media literacy curriculum such as PBS and The News Literacy Project currently have lessons such as “Decoding media bias” (PBS) and the “Five Types of Bias (News Literacy Project). Interestingly, these same sites also contain conflicting definitions and information surrounding bias and different groups commonly define bias according to their own beliefs or ideals (News Literacy Project). One may interpret this as an inherent conflict between

the goal of the curriculum and the term upon which it is based. The conflict largely is centered in the idea that many curricula that address bias attempt to make it more nuanced by adding types of bias such as “partisan bias” (News Literacy Project) or attempt to bring attention to the fact that people often interpret bias with particular lenses. However, certain teaching materials commonly utilized such as the Allsides Media Bias Chart (Allsides, 2023) make the mistake of creating a visual equivalence between different media outlets that are not similar in the quality of their content (Allsides, 2023). For example, specific “left” leaning sources are visually represented as being as biased as specific “right” leaning sources even when previous content analyses have found left leaning sources to be generally less partisan than far right sources (Baron & Jost, 2019). Importantly, this teaching resource and resources similar to it have come under scrutiny for their subjectivity and harm they potentially cause (Poynter, 2021). This resource as well as strategies that utilize similar methods for comparison across media types and sources are commonly included in information and media literacy curricula. Overall, use of the term bias in the evaluation of media has been shown to have detrimental effects at times, but it still remains a very prevalent strategy for teaching (Ardevol-Abreu et al., 2017). Importantly, there are other methods that researchers and educators alike can utilize to evaluate media sources, in replacement of the term bias.

To replace bias, three criteria which have been utilized previously for evaluating media which are agenda setting, framing, and sentiment (Bruscher et al., 2016; Vargo & Guo, 2018). Although these methods have been tested and used previously, they have not been widely tested in the modern media landscape. Additionally, they have not been often tested on large scale datasets. By testing these methods on a large scale and testing them on a wide range of media sources, one can begin to replace bias as a term both in the research field and the classroom.

Although the term bias has the negative effect of creating false equivalencies across sources, as previously discussed, it ultimately is intended as a tool to evaluate media sources and as a criterion for determining whether a media source is high quality or low quality. Instead of bias, one goal of this dissertation is to test the effectiveness of these three methods in bringing to the surface key differences that exist between media sources in the hopes that we may move away from terms like bias and towards identifiable practices of media sources.

Dissertation Goals and Overview

One goal of this dissertation was to examine the differences between traditional forms of media and that of the largely new, online partisan media. Public trust in media as a whole has been declining for years (Pew Research Center, 2014) in no small part to partisan divides that exist in the United States today. While online partisan media has been the primary driver of these divides, “media” as a large umbrella term has seen the consequences of this as the growing distrust in media largely applies to traditional media outlets (Pew Research Center, 2014). While it is critical that citizenry of any country are cognizant and critical of media, currently in the United States there are personal, ideological and political reasons as to why many distrust media. The goal of study 1 was to understand the strength of bias and then studies 2 and 3 utilized alternative methods to evaluate sources. The overarching goal of this dissertation was to understand if these alternative methods can replace the term bias as a whole. The analyses in studies 2 and 3 then worked to elucidate the similarities or differences between different news entities in the hopes that if the public are critical of the media it may be for reasons more specific than “bias”. Given the field’s vague understanding of bias and consequently the ways to measure it, finding alternatives to bias may be of use not only to the field of research, but to educators, students and policymakers as well.

The goal of this dissertation was to inform practice and to assist teachers, administrators and educators as a whole in providing their students with high quality learnings. As a field, media literacy is one that is growing in relevance and as a result, funding opportunities. Although these three studies will not speak directly to teaching practices, by further understanding these alternatives to bias, the field may also be able to better conceptualize and put into practice better teaching. By showing that agenda setting, framing, and sentiment are three useful ways to evaluate media sources, they may be an increasingly promising direction in education as they are concrete, answerable criteria where all scholars, students and teachers can have a shared definition of what they are, and how to identify them. One final benefit from this study is that salient differences between different types of media that emerged. Since many people receive the vast majority, if not all, of their news online, many have become familiar with the phrase, “I saw it online”. One downside to this phrase is an equivocation between many different types of media such as historically reliable newspapers, Twitter accounts, or other less known online websites. By comparing these different types of media, salient differences emerged, showcasing important areas of distinction and fighting against the equivocation between historically reliable and unreliable media sources.

Study 1

The first study used a quasi-experimental design to understand the strength of source perceptions and to understand the extent to which those perceptions may influence information evaluation. By asking participants to read information from politically diverse sources, evaluate those sources and then synthesize the information, this study revealed whether strong bias for or against particular sources can influence information evaluation. The study also gathered information on participant epistemological stances. This assisted in understanding the habits or

dispositions that are associated with perceptions of media bias being more or less influential when evaluating information. Findings of this study pointed to the public's potentially complicated relationship with media entities and how epistemological stance can help us to better understand the habits and mindsets of college students today. Structural regression models were used to examine the relationship between epistemological stance and source perceptions and how those source perceptions are influenced by violations of expectation.

Study 2

Study 2 focused on describing what news entities are doing and how they are doing it by utilizing three sophisticated analytical techniques to analyze thousands of sources and news articles, creating a clear vision of what elite news and online partisan news do, respectively. Longitudinal text data from the Global Data on Events, Location and Tone (GDELT) database was used to understand the habits of news entities leading up to the 2020 presidential election. This study compared elite news media (e.g., *The New York Times*) to online partisan media, comparing their agenda setting habits, the sentiments they use and the frames they use. By analyzing these two news types with the criteria listed, salient differences between these news types were seen.

Study 3

Study 3 examined the agendas, framing and sentiments of traditional news outlets as compared to online partisan news outlets. The goal of study 3 is to compare traditional outlets (TV and print media) to partisan ones to further juxtapose partisan news outlets to more established media. Instead of a longitudinal design in Study 2, Study 3 took a cross sectional approach, looking at ten unique stories from the 2022 year. For each news story, TV news and print news were compared to online partisan media. Given that a large number of Americans still

receive their news from broadcast and local news, understanding the similarities or differences between these outlets and online partisan news is important as well.

Study 1: Evaluating the Strength of Perceptions of Media Bias

Introduction

Digital media and technologies have forever changed the way people interact with others, the world, and with information in general. No exception to this is the way people interact with news and other online current events. With the emergence of digital news and its proliferation through social media, has also come an explosion of options of where one could get their news. While this expansion of options has proven to be beneficial in some ways, it has also come with its downsides. Today, it is much more difficult to confirm the quality of information, where the information came from, and even who the author is. These factors all point to a concern in the credibility of information; and because of the large amounts of information people interact with on a daily basis, there are also concerns about one's ability to find and identify high quality information. Determining credibility of information is not a new task, as information throughout history has always been riddled with mis- and disinformation. Scholars have previously argued that digital media has not changed the cognitive skills required to evaluate its credibility but instead has demanded that people use those skills much more often (Eysenbach, 2008) if they are to evaluate all the information they encounter (Flanagin & Metzger, 2008). The skills required to evaluate information are difficult to master and take a great amount of cognitive resources (Flanagin & Metzger, 2008). What makes this all the more difficult is that digital information is often out of date or inaccurate (Danielson & Rieh, 2007; Metzger et al., 2003). Traditionally, gatekeepers (e.g., librarians) have checked information and filtered out that which did not meet their standards. Given the information overload that now exists, that is an untenable and unsustainable practice. While there are still fact-checking websites and services, they often can only address what they see as the most dangerous or harmful misinformation online.

The goal of this study is to begin to address these concerns by better understanding the influence of people's perceptions of sources and their epistemologies and political learning on their evaluation of information. Through a quasi-experimental design, undergraduate students at a college in the southwest of the United States were asked to read and evaluate information from numerous sources. While reading these sources, they were asked to evaluate each respective source's credibility. After reading the sources, participants were asked to write a brief synthesis, summarizing what they read.

The Cognitive Demand of Evaluating Information

For decades cognitive scientists have discussed the constraints people have on their ability to process information. Bounded rationality, first posited by Simon (1955), states that people are not always able to act as rationally as they can due to cognitive limits and external conditions (e.g., noninfinite time). This theory, along with others, operates on the idea that people must come to conclusions using a realistic amount of time, information, and resources (Gigerenzer & Todd, 1999). People ultimately balance an acceptable outcome, cognitive effort and time, with finding an efficient way to come to their conclusions. This has become the norm when working on the internet because it is easy to find information, but time consuming and cognitively consuming to evaluate it (Pirolli, 2005).

The extant literature supports this theory, and specifically the limited capacity model of message processing argues that people rarely process all aspects of a message (Lang, 2000). The model theorizes that there are three major processes of information processing: 1) encoding, 2) storage, and 3) retrieval. Encoding entails the initial physical engagement with a message by viewing, or hearing it, a very short-term "storage" of this information of only 4-5 seconds (Crowder, 1976), and a selection process where one consciously or subconsciously decides what

information to store into working memory. Lang conceptualized storage as a network model of memories where each memory is related to others through associations. When a memory is used, it is activated and as it is activated more, it creates stronger associations between new and old information that is also stored. Essentially the more activations, and the more associations, the better that information is stored. Therefore, some pieces of information are encoded much more thoroughly while others are much more shallow. The final step is retrieval which is the process of reactivating a previously stored memory. Retrieval is conceptualized as a form of learning as a memory is continually retrieved. It is also a way to process and comprehend new information (i.e., when new information is encountered, one activates related information they have stored to assist with comprehension). This theory posits that we have limited capacity to perform all of these steps when encountering information, so it is likely that cognitive resources may be allocated to one step rather than all three (i.e., encoding, storage, retrieval), leaving the other two with insufficient resources to be performed in an optimal way. As a result, the potential for failure when processing may occur at any one of these steps.

Given the limited capacity we have, it is unsurprising we use heuristics, or mental shortcuts to minimize the effort necessary to come to satisfactory conclusions (Fogg; 2003; Gigerenzer & Todd, 1999; Go et al., 2014; Metzger et al., 2010; Metzger & Flanagin, 2013; Sillence et al., 2007; Sundar, 2008). There are many heuristics people use to evaluate information, but one of interest is the expectancy violation heuristic (Meztger et al., 2010). This heuristic states that if a website failed to meet a person's expectations, they would judge it as not credible. The website could violate physical expectations such as appearance but could also violate a person's expectation for what the information would be or say. There are multiple subtypes of the expectancy violation, but one that is particularly relevant to the present study is

when the information on a website does not conform to the users' personal beliefs or opinions. This violation represents a self-confirming bias that may influence judgements of the site wherein if people feel the information confirms their own views, then they will perceive the site as more credible. This self-confirming bias may be an explanation for the "hostile media phenomenon" where news consumers view media outlets as biased when they hear information that conflicts with their own personal views (Vallone et al., 1985).

Dual Process Theory

To better understand the use of mental heuristics, and minimizing effort selectively, one can look to dual process theory to explain the positive and negative effects of these mental shortcuts. Dual process theory argues that people generally have two different "types" of ways they can process information. Type 1 is a more intuitive way of processing information that is generally autonomous, and fast whereas type 2 processing is quite effortful and conscious processing of information (see Evans, 2008 for a review). In the past twenty years, the popularity of dual process theory has risen (Pennycook, 2017) and unsurprisingly it has been examined in a variety of research fields (e.g., Evans, 2008; Kahneman, 2011; Green, 2015). In general, dual process theory has been well received and has been substantiated in extant literature (Pennycook, 2017; De Neys, 2021). Dual process theory has also been tested in the past to understand how the different "types" of processing relate to accuracy judgements. Previous work has found that type 2 processing is associated with better judgements of information and higher accuracy as well whereas type 1 processing has been negatively associated with accuracy judgements (Evans, 2010; Evans & Stanovich, 2013; Pennycook & Rand, 2019). Relatedly, previous work that has specifically examined the role of intuition in decision-making and information evaluation has found a negative relationship between intuition and accuracy (Bago & De Neys, 2019; Bago et

al., 2020). Dual process theory is strongly related to the limited capacity model and one's use of a heuristic when evaluating information. Given the great number of steps needed to use type 2 processing, it is unsurprising that people may often use type 1 processing when evaluating claims. However, the nature of evaluation and the task evolves and becomes even more complex when evaluating information online.

Evaluating Information Online

Previous work has indicated that people use source information as a salient cue when evaluating information, particularly when doing so online (Sterrett et al., 2019). In line with the self-confirming bias previously discussed, people often attempt to find information from sources they trust or that have similar beliefs to them (Huckfeldt et al., 1995). A person's view of the trustworthiness of a source has a strong influence on the persuasiveness of the source and the information presented (Pornpitakpan, 2004; Wilson & Sherrell, 1993). More recent studies have supported this with both experimental and qualitative methodologies finding similar results (Go et al., 2014; Sundar et al., 2007; Tandoc, 2019).

Previous work in this area has almost exclusively focused on evaluating text information. In line with this, recommended approaches to evaluating online information include checking accuracy, authority, objectivity, currency and coverage or scope of the information (Metzger, 2007). Accuracy refers to the degree to which the information is error free; authority refers to evaluation of the author(s) and their qualifications; objectivity involves identifying the author's stance and reasoning for producing the information; currency refers to how up to date the information is, and coverage refers to comprehensiveness of the information. All these factors together make up the idea of credibility. In making such a determination about a source consumers of information must engage in evaluating information using all of these criteria.

Given the labor and mental effort needed to engage in this process, people often do not engage in the process at all (Fogg et al., 2003; Metzger, 2007; Rieh & Hilligoss, 2008; Sundar, 2008). Instead, people default to the heuristics previously described to evaluate information. While heuristics are used and have been well documented, questions remain around their prevalence and strength.

Partisan Engagement with Media

Given the rising polarization and partisanship in the United States (Dimock & Wike, 2019), better understanding this self-confirming bias is of importance. A 2014 study found that Republicans are isolated from a variety of well-established sources and that their confidence in most media sources was relatively low (Mitchell et al., 2014). A 2020 study confirmed these results and found that Republicans' trust in these sources had lowered as well (Jurkowitz et al., 2020). Unsurprisingly, their lower trust also correlated with infrequent use of these sources as well, further isolating them into specific media bubbles (Jurkowitz et al., 2020). In the same 2020 study, participants were asked to what extent they trust and use 30 different news outlets. Of those 30 sources, none of them were trusted by more than 50% of respondents. This idea is further emphasized by examining which news outlets are trusted or distrusted by each respective political party. Approximately 65% of Republicans trust Fox News and 58% distrust CNN. On the other hand, 61% of Democrats distrust Fox News while 67% trust CNN. Similar patterns are seen for nearly all 30 news outlets where Republicans and Democrats do not trust the same sources, even for sources that many would consider non-partisan.

These differences represent a larger trend of a growing distrust that Republicans have in media in general (Jurkowitz et al., 2020). In addition to a growing distrust in media that is not aligned with one's political beliefs, Americans are also divided by party in the source they turn

to for political news (Jurkowitz et al., 2020). About 60% of Republicans used Fox News whereas 53% of Democrats used CNN (Jurkowitz et al., 2020). Additionally, about 20% of Democrats and Republicans, respectively, *only* used sources that were politically aligned with their beliefs, never interacting with media in conflict with their views (Jurkowitz et al., 2020).

Selective Evidence Use

In addition to people in general engaging less with media sources that may not align with them politically, they also are less likely to accurately judge and utilize evidence from sources that are not politically aligned (Parkhurst, 2017). Previous work has investigated a “technical bias” people may have where they create, select, or interpret evidence in flawed and sometimes “biased” ways. An example of this was the campaign cigarette companies championed in the 1990s to create and promote flawed and inaccurate evidence that supported the idea that smoking did not have detrimental health effects (Bero, 2005; Cummings et al., 2007). A resulting negative effect of this was that people, government institutions and politicians who were in support of smoking then chose to use and interpret that evidence in favorable ways because of their predisposition rather than interpreting that evidence from a neutral, impartial stance (Bero, 2005; Cummings et al., 2007).

Previous research has found this phenomenon at the individual level as well, finding that individuals will interpret and select evidence with a specific intent and agenda in mind (Westerwick et al., 2017). This can also apply to selecting and interpreting evidence in a more positive way when it is from sources that typically endorse a similar ideology (Westerwick et al., 2017). This idea is related to partisan alignment as it may be the case that if a source is ideologically aligned with someone, they may be more likely to utilize evidence from that source when constructing arguments or summaries. While this theory has alignment with the extant

literature, the field is yet to test whether or not a technical bias may interfere with the accurate summarization of information and the utilization of evidence when constructing said summaries.

Present Study

Given the prevalence of this media polarization and the “bubbles” some Americans are living in, it is important to understand how a preexisting belief of a source can influence one’s evaluation of that source’s information. This study explored that idea through two research questions, 1) how are epistemology and perception of a source’s credibility related to how one evaluates the credibility of that source controlling for age, gender, political ideology and race and 2) are source perception and epistemology related to how one synthesizes information from that source, controlling for age, gender, political ideology and race? The present study is unique and extends previous studies in that it manipulates source and information quality specific to participant political ideology so that participants are always encountering dissonant source conditions. This study adds to the field by utilizing quasi-experimental methods to further understand the power of “myside bias”, especially in politicized, hot button issues.

Method

Participants

A total of 275 participants from a university in the Southwest took part in the study. Power analysis using G*Power (Faul et al., 2009) suggested that a sample size 134 participants would allow detecting a small to medium effect size ($f^2 = .12$). After removing participants from the study for reading all articles in the study, the final sample was 275. All participants were native English speakers and there were no other exclusion criteria. Of the participants, 73% were female, 15% were White, 49% were Asian, 32% were Hispanic and the remaining were small

percentages of Black, Native Hawaiian or Pacific Islander, and Other. All participants were given extra credit to complete the study.

Study Design

This study utilized a quasi-experimental methodology where participants read 5 brief news articles where two articles were from politically conservative sources, two were from politically liberal sources and one was from a neutral, or non-partisan source. If participants identified themselves as liberal, the conservative and neutral articles they read had high quality evidence whereas the liberal articles had low quality evidence and vice versa for participants who identify themselves as conservative. Finally, participants rated and responded to these articles in order to understand their perception and evaluation of each respective source.

Measures

Of the following measures, participants' message credibility rating and scores of participants syntheses after reading five news articles were outcomes. Participants epistemic beliefs were predictors and control variables included a measure of their political ideology and demographic backgrounds (race, age, and gender). Finally, a measure of participant's perceptions of each news source political leanings was included as a manipulation check.

Message Credibility Rating and Synthesis of Informational Articles

Five brief articles written in the style of news articles were used. The articles all focused on the topic of climate change. This topic was chosen because it is important to understand an individual's ability to make critical, impartial decisions in everyday life. While this is true in a number of areas, climate change is a socio-scientific topic, capturing both engagement with science and public engagement and politics (Corner et al., 2012). Each article was presented as being written by a different source. Two of the articles had sources that are seen as traditionally

politically conservative sources, two sources that are seen as traditionally politically liberal sources, and one that is seen as a traditionally neutral source. All articles were written by the researcher to ensure similarity regarding reading difficulty, evidence use and text length. To determine reading difficulty, Lexile scores were utilized. Specifically, the free online Lexile Analyzer from lexile.com was utilized (MetaMetrics, 2017). This tool has been applied in many university settings (MetaMetrics, 2017) and has previously shown strong validity (Cunningham et al., 2018). All articles fell in a Lexile range around 1,210 of a total 2,000, indicating the articles are appropriate for college-level readers. All articles word counts fell between 255-275 words. For the written articles, the same criteria as McCrudden et al. (2016) were used when writing the articles to determine what was a high- or low-quality article. An example article can be seen in Appendix A. The sources used for the study were: Fox News, American Conservative, Associated Press, New York Times, NPR, Slate and MSNBC.

Message Credibility. Participants completed the 3-item message credibility scale from Appleman and Sundar (2016) after reading each of the five informational articles described above, and to rate *authenticity*, *believability*, *accuracy* on 1-7 scale after reading each article. To determine the extent to which participants rated politically congruent articles as highly credible or not, each of the scores for politically congruent sources were multiplied by -1 before summing up all the scores. An example of a liberal participant can be seen in Table 1. Since each participant rated all five articles and those scores were totaled together, the total ratings across the five articles ranged from -18 to 47 in this sample. Potential minimum and maximum ratings could have ranged from -33 to 57. The rationale for this single score for message credibility is that it should represent the degree to which source preference and source perception influenced a respective participant's ability to evaluate information from each source. Additionally, this single

score allows for analyses of participants of different political ideologies to be analyzed in the same way instead of separating them by political ideology.

Table 1

Liberal Participant Example Credibility Ratings Score

	Article Political Slant	Authenticity	Believability	Accuracy	Total Score
Article 1	Conservative	4	3	4	11
Article 2	Conservative	5	4	5	14
Article 3	Neutral	2	3	2	7
Article 4	Liberal	-6	-5	-4	-15
Article 5	Liberal	-6	-4	-4	-14
Total Score					3

Participant Synthesis of Articles. Participants wrote a brief synthesis of the articles they read, less than 300 words, summarizing key points and important information. Participants were explicitly instructed to cite information from articles in their syntheses. To score participant’s syntheses, a score of 0, 1, or 2 was assigned dependent on the extent to which participants cited information from politically congruent or incongruent and neutral sources (see Table 2 for examples). If a majority of the information participants cited or utilized in their synthesis was from a belief congruent source, they received a score of 0, if the information from belief congruent and incongruent sources was roughly the same, they received a score of 1 and finally if the majority of the information was from a belief incongruent source, they received a score of 2. Two raters scored 20% of participant scores and the inter-rater agreement was 98%. After scoring, all differences were discussed and resolved between the two raters.

Table 2

Examples of Participant Syntheses and Scores

	<p>Though the different articles that I have just read, I have analyze that we are talking about climate change. Some key points are: by Climate Doomsday in is Nigh The United Nations announced last week that despite all of the world's climate sacrifices and trillions of dollars in renewable spending, we're all still doomed unless mankind makes radical changes in lifestyles and standards of living." From this we can say that climate change is still being a main problem today. We need focus not just in one place but many places</p>
Score of 0	<p>around the world. We need climate change to stop and we need better it due to how much we care about our planet. These temperatures now a days are very crazy. It has been so cold here in Southern California and it's crazy because it means more hot weather equals hotter temperatures. From another article, "The heat will only grow more unbearable, food will only become scarcer, and modern society less able to continue on as it has." This is true and the main of this statement is that we need to do something about climate change.</p>
Score of 1	<p>These articles are all related to climate and the Earth's environment. The first article shows us that warming and environmental problems are not something that has only bad effects on humans. The article lists in detail the things that environmentalists ignore, such as the fact that the Great Barrier Reef is not dead, that the polar bear population is increasing, and that the human world will become richer and more prosperous with a warmer climate (Climate gains are 'inconvenient truth', 2022). The second article illustrates why most people are frustrated with the possibility of reversing climate change damage due to the fact that people with the power to save the planet's environment often choose to ignore environmental problems and even shift these problems and responsibilities to ordinary people (The slate speaks: climate responsibility, 2021). The third article describes how the problem of a warming world is challenging to change,</p>

except for a radical change in the way of life of all humankind. But even if they did, temperatures would still rise by 2.6 degrees (Climate Doomsday is Nigh, Again, 2022). The fourth article calls attention to the severe global environmental warming problem and gives examples to demonstrate that the Earth's environment is worsening. For example, this week, though, the British Isles are undergoing the most intense heat wave on record, with temperatures at Heathrow Airport hitting 104 degrees Fahrenheit on Tuesday (The U.K.'s record, 2022). The last article gives the causes and evidence of human activities causing environmental and climate change on Earth. A short response to weather disasters through prediction, preparedness, and resilience is also given (How much has the climate changed already, 2022).

The common discussion in these articles is the urgency of climate change and its dramatic effects on the world and the humans that inhabit it. Although there are past and current efforts to slow down climate change, humans have been unsuccessful in preventing the increasing temperatures. With the attempts to decrease emissions and prevent the use of fossil fuels and gas, climate change will still have its harmful effect on the world (The American Conservative). Humans across the world have pushed off the distressing reality of climate change and it may be too late to fully reconcile the increasing temperatures.

Score of 2

As evident as it may be, there are still many people who are unconvinced of climate change and actually think our environments are improving (FOX News)! However, the U.N. has reported that no matter what countries do, the world's temperature will exceed the 1.5 temperature increase that the world is attempting to not surpass (The American Conservative). Powerful countries, such as China and the United States, contribute to more than half of the world's emissions and fail to fulfill promises of lowering the rate of fossil fuel emissions (The American Conservative). The harmful effects of climate change make it easy to visualize a gloomy future but there is an opportunity for humans to

prevent serious damage if the issue is addressed urgently. Along with lowering emissions and being conscientious of our carbon footprint, the adaptability of humans to weather plays a significant role in regulating climate change (AP News). It is important for humans to be aware of the causes of climate change in order to combat it efficiently. A sense of urgency is necessary as the world is slowly getting hotter and before we know it, humans will feel the effects of climate change.

Epistemic Beliefs

Participants completed the 12-item Omnibus Survey for the School of Communication (oSoC; Garrett & Weeks, 2017), which measures epistemic beliefs in 3 ways (see Appendix B for all items). The first is one's *need for evidence (NFE)*, which is defined as one's perceived "importance of consistency between empirical evidence and beliefs"; the second is one's view that the *truth is political (TIP)*, or the idea that facts are politically motivated or constructed; and finally the third is one's *faith in intuition for facts (FII)* or one's reliance on their own intuition in determining factual beliefs. All items on the OsoC are 1 (strongly disagree) to 7 (strongly agree) Likert scale items. Reliability estimates from the current sample were acceptable: *need for evidence*, $\alpha = .70$; *truth is political*, $\alpha = .74$; *faith in intuition*, $\alpha = .71$. Previous confirmatory factor analyses have shown good model fit in support of a three-factor model (Garrett & Weeks, 2017).

Political Ideology

Participants responded to a one item measure to gauge political ideology that was presented as a continuous line ranging from 0 (liberal) to 100 (conservative) (Butterfuss et al., 2020).

Demographics questionnaire

All participants completed a brief demographics questionnaire which asked questions of their age, self-identified gender and self-identified race and ethnicity.

News Source Perception

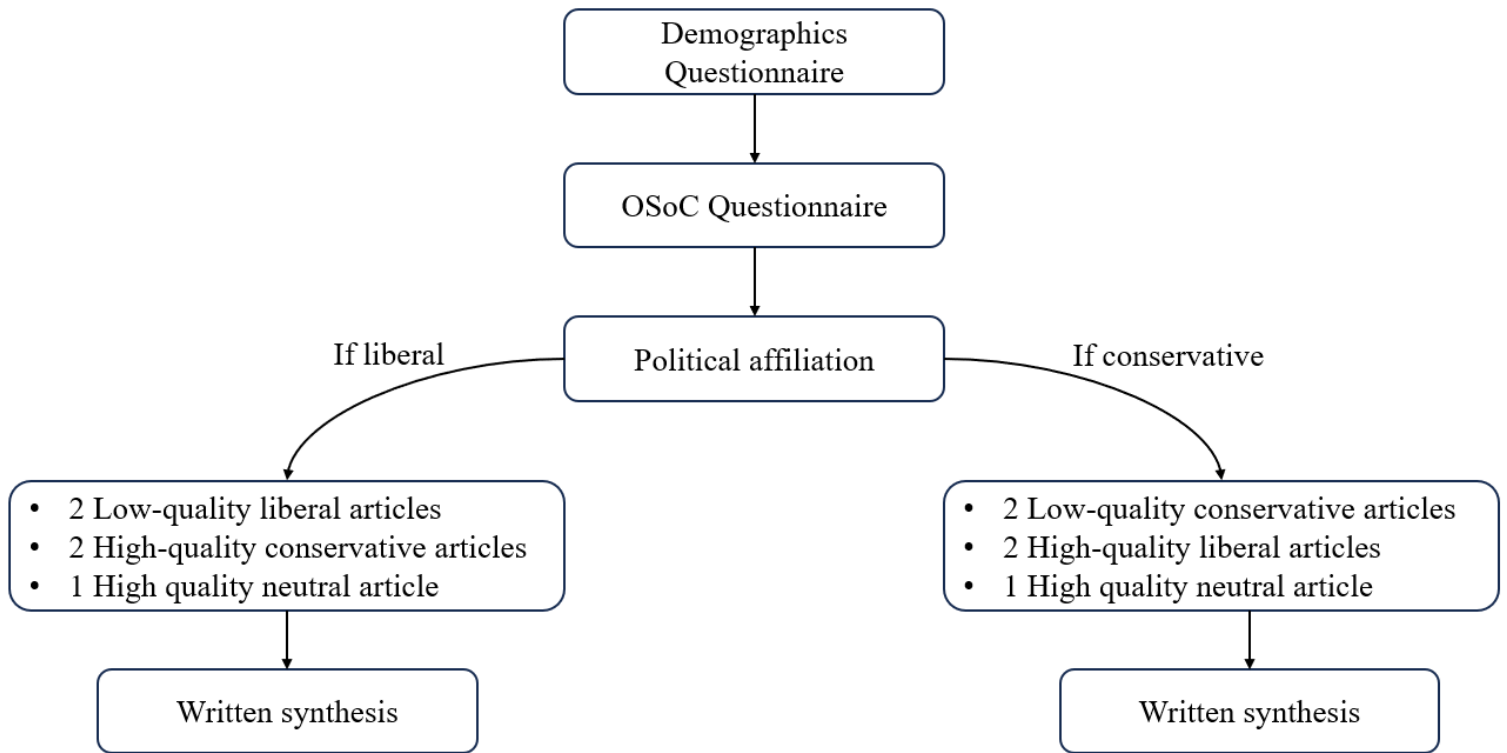
The news source perception measure is an adapted version of the measure used in Butterfuss and colleagues (2020). This measure was used to ensure participants perceived each presented source as intended. The measure asked participants the extent to which they saw each respective source as strongly liberal to strongly conservative on 1 to 7 Likert-scale, based on their prior knowledge of each source $\alpha = .68$. While each source participants encountered in the study was included, 5 other distractor sources were also included as well, two conservative, two liberal and one additional neutral.

Procedure

All study procedures were conducted using the survey platform Qualtrics. See Figure 1 for a visual representation of the study design. First, participants completed a brief demographics measure where they responded to questions asking their age, identified gender, and race. Then they completed the OsoC survey, followed by the political ideology measure. After each participant specified their political affiliation, they were placed into one of two conditions. If participants identified as liberal, they read two liberal articles that contained low-quality evidence and reasoning, and two conservative articles with high-quality evidence and reasoning and vice versa for participants who identified as conservative. Regardless of participants political affiliation, the neutral article was written with high-quality evidence and reasoning. Next, participants read all five articles consecutively. For each participant, the order in which the articles were presented to participants was randomized using Qualtrics built in order randomizer. After reading each article, participants rated each article for message credibility

using the scale from Appleman and Sundar (2016). Then, participants wrote a brief synthesis of the information they read across all articles and then completed a news source perception measure which asked participants their views of common news sources. While writing their syntheses and rating each article, participants had access to the respective article to ensure they were able to accurately cite and rate each article according to their own perceptions rather than their recollections of each article.

Figure 1
Study Design



Note. All participants also gave credibility ratings after reading each article.

Analytic Approach

Primary data analytic strategies were confirmatory factor analysis and structural equation modeling. Prior to examining the research questions, confirmatory factor analysis was conducted

to examine the construct of source credibility and epistemology as measured by the OsoC measure (Garrett & Weeks, 2017). Specifically, the three-factor model with *Need for Evidence*, *Truth is Political*, and *Faith in Intuition* was examined.

To address the first research question, a structural regression model examining the relations between participant perception of a source's credibility and epistemology and participants' perceived credibility of sources was fitted. Based on the results of the confirmatory factor analysis, three factors were used for epistemology and perception: Need for Evidence, Truth is Political, and Faith in Intuition. Age, gender, and race were included as control variables. This model utilized the maximum likelihood (ML) estimator.

To address the second research question, a structural regression model examining the relations of source perception and epistemology to one's synthesis of information were fitted. Given that the outcome in this model is categorical, this model utilized the weighted least square mean and variance adjusted (WLSMV) estimator.

Model fits were evaluated by chi-square statistics, root mean square error of approximation (RMSEA), comparative fit index (CFI) and standardized root mean square residuals (SRMR). To indicate good fit, RMSEA values below .08, CFI values equal to or greater than .95 and SRMR values equal to or less than .05 were utilized (Kline, 2016). For all structural equation modeling analyses, the statistical software R was used, version 4.2.2, and specifically, the lavaan package was utilized (Rosseel, 2012) version 0.6-12.

Results

Missingness

Participant written syntheses had 28% missing data due to low participation in this measure. Therefore, the sample size for research question 2 was 164. Missingness was tested

with Little's Missing Completely at Random test (MCAR) (Little, 1998) using the statistical software Stata with the package *mcartest* (StataCorp, 2013). Results of Little's MCAR test were not statistically significant $\chi^2(11, N = 275) = 13.39, p = 0.27$; therefore the hypothesis data were missing completely at random was not rejected. This low participation is likely due to the effort needed to complete the task as this amount of missingness was not seen in any other item in the survey.

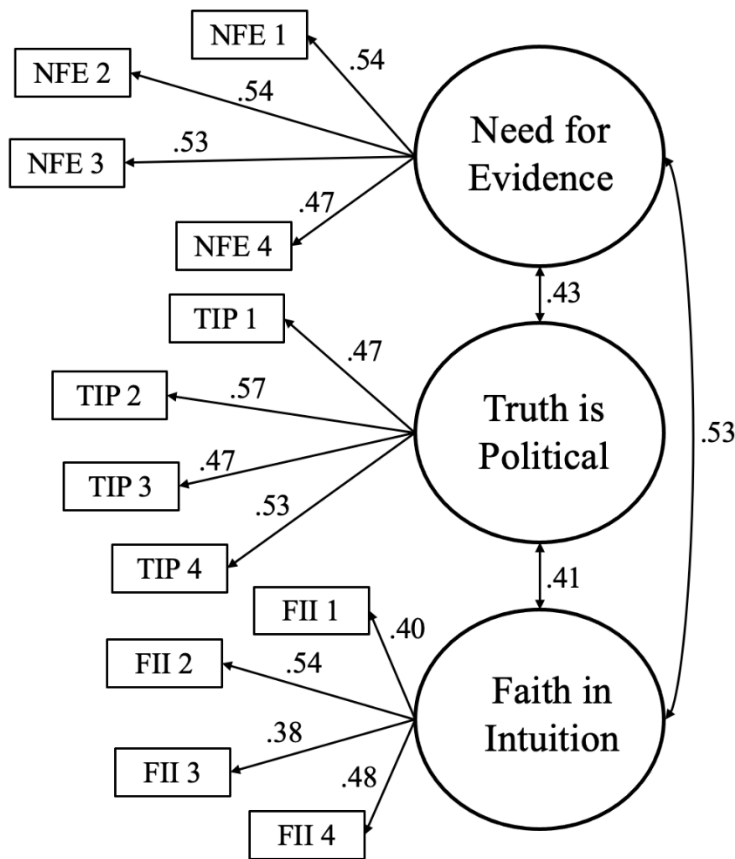
Preliminary Analyses

Participants' mean political ideology was $M = 35.86, SD = 19.54$, where 0 is strongly conservative and 100 is strongly liberal. This lean towards conservative on average, reflecting the fact that there were more participants who indicated very strong conservative political ideology than those who indicated very strong liberal political ideology. See Appendix C for the distribution. Results showed that, on average, participants perceived conservative sources as more conservative than the neutral and liberal sources. On average, they rated Fox News ($M=2.73, SD = 1.62$) and American Conservative ($M=2.54, SD = 1.58$) as more conservative than the Associated Press ($M=4.42, SD = 1.01$), MSNBC ($M=4.63, SD = 1.14$), NPR ($M=4.34, SD = 1.08$), and the New York Times ($M=4.85, SD = 1.14$). One can also see from these results that participants, on average, rated the liberal sources (New York Times and MSNBC) as slightly more liberal than the neutral sources.

All variables utilized in the confirmatory factor analyses were normally distributed and were deemed suitable for analysis. Using confirmatory factor analysis, latent variables were created for each OSoc construct. All respective latent variables were allowed to covary to one another. The model had great fit to the data: $\chi^2 = 63.25, p = .11$; CFI = .95, SRMR = .04, RMSEA = .03, 90% confidence (CI) [.00, .05]. All loadings to the latent variables were moderate in

magnitude and statistically significant (see Figure 2). *Faith in intuition* was moderately correlated with *truth is political* ($r = .41, p < .01$) and *need for evidence* ($r = .53, p < .01$). Additionally, *need for evidence* was moderately correlated with *truth is political* ($r = .43, p < .01$).

Figure 2
Standardized Coefficients for Confirmatory Factor Analysis of OSoC measures



Note. All pathways are statistically significant at a $p < .05$ level.

Correlations

Correlations among the independent and dependent variables using the three latent variables, *need for evidence*, *truth is political* and *faith in intuition*, are presented in Table 3.

Participants credibility ratings was moderately and negatively related to *faith in intuition* ($r = -$

0.15, $p < .05$). *Need for evidence* was moderately and positively related to *truth is political* ($r = 0.16, p < .05$), *faith in intuition* ($r = 0.17, p < .05$), participant age ($r = 0.16, p < .05$).

Additionally, *truth is political* was moderately and positively related to *faith in intuition* ($r = 0.41, p < .05$). *Faith in intuition* was moderately and negatively correlated with participants ratings of article credibility ($r = -0.15, p < .05$), but was not significantly correlated with the other outcome measure, synthesis score rating. However, ratings of article credibility were moderately and negatively correlated with gender where identifying as a woman was negatively correlated with higher ratings ($r = -0.17, p < .01$) and age ($r = -0.15, p < .05$). Finally, political ideology was moderately and negatively correlated with identifying as a female where identifying as a female was correlated with more conservative political ideologies ($r = -0.13, p < .05$).

Table 3
Bivariate Correlations Amongst Constructs

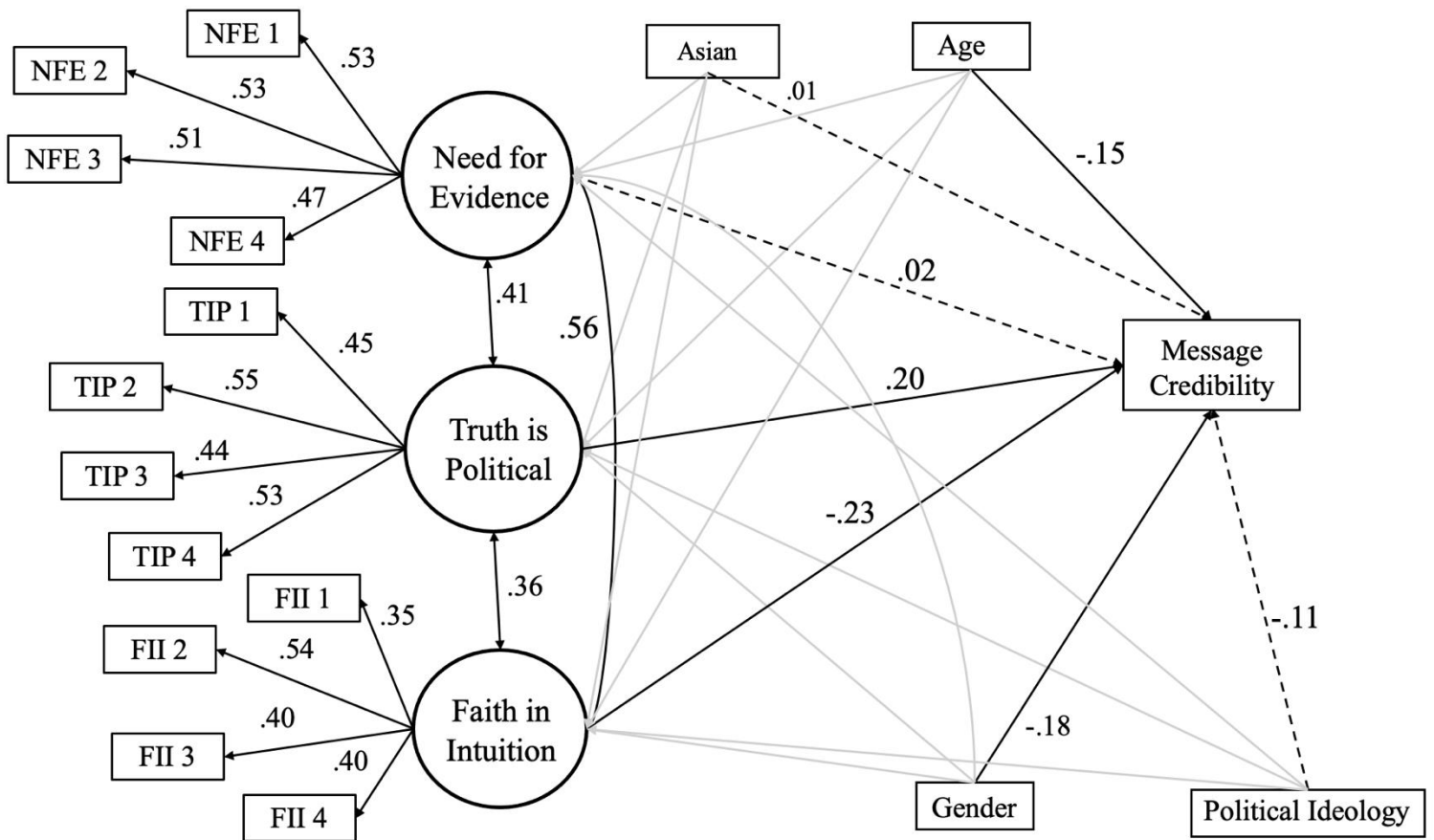
	1	2	3	4	5	6	7	8
1. Article Credibility Ratings	—							
2. Synthesis Scores	.01	—						
3. Political Ideology	-.02	.08	—					
4. Need for Evidence	-.03	.09	-.10	—				
5. Truth is Political	.11	.09	.11	.16	—			
6. Faith in Intuition	-.15	.01	.06	.16	.41	—		
7. Age	-.15	-.03	.09	.16	-.02	-.05	—	
8. Gender	-.17	-.03	-.13	.11	.03	.03	-.03	—

Note. Bolded coefficients are $p < .05$

How are Epistemology and Perception of a Source’s Credibility Related to How One Evaluates the Credibility of That Source Controlling for Age, Gender, Political Ideology and Race?

The first structural regression model had participants ratings of article credibility as the outcome variable (see Figure 3). The model had a good fit to the data: $\chi^2 = 119.17, p = .06$; CFI = .90, SRMR = .05, RMSEA = .03, [.00, .05]. In regard to coefficients related to the outcome, *Faith in intuition* ($\beta = -.23, p < .001$) and *Truth is Political* ($\beta = .20, p < .001$) both had significant relations with participants credibility ratings, after accounting for age, gender, political ideology and race. Figure 3 presents standardized path coefficients.

Figure 3
Standardized Coefficients for a Structural Regression Model with Message Credibility as Outcome

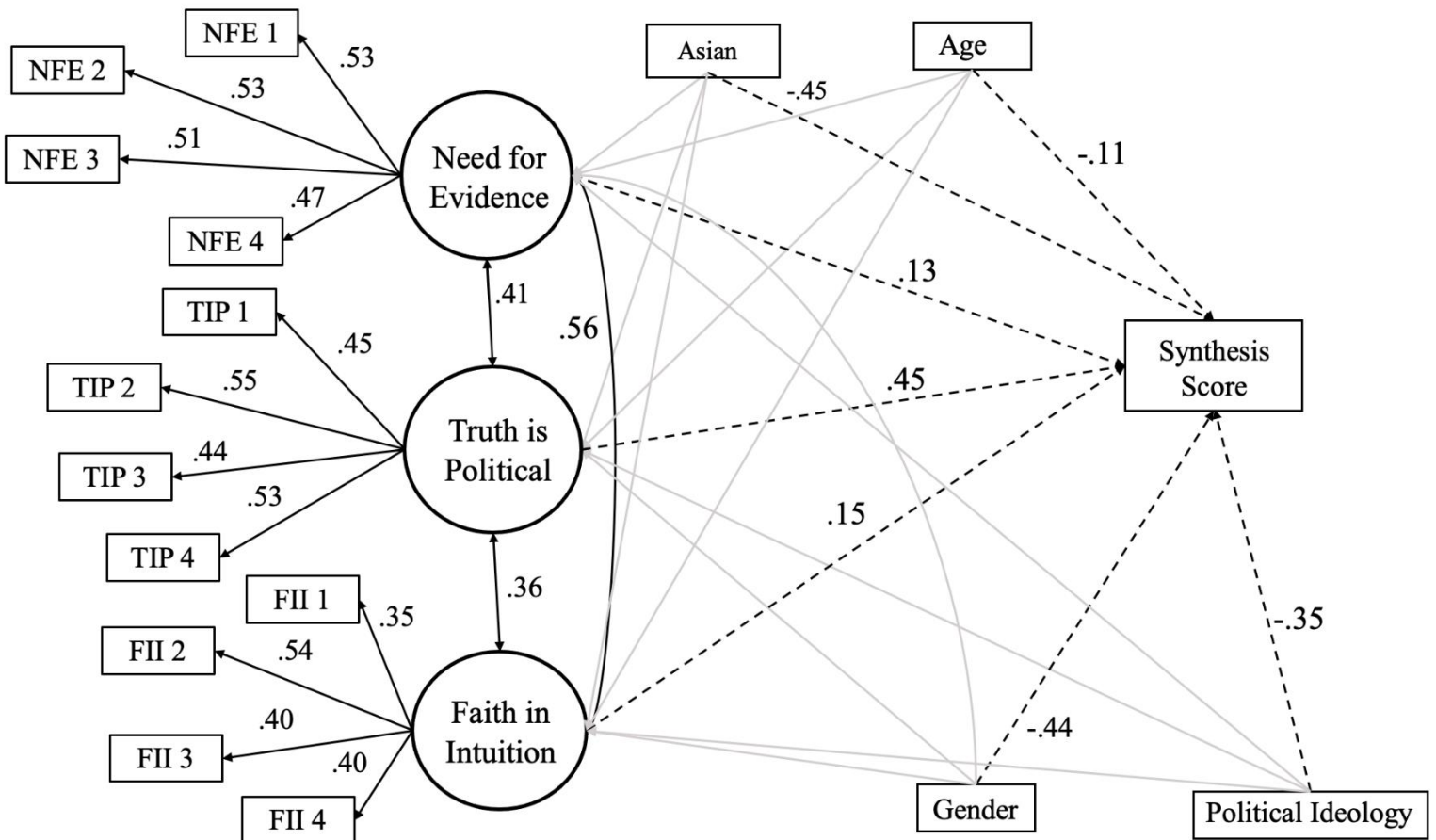


Note. Solid lines are significant at $p < .05$ level and dashed are not statistically significant.

Are Source Perception and Epistemology Related to How One Synthesizes Information From That Source?

The model in Figure 4 had great fit: $\chi^2 = 79.18, p = .80$; CFI = 1.00, SRMR .05, RMSEA = .00 [.00, .02]. None of the epistemology and perception variables, need for evidence, truth is political, and faith in intuition, were related to the synthesis score (see Figure 4 for standardized path coefficients).

Figure 4
Standardized Coefficients for a Structural Regression Model with Synthesis Score as Outcome



Note. Solid lines are significant at $p < .05$ level, dashed are not statistically significant.

Discussion

Over recent years the public, on average, has a growing distrust of the media and are more likely to selectively choose media sources according to partisan criteria. Given this, better understanding how partisan selective exposure and in general, partisan engagement with media is important to understand this relationship. In this study, we examined how participant perceptions of a source influence their evaluation of information from it and how their epistemological stance may play a role in those perceptions. The results of this study point to the complex nature of the relation that the public has with the media.

The main effect of *truth is political* on credibility ratings specifically may point to complex nature of the relation that the public has with the media. On average, differences in participants' belief that the truth is political was associated with differences in their credibility ratings score. This is aligned with previous results as they have indicated that a stronger conviction that the *truth is political* is associated with more critical views of information (Butterfuss et al., 2020; Nisbet et al., 2015). This indicates participants were more likely to evaluate the articles accurately as they held a stronger belief that the truth is political. Traditionally, this measure of the *truth is political* has been associated with the evaluation of government organizations, or politicians. However, as previously discussed, there is also a growing belief that media entities have agendas and specific purposes when reporting (Jurkowitz et al., 2020; Pew Research Center, 2014). This more universal distrust in media entities may lead participants to more accurately evaluate the information they see, regardless of political partisanship because of a distrust in media rather than of specific sources. In addition to a distrust of media more widely, the relationship between believing the truth is political and higher credibility ratings may be representative of a more nuanced epistemological stance towards truth.

Previous work has identified more advanced and nuanced epistemological stances as an indicator of more nuanced views of truth and knowledge (Elby & Hammer, 2001). Since climate change discussions may be relatively complex and nuanced, this more advanced epistemological stance may be representative of a more nuanced interpretation of the information read rather than a general distrust of institutions.

The main effect that *faith in intuition* is negatively associated with credibility ratings ($\beta = .20, p < .001$) is in line with previous findings (Butterfuss et al., 2020). The negative association indicates that the higher faith someone has in their own intuition, the less likely they were to accurately evaluate the articles. In general, the more someone is likely to follow their own intuition, the less likely they are to utilize evidence when making decisions on what they believe (Garrett & Weeks, 2017). In line with this, people who have higher *faith in intuition* are also more likely to believe misinformation and conspiracies as compared to those with lower *faith in intuition* (Garrett & Weeks, 2017). Their lack of evidence use and the reliance on their own intuitions may lead these participants to agree with media entities they are either familiar with, or media entities that agree with their preconceived notions. The results of this study would support these claims since a higher *faith in intuition* was associated with participants' less accurate evaluation of the articles they read.

This finding may also point to the idea of using a heuristic to make a decision, as previously discussed. Even in the scenario of a controlled research study, participants may have saved cognitive resources when reading the articles and used cognitive heuristics. Findings from this study and previous work would suggest that relying on one's intuition, while potentially saving cognitive resources, is not an effective strategy when evaluating information and news sources. Relying on intuition may also increase the probability that people experience the 'hostile

media phenomenon' because of their likelihood to make judgments based on prior impressions of media sources, rather than evaluating the current information they are reading. This finding is also aligned with previous research, finding that the use of automatic intuitive processing, type 1 processing, is negatively associated with accurate evaluation of information and claims. On the other hand, a belief that the *truth is political* may be explained by its likelihood to serve as a catalyst for type 2 processing, which is more deliberate and effortful. If one believes that the truth is political and all sources have an agenda or purpose for reporting the news they do, this skepticism may lead them to more critically and consciously evaluate the information they read.

When the outcome was syntheses of the articles participants read, there were no significant relationships between participant's epistemologies and their evidence use. It may be the case that evidence use was too subtle a measure in a written synthesis to accurately detect differences in participants perceptions of source. Another reason why there may not have been a relation is the nature of the sample: university students. As a reminder, participant's syntheses were evaluated by the extent to which they used evidence from specific articles, or from all articles evenly, contingent on their own political affiliation. Since the task was to synthesize the information they read, not make an argument, many students may have been very skilled at synthesizing information in a balanced, straightforward way. This may be the case because this is a common task in high school and college courses so this sample may be disproportionately skilled at this as compared to the general public.

Additionally, previous work in this area has asked participants to examine evidence on a webpage and then measured the amount of time a participant viewed a specific piece of evidence and asked participants if they opposed or supported a specific piece of evidence (Westerwick et al., 2017). While these measures are conceptually similar to the measure used in this study, the

act of constructing a summary may have served as an important extra step when interpreting evidence. By constructing their summary in a text box, participants may have reviewed their summaries and ensured equal selection of evidence across all sources. In the previous work described, participants viewed items one-by-one, thus not allowing the opportunity to view all evidence together and make use of all the available evidence.

Limitations

There are several limitations associated with this study that are important to note. The first was that the data was collected from an online sample and thus we could not ensure all participants were attentive to all items. However, the acceptable reliability estimates can alleviate this concern to some extent. Another limitation was that participants were asked their perceptions of source as a manipulation check, but a measure of familiarity and/or viewership of these sources would have been useful as well. The manipulation was contingent on participants having an accurate perception of the source, which, in general, results pointed to participants having similar and accurate perceptions of sources, but the manipulation may have also been enhanced by knowing if they are an active viewer of these sources as well.

One other limitation associated with the synthesis outcomes degree of missingness. This was the most labor-intensive task in the study and was the second to last task asked of participants. Therefore, the remaining participants who completed this task may have also been the most motivated and attentive, making them a specific subset. This should be taken into account when interpreting the results of the second research question specifically. Finally, this study did not include a prior knowledge of measure of participant's understanding of the topic of the articles. Previous work has found that topic and information familiarity may be an influential factor in the belief of information (e.g., Fazio et al., 2019; Kendeou et al., 2019).

Future Directions

Having faith in our intuition is once again seen to be negatively associated with accurate judgement of media and information. Therefore, if people have a distrust in the media, but should not follow their own intuition, this leaves the question, where will they go for information? Importantly, the media sources in this study were relatively large, and well-known media entities where people may already have perceptions of them before reading. In this case, people may be likely to turn to more fringe, and likely more partisan, media sources for information. While those who believe the truth is political may be more likely to evaluate this information accurately, many will not and given the total information overload and the cognitive tax that it plays, it is exceedingly difficult for people to accurately evaluate this information even if they wanted to. Future studies should continue to investigate this relationship between intuition and accuracy judgements and further investigate how people view and judge different types of sources (e.g., smaller media entities, partisan sources, etc.).

Future research should also continue to investigate the public's perceptions of news sources and the myriad of factors that may influence their ability to evaluate those. In particular, research that simulates information overload would be of particular value as this is a specific area that has been underexplored, especially given its prevalence (Eppler & Mengis, 2004; Roetzel, 2019; Hanif Soroya et al., 2021). Information overload is a problem for all people today as many are often scrolling social media or watching television or videos every day. As a result of these interactions, many people are interacting with many claims per day, especially around important topics such as health and this overload can lead to negative consequences such as information avoidance and information anxiety (Hanif Soroya et al., 2021).

Beyond an understanding of the topic, support for people to accurately evaluate information is needed as well. This may manifest itself in learning or teaching materials. Currently, great teaching materials exist from entities such as NewsLit, the Stanford Civic Online Reasoning group, the Media Literacy Collaborative and more. As we learn more and online sources adapt and change, these materials should grow and adapt with the knowledge we gain. However, large technology companies such as Facebook, X (formerly known as Twitter) and the like also have responsibility in this domain. Recently, X implemented “community notes” to posts where authors may be misrepresenting information (X, n.d.). Actions like these should continue and grow to support people in their quest to fight misinformation and partisan selective exposure.

Conclusion

Overall, this study adds to our understanding of people’s perceptions of sources and how those perceptions interact with epistemological stance. Results support the notion that the public’s relationship with media entities as a whole is complicated and the growing distrust seen by previous work (Pew Research Center, 2014; Jurkowitz et al., 2020) may be related to the idea that the truth is political and that people perceive media entities as having agendas when reporting information. This complicated relationship is defined by a growing distrust in media, but simultaneous need and reliance on media. While the public on average has been seen to distrust the media more and more, in times of crisis, the public still relies on the media and their coverage of events. The results of this study point to a productive distrust in media which may lead to a critical eye of the media and highly perceptive readers. However, results also point to the danger of relying on intuition and the reliance we have as a public for high-quality information when making decisions.

Study 2: A Comparison Between Elite and Partisan Media: Their Habits, and Decisions

Introduction

In recent history, some claim that the public has become increasingly polarized (e.g., Abramowitz & Saunders, 2008; Jacobson, 2004; Mason, 2015), while others have argued to the contrary (e.g., Fiorina et al., 2006; Messing & Westwood, 2014). What has been well documented in the United States is that political elites, particularly members of Congress are increasingly becoming more polarized (McCarty, et al., 2006). While the transmission of this increasing polarization to the public is debated (Abramowitz & Saunders, 2008; Fiorina et al., 2008), there are certain phenomenon that supports this transmission. For example, over time Democrats are more often taking liberal positions on important topics while Republicans have become more conservative, on average (Abramowitz & Saunders, 1998; Baldassarri & Gelman, 2008; Layman & Carsey, 2002; Levendusky, 2009; Stoker & Jennings, 2008). Partisans also trust co-partisans more than those who support the opposing party (Carlin & Love, 2013; Iyengar & Westwood, 2015). An example of this can be found in recent survey results indicating that Americans have become increasingly averse to their child marrying someone from the opposing political party (Huber & Malhotra, 2017; Iyengar, et al., 2012). This increasing partisanship is a cyclical process where the more one encounters only like-minded voices, the higher the likelihood they become further polarized (Gimpel & Hui, 2015). The overall trend that Americans have fewer cross-cutting identities has been hypothesized to be at the root of polarization in the United States (Mason, 2015; Mason, 2018). While the hope is that Americans would be able to reconcile these differences and reduce polarization, some see the ability to compromise as difficult to achieve (Gutmann & Thompson, 2012). While there are myriad reasons as to why Americans may be more politically polarized than ever before, one reason why

this may be the case is, at least partially, due to the divisive nature of some media sources. To investigate the extent to which media sources are or are not producing polarizing media, this study will utilize advanced text analytic techniques. By examining the agenda setting, framing and sentiments of different sources, one can better understand not only which events sources choose to discuss, but also the ways in which they discuss events. The goal of these analyses is to juxtapose traditional media sources to online partisan sources to examine similarities and differences between them in nuanced and concrete ways.

Scholars have argued that partisan media outlets (e.g., Fox News, or MSNBC) are, in part, to blame for growing polarization because they provide viewers with echo chambers (Sunstein, 2009). While the role echo chambers may play has been debated (Dubois & Blank, 2018), recent studies suggest that polarization of online news sources has increased, especially in regard to news surrounding upcoming political elections (Iyengar et al., 2019). These partisan media outlets contribute to the idea of echo chambers by constantly discussing stories from a particular “slant” or agenda. Previous work has found that those who discuss politics are more likely to seek out partisan information (Chaffee & McLeod, 1973) and that discussion of politics with likeminded others, on average, have more polarized political attitudes compared to those who discuss politics with divergent political preferences (Huckfeldt, et al., 2004). This same idea has been linked to media consumption and polarization where those who consume more political media are more likely to hold polarized views (Stroud, 2008; Stroud, 2010; Sunstein, 2001). With the onset of online news and the twenty-four-hour news cycle, one could argue that this effect has had even stronger effects since the “echo chamber” of online news is never ending.

The goal of this study is to better understand the similarities and differences between elite media and partisan media outlets using three criteria for evaluation: sentiment, framing and

agenda. This study analyzed over 200,000 articles from a variety of elite and partisan media sources to understand their respective sentiment, framing and agendas from the year 2020, by utilizing data from the Global Database of Events, Language and Tone (GDELT) project.

A Historical Look at Media

The role of media in all forms has long had influence on public opinion and discourse. The information different media outlets choose to report influences the information most salient to the public and sets the stage for national discussion. While different media entities have long had different political “slants”, the public majority would argue that these “slants” or the partisanship media entities show, is greater than it has ever been (Pew Research Center, 2014). While this idea is popular in the public, many media entities do not show the strong partisanship much of the public may believe they do. Most newspapers in the United States publish in smaller markets and as a result, speak to an ideologically heterogeneous audience (Gentzkow & Shapiro, 2006; Petrova, 2011). The most ideologically divisive news sources have been those that attempt to reach a national or international audience and attempt to appeal to a specific type of reader. This is a drastic change from news and information from decades ago where consumers had fewer options. The “firehose” of information now available to choose from allows consumers to participate in selective exposure, an idea that has long standing in the literature (Festinger, 1957; Klapper, 1960; McGuire, 1968). To decide what information to select, many consumers will use partisan congeniality (Iyengar et al., 2008; Stroud, 2010). In line with this and the emergence of new media sources both on television and on the internet, there has been an explosion of partisan media sources gaining audience by appealing to these partisan identities.

Partisan News Media Outlets

Scholars differentiate between “mainstream” media outlets which prioritize fairness and objectivity from partisan media outlets that are, “framed, spun and slanted so that certain political agendas are advanced” (Jamieson, et al., 2007). Partisan outlets often depict the opposing political party in negative ways (Berry & Sobieraj, 2014) and focus primarily on the opposing party’s scandals, multiplying public hostility to the opposing party (Puglisi & Snyder, 2011). These partisan outlets present news in such a way to avoid dissonance for the viewer and deliver consistent messages and interpret information for the audience member (Jamieson & Cappella, 2008). In addition to packaging the news in a motivated way, these outlets also selectively choose which stories to report on, reporting more often on topics that favor their party and downplaying or ignoring those that do not (Baum & Groeling, 2010; Baum & Potter, 2008). Ultimately, the primary purpose of partisan news is not about conveying facts, they primarily serve to help people make sense of the world, given a particular ideological or political affiliation (Rosensteil, 2006).

Given that one’s ideological or political affiliation may be a strong identity, it is unsurprising that the audience for partisan news has been growing and continues to do so. While recent data indicate that the audience for mainstream broadcast nightly news is still larger, the gap between mainstream and partisan news is decreasing (Pew Center for the People and the Press, 2010; Pew Research Center, 2014; Project for Excellence in Journalism, 2009). The growing audience for these partisan outlets presents a challenge to those who would like to reduce political polarization and work towards compromise, and the lack of balanced content may lead consumers to adopt more extreme ideological stances (Levendusky, 2013). Since partisan outlets present information without any counterargument, the information seems stronger and even more persuasive (Klayman & Ha, 1987; Lodge & Taber, 2001; Zaller, 1996).

This furthers partisan identities and polarization through priming one's partisanship, which has been shown to increase attitudinal polarization (Abrams et al., 1990; Lee, 2007). Additionally, the more partisan one is, the more likely they are to watch partisan news (Arceneaux & Johnson, 2010) thereby creating a cycle where a consumer who is already relatively partisan, consumes partisan news and becomes more extreme, leading them to consume more partisan news and so on (Slater, 2007). This begs the question then, what effect does partisan news have if those who engage with it in the first place are already partisan?

Previous studies have found that exposure to partisan news makes those with extreme attitudes, even more extreme (Levendusky, 2013) and those with higher political knowledge are more likely to select partisan outlets (Garrett, 2009; Stroud, 2008; Taber & Lodge, 2006) and hold more extreme attitudes (Meffert et al., 2006; Taber & Lodge, 2006). Unsurprisingly, those who are more partisan and those who have more political knowledge are also more likely to vote (Binning et al., 2010; Campbell et al., 1960; Dickerson & Ondercin, 2017) and that partisan media influences vote choice (Barker, 1999; Dalton, et al., 1998; DellaVigna & Kaplan, 2007). This increasing partisanship has been particularly salient to those who are the most politically involved. The 20% of voters who report engaging in multiple political activities such as donating money or working for a candidate have reported far greater increases in polarization than those who are not engaged (Baldassarri & Gelman, 2008; Jacobson, 2000). This effect of partisanship is also more relevant given the turnout gap between those who regularly watch news programming and those who do not. In one study, Prior (2007) compared habits and partisanship between those who watch news programming from those who watch entertainment news. They found that entertainment viewers are less partisan and less likely to vote in elections, with the

turnout gap increasing over time. This increasing turnout gap led to more partisan elections and increased the impact of partisanship overall.

Finally, some studies have found evidence of partisan selective exposure, the idea that consumers choose to primarily watch news that agrees with their views (e.g., Stroud, 2011). However, others have found that on average, consumers generally select ideologically neutral content (Gentzkow & Shapiro, 2006). Despite the avoidance of partisan news by some, one's social group or network has strong influence on their information environment and often people surround themselves with others who are ideologically aligned (Halberstam & Knight, 2014; Lewis, et al., 2012). Given this, those who are not engaged with political news often still find themselves interacting with it through someone in the social network either in-person, or through social media (Halberstam & Knight, 2014; Messing, 2013). Recent studies have indicated the power of Facebook as a major source of traffic to online news sites (Pew Research Center, 2014). This idea of "passive exposure" to news is one that allows the effects of partisanship and partisan news outlets to influence not only the consumers of this news, but also influence those who are indirectly connected, but not consuming the programs themselves (Toff & Nielsen, 2018).

Mechanisms of Effectiveness

While the effects of partisan news have been felt, the precise mechanism by which they are effective is unclear given the cyclical nature of exposure (Iyengar et al., 2019). While there are myriad factors, such as priming and general hostility towards out-groups that influence effectiveness of partisan news, three techniques that news outlets have under their control are: agenda setting, framing and sentiment.

Agenda Setting

Agenda-setting theory examines what topics trend in the news and how that influences the opinions of audiences (McCombs, 2014). One level of agenda setting asserts that the frequency with which news media report on a story is the primary determinant for what society at large thinks is important. It is not the case that the audience believe whatever is reported, but the news media sets the public salience and importance for different topics and ideas. When a large amount of news coverage is dedicated to a particular issue (e.g., gas prices), society at large considers gas prices an important issue, even if people have differing ideas about the issue (e.g., how to lower gas prices). Traditionally large news outlets, also known as elite outlets, such as the *Washington Post*, *The Wall Street Journal* or *New York Times* set the agenda that is salient to the public and they set the agenda of other news outlets in a process known as intermedia agenda setting (Danielian & Reese, 1989). Intermedia agenda setting occurs partially through journalists corroborating their work with other journalists, particularly those who work at elite media outlets, but there have been changes to this traditional relationship in the past few years (McCombs, 2014). While traditionally elite media outlets have served this role as agenda setters, recent studies have pointed to a flip in this model where new media such as blogs and partisan news websites are now more powerful in setting the agenda of other outlets (Meraz, 2011; Vargo & Guo, 2017). Agenda setting theory is an important idea when examining news media as it can be an indicator of what the news outlet finds relevant and important to the country. Additionally, the salience it has on public opinion and discourse becomes especially influential in election years as public civic and political discourse is amplified as Americans decide an appropriate future direction for the country. The issues that are chosen to be criteria for making that decision play an important role in political campaigning, legislature and policy.

Emphasis Framing

While agenda setting refers to *what* topics are reported on widely, emphasis framing refers to *how* those topics are reported on. In late 2020, then President Donald Trump contracted COVID-19 and was admitted to Walter Reed National Military Medical Center for treatment of symptoms. All media outlets at all levels were reporting on this story, but the frame different outlets chose differed widely. Some discussed the possible treatments available; some discussed the implications if Donald Trump was seriously hospitalized; some discussed vaccines and vaccine availability and the list goes on. These are all ways to frame the same event and to frame discussion around Donald Trump being admitted to a hospital for care. There are a nearly endless number of frames one could choose from in discussing this event and this is true of many other news events. Emphasis framing causes individuals to be more focused on specific aspects of an issue, which, in turn, influences their views and opinions of the topic (Jaspersen et al., 1998; Shah et al., 2002). For example, if the topic at hand is gay marriage, if one news outlet emphasizes civil liberties and freedom versus religion and traditional values, a consumer would be left with two very different impressions of the topic.

Emphasis framing was first proposed by Goffman (1974) who posited that framing allows people to perceive, understand and label events and occurrences, organizing them and giving them meaning. When thought of this way, framing allows people to construct a storyline that helps them discern meaning and process new information (Goffman, 1974). Given the great amount of information we are exposed to daily, having a “schema of interpretation” to process information is essential (Goffman, 1974). The frame not only assists people in processing new information, but also serves as a basis to evaluate that issue. If the frame is in harmony with one’s preexisting beliefs, and ideologies the frame will likely be salient and persuasive. However, if the frame is in conflict with one’s beliefs, then they are likely to reject that frame

(Myers et al., 2012; Zhou, 2016). This idea is similar to value framing, a type of emphasis frame in which the salient aspect of a frame is a value (i.e., tradition, equality). When the value in a specific frame is in harmony with the audience then that frame resonates and framing effects occur (Schemer, et al., 2012; Shen & Edwards, 2005). Some values are often correlated with either liberalism or conservatism in the United States (Graham et al., 2009; Zhou, 2016). Therefore, it is unsurprising that frames interpreting issues with conservative values are more effective for conservative audiences and vice versa (Campbell & Kay, 2014; Dixon et al., 2017). For example, Wolsko and colleagues (2016) showed conservatives were more in favor of climate change action when messages were framed as a matter of patriotism. While the different agendas news outlets take on is one way to appeal to a partisan audience, some stories are too important to the country to not cover. When many different news outlets, partisan or not, all cover the same news event, differences often lie within framing. Framing is a way for partisan outlets to continue partisan agendas and is a powerful tool to do so.

Sentiment

The tone or sentiment that news outlets use in discussing important events can also have a strong effect on how consumers interpret that information and its likelihood to spread. Content with strong sentiment, and in particular content with a negative tone, has been shown to be beneficial for attention and memory which may in turn make it more likely consumers will remember that content (Kamp et al., 2015; Kensinger & Corkin, 2003; Yiend, 2010). Previous research has indicated that they engage with and share emotional content at higher rates than neutral content (Brady et al., 2017; Mather & Sutherland, 2011). Content with a strong tone is deliberately created to increase the likelihood of someone sharing a post with negative tone proving to be particularly effective at promoting engagement and sharing (Martel et al., 2020;

Wilkerson, et al., 2021; Zollo et al., 2015). In the 2016 U.S. presidential election, the most shared stories on Facebook were those with strongly charged language and tone (Silverman, 2016). Given the propensity for highly emotionally charged content to be widely shared, it may be in a news outlet's best interest to produce content that evokes these feelings and reactions from their respective audience. Emotionally charged content is often used when a media outlet is attempting to promote a sensationalized story or even mis- and disinformation (Chen et al., 2015). Even in cases where the story is not mis- or disinformation, emotionally charged content can also disrupt basic cognitive processes such as critical thinking and reasoning skills (Blanchette & Leese, 2006; Blanchette & Leese, 2011; Yiend, 2010). With all this mind, content that has a strong tone or sentiment can promote engagement and sharing of information at the cost of news consumers employing strong reasoning skills and sharing high quality information. Finally, in addition to this, content with a strong sentiment can evoke strong audience reactions, promoting polarization and more extreme views.

Present Study

The goal of study 2 is to investigate the differences in agenda setting, framing and sentiment between elite media sources, which have historically set the agenda of the media at large (Danielian, & Reese, 1989; McCombs, 2014), and online partisan media sources. Given the historic relevance and importance of elite media, it is worthwhile to understand if their habits are similar or different from that of online partisan media. By juxtaposing these two media types, one can begin to better understand if the comparisons some make between them are appropriate or if they act fundamentally differently in how they report the news. Additionally, given the growth in influence of online partisan sources, it is important to analyze the ways in which they act similar or differently from elite media, which has been historically trustworthy and reliable.

To address these descriptive comparisons, the research questions for this study are as follows: (1) how are elite news and partisan news' agendas, framing and sentiment different or similar leading up to the 2020 Presidential election?; and (2) how are the agendas, framing and sentiment different between politically conservative and liberal partisan media? We hypothesized that while the agendas of elite media and partisan media would be similar, there would be salient differences between how common events are framed and how the sentiments of partisan media were more often negative compared to that of elite media.

Method

Using the Global Database of Events, Language and Tone (GDELT)'s Global Knowledge Graph (GKG) as our primary source to acquire news articles, this study used three methods to answer the research questions posed. The first method was sentiment analysis, the second was a clustering analysis to determine framing, and the final was calculation of the proportion of total articles concerning climate change to determine agenda setting.

News Media Websites

Vargo and Guo (2017) previously identified the top 2760 US news media websites in the GDELT database. Their analysis sorted all outlets into one of five categories: 1) elite media, 2) news agencies, 3) traditional media, 4) online partisan media, and 5) emerging media. In a 2018 study, Vargo and colleagues updated the list of online partisan media to include more outlets and coded 62 of these sites as either politically liberal or conservative. The remaining 8 sources were either not partisan or deemed not news media.

Data Source

GDELT was created by Kalev Leetaru (2013) to monitor local news around the world, identifying people, locations, counts, themes, emotions, and more. GDELT is a widely used

resource in research today (e.g., De Waal et al., 2014; Hammond & Weidmann, 2014). The GDELT database also provides themes that represent the main topics within an article. These themes include topics such as “FIREARM_OWNERSHIP”, “HEALTH_PANDEMIC”, “LGBT” and many more. From those themes, previous scholars have aggregated them into one of sixteen issues: taxes, unemployment, economy, international relations, border issues, health care, public order, civil liberties, environment, education, domestic politics, poverty, disaster, religion, infrastructure and media and Internet (Neuman et al., 2014). Given the time at which these issues were created and differences to today, for the purpose of these analyses, one more issue has been added, COVID-19 as separate from the health care category.

To address the research question in this study, the two categories elite media and online partisan media were used, and the articles published by those news outlets that fall under the environment category were analyzed with a specific focus on stories concerning climate change. The time frame chosen for this study was the same year of the 2020 US presidential election as in general, people are more engaged with news during presidential election years. In total, after processing of articles, removing articles where links were no longer active, and articles that were not English, the final dataset contained 8,349 articles for analysis. See Table 4 for the count of articles per news type.

Table 4
Article Count by Subgroup

Subgroup	Number of Articles
Elite outlets	3,261
Partisan outlets	5,088
Conservative outlets	3,129
Liberal outlets	1,959

Data Analytic Strategies

For every article, three analytic techniques were used. The first was agenda setting analyses; the second was framing analyses; and the final was sentiment analyses. After performing these three respective analyses for each article, results were aggregated by news outlet, by media type (elite media versus partisan media), and by political slant of the outlet. Analyses descriptively examined the differences between these different groups. If articles could be categorized under the climate change category and the source is included in Vargo and Guo's (2017) list of sources, the article was included in analyses.

Sentiment

Sentiment analysis represents, "a systematic computer-based analysis of written text or speech excerpts for extracting the attitudes of the author or speaker" (Stieglitz & Dang-Xuan, 2013, p. 226). Positive and negative, as well as weak and strong emotions are evaluated. However, it is more common that sentiment analyses examine the outer ends of positive or negative, rather than more nuanced emotions (Bae & Lee, 2012). For this analysis, the SentiWords tool was used to automatically code the tone of the articles. SentiWords is a lexical resource of about 155,000 words with a sentiment score between -1 (negative) to 1 (positive) (see Guerini et al., 2013 and Warriner et al., 2013). Each word used in the analysis received a sentiment score, after which the mean of sentiment scores was used as a summary score for the respective article.

Agenda Setting

To determine the agenda of any one news article, this study used an adapted version of Neuman et al.'s (2014) themes, as previously described above. Importantly, an article can fall into multiple issues. For example, if an article is about masking in schools, this would fall under

both the education issue and COVID-19 issue, respectively. Once each article was sorted into appropriate issues, the total number of stories on climate change was summed and then divided by the total number of stories published to determine the proportion of stories about climate change. This was conducted for each news outlet and their respective articles. By examining the proportion of articles on this topic, this should be an accurate indicator of that outlet's agenda over the specified time period. The differences between outlets both by media type and by political slant were interesting to examine in aggregate and examine how agendas differ over time as well.

Framing

Traditionally, analyzing an outlet's frame has required manual identification of frames and then manual coding of the presence of these frames (Jasperson et al., 1998). This has led to small samples of articles being analyzed at any one time, but recent methods have used either factor analysis (Motta & Baden, 2013; Van der Meer & Verhoeven, 2013) or cluster analysis to analyze emphasis frames (Matthes & Kohring, 2008).

In this study, I used cluster analysis to determine frames as cluster analysis groups articles based on similarities in word frequency and features. By determining similarities between articles, and examining the most common words from each cluster, one can infer frames (Bruscher et al., 2016). In cluster analysis the quality of clusters is dependent on the selection of document features (Kaufman & Rousseeuw, 2009). While there are a variety of document features, previous studies have examined which are most useful for classification tasks (Dy & Brodley, 2004; Gnanadeskin et al., 1995; Hatzivassiloglou et al., 2000). The most useful features are word frequency, part of speech, and the words position in the document (Hu et al., 2009). Previous work has posited that news manifests itself through specific text attributes (Entman,

1993). Therefore, following Bruscher et al.'s (2016) methodology, this study used word frequency as one feature in creating clusters through a “bag-of-words” technique (e.g., Hellsten, et al., 2010; Miller, 1997). This approach is highly reliable given the salience of word frequency and is a highly replicable process as well (Riff et al., 2014).

While there are advantages to using word frequency to create clusters, this also creates data with much noise as not all words are of equal importance. This idea has been debated in the literature (Cappella & Jamieson, 1997; Carragee & Roefs, 2004; Hertog & McLeod, 2001). In response to this, scholars began using higher levels features (Matthes & Kohring, 2008; Motta & Baden, 2013), focusing specifically on words from the headline and the lead. Often, news stories present the most important information first (Poettker, 2003). Previous work has discussed the salient cues headlines provide and how strong leads will entice readers and create a strong news story (Pan & Kosicki, 1993). Previous work that has given more weight to the titles of news articles found this to improve results (Bouras & Tsogkas, 2012).

Following Burscher et al. (2016), part-of-speech tagging was utilized (Toutanova, et al., 2003) to select words that are a noun, adjective, or adverb. Previous work has shown that giving more weight to these features, in particular nouns, can improve the quality of clusters (Bouras & Tsogkas, 2012; Burscher et al., 2016).

Finally, named-entity recognition (Nadeau & Sekine, 2007) was used to remove names of locations, times, dates, people, and organizations as these features all refer to very specific events whereas frames are more conceptual. Previous work has pointed to named-entity recognition as helpful in improving cluster quality (Burscher et al., 2016).

Formation of Frames. To determine frames from each respective source, previous scholars have used cluster analyses to determine accurate frames. To do this, first, all words were

converted to lemmas and words that appeared in fewer than 10 documents or more than 40% of documents were removed as these words do not help in differentiating between clusters (Burscher et al., 2016). Then, the steps described above were performed in order to create document vectors with total frequency-inverse document frequency (TF-IDF) weighted word frequencies (Manning et al., 2008) for each article. The TF-IDF statistic is a measure of the importance of a word in a document or dataset by taking the total frequency (TF) of the word and multiplying it with the inverse document frequency (IDF) which decreases the weight for commonly used words and increases the weight for words used less frequently (Manning et al., 2008). Finally, I utilized L2 normalization to standardize document vectors.

Finally, to determine clusters, k-means clustering was conducted where the algorithm defines the cluster center and assigns each article to a cluster with the nearest mean vector quantification. The implementation of k-means clustering in this study utilized the mini-batch k-means algorithm (Sculley, 2010) and the k-means++ optimization method (Arthur & Vassilvitski, 2007). To determine the appropriate number of clusters, the researcher examined scree plots and used the elbow method (Ketchen & Shook, 1996; Thorndike, 1953). The methodology described above has been shown to find more distinct and accurate clusters (Burscher et al., 2016). Importantly, for each respective cluster, the researcher qualitatively examined the quality of the cluster. In certain instances, the results of the elbow method may suggest a cluster that although is optimal from quantitative point of view, qualitatively is a low-quality cluster. Characteristics of a low-quality cluster included clusters with a low number of articles, and multiple clusters with multiple overlapping words, indicating two clusters with a strong degree of similarity (Burscher et al., 2016). For each cluster, the researcher listed the 15 document features (words) with the highest means and therefore represent the most typical words

for the cluster. After this, the researcher gave each cluster a label based on the 15 document features. By examining and interpreting the most typical words of articles from each cluster, one can infer frames. Finally, I used the sci-kit learn machine learning library in Python for all framing analyses (Pedregosa et al., 2011).

Results

How are Elite news and Partisan News' Agendas, Framing and Sentiment Different or Similar Leading Up to the 2020 Presidential Election?

Agenda

The results for the agenda setting analyses were very consistent across elite, and partisan media. The results showcase that elite news and partisan news discussed the environment, and specifically climate change a very small amount of their total articles (2-3%). Given the context of the year, this is unsurprising as topics such as COVID, or politics may have been more prevalent.

Framing

Elite Media. Based on the methods previously described, scree plots were generated for each comparison group. Those groups were: elite media, partisan media and within partisan media, conservative partisan and liberal partisan media. As previously mentioned, all categorizations of media were based on the Vargo and Guo (2017) study. The researcher chose the number of clusters by examining scree plot and by utilizing the elbow method (Ketchen & Shook, 1996; Thorndike, 1953). After creating clusters for each respective subgroup, the researcher created stacked prevalence charts to visualize the prevalence of each cluster over the selected time period and tracked the average monthly sentiment score for each cluster.

Based on the scree plots and the elbow method (Ketchen & Shook, 1996; Thorndike, 1953), the researcher chose four clusters (see Appendix D). The results of the cluster analysis show coherent and largely unique cluster centers considering there are few document features that overlap between clusters (see Table 5). One notable result is that there is a much larger sample of articles for cluster 1 as compared to the other clusters. The clusters revealed a range of topics covered including: climate change as connected to the 2020 presidential election and understanding a presidential candidate’s stance on the election; people trying to stay up to date on climate change news including wildfires or select news stories relating the COVID-19 pandemic to climate change; articles very directly centered on the worsening climate change crisis and finally the impact of COVID on industries often in the climate change conversation (e.g., oil and gas industries).

Table 5
Elite Media Identified Clusters and Frame Labels

Candidates and the Election	Staying Up to Date	The Worsening Climate Change Crisis	The impact of COVID on industry
post	briefing	climate	coronavirus
president	need	change	pandemic
new	know	post	world
week	evening	record	post
year	today	year	oil
presidential	Tuesday	plan	country
time	end	heat	economy
storm	day	president	covid
election	Wednesday	new	19
state	coronavirus	temperature	gas
campaign	fires	wildfire	people
like	race	warming	president
day	Thursday	global	say
debate	Friday	crisis	mask
candidate	Monday	scientist	jobs
N = 2090	N = 118	N = 506	N = 547

The results of the stacked prevalence plot show that the election was the majority of the stories with a rather large dip in prevalence in April when more stories on the COVID-19 pandemic were published for about two months, after which more stories on candidates and the election were published again (see Figure 5). For the most part, articles on climate crises were not highly prevalent for most of the year until the end of the year, when climate change and ongoing climate change crises became a talking point in the upcoming presidential election. The results of the month-by-month sentiment analyses found that two clusters (the election and staying up to date) remain relatively neutral in tone over the course of the year with one exception in July (see Figure 6). On the other hand, articles focusing on the COVID-19 and climate crises, respectively, saw strong fluctuations month to month but remained mostly negative throughout the course of the year. There were large dips in the sentiment on articles focusing on COVID-19 in July and October, likely aligned with news articles on COVID restrictions, and vaccination rates.

Given the strong differences between conservative and liberal online partisan media, the decision was made to not examine framing of online partisan media in aggregate as many of the clusters formed were inherently mixed because of the construction of the sample and it was difficult to form conclusions based on the results of the clusters. For example, numerous clusters were formed that expressed views at odds with one another (e.g., support and critiques of then President Donald Trump).

Figure 5

Stacked Prevalence Chart of Cluster per Month of Elite Media

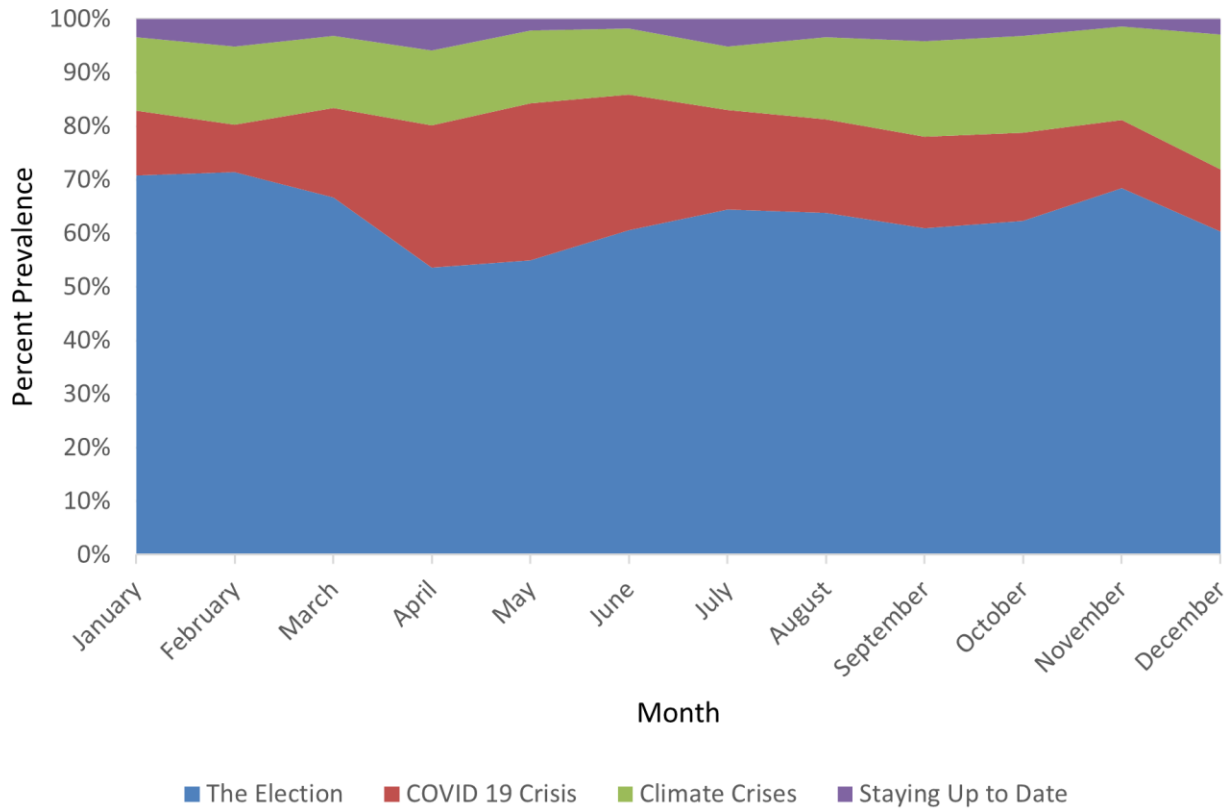


Figure 6

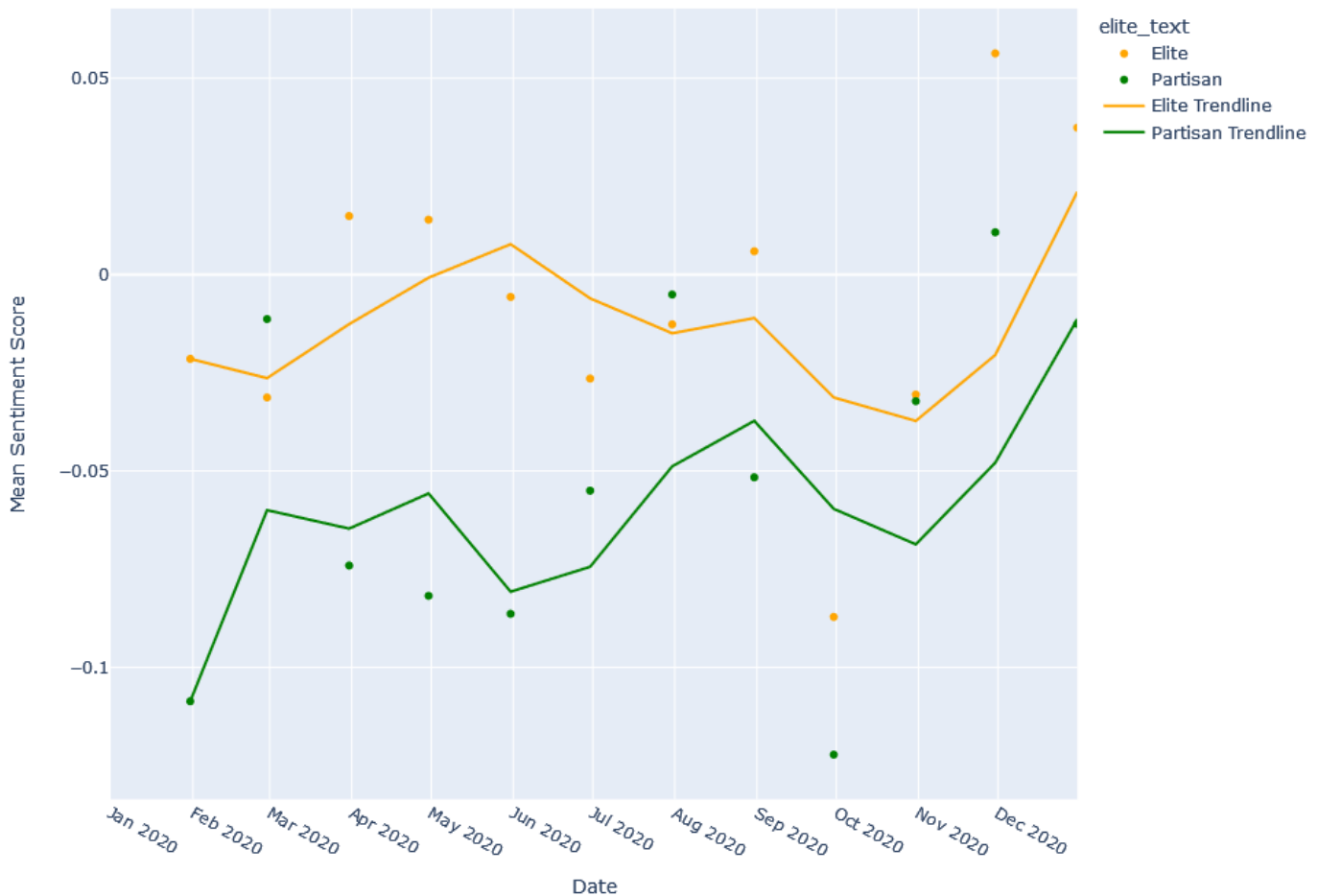
Average Sentiment by Cluster per Month of Elite Media



Sentiment

Elite articles, on average, had neutral tones generally ($M = -.01$, $SD = .48$) whereas partisan sources on average were slightly negative ($M = -.06$, $SD = .51$). This difference was also statistically significant as confirmed by an independent samples t-test ($t(8353) = -4.16$, $p < .001$). Over the course of the year, a similar pattern was found where near the end of the year, sentiment of both groups went upwards. Interestingly, the sentiment of elite news is under $\pm .05$ for the entirety of the year, except the very end. On the other hand, partisan media sources are outside of this range for the entirety of the year, except after December when there is a sharp increase in tone, indicating more positive tones (see Figure 7). To examine sentiment for all sources, please access the interactive graph [here](#).

Figure 7
Average Sentiment of Elite vs Partisan Outlets per Month



How are the Agendas, Framing and Sentiment of Politically Conservative and Liberal Partisan Media Different or Similar Leading Up to the 2020 Presidential Election?

Agenda

Similar to the comparison between elite media and partisan media, both conservative partisan media and liberal partisan media discussed climate change very rarely in regard to their total number of articles (2-3%).

Framing

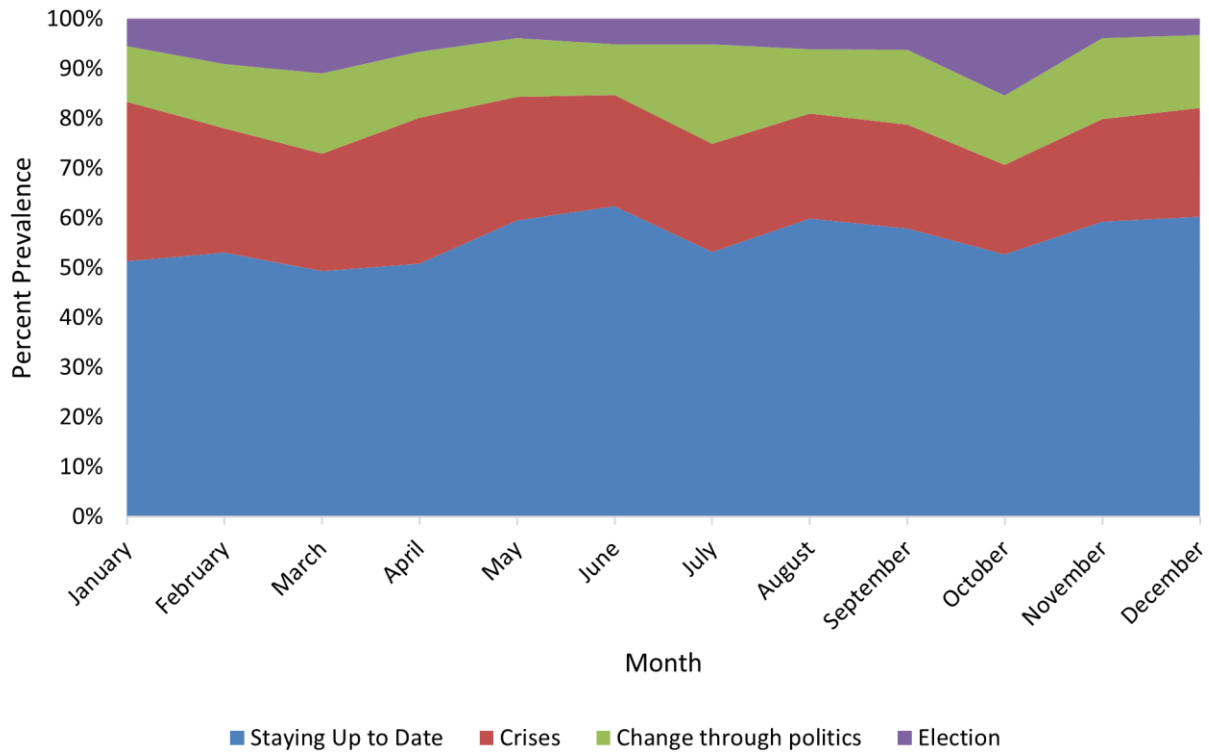
Conservative Partisan Media. Based on the scree plot and by utilizing the elbow method, the researcher chose four clusters for this subgroup as well (see Appendix D). Similar to Elite media, results from the clusters analyses show unique and coherent clusters; however, one cluster has a significantly higher sample size than the other clusters (see Table 6) and prevalence levels stayed relatively consistent over time (see Figure 8). The clusters revealed results relatively similar to that of Elite outlets, but with nuanced yet important differences.

Conservative outlets also had a focus on the election but focused on the stakes of the election by looking for “refuge” from liberal viewpoints and nominees. Similarly, another cluster had a very strong focus on the political left, worried about the mindsets and intentions of those to be perceived politically liberally (e.g., Knudsen, 2020), the tactics of perceived liberal outlets (e.g., Gladnick, 2020), amongst other topics. Another cluster was similar to that of Elite media, encouraging readers to stay up to date on current events. The final cluster was an interesting intersection of climate change news with COVID-19 news (e.g., Investment Watch, 2020), often linked together by discussions of the economy (e.g., Starr, 2020). Additionally, these articles often conflated weather effects for those of more long-term climate effects (e.g., Devaney, 2020).

Table 6
Conservative Partisan Media Clusters and Frame Labels

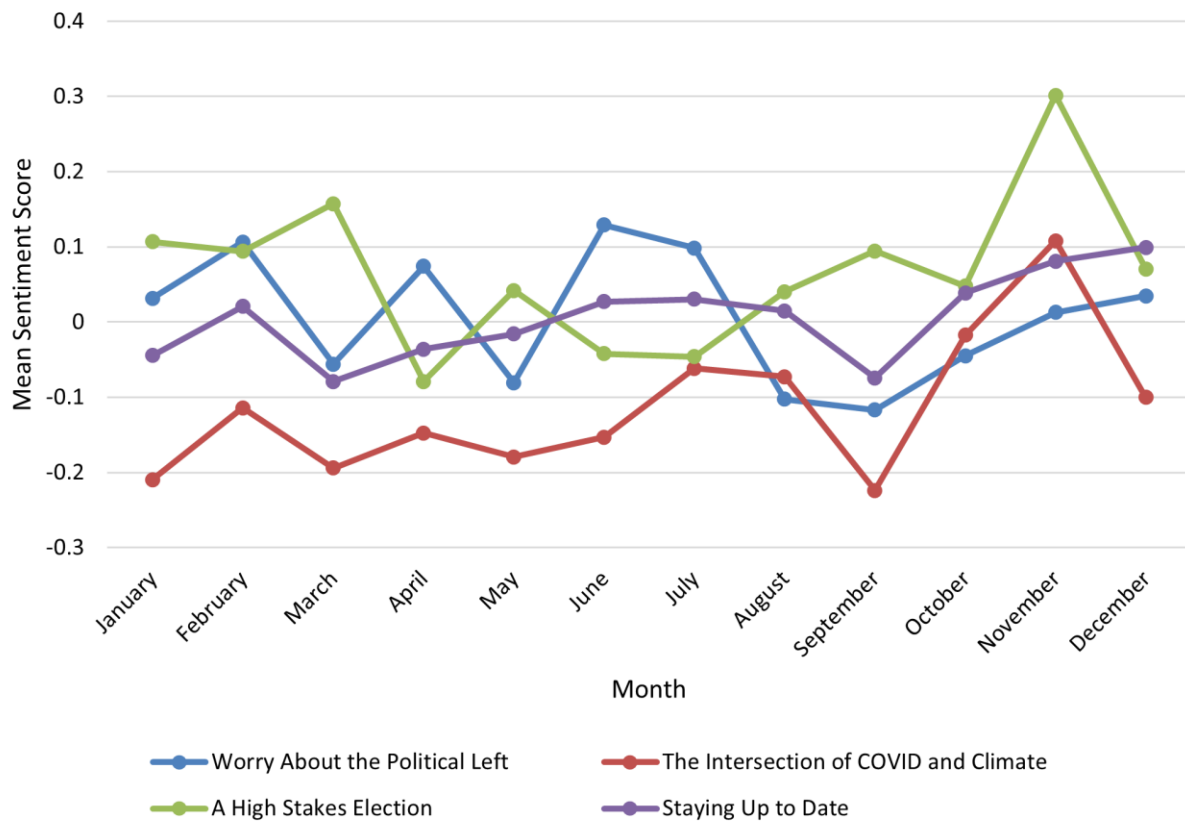
Worry about the Political Left	The Intersection of COVID and Climate	A High Stakes Election	Staying Up to Date
president	climate	presidential	year
vice	change	day	news
tuesday	world	refuge	sign
election	coronavirus	candidate	time
new	global	debate	latest
senate	pandemic	president	new
said	people	campaign	people
coronavirus	covid	democrat	left
left	crisis	senate	free
state	warming	vice	daily
wednesday	activist	nomination	week
progressive	19	nominee	state
vt	year	march	inbox
administration	economic	wednesday	delivered
elect	government	election	say
N = 438	N = 759	N = 213	N = 1719

Figure 8
Stacked Prevalence Chart of Cluster per Month of Conservative Media



The results of the month-by-month sentiment analyses found that the COVID and climate cluster is strongly negative for much of the year with the exception of immediately before the election. However, the other clusters largely stay neutral for the majority of the year (see Figure 9). Unsurprisingly the election and COVID and climate clusters both increase significantly in sentiment score just before and during the election, indicating a support for their preferred presidential candidate, in almost all cases Donald Trump, and the job he had done navigating these difficult problems (e.g., Carney, 2020).

Figure 9
Average Sentiment by Cluster per Month of Conservative Media



Liberal Partisan Media. Choosing the number of clusters for the liberal partisan outlets was a slightly more complex process as compared to elite and conservative partisan media (see Appendix D). The scree plot and elbow methodology would indicate that three clusters would be

the correct number. However, upon further investigation, the researcher found that one of the clusters had a sample size of less than 50 (Bruscher et al., 2016). Further testing of higher numbers of clusters found similar issues. Therefore, the researcher chose two clusters for liberal partisan media. The two clusters were comparable to those of conservative outlets, however with a flipped perspective. The two clusters were: The Election and the Effect of the Political Right and COVID and Climate (see Table 7). The stacked prevalence chart (see Figure 10) shows The Election cluster stayed highly prevalent over the course of the year. This is likely because this cluster seems to encompass liberals worries that existed for the 2020 election and their general fear of then President Trump’s reelection (e.g., Hertz, 2020). These results included a large variety of topics including fears of nuclear war from North Korea (Shorrock, 2020), Donald Trump’s daughter, Ivanka, smiling at the Republican National Convention (Matthews, 2020) and upcoming supreme court nominees (Osaka, 2020). All of these topics were linked back to the election and were often linked to a call to action for democrat voters (e.g., Reich, 2020). The other cluster, COVID and Climate often linked the two through the economy, similarly to conservative partisan media outlets. Instead of making arguments, however, on how certain climate decisions could benefit the economy, liberal partisan outlets often made moral and ethical arguments of large industries and companies are exacerbating the problems of the pandemic (e.g., Kokotovic, 2020). However, climate was often brought up as a secondary or additive argument to emphasize a point being made (e.g., Engelhardt, 2020).

Table 7
 Liberal Partisan Media Clusters and Frame Labels

The Election and the Effect of the Political Right	Climate & COVID
climate	new
republicans	climate

crisis	like
state	global
people	world
president	republic
pandemic	change
time	year
election	warming
coronavirus	pandemic
government	covid
covid	coronavirus
need	crisis
year	19
crooks	emission
<i>N</i> = 1548	<i>N</i> = 411

The results of the month-by-month sentiment analyses found that while both clusters have a negative tone for the entirety of the year, the COVID and Climate cluster has a strongly negative sentiment for the majority of the year as well (see Figure 11).

Figure 10

Stacked Prevalence Chart of Cluster per Month for Liberal Media

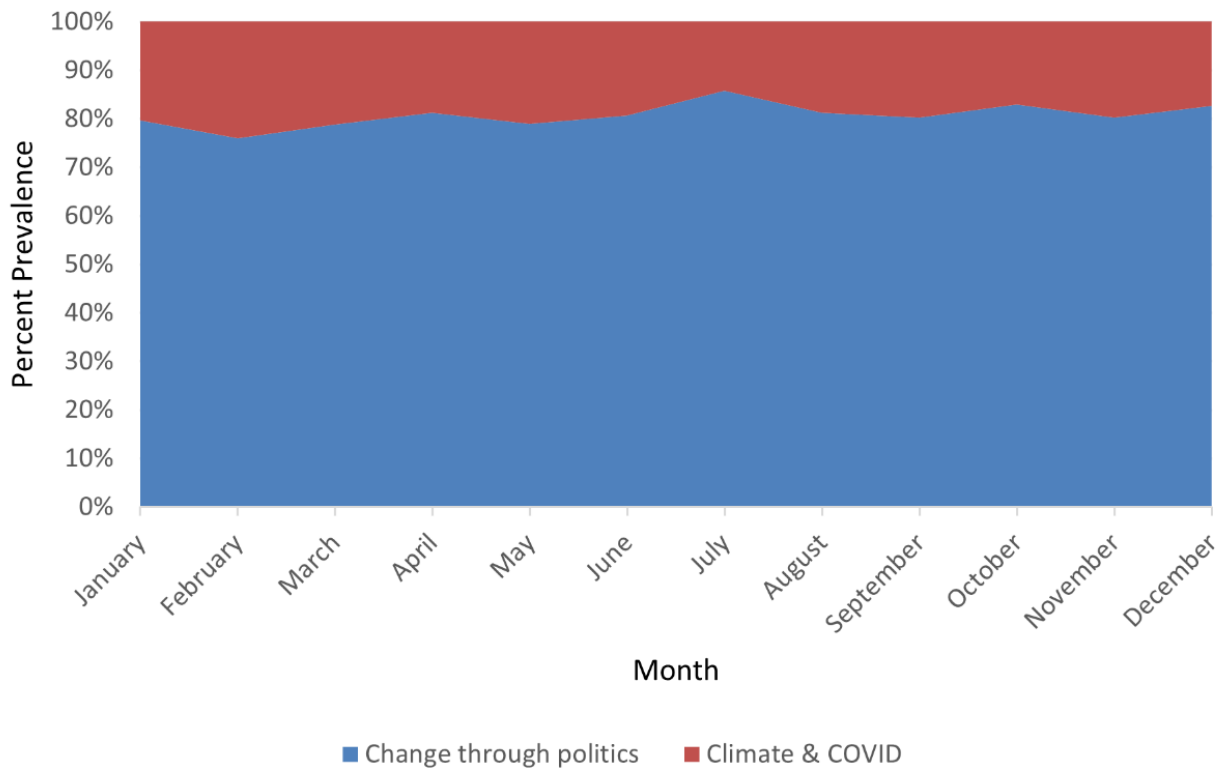
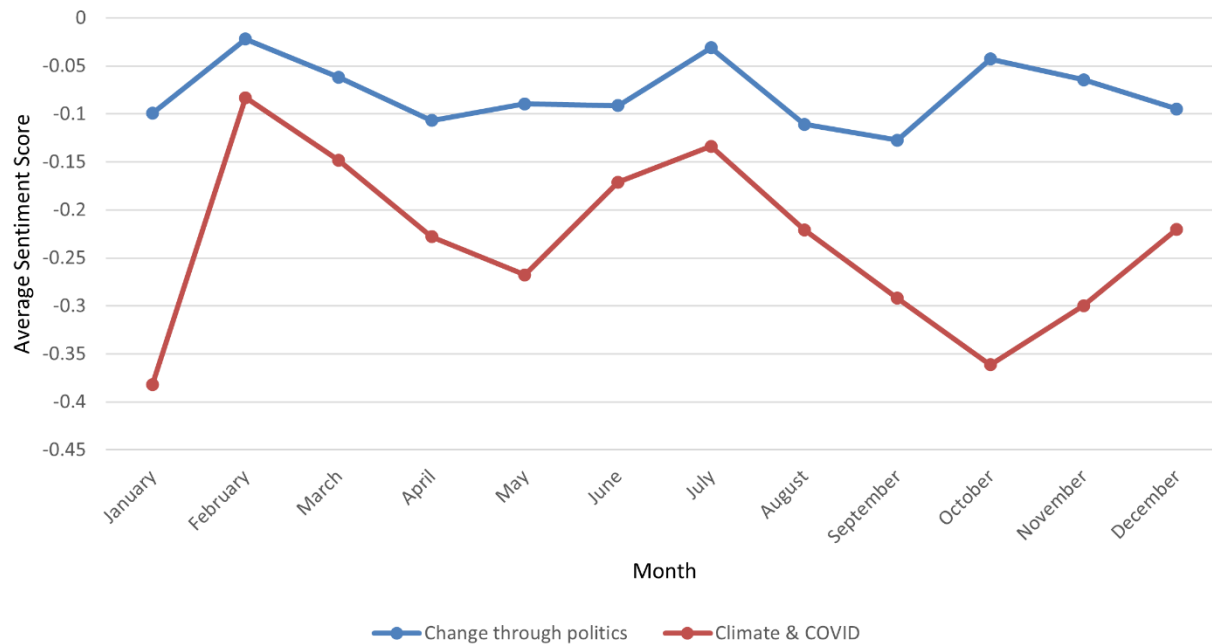


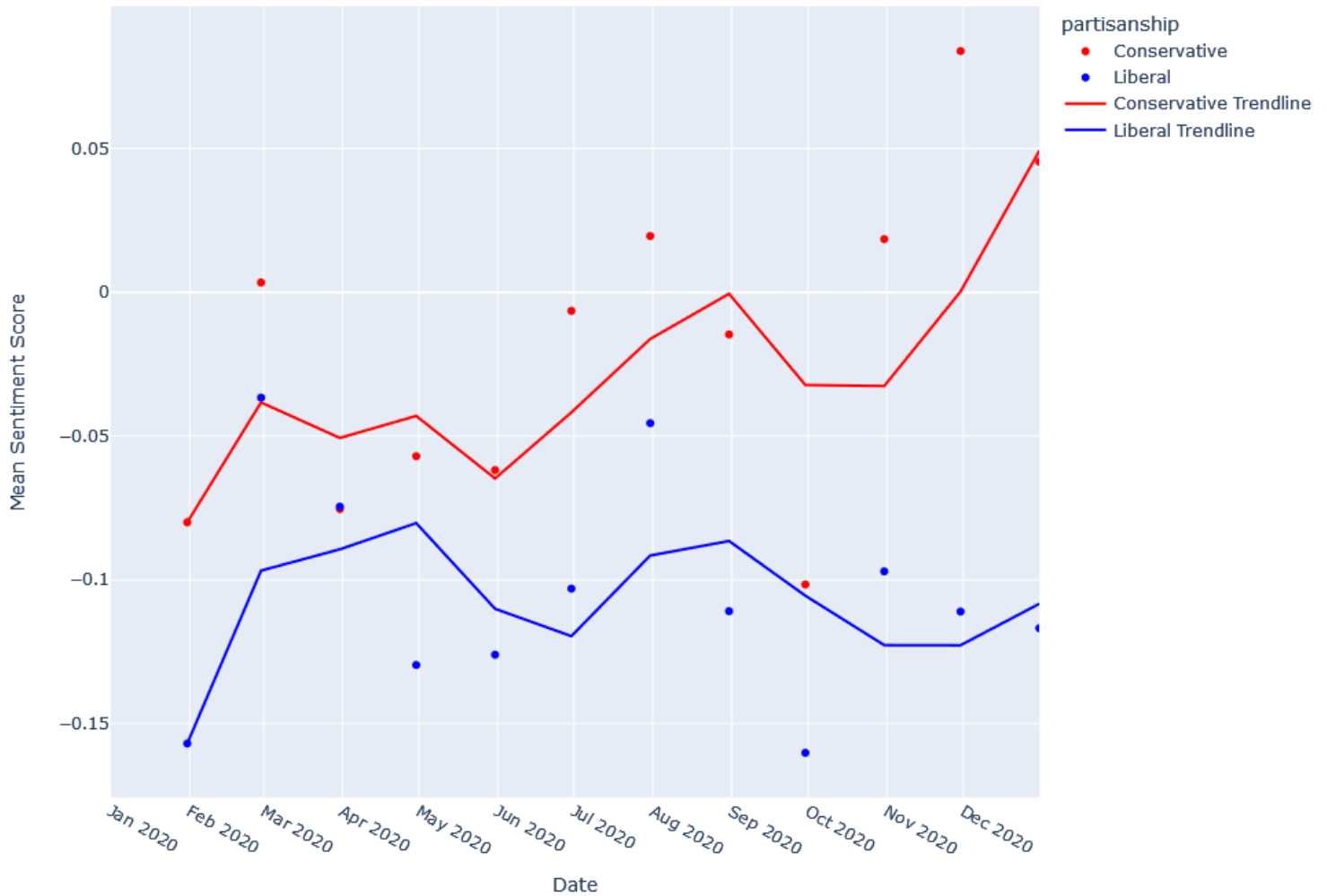
Figure 11
Average Sentiment by Cluster per Month for Liberal Media



Sentiment

Looking generally at the sentiment of different news sources, on average, sources with liberally political slant had a more negative sentiment ($M = -.11$, $SD = .53$) than those with conservative slant ($M = -.03$, $SD = .49$). This difference was also statistically significant as confirmed by an independent samples t-test ($t(5079) = 5.88$, $p < .001$). However, the nature of this difference changed over the course of the year where earlier in the year, the respective sentiments of the two groups is much closer and as the year went on, and the presidential election approached, their respective sentiments began to diverge with conservative becoming more positive and liberal becoming more negative (see Figure 12). Additionally, there is one notable outlier in the conservative data, which is during October 2020, conservative outlets, on average, had more negative sentiments as compared to the rest of the year.

Figure 12
Average Sentiment of Conservative vs Liberal Partisan News Outlets per Month



Discussion

In this study, the researcher sought to understand the habits of two different types of media as compared to that of online partisan media outlets. Given the growing importance and popularity of online partisan media, juxtaposing other types of news outlets, specifically outlets that have historically been reliable and trustworthy, is of interest. The comparisons between online partisan media and these outlets served several purposes. The first was to examine these

news outlets in nuanced, yet concrete ways with the analytic methods utilized in the study. Second, in the public, media outlets are often categorized broadly under one large umbrella of “news” allowing the public to potentially see them as equivalent. Through these studies, important differences between these types of news entities are shown, thereby working against the broad categorization of many different news outlets generally as “news”. Finally, news and particularly online news is a highly dynamic space. While online news has been thoroughly studied, continuing studies in this area are of importance because the habits and strategies of news outlets are dynamic and ever-changing. To ensure that the public is aware of how media may be trying to influence them, and the methods media uses to do so is an important first step in active citizenry.

Additionally, the juxtaposition of these media entities can help to support the use of agenda setting, framing and sentiment over bias in research and classroom settings. At times, bias can be widely used as a term to describe all media entities and media types. For example, students and educators alike have, at times, taken on this idea and describe ideologically incongruent media sources as “having bias” (Kahne & Bowyer, 2017). Therefore, juxtaposing these media entities and displaying their salient differences in the ways they report on news may be useful for students and educators to avoid largely grouping news as “biased” overall. Instead, it may be more useful to take a more nuanced approach to instruction and research by utilizing agenda setting, framing and sentiment.

Elite versus Partisan Media

The results from study 2 point to distinct, significant differences between elite media and partisan news outlets. These differences include significant differences between the sentiments of elite and partisan media where partisan media outlets, on average, have more negative sentiments

in their articles concerning climate change. It is important to note that these analyses also included opinion pieces published by elite media outlets and despite the inclusion of these, the significant difference remained. Additionally, elite media's framing of news events looked unique and different from that of both conservative and liberal partisan news outlets with the exception of the cluster, "staying up to date". In general, the framing of events from elite media sources tended to focus on issues at a large scale and clusters did not reveal any mention of specific political groups. Regarding agenda setting, all three subgroups were found to be very comparable in that for all three articles regarding climate change were a very small proportion of their total articles for the year.

In general, the more neutral sentiments and neutral frames of elite media descriptively point towards an important difference between elite media and partisan media outlets. Although elite media have, on average, more neutral sentiments, it is worth mentioning that on Climate Change and COVID-19, the sentiments of elite media were markedly more negative. While these two clusters had more negative sentiments, on average, the highest sample cluster, Candidates and the Election overall remained very close to neutral sentiment for the majority of the year. The distinction between this cluster as compared to Climate Change or COVID-19 is an important one. In the year 2020, all discussion of COVID-19 is likely to be seen with an overall negative sentiment because of the frequency of "negative" words such as "death", or "dying". In sentiment analyses these words are often scored as highly negative in sentiment and given their high frequency of use when describing COVID-19. However, it may be the case that this cluster was identified as highly negative when instead the discussion of death was more informational rather than emotional. On the other hand, elite media's discussion of the upcoming election and the candidates running in that election stayed neutral in sentiment. This was not the case in either

conservative or liberal partisan outlets where discussion of the opposing political party often was associated with more negative sentiments. This difference in the discussion of the 2020 election marks an important difference between elite media and partisan media outlets. By remaining generally neutral in tone, and by focusing on issues in the country rather than specific political parties, elite media outlets were able to qualitatively separate themselves from partisan media outlets.

While the agendas of these two groups may be similar, at least concerning climate change, the true difference between them is in the approach taken when framing those agendas. One can see elite media's focus on issues over party by the *absence* of certain words that are seen in conservative or liberal media's frames such as "left", "republican", or "progressive", to name a few. While the president as a political figure is mentioned across several of the frames, so are important "issue-centric" words such as "scientist", "mask", and "temperature". All in all, for elite media these "issue-centric" words make up the majority of the words for each cluster whereas both conservative and liberal media are often seen with indicators of the 'other side'. This, along with the other differences discussed, mark important qualitative differences between elite and partisan media. All in all, sentiment analyses suggest that elite media is more neutral in tone, framing analyses suggest that elite media is more "issue-centric," and in general the agendas of elite versus partisan media are similar, when it comes to climate change.

Conservative versus Liberal Partisan Media

The results from study 2 suggest that while conservative and liberal partisan media may differ in specific ways, they also may be more similar than one may first think as well. The sentiment of liberal media was significantly more negative than conservative outlets. While liberal partisan media sentiments were more negative on average, much of this negativity was

driven by the frame, Climate and COVID, where liberal outlets generally showed strong disapproval of the actions, or inactions, of then President Donald Trump. Throughout the course of the year, this cluster showed strong negative sentiment values, with October being an extreme example of this where the average sentiment score was just below -0.35. Given liberal media's disdain towards Donald Trump, this is an interesting finding. It seems that liberal partisan media's most negative sentiments and thereby most harsh critiques of then President Trump were just before the election, possibly as an attempt to prevent his reelection. Additionally, Donald Trump's inflammatory views, often in contrast with those of liberal partisan media, likely sparked strong reactions from liberal media, as represented in the data. The other frame, focused on the election, was slightly negative on average, but much less negative than Climate and COVID. When it came to the sentiment of conservative outlets, the frame sentiment analysis showed that there was much more variation and fluctuations in sentiment by cluster, over the course of the year. This may be indicative of the large number of articles published by conservative outlets over the year, as compared to liberal outlets, and the many narratives that existed within those articles. Overall, given the political administration during the time period of analysis, the sentiment scores are unsurprising.

When it comes to the framing of events by conservative and liberal partisan outlets, there were some differences, but also one key similarity: the worry about each other. The generally negative sentiments combined with the frames focused on the 'other side' of the political spectrum paint a picture where both conservative and liberal outlets are often worried and talking about each other. Beyond this, the other frame found in liberal partisan media was also seen in conservative partisan media: climate & COVID. However, one key difference between the two partisan media types was that liberal partisan media seemed very focused on the upcoming

election more than conservative or elite media outlets. The vast majority of their articles were focused, in some way, on the election and finding another cluster that was viable was difficult during the analysis stage. This was largely because no matter which cluster solution was chosen, the vast majority of articles fell under the election frame. The extreme focus on the election and the repercussions of it was a very consistent theme seen across all liberal partisan media outlets. This is not to say that conservative outlets were *not* concerned with the election, but there were a smaller proportion of articles focused on it. Interestingly, many articles encouraged readers to stay up to date with the website, the latest news, get email notifications and more. The conservative outlets generally had a much larger focus on trying to keep readers reading. These outlets very consistently would include reminders to stay up to date at least once, if not multiple times, throughout articles.

Implications

There are multiple implications for this study which speak to our understanding of how to evaluate media sources, and how we can teach these evaluation skills. As previously detailed, bias as a term has taken on many meanings dependent on the group and bias has been weaponized by many as a term to discount media. This study showcased methods that are able to concretely identify differences between media types and between media sources of different quality. Sentiment and Framing analyses both proved to be effective methods in doing so. In this study agenda setting analyses did not prove to be an effective method for displaying any differences between elite and partisan media outlets, however future studies may want to utilize more specific time frames, or topics that may prove more illuminating when it comes to the agendas of different news entities. Overall, evaluation of media entities should utilize these

methods in lieu of more opaque terms such as bias since they are not only concrete, but identify specific practices and habits of media entities.

The other major implication of this study is on the ways we teach evaluation of media sources, which goes hand-in-hand with the previous implication discussed. Since the three methods utilized in this study are concrete and identifiable, it is feasible that students can be taught to identify these different features in media sources. Although the formation of frames and framing analysis is technically complex at very large scales, it has been done previously by hand at smaller scales (Chong & Druckman, 2007) and could also be done by students learning about framing at smaller scales as well. Additionally, there are numerous user-friendly tools for calculating sentiment as well that while not as technically complex as the methods proposed here, communicate an important message nevertheless: there are better ways to describe media than saying they are biased. By describing media as utilizing specific frames, or having a highly negative or positive sentiment, we as a field take a step closer to more accurate evaluation of media sources.

Limitations

There were a few limitations in this study that readers should be aware of when interpreting results. The first is that both opinion and non-opinion pieces for elite media outlets were included and not separated for the purposes of this study. The reason for this was because of questions regarding a readers' likelihood to differentiate between these two genres of articles when both are still published under the same newspaper (e.g., both are still published by the New York Times). That being said, it may be the case that opinion pieces are stronger in sentiment. A second limitation of the study are the sentiment scores which are based on individual word scores which are then aggregated. As a result of this methodology the scores are not sensitive to

statements such as, “this is not a bad thing” where a sentiment analysis would choose “not” and “bad” as both words with a negative sentiment whereas the true sentiment is positive. There are attempts to reduce this effect through the methodology utilized by removing stop words and highly frequent words, but it is likely examples such as the one shown remain. Additionally, the large number of articles may appease this concern as in total, these instances would “average out” in aggregate.

Future Directions

Future research in this area should continue to test these methods with different media types and sources. In this study, the two media types that were chosen are quite qualitatively different. Future research should test the sensitivity of these methods by choosing media entities that are more qualitatively similar to one another to understand if these methods can detect more nuanced differences as well. Additionally, future research may consider following a single event over a long period of time (e.g., the Russia-Ukraine war) to estimate more nuanced agenda setting analyses and frames, instead of covering a broad topic such as climate change. Finally, future research should continue to refine these methods and test new iterations of the methods (e.g., different sentiment analysis methods, taking more text from an article rather than just title and lead).

Conclusions

The results from this study point to important qualitative differences between elite media and partisan media outlets both in the framing of events and the sentiment used. Elite media outlets generally function in a more neutral tone, focusing on issues rather than specific parties, figures or to place blame on specific people or groups. On the other hand, both conservative and liberal outlets showed great concern about each other and published many articles blaming one

another. The results show that elite media approaches news and current events with a more objective tone and focus whereas partisan outlets function in a much more self-affirming, motivated way. Importantly, these results also point to framing and sentiment as being useful, distinctive tools when evaluating media sources. By using sentiment analysis and framing analysis, the researcher was able to find qualitative differences between the outlets both in where their foci are and the ways in which they discuss current events and news.

Study 3: A Comparison Between Traditional and Partisan Media: Their Habits, and Decisions

Introduction

Given the great degree of overlap in topic and methodology, sections of the literature review and methodology sections have a strong degree of overlap with that of study 2. While each section does have unique contributions to this study that are different from that of study 2, there still remains citations and language that is very similar to that of study 2.

In recent history, some claim that the public has become increasingly polarized (e.g., Abramowitz & Saunders, 2008; Jacobson, 2004; Mason, 2015), while others have argued to the contrary (e.g., Fiorina et al., 2006; Messing & Westwood, 2014). What has been well documented in the United States is that media sources, on average, are becoming more polarized in their messaging (Iyengar et al., 2019) and, importantly, the public has a perception that media sources are becoming more polarized in their messaging (Pew Research Center, 2014). While there is debate whether or not there has been a transmission of this increasing polarization to the public is debated (Abramowitz & Saunders, 2008; Fiorina et al., 2008), there are certain phenomenon that support this transmission. For example, over time Democrats are more often taking, on average, more polarized positions on important topics while Republicans are doing the same (Abramowitz & Saunders, 1998; Baldassarri & Gelman, 2008; Layman & Carsey, 2002; Levendusky, 2009; Stoker & Jennings, 2008). Additionally, partisans also trust co-partisans more than those who support the opposing party (Carlin & Love, 2013; Iyengar & Westwood, 2015). This increasing partisanship is a cyclical process where the more one encounters only like-minded voices, the higher the likelihood they become further polarized (Gimpel & Hui, 2015). While there has been hope that Americans would be able to reduce polarization, some see

the ability to compromise as difficult to achieve (Gutmann & Thompson, 2012). While there are many reasons as to why there has been increasing polarization, one reason why this may be the case is due to the divisive nature of some media sources. To investigate the extent to which media sources are or are not producing polarizing media, this study utilized advanced text analytic techniques. By examining the agenda setting, framing and sentiments of different sources, this study worked to juxtapose traditional media sources to online partisan sources to examine similarities, and differences between them in nuanced and concrete ways.

Scholars have argued that partisan media increase the likelihood that people will encounter and engage in echo chambers (Sunstein, 2009), although the specific role that echo chambers play in polarization has been debated (Dubois & Blank, 2018). Partisan media outlets contribute to polarization and the creation of echo chambers through their consistent “slant” or agenda when reporting news. Importantly, previous work has found that those who discuss politics are more likely to seek out partisan information (Chaffee & McLeod, 1973) and that discussion of politics with likeminded others, on average, have more polarized political attitudes compared to those who discuss politics with divergent political preferences (Huckfeldt, et al., 2004). With the onset of online news and the twenty-four-hour news cycle, one could argue that this effect has had even stronger effects since the “echo chamber” of online news is never ending.

The goal of this study is to better understand the similarities and differences between traditional media and partisan media outlets using three criteria for evaluation: sentiment, framing and agenda. By utilizing data from the Global Database of Events, Language and Tone (GDELT) project, this study analyzed articles from a variety of elite and partisan media sources to understand their respective sentiment, framing and agendas from the year 2022.

Traditional News Media Outlets

The role of media in all forms has long had influence on public opinion and discourse. The information different media outlets choose to report influences the information most salient to the public and sets the stage for national discussion. While public perception of media outlets is that they are becoming more polarized over time, many media entities do not show the strong partisanship much of the public may believe they do (Pew Research Center, 2014). Most newspapers in the United States utilize wire services, which are services that provide brief summaries of major news stories that are ready for publish as is (Whitney & Becker, 1982). Although there have been critiques of these services in the past, they, on average, produce politically neutral messages and are widely used amongst national and local news sources (Whitney & Becker, 1982). The use of these wire services does not make all traditional news sources identical, but often creates situations where they are quite similar and provide readers with comparable information (Whitney & Becker, 1982). While there are a “firehose” of news and information options now available to choose from, there is still a strong amount of people who consume news from traditional news sources (Pew Research Center, 2022).

To decide what information to select, some consumers will turn to outlets that have historical ties to credibility and importantly to the places they live, as they find those sources particularly relevant to them (Hopkins, 2018). Additionally, traditional media outlets and in particular local news has shown to benefit viewers in numerous ways. Recent studies investigating local news and voting habits finds that viewers of local news have greater knowledge of officeholders in government, create more nuanced voters and may even decrease highly polarized voting habits (Moskowitz, 2021). In addition to voting habits, previous theories about the connection between local news and community integration have found that higher

engagement with local news is correlated with stronger local community attachment and integration (Jankowitz, 1967; Jeffres et al., 2002; Hoffman & Eveland, 2010). In contrast to some of the benefits of traditional media sources and their usefulness to their community, partisan news media outlets have instead been largely detrimental to public discourse (Osmundsen et al., 2021).

Partisan News Media Outlets

Scholars differentiate between “mainstream” media outlets which prioritize fairness and objectivity from partisan media outlets that are, “framed, spun and slanted so that certain political agendas are advanced” (Jamieson, et al., 2007). Partisan outlets often depict the opposing political party in negative ways (Berry & Sobieraj, 2014) and focus primarily on the opposing party’s scandals, multiplying public hostility to the opposing party (Puglisi & Snyder, 2011). These partisan outlets present news in hyper consistent ideological frames to avoid going against their readers’ typical views and to create echo chambers (Jamieson & Cappella, 2008). In addition to packaging the news from specific ideological frames, these outlets also selectively choose which stories to report on, reporting more often on topics that favor their party and downplaying or ignoring those that do not (Baum & Groeling, 2010; Baum & Potter, 2008). Ultimately, the primary purpose of partisan news is not about reporting accurate information, they serve to help their viewers confirm their prior views of the world (Rosensteil, 2006).

Given that one’s ideological or political affiliation may be a strong identity, it is unsurprising that the audience for partisan news has been growing and continues to do so (Pew Center for the People and the Press, 2010; Pew Research Center, 2014; Project for Excellence in Journalism, 2009). The growth in audience for partisan outlets presents a challenge to building a civically engaged and informed audience since the lack of balanced content may lead consumers

to adopt more extreme ideological stances and have less nuanced views about important topics (Levendusky, 2013). Partisan news outlets consistent ideological framing have increased polarization by priming one's partisanship, which has been shown to increase attitudinal polarization (Abrams et al., 1990; Lee, 2007). Additionally, the more partisan one is, the more likely they are to watch partisan news (Arceneaux & Johnson, 2010) thereby creating a cycle where a consumer who is already relatively partisan, consumes partisan news and becomes more extreme, leading them to consume more partisan news and so on (Slater, 2007).

Unsurprisingly, those who are more partisan and those who have more political knowledge are also more likely to vote (Binning et al., 2010; Campbell et al., 1960; Dickerson & Ondercin, 2017) and that partisan media influences vote choice (Barker, 1999; Dalton, et al., 1998; DellaVigna & Kaplan, 2007). This increasing partisanship poses a problem for the United States. As voting becomes more nationalized, voters are less likely to engage in split-ticket voting, a practice where voters may vote for democrats and republicans in the same election (Dickerson & Ondercin, 2017). Additionally, voters who report engaging in multiple political activities such as donating money or working for a candidate also report greater increases in polarization than those who are not engaged (Baldassarri & Gelman, 2008; Jacobson, 2000). In one study, Prior (2007) compared habits and partisanship between those who watch partisan news programming from those who watch entertainment news. They found that those who did not watch partisan news are less partisan and unfortunately, are less likely to vote in elections, with the turnout gap increasing over time. This increasing turnout gap led to more partisan elections and increased the impact of partisanship overall on elections.

Finally, some studies have found evidence of partisan selective exposure, the idea that consumers choose to primarily watch news that agrees with their views (e.g., Stroud, 2011).

However, others have found that on average, consumers generally select ideologically neutral content (Gentzkow & Shapiro, 2006). Despite the avoidance of partisan news by some, social group or network can also influence the information they encounter and often people have social networks of people who are ideologically aligned with themselves (Halberstam & Knight, 2014; Lewis, et al., 2012). Given this, even those who are not engaged with partisan news often still find themselves interacting with it through their social network (Halberstam & Knight, 2014; Messing, 2013). Recent studies have indicated the power of Facebook as a major source of traffic to online news sites (Pew Research Center, 2014). This idea of “passive exposure” to news is one that allows the effects of partisanship and partisan news outlets to influence not only the consumers of this news, but also influence those who are indirectly connected, but not consuming the programs themselves (Toff & Nielsen, 2018).

Mechanisms of Effectiveness

The exact mechanism by which partisan news is effective is unclear given the bi-directional nature of exposure (Iyengar et al., 2019). While there are numerous factors that influence effectiveness of partisan news, three techniques that news outlets have under their control are: agenda setting, framing and sentiment.

Agenda Setting

Agenda-setting theory examines what topics trend in the news and how that influences the opinions of audiences (McCombs, 2014). One level of agenda setting asserts that the frequency with which news media report on a story is the primary determinant for what society at large thinks is important. In agenda setting theory, the news media sets the public salience and importance for different topics and ideas by deciding what is brought to public attention. When news outlets decide to cover a story to a great extent or depth, society at large considers this

issue as extremely important, even if people have differing ideas about the issue. While traditionally large media outlets have served this role as agenda setters, recent studies have pointed to a change where new media such as blogs and partisan news websites are now more powerful in setting the agenda of other outlets (Meraz, 2011; Vargo & Guo, 2017). Agenda setting theory is an important idea when examining news media as it can be an indicator of what the news outlet finds relevant and important to the country. Additionally, the salience it has on public opinion and discourse becomes especially influential in election years as public civic and political discourse is amplified as Americans decide an appropriate future direction for the country. The issues that are chosen to be criteria for making that decision play an important role in political campaigning, legislature and policy.

Emphasis Framing

While agenda setting refers to *what* topics are reported on widely, emphasis framing refers to *how* those topics are reported on. In late 2022, Ketanji Brown Jackson was appointed to the Supreme Court. All media outlets were reporting on this story, but the framing of this news story differed dependent on the exact outlet. Some outlets discussed the “unfair questioning” from Republican senators; others discussed the history in the making with Ketanji Brown Jackson being the first African American woman appointed and there were numerous other framings as well. These are all ways to frame the same event and to frame discussion around the same news story. There are a nearly endless number of frames one could choose from in discussing this event and this is true of many other news events. Emphasis framing causes individuals to be more focused on specific aspects of an issue, which, in turn, influences their views and opinions of the topic (Jasperson et al., 1998; Shah et al., 2002). Often times, if a news consumer only gets information from one source or sources with the same ideological alignment,

they would have a very different impression of the topic from someone who consumes news from outlets with alternative viewpoints.

Emphasis framing was first proposed by Goffman (1974) who posited that framing allows people to perceive, understand and label events and occurrences, organizing them and giving them meaning. When thought of this way, framing allows people to construct a storyline that helps them discern meaning and process new information (Goffman, 1974). Given the great amount of information we are exposed to daily, having a “schema of interpretation” to process information is essential (Goffman, 1974). The frame not only assists people in processing new information, but also serves as a basis to evaluate that issue. If the frame is aligned with their preexisting beliefs, and ideologies the frame will likely be persuasive and influential in their judgement. However, if the frame is not aligned with their prior beliefs, then they are likely to reject that frame (Myers et al., 2012; Zhou, 2016). When the values expressed in a specific frame are in harmony with the audience then that frame resonates and framing effects occur (Schemer, et al., 2012; Shen & Edwards, 2005). For example, previous work by Wolsko and colleagues (2016) showed conservatives were more in favor of climate change action when messages were framed as a matter of patriotism, an idea often endorsed by Republicans. While the different agendas news outlets take on is one way to appeal to a partisan audience, some stories are too important to the country to not cover. When many different news outlets, partisan or not, all cover the same news event, differences often lie within framing. Framing is a way for partisan outlets to continue partisan agendas and is a powerful tool to do so.

Sentiment

The tone or sentiment that news outlets use in discussing important events can also have a strong effect on how people judge that information and the likelihood that the information or

story will go viral. Content with strong negative tone, has been shown to increase the likelihood that it will be noticed and remembered (Kamp et al., 2015; Kensinger & Corkin, 2003; Yiend, 2010). Previous research has indicated that consumers engage with and share emotional content at higher rates than neutral content (Brady et al., 2017; Mather & Sutherland, 2011). Content with a strong tone is created by partisan outlets with the intended purpose that it will go viral and previous results have shown that to be an effective method (Martel et al., 2020; Wilkerson, et al., 2021; Zollo et al., 2015). In the 2016 U.S. presidential election, the most shared stories on Facebook were those with strongly charged language and tone (Silverman, 2016). Given the propensity for highly emotionally charged content to go viral, it may be in a news outlet's best interest to produce content that evokes these feelings and reactions from their respective audience. Emotionally charged content is often used when a media outlet is attempting to promote a sensationalized story or even mis- and disinformation (Chen et al., 2015). Overall, content that has a strong tone and particularly that which has a highly negative tone can promote virality at the cost of news consumers employing strong reasoning skills and sharing high quality information. Finally, in addition to this, content with a strong sentiment can evoke strong audience reactions, promoting polarization and more extreme views.

Present Study

In this study, the researcher sought to understand the habits of traditional media sources as compared to that of online partisan media outlets. Given the growing importance and popularity of online partisan media, juxtaposing these specific types is of importance given their historical precedent and the reliance the public has had upon them for decades. The comparisons between online partisan media and these outlets served several purposes. The first was to examine these news outlets in nuanced, yet concrete ways with the analytic methods utilized in

the study. Second, television and print outlets have come under public scrutiny in recent years, but local and national news outlets alike have served important roles in informing the public. In this study, important differences between these types of news entities are shown, thereby working against the broad categorization of many different news outlets generally as “news” and further growing our understanding of how different news entities function differently. Finally, news and particularly online news is a highly dynamic space. While online news has been thoroughly studied, continuing studies in this area are of importance because the habits and strategies of news outlets are dynamic and ever-changing. To ensure that the public is aware of how media may be trying to influence them, and the methods media uses to do so is an important first step in active citizenry.

Additionally, the juxtaposition of these media entities can help to support the use of agenda setting, framing and sentiment over bias in research and classroom settings. At times, bias can be widely used as a term to describe all media entities and media types. For example, students and educators alike have, at times, taken on this idea and describe ideologically incongruent media sources as “having bias” (Kahne & Bowyer, 2017). Therefore, juxtaposing these media entities and displaying their salient differences in the ways they report on news may be useful for students and educators to avoid largely grouping news as “biased” overall. Instead, it may be more useful to take a more nuanced approach to instruction and research by utilizing agenda setting, framing and sentiment. This is especially the case with local news sources as local news sources often represent the ideals of the areas where they are located and report on local issues. This approach to reporting often makes them strong sources for students to use when completing projects or taking civic action in their area.

This study compared traditional media outlets and online partisan media. Traditional outlets can be understood as print and TV media that are not elite outlets. For example, websites of newspaper or TV broadcasts. Second, this study examined ten unique news stories that were particularly relevant and popular in 2022 (e.g., the confirmation of Supreme Court judge Ketanji Brown Jackson). To analyze these events, four different types of traditional news were analyzed: national print news, local print news, national TV news and local TV news. To address these comparisons, two research questions were asked: 1) how are traditional news and partisan news' agendas, framing and sentiments different or similar, 2) how are these agendas, frames and sentiments different by source characteristics (e.g., TV or print)? For this study, I hypothesized that the agendas of traditional news and partisan news would be similar. However, the frames of traditional news would differ from partisan news. Specifically, partisan news would be more likely to frame events in a way that is politically congruent with their partisanship. In regard to sentiments, I hypothesized that the sentiment of partisan news, on average, would be significantly more negative than that of traditional news.

For research question 2, there were no specific hypotheses as the large-scale comparisons between these different sources have not compared in this way before.

Method

News Media Websites

Given there are a great amount of traditional news outlets, this study utilized an adapted list of the one the Pew Research Center previously defined and utilized, which is a list of 47 local print newspapers and 97 news outlets to conduct analysis on news engagement (2021). The list of 97 was reduced to 55 for numerous reasons. Fifteen outlets were removed because they overlapped with the list of newspapers, and the remaining 43 were removed as they were focused

on content unrelated to current events and national news such as entertainment, or beauty. To determine which local TV to focus on, 15 local TV news stations were selected. These 15 stations were in the same areas as 15 of the local print newspapers. The reason for the reduction to 15 was because numerous of the 47 outlets were in very similar areas geographically (e.g., Los Angeles and San Diego newspapers). Finally, the list of 52 news outlets was utilized to conduct analyses for national print media and, as applicable, for national TV media. A full list of the 47 local print sources and the 55 news outlets can be seen in Appendix E.

By using these two lists it not only allowed comparisons between traditional media and online partisan media but also allowed comparisons to be made between TV and print media outlets. Finally, this study used Vargo and Guo's (2017) categorizations of news outlets.

Data Source

I used the Global Database of Events, Language and Tone (GDELT)'s Global Knowledge Graph (GKG) as the primary source to acquire online partisan news articles and articles for local and national print sources. GDELT was created by Kalev Leetaru (2013) to monitor local news around the world, identifying people, locations, counts, themes, emotions, and more. GDELT is a widely used resource in research today (e.g., De Waal et al., 2014; Hammond & Weidmann, 2014). A sub-database from GDELT was used for the local and national television outlets, the GDELT Television Explorer (GDELT Project, 2018). The GDELT Television Explorer has created a catalog of 163 TV stations in collaboration with Internet Archive's Television News Archive which has monitored television news since 2009. This database monitors television news broadcasts, captures the closed captioning from those broadcasts and stores those captions.

To address the research question in this study, 10 viral news stories from 2022 were chosen for analysis (see Table 8 for full list). Each respective news outlet's first instance of reporting on each respective topic was chosen and included in data analysis. In total, after processing of articles, removing articles where links were no longer active, and articles that were not English, the final dataset contained 1,436 broadcasts and articles for analysis.

Table 8

List of News Stories Analyzed

Roe v Wade Overturned
Uvalde Shooting
The Search of President Trump's Mar-a-Lago estate
The confirmation of Ketanji Brown Jackson
The monkeypox outbreak
The January 6th committee's first hearing
Russian invades Ukraine
Queen Elizabeth II dies
Will Smith slaps Chris Rock
Hurricane Ian makes landfall

Data Analytic Strategies

For every article and broadcast analyzed, three analytic techniques were used. The first was agenda setting analyses; the second was framing analyses; and the final was sentiment analyses. After performing these three respective analyses for each article, results were aggregated by news outlet, and by media type. Analyses descriptively examined the differences between these different groups.

Sentiment

The same analytic methods as study 2 were used.

Framing

The same analytic methods as study 2 were used.

Agenda Setting

To determine the agenda of any one news article, this study used an adapted version of Neuman et al.'s (2014) themes, as previously described above. Importantly, an article can fall into multiple issues. For example, if an article is about masking in schools, this would fall under both the education issue and COVID-19 issue, respectively.

Given the broad number of topics each of these news stories cover, this study focused on the total number of stories on climate change. The total number of stories were summed and then divided by the total number of stories published to determine the proportion of stories about climate change. This was conducted for each news outlet and their respective articles or broadcasts. By examining the proportion of articles/broadcasts on this topic, this should be an accurate indicator of that outlet's agenda over the course of 2022. The differences between outlets both by media type and by political slant would be interesting to examine in aggregate and examine how agendas differ over time as well.

Results

How are Traditional News and Partisan News' Agendas, Framing and Sentiments Different or Similar?

Agenda

The results for the agenda setting analyses were consistent across all traditional and partisan media outlets. The results that all discussed the environment, and specifically climate change a very small amount of their total articles or broadcasts (1-2%).

Framing

The results of the clusters analyses and the frames created can be seen in Appendix F (Tables 1-12).

Print News Outlets vs Conservative Online Partisan Media. The results of these analyses represent important differences between print media and online conservative media where print media often took a more descriptive approach by focusing on breaking the news to the public and providing information whereas conservative media often focused on the immediate implications, or reactions to news. For example, online conservative media's early reporting of monkeypox included a framing where they discussed the potential political agendas surrounding the monkeypox outbreak, including the political left's protection of LGBTQ+ peoples, and the political left's dramatization of the true consequences of monkeypox. This similar pattern was seen regarding the Supreme Court's decision to overturn *Roe vs. Wade* where early coverage by conservative online media discussed young people's reaction to the news, and the actions young people were thinking of taking, such as moving to a different country other than the United States.

On the other hand, traditional print media often had frames that were focused on the dissemination of information. When first reporting the spread of monkeypox, print media discussed the medical community's early understanding of the disease, the likelihood of a vaccine and, for the most part, informing the public on how the disease spreads, precautions to take and a person's likelihood to contract the disease.

Print News Outlets vs Liberal Online Partisan Media. Liberal online partisan media often took similar approaches to early reporting that conservative outlets did, largely focusing on reactions and critiques. When reporting on monkeypox, liberal online media focused on the danger of monkeypox and warning the public of the long-term consequences of the disease. Additionally, when reporting on *Roe vs. Wade*, immediate reactions by liberal partisan outlets were almost exclusively focused on critiques of the Supreme Court and the "joke" of a decision

they made. Finally, in response to the news of Russia invading Ukraine, liberal partisan outlets immediately focused on the reactions to war by the public through protests and by Republican politicians as well. Similarly, to conservative partisan outlets, this is in direct contrast to that of print sources, who almost exclusively focused on dissemination of known information.

Television News Outlets vs. Conservative Online Partisan Media. Television news outlets placed a large focus on their early coverage of monkeypox towards the idea of another global pandemic happening. Stories of monkeypox and its declaration as a health emergency by the World Health Organization happened just as COVID-19 infections were becoming less prevalent. This reporting of monkeypox represented a larger pattern by television news which was the effect of events on the public. For example, early coverage of Russia's invasion of Ukraine included discussion of gas prices, and the economy in addition to the implications for Ukraine and Russia. Additionally, a frame that was prevalent in television news' coverage of Roe v Wade was the implications of the decision on the public and what the decision meant for the public. This represents an important difference between conservative online partisan media, which was largely focused on the reactions to and critiques of the government or opposing political figures with each of these topics.

Television News Outlets vs Liberal Online Partisan Media. Given the general similarities between conservative and liberal online partisan media in their approach to reporting, it is unsurprising that similar patterns were seen when comparing television news outlets to liberal online partisan outlets. An important distinction between television outlets and liberal outlets was the lack of mention of specific political parties when television outlets reported on any of these three topics. This finding again reiterates traditional outlets prioritization of pure information dissemination over everything else. Additionally, liberal partisan outlets did not

have a focus on the implications of these stories as it concerned the general public, rather liberal outlets often criticized or attempted to place responsibility or blame.

Sentiment

Traditional Print Compared to Online Partisan News. Traditional print news ($M = -.16, SD = .55$), on average, had very comparable tones to online partisan news sources ($M = -.15, SD = .57$). An independent samples t-test confirmed this, $t(1074) = 0.36, p > .05$. This was the same even when breaking down online partisan news sources as well. This pattern was seen between traditional print sources liberal partisan news sources ($t(941) = 0.84, p > .05$) and conservative partisan news sources as well $t(967) = 1.25, p > .05$, respectively.

Traditional Television Compared to Online Partisan News. Traditional television news ($M = -.07, SD = .57$), on average, had comparable tones to online partisan news sources ($M = -.15, SD = .57$). An independent samples t-test confirmed this, $t(488) = -1.49, p > .05$. There was also no statistical difference seen between television news and online conservative outlets ($M = -.11, SD = .57$), as confirmed by an independent samples t-test ($t(381) = 0.45, p > .05$). This pattern was different, however, for the difference between television news and online liberal outlets ($M = -.21, SD = .57$) where there was a statistically significant difference where liberal outlets were, on average, more negative in tone ($t(355) = 2.11, p < .05$).

How are Traditional Television News and Traditional Print News' Agendas, Framing and Sentiments Different or Similar?

Agenda

The results for the agenda setting analyses were consistent across all traditional media outlets. The results that all discussed the environment, and specifically climate change a very small amount of their total articles or broadcasts (1-2%).

Framing

While the approaches of and framing of events are very similar, there are a few key differences. First, television news often was seen taking on the role of telling the viewer what implication this event may have on their lives whereas print media was not seen to have this framing. This can be seen across all three topics of analysis. In television news' coverage of Roe v Wade, there are a number of stories discussing what the decision "means" for the public and what protections are being changed as a result of the decision. With the Russia's invasion of Ukraine, the effects of war on the public were discussed by television news as they often discussed the war in conjunction with discussions of "gas" and the "economy". On the other hand, print media largely focused on information dissemination about the breaking news of war and where early attacks were occurring. When it came to coverage of monkeypox, coverage of this story was very similar between television and print media sources.

Sentiment

Traditional print news outlets had, on average, more negative tones than that of traditional television news, as confirmed by an independent samples t-test ($t(1084) = -2.29, p < .05$).

Discussion

The results of this study point to important differences between online partisan news as compared to television and print news, as well as television as compared to print news. The hypotheses of research question 1 were partially confirmed with framing serving as an important differentiator between online partisan news and traditional news outlets. On the other hand, sentiment analyses did not show strong and consistent differences between traditional news and online partisan news. Finally, agendas were seen to be similar for the topic analyzed.

Sentiment

While there are differences between framing of news events, interestingly, few differences were seen between sentiments or agendas of these different sources. The lack of differences in sentiment may be explained by the phrase often associated with news, “if it bleeds, it leads”, meaning that stories where there is death, danger or violence often become highly viral news stories (Cooper & Roter, 2000). Many of the stories selected for these analyses were those that included some aspect of death, or violence and accordingly, their sentiments unsurprisingly are largely negative. Interestingly, these stories were chosen based on their notoriety or popularity in 2022 (Mabry, 2022; Fox, 2022). As a result of these topics often being centered around death, or violence, the sentiments of all sources were largely negative and therefore not a strong differentiator between source type. The only instances in which there were differences were between television news and liberal outlets as well as television news and print news. This generally less negative tone of television news may be in part due to the conversational nature of television news writing often promoted in journalism schools (Fang, 1991; Marchionni, 2013). As a result of these analyses, one can conclude that coverage of news stories largely focused on death or violence may not be a strong differentiator between source type. Additionally, choosing an outlet’s *first* coverage of an event may not serve as a strong differentiator as these first coverages often are focused on information dissemination rather than outlet or station opinion and stance.

Framing

While sentiment may not have served as a strong differentiator between these different source types, framing analyses did indicate important differences between the two. Both conservative and liberal online partisan outlets had a strong focus on the reactions to and

critiques of the respective news stories discussed. These often focused on critiques of the opposite political side and their dramatization or lack of focus on a particular news event. While online partisan outlets did have frames that were focused on information dissemination, these frames often included mention of political opponents (see supplemental tables). On the other hand, frame analysis of traditional media outlets focused on information dissemination and reporting the facts of the event, as they are known.

While traditional media took similar frames, the differences between them speak to the different purpose they have. Television news often has a focus on speaking to the viewer through conversational tones (Fang, 1991; Marchionni, 2013) and have large swathes of information about who their viewers are (CNN Business, 2014). As a result, they can often cater news to their specific viewers. This is especially the case with local television outlets, as their viewers are often more homogenous to one another. Because of this close catering to a viewer, the frames of television news outlets often discussed the implications of news on a viewer. Additionally, it may be advantageous for television news outlets to speak directly to their viewers in this way because of the benefits that come with viewers feeling closely connected to the news correspondents they watch (Levy, 1979; Rubin et al., 1985; Park et al., 2022).

Implications

This study has several important implications for how the field understands the differences between traditional news outlets and online partisan news outlets. Firstly, the results of the framing analyses displayed that online partisan news outlets often advocate for their own viewpoints, even in stories where they are first reporting on a particular topic or subject. The immediacy of these partisan sources advocating for these partisan views is telling of their priorities when reporting. When juxtaposed to both traditional print and television media sources,

the difference between traditional and partisan sources become clear. Traditional sources have much more fact based, informational frames for the stories analyzed. The first implication of this finding is that when learning of breaking news, especially for stories of great interest, people should turn to traditional news sources over partisan. The second implication of this finding is that framing proved itself to be a strong tool in differentiating news types, even when the other methods such as sentiment and agenda did not show consistent differences. Although framing is the most intensive of the three analytical methods from a data processing standpoint, it is still worthwhile given the detailed and nuanced results it yields.

Another finding with strong implications is the difference between print and television news in their framing of news events and in particular, television news' focus on dissemination to a specific audience. Numerous frames in television news specifically focus on how events might affect the public. The implication of this finding is for certain news stories, it may be beneficial for the public to turn to television news outlets to understand how a story may affect them, particularly with local television sources as they could deliver hyperlocal advice.

Limitations

There were several important limitations to this study. Firstly, although the total number of online partisan news outlets included in this study represents a majority of the highly popular sites online, the analyses presented below examine the outlets by conservative online outlets and liberal, thus significantly reducing the total sample size of each through the sub-grouping specified. Additionally, since these analyses examined individual stories, the sample size was further limited to each respective outlet's first story covering the topic. Therefore, analyses conducted with limited sample sizes should be interpreted with caution. Second, this study focused on news outlets first reporting of an event and therefore rhetoric may have been

specifically focused on information dissemination over opinion or debate. Finally, this study chose a subset of local outlets for analysis, but the selected outlets are unlikely to perfectly represent the total news landscape for print and television news.

Future Directions

Future studies should focus on an outlet's total coverage of a story rather than the first instance of their coverage of a story, to gain a full understanding of each outlet's coverage. Additionally, instead of highlighting important stories from a particular year, coverage of one long running story may be of interest as well. For example, now analyzing news outlet's continued coverage of the war in Ukraine may highlight differences in coverage in agenda, framing and sentiment. Additionally, continued testing of these methods as means to highlight similarities and differences between types of news outlets should occur to test their accuracy and ability.

Contributions to the Field

In this dissertation, I used a multitude of qualitative and quantitative analytic methods to investigate the strength of source perceptions and utilize text analytic methodologies to highlight important distinctions between different types of news media outlets. While previous studies have investigated source perceptions, none have utilized a similar methodology to specifically test the strength of source preference and it relates to epistemology. Additionally, while previous work has utilized similar methodologies to those of study 2 and 3, no previous studies have juxtaposed the media types these studies did while utilizing all three methodologies simultaneously. These findings have implications for how we understand and teach evaluation of media sources.

The findings of a relationship between epistemological stance and evaluation of media sources have been covered in the extant literature and the results of study 1 are partially in line with these. The finding that *faith in intuition* is negatively related to accurate judgements of source information has previously been found in the literature (Butterfuss et al., 2020) while the positive relationship between *truth is political* and accurate judgements of source information has not been found often in the extant literature. Despite the uniqueness of this finding, it may be representative of a changing media landscape and the complicated relationship the public has with media sources today. As previously discussed, the public in general has a growing distrust in media widely and have turned to a number of different places for news including social media (Pew Research, 2020). While this complicated relationship has a number of downsides such as echo chambers and polarization (Terren & Borge, 2021), findings from study 1 may also suggest that younger people are becoming more universally critical of media sources. In addition to this finding, the findings from study 1 partially align with previous findings of epistemology and the

influence of partisan preference when evaluating information. Previous work has found that people with stronger faith in intuition are less likely, on average, to accurately evaluate information (Garrett & Week, 2017). The findings from study 1 are aligned with this finding and specifically the results of study 1 help the field to better understand this effect. Namely, the results from study 1 point to the idea that people who rely on their intuition are more likely to be influenced by partisan selective exposure and not as critically evaluate media sources.

Based on this, educators at all levels should work to implement curriculum that fosters students who have a critical eye towards media sources and information, but importantly do not rely on their intuition or beliefs when evaluating information, but instead are strong evaluators of evidence and claims. Since the results of study 1 in combination with the extant literature points to faith in intuition as a poor heuristic for evaluating information, educators should advise against the use of this heuristic explicitly. Additionally, given the recent legislation passed in California, the findings of this study should be very relevant to teaching media and news literacy today (CA Legis. Assembly, 2023). The legislation that has been recently passed puts into place mandates and guidelines around teaching news and information literacy. An aspect of these guidelines speak to teaching students about the specific agendas and motivations of different media sources and how to identify those agendas and motivations. Therefore, the findings of studies 2 and 3 particularly may also be useful in informing best practices and techniques when teaching to these topics specifically. These findings also have relevance for a variety of content areas. While tasks like source evaluation are often reserved for English Language arts classrooms, science classrooms should also work to address skills like critical thinking and critical information evaluation because of the complexity and consequences of misinformation in science.

Study 2 contributes to an important body of research that works to further our understanding of different media types of media sources that exist in our complicated media landscape today. As highly partisan media outlets grow in popularity, the detrimental effects of these sources grow as well. Therefore, study 2 made a significant contribution to the field by utilizing methodologies that differentiate elite and partisan media outlets. Previous work has also compared these different media types, but has done so on smaller scales and utilizing different methodologies (Meraz, 2011; Neuman et al., 2014; Vargo & Guo, 2018). Despite these differences, previous work has also found salient differences between elite media and online partisan media outlets (Vargo & Guo, 2018). The results of study 2 further bolster this consistent pattern through the use of longitudinal, large-scale analyses. In particular, the framing analyses are unique in the comparison of elite versus partisan news. Previous work utilizing the framing analyses study 2 and 3 did have done so largely in the context of single topics or specific media types (Meraz, 2011; Neuman et al., 2014; Vargo & Guo, 2018). The framing comparisons conducted are a strong contribution to the field and provide new evidence of the qualitative differences across media types. Despite the differences shown through study 2 and the fact that elite media outlets have historically been reliable and useful information sources, the public generally has grown to distrust these sources in recent years and turned to partisan media as an alternative. The results from study 2 would suggest that this is an ill-informed action to take, and people should only do this if they are hoping to engage with media sources that produce stories that are more negative in sentiment and framed in highly partisan ways. Importantly, this finding is identical across conservative and liberal partisan media.

Given the large number of media sources and stories analyzed in this study in particular, the overarching trends seen here are generalizable to all partisan media outlets. Results of this

study would suggest that political and governmental institutions should work to rebuild public trust in elite, historically reliable media outlets. Additionally, in classrooms the relevance of “hearing out both sides” or engaging students with more partisan outlets and stances just for the sake of reading a wide range of opinions may do more harm than good. Instead, educators should have students read from less partisan, reliable sources that have a longstanding in the media landscape. This is not to say students should only read from longstanding sources, but when having students read other types, these other types of sources should be screened with extreme scrutiny by educators before students read them.

Study 3 has similar contributions to that of study 2, but instead compared partisan media to other types of traditional media, namely traditional print and television news media. The comparisons between traditional print and television media on a large scale was a new contribution to the field and pointed to subtle, but important differences in the ways these different media types craft specific messages for their audience. Previous work has compared print and television media sources but has generally done so on a smaller scale and not utilized the methods this study did, instead opting to utilize qualitative methods (e.g., Reich, 2016). Study 3 adds to the extant literature by utilizing more advanced analytic techniques and analyzed large amounts of data as a result of these techniques. The use of the GDELT-TV database was an influential factor as to why this study was possible, but this database was recently created. Future work and analysis that attempts to examine television news should utilize this database as it allows for a larger range of analyses to be conducted.

Findings from this study would suggest an interesting relationship between first reporting of large news events and sentiment analysis. In the instance of major news events, a sentiment analysis, at least a sentiment analysis that utilizes a binary negative – positive scale, may not be

appropriate because of the content that is often worthy of being a highly notable news story. These events are often those including death, violence or controversy and thus naturally lend themselves more to a negative sentiment (Cooper & Roter, 2000). This finding has an important contribution to the field as it furthers our understanding of how sentiment analysis can or cannot capture important differences in text. Often sentiment analysis, may not be able to capture “not” statements, or in this case the sentiment analysis scale used in this study was too coarse of a measure to capture more nuanced differences in messaging. Other types of sentiment analysis such as that which attempts to categorize text into different emotional categories (e.g., happy, sad, angry) may be more appropriate in analyses looking at highly notable news events. Study 3 also furthers the field by advancing our understanding of where traditional news outlets stand in comparison to partisan outlets. Findings would suggest that when it comes to reporting big news stories, traditional news outlets take highly informationally focused approaches to reporting these news stories whereas partisan outlets take more politically slanted approaches. However, there are instances where local news outlets may take on specific foci when reporting these stories. For example, the Miami Herald reported on the death of Queen Elizabeth II by recounting her visit to Miami in the 1980s. This is not surprising as television news is known for catering messages to their local audiences more specifically, attempting to “form a connection” with their audience and this hyper localized approach is taught often in journalism schools (Fang, 1991; Marchionni, 2013). However, the important distinction between this and what partisan news outlets do is in the intent. In the case of the Miami Herlad, the goal was to disseminate information (the Queen’s death) and do so in a way customized to their audience. On the other hand, partisan news outlets often reported these stories alongside critiques of the opposite political party or pushing a narrative beneficial to their party.

Studies 2 and 3 together make a strong argument that sentiment analysis and framing analysis should replace the term “bias” both in the research field and in the classroom. As previously discussed, bias has been a poorly defined term in the research field for years and has taken on a myriad of different meanings in the public as well. Studies 2 and 3 showcase different methodologies that can be utilized to determine if there are differences between media sources in concrete, highly identifiable ways. Another important contribution of studies 2 and 3 is the need to reevaluate sources for their sentiment and framing tendencies often. For example, in study 2, only articles concerning climate change were analyzed. Therefore, to make claims about the differences between elite and partisan media in other areas, more analyses would be required. However, “bias” as a term often takes on universal and deterministic meanings (Hackett, 1984). This is to say, often when people identify a source as biased, that source is biased in all regards and is viewed as biased in the future. While it is difficult to say exactly why this may be, it may be in part due to the vague and not universal understanding we have of what it actually means for a media source to be biased. The ability to test and re-test sources for their sentiment, frames and agendas in different topic areas, contexts and time periods make these three methodologies more useful than the often binary categorization of a source as “biased” or “unbiased”.

Implications for Teaching

These findings also have implications for the classroom. Currently, highly respected and well-known news and media literacy teaching materials often have a module, or lesson on “teaching bias” or another comparable title. These teaching materials should be replaced with modules and lessons on sentiment, framing and agenda. These three methods are ones that students can identify in text, universally agree upon and are methods students can use to determine the quality of a source, regardless of political affiliation. Additionally, it allows for a

more nuanced discussion of source evaluation beyond a “bias”. Complex discussions of source quality could include discussions of how a source often frames events in neutral ways but has a highly negative sentiment. Another example could be a discussion of how a specific outlet did not cover a particular news story in as much depth as others because it was not aligned to their political motivations. While the methodologies utilized in studies 2 and 3 are highly complex text analytic techniques, students can replicate these methods with qualitative methods, albeit on a smaller scale. Ultimately, bias as a teaching term and tool would ideally be removed and in its place would be sentiment, framing and agenda. Importantly, news and media spaces are highly dynamic. While sentiment, framing and agenda are effective tools, they are not exhaustive. The research field and educators should both work to continually create and validate new tools that can be used to improve teaching and learning in this domain.

Future Studies

Future studies should continue to test these methods in different contexts, topic areas, time periods and with different sources as well. As mentioned, the media landscape is a highly dynamic space and new media entities can grow in scale extremely quickly. Therefore, these methods should be replicated in the future when new entities inevitably grow. Additionally, this study was limited in sample across all three studies. Future work should survey adults more widely instead of college students. Future work should also examine more international media sources as studies 2 and 3 analyzed only media sources with a US-centric viewpoint.

Conclusions

As media, mis- and disinformation continue to evolve, our evaluation metrics must evolve with them. Bias as vague, undefinable term is one that we as a field and as educators should leave behind. There has been extensive work done to attempt to define bias and generate

a universal understanding of it. However, these attempts have been largely unsuccessful. Therefore, instead of trying to revise this term until it works, we should turn to methodologies that can help us to differentiate between source quality and advance our understanding of what it means to evaluate information. Having a well-informed, critical populace is a crucial part of a functioning democracy. While the findings and contributions of these studies do not solve all of the problems of mis- and disinformation, they do lead us towards having a more well-informed and critical populace.

This dissertation also uniquely contributes to the field due to its interesting intersectionality of multiple fields and techniques to address a highly relevant topic in public discourse today. Study 1 utilizes cognitive and information processing theories to address the notion and strength of media bias. The intersection of media use, epistemological stance and information processing interweaves multiple theoretical frameworks to help further the field's understanding of source perception and preference. When examining studies 2 and 3, these studies utilize complex text analytic techniques to attempt to analyze the practices of media entities, taking into account multiple aspects of how news can be reported. Across the studies in this dissertation, numerous frameworks, theories and extant literature from multiple fields are interwoven together to produce concrete implications for teaching, and the research field. This is an important element of the dissertation to mention because of the nature of the topic the dissertation addresses. There are numerous fields all working to better understand and remedy issues such as mis- and disinformation. These fields include journalism, philosophy, education, psychology, health and many more. The unique interest of these problems to many different fields is indicative of its multi-faceted nature. This dissertation embraces the multi-faceted

challenge that news, and information processing provide and takes on a multi-facted, multi-field approach to solving this problem.

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Appendix A: Study 1 Article Example

SOURCE: <https://apnews.com/article/science-trending-news-climate-and-environment-00343ecd98497103ce9582110c1202f6>

Scientists have been tracking precisely how much the climate has already changed due to human activity. Temperatures around the world have been inching upwards.

The average global temperature today, which tends to be compared to estimates for the pre-industrial era that kickstarted the mass burning of fossil fuels, has shot up between 1.6 to 2 degrees Fahrenheit since 1850, in large part due to human activity, according to estimates in the most recent report by the Intergovernmental Panel on Climate Change.

Sea levels, which have swelled due to both warming, expanding oceans and the melting of ice over land, have also been jumping up more rapidly. In the twentieth century, seas were rising by about 0.06 inches a year, but that's doubled to 0.14 inches in the past fifteen years, data suggests. Seas have risen by about 8 to 9 inches so far since 1880 on average, according to estimates.

While the climate and global temperatures have fluctuated throughout the Earth's history, it is the rate of change that is most alarming to researchers. Fossil fuels — made up of ancient decomposing plants and animals deep in the earth — have been dug up at extraordinary rates. Scientists are now starting to pinpoint “details about rates and magnitudes and timing of changes” as well as the varying impact on regions, said Brown University climate scientist Kim Cobb.

With the planet already facing the effects of climate change, adapting to hazards is one major way humans can limit the damage. Weather-related disaster deaths are generally trending lower globally as forecasts, preparedness and resilience improves, scientists say.

Appendix B: Omnibus Survey for the School of Communication (OSoC) Items

Faith in Intuition:

- Item 1 I trust my gut to tell what's true and what's not.
- Item 2 I trust my initial feelings about the facts.
- Item 3 My initial impressions are almost always right
- Item 4 I can usually feel when a claim is true or false even if I can't explain how I know.

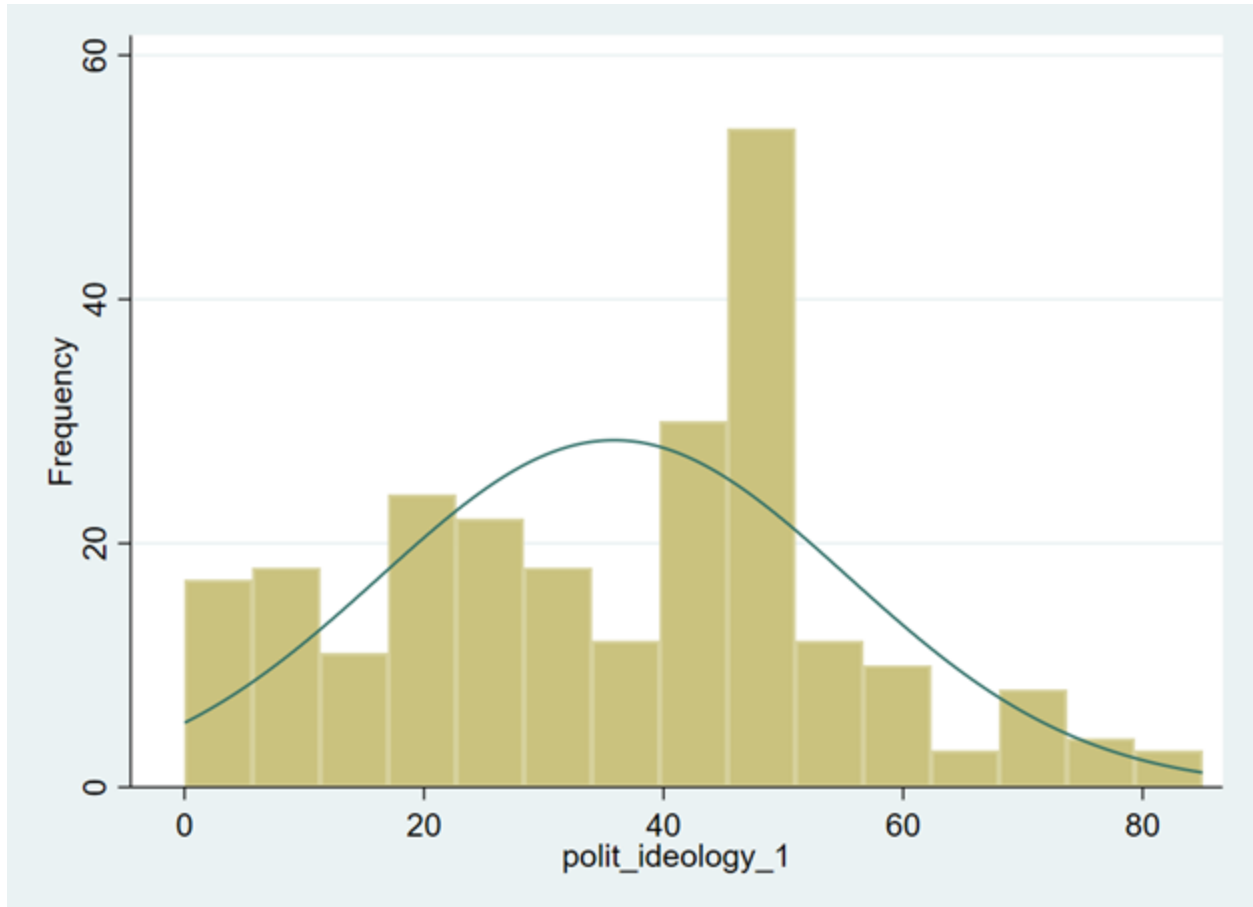
Need for Evidence:

- Item 1 Evidence is more important than whether something feels true
- Item 2 A hunch needs to be confirmed with data.
- Item 3 I trust the facts, not my instincts, to tell me what is true
- Item 4 I need to be able to justify my beliefs with evidence.

Truth is Political:

- Item 1 Facts are dictated by those in power.
- Item 2 What counts as truth is defined by power.
- Item 3 Scientific conclusions are shaped by politic.
- Item 4 "Facts" depend on their political context.

Appendix C: Distribution of Political Ideology in the Study Sample



Appendix D: Study 2 Supplemental Figures

Figure 1

Scree Plot for Elite Media Cluster Formation

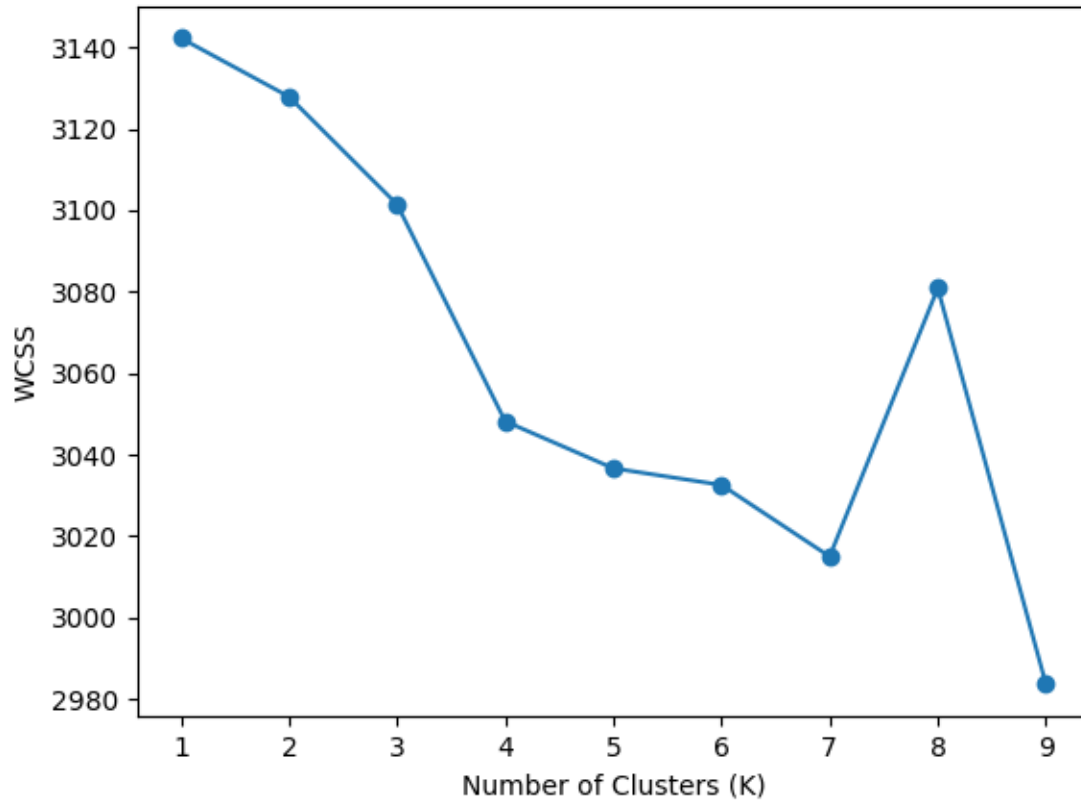


Figure 2

Scree Plot for Conservative Partisan Media Cluster Formation

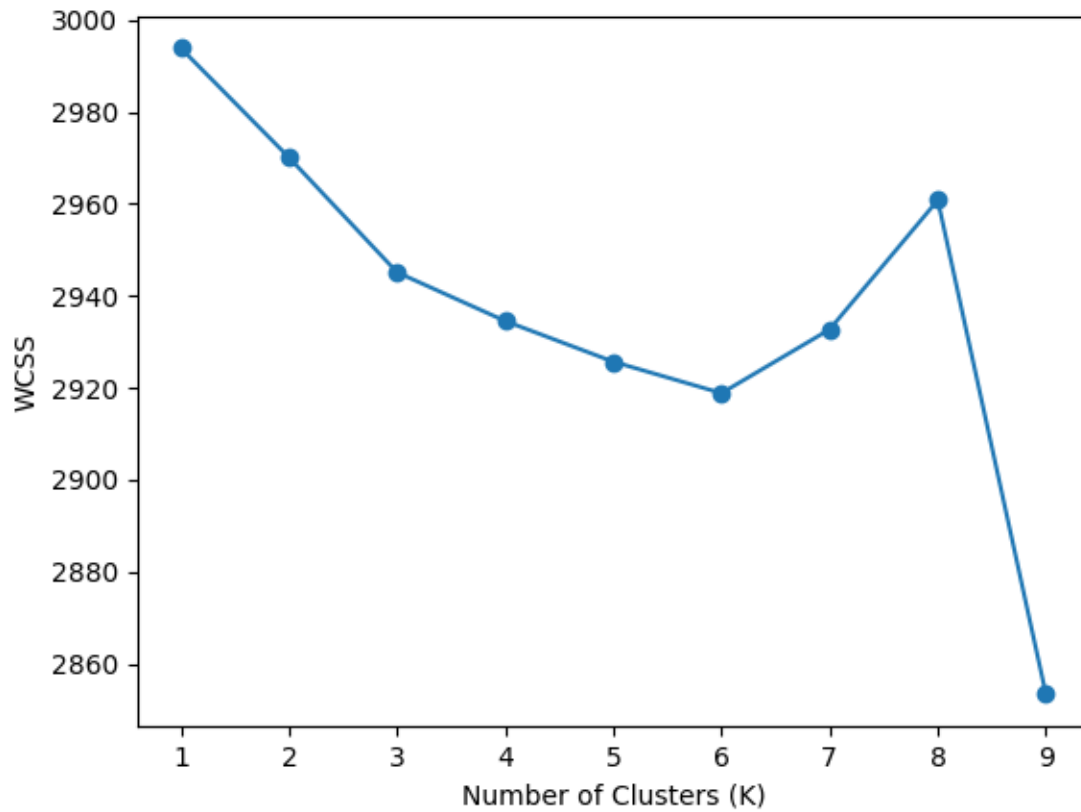
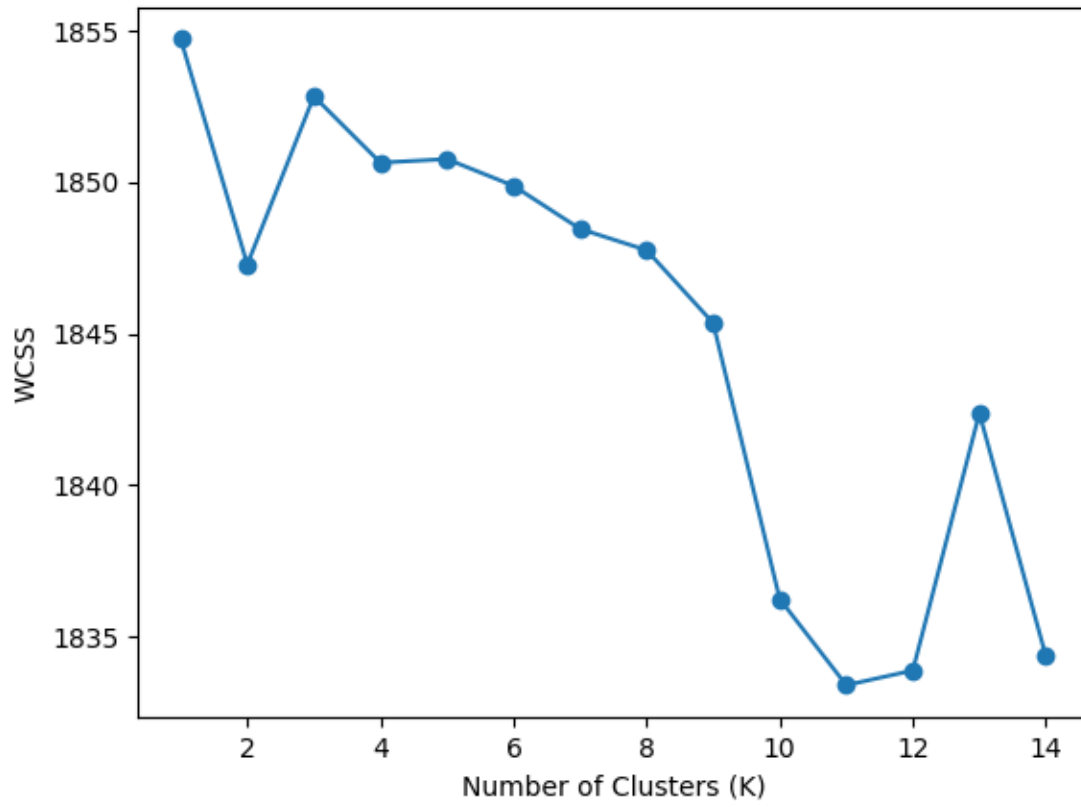


Figure 3

Scree Plot for Liberal Partisan Media Cluster Formation



Appendix E: List of Local Outlets and National News Outlets

Local Outlets	National Outlets
AJC.COM	ABCNEWS.COM
AZCENTRAL.COM	APNEWS.COM
BALTIMORESUN.COM	AXIOS.COM
BOSTONGLOBE.COM	BBC.COM / BBC.CO.UK
BUFFALONEWS.COM	BUSTLE.COM
CHICAGOTRIBUNE.COM	BUZZFEEDNEWS.COM
CHRON.COM	CBS.COM
CLEVELAND.COM	CBSLOCAL.COM
COURANT.COM	CBSNEWS.COM
DALLASNEWS.COM	CNBC.COM
DENVERPOST.COM	CNET.COM
DISPATCH.COM	CNN.COM
ELNUEVODIA.COM	COMPLEX.COM
FREEP.COM	DAILYMAIL.CO.UK
INDYSTAR.COM	ESQUIRE.COM
INQUIRER.COM	FIVETHIRTYEIGHT.COM
JSONLINE.COM	FORBES.COM
KANSASCITY.COM	FOXBUSINESS.COM
LATIMES.COM	FOXNEWS.COM
MERCURYNEWS.COM	GOODMORNINGAMERICA.COM
MIAMIHERALD.COM	HOLLYWOODREPORTER.COM
MLIVE.COM	HUFFPOST.COM
MYSANANTONIO.COM	INDEPENDENT.CO.UK
NEWSDAY.COM	INSIDER.COM
NJ.COM	LIVESCIENCE.COM
NYDAILYNEWS.COM	MASHABLE.COM
NYPOST.COM	MIRROR.CO.UK
NYTIMES.COM	MSNBC.COM
OCREGISTER.COM	NBCNEWS.COM
OMAHA.COM	NEWSWEEK.COM
OREGONLIVE.COM	NEWYORKER.COM
ORLANDOSENTINEL.COM	NPR.ORG
PILOTONLINE.COM	NYMAG.COM
REVIEWJOURNAL.COM	POLITICO.COM
SACBEE.COM	REUTERS.COM
SANDIEGOUNIONTRIBUNE.COM	SFGATE.COM
SEATTLETIMES.COM	SLATE.COM

SFCHRONICLE.COM
STARADVERTISER.COM
STARTRIBUNE.COM
STLTODAY.COM
SUN-SENTINEL.COM
SUNTIMES.COM
SYRACUSE.COM
TAMPABAY.COM
TIMESUNION.COM
TWINCITIES.COM
USATODAY.COM
WASHINGTONPOST.COM
WSJ.COM

TECHRADAR.COM
THEATLANTIC.COM
THEDAILYBEAST.COM
THEGUARDIAN.COM
THEHILL.COM
THESUN.CO.UK
TIME.COM
TODAY.COM
USNEWS.COM
VANITYFAIR.COM
VARIETY.COM
VICE.COM
VOX.COM
WASHINGTONEXAMINER.COM
WIRED.COM

Appendix F: Study 3 Supplemental Tables

Table 1

*Print Media Identified Frame Labels - Monkeypox
Outbreak*

Early Understanding	Another Global Pandemic	How It Spreads
stopped	health	case
official	emergency	monkeypox
limited	public	spread
case	declared	confirmed
monkeypox	monkeypox	know
number	global	need
say	outbreak	infection
vaccine	declares	identified
politics	organization	rare
announce	response	state
analysis	thursday	reported
team	spread	disease
woman	federal	county
despite	disease	symptom
supply	response	outbreak
N = 5	N = 29	N = 54

Table 2

*Conservative Media Identified Frame Labels - Monkeypox
Outbreak*

Agendas Tied to Monkeypox	Preparing for an Outbreak
stigma	monkeypox
worried	health
press	virus
suddenly	outbreak
npr	case
liberal	emergency
come	declared
formula	had
star	sex
porn	disease
remember	organization

pastor	contracted
orgiasts	ready
good	world
gay	pandemic
N = 2	N = 17

Table 3

*Liberal Media Identified Frame Labels - Monkeypox
Outbreak*

Disbelief in the Wake of COVID- 19	The Government's Responsibility	Staying Safe from Monkeypox
monkeypox	jad	health
heard	spread	monkey
really	outbreak	public
mean	people	poison
kidding	urged	eye
got	stop	security
pandemic	action	open
know	government	blind
expert	far	activist
small	deal	keeping
disease	infected	transmissible
school	mode	experimenting
student	new	department
danger	chief	threat
big	rapidly	trucked
N = 10	N = 2	N = 3

Table 4*TV Media Identified Frame Labels - Monkeypox Outbreak*

Infection Hotspots	The Response to Monkeypox
humor	monkeypox
taking	case
label	outbreak
god	health
creature	emergency
sense	world
record	report
blame	has
coming	global
spreading	covid
new	vaccine
monkeypox	declares
york	official
francisco	organization
fourth	concern
<i>N = 1</i>	<i>N = 24</i>

Table 5*Print Media Identified Frame Labels - Roe v Wade Overturned*

Understanding the Decision	What has Changed
right	abortion
abortion	state
ruling	overturn
overturning	ban
wade	decision
overturn	right
case	constitutional
court	overturned
overturned	nearly
read	half
health	roughly
decision	protection
reverse	friday
people	had
come	lead
<i>N = 42</i>	<i>N = 50</i>

Table 6*Conservative Media Identified Frame Labels - Roe v Wade Overturned*

A New Era of Rights	Breaking News of the Decision
end	abortion
college	decision
change	roe
opinion	wade
make	overturn
justice	state
overturning	right
abortion	case
reign	friday
country	ruling
student	regulate
leaving	issue
considering	sending
altogether	overturned
leave	was
N = 10	N = 9

Table 7*Liberal Media Identified Frame Labels - Roe v Wade Overturned*

Critiques of the Supreme Court	Rights Lost
abortion	overturning
right	service
decision	recent
was	contraception
worked	threat
forget	family
downstream	education
ballot	planning
had	access
constitutional	year
ruling	sex
wade	took
people	course
joke	vision

legal	white
N = 15	N = 2

Table 8

TV Media Identified Frame Labels - Roe v Wade Overturned

Breaking News	Implications of the Decision to the Public
abortion	abortion
overturned	overturn
court	ban
ruling	decision
roe	state
right	mean
wade	protection
today	lawmaker
overturn	constitutional
supreme	majority
state	ended
woman	change
year	done
had	allowing
decision	place
N = 5	N = 20

Table 9

Print Media Identified Frame Labels - Russia Invades Ukraine

Early Attacks	The Breaking News of War
president	invasion
attack	attack
launched	war
force	troop
thursday	military
multiple	danger
country	president
today	city
city	capital
north	thursday
east	tank
south	civilian

invaded	launched
entered	world
condemnation	government
N = 11	N = 79

Table 10

Conservative Media Identified Frame Labels - Russia Invades Ukraine

Origins of the War	The World's Reaction to Russia
invasion	yesterday
ha	stay
war	began
what	debate
military	direction
force	exactly
president	invaded
police	invades
protester	late
sent	year
instigated	multiple
troop	seizing
attacked	action
american	warned
come	rest
N = 2	N = 17

Table 11

Liberal Media Identified Frame Labels - Russia Invades Ukraine

Ukraine's Resilience	Responses to the News
war	war
matter	threat
happen	protest
happens	smart
believed	attacked
observer	thursday
province	protester

tipping	weapon
beginning	republican
reached	invasion
point	morning
overwhelm	world
month	responds
losing	nuclear
appears	attack
N = 1	N = 15

Table 12

TV Media Identified Frame Labels - Russia Invades Ukraine

Breaking News of War	The Effects of War	On the Ground Reporting
war	ukraine	zone
armed	russia	gas
phase	invasion	generation
three	president	going
conflict	said	good
spring	gas	got
counteroffensive	war	government
poised	economy	ground
enter	leader	guard
coming	kyiv	gunfire
week	market	know
biggest	fighting	halyna
new	belarus	heard
world	talk	hearing
government	think	heart
N = 1	N = 21	N = 3