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FRAMING CLIMATE CHANGE IN LOCAL CONTEXT: NEWSPAPER COVERAGE
OF CLIMATE CHANGE IN THREE MOUNTAIN TOWNS IN THE
INTERMOUNTAIN WEST COMPARED TO NATIONAL COVERAGE

by

Tyler J. Spradlin

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Sociology

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2020

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ABSTRACT

Framing Climate Change in Local Context: Newspaper Coverage of Climate Change In
Three Mountain Towns in the Intermountain West Compared to National Coverage

by

Tyler J. Spradlin

Utah State University, 2020

Major Professor: Dr. Jennifer Givens
Department: Sociology

Past research has focused on how journalists cover and frame the issue of climate change or global warming in mainly nationally circulated newspapers. This study compares and contrasts the framing of climate change between two nationally circulated newspapers, *The New York Times* and *The Washington Post*, and three intermountain west community newspapers, *Jackson Hole News & Guide* in Jackson Hole, WY, *Summit Daily* in Summit County, CO, and *Park Record* in Park City, UT. This research incorporates the five generic frames, *responsibility*, *conflict*, *human-interest*, *economic consequences*, and *morality* frames defined by Semetko and Valkenburg (2000) when analyzing the newspapers. In addition to comparing between both national and community papers, our research also attempts to analyze the frequency of frame distribution among all five newspapers, whether the use of the frames differs between the years 2011 and 2016, as well as among the three community newspapers themselves. We attempt to answer these questions by first conducting a descriptive analysis that shows the prevalence of the five frames among the newspapers. A chi-square test is used to examine differences between

the national and community scales and between the two years and among the three community newspapers. Our findings indicate that there is a statistically significant difference when comparing between national and community as well as between the three community papers, indicating the importance of local context, specifically in media coverage of climate change and in frame analysis more generally. The national newspapers most frequently employed the responsibility frame, followed by the conflict frame, the human-interest frame, and then the economic consequence frame, while the community newspapers most frequently employed the human-interest frame, followed by the responsibility frame. Both the national and community newspapers used the morality frame the least often. This study design allows me to compare newspaper framing of climate change at different scales, over time, and in different contexts. We know that media coverage of climate change is a partisan issue, but community newspapers may be less partisan, so analyzing newspaper coverage at various scales adds to our understanding of media coverage of climate change and how different contexts shape this coverage, which in turn may shape views on climate change.

(56 Pages)

PUBLIC ABSTRACT

Framing Climate Change in Local Context: Newspaper Coverage of Climate Change In
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Tyler Spradlin

Past research has focused on how journalists cover and frame the issue of climate change or global warming in mainly nationally circulated newspapers. This study compares and contrasts the framing of climate change between two nationally circulated newspapers, *The New York Times* and *The Washington Post*, and three intermountain west community newspapers, *Jackson Hole News & Guide* in Jackson Hole, WY, *Summit Daily* in Summit County, CO, and *Park Record* in Park City, UT. This research incorporates the five generic frames, *responsibility*, *conflict*, *human-interest*, *economic consequences*, and *morality* frames defined by Semetko and Valkenburg (2000) when analyzing the newspapers. In addition to comparing between both national and community papers, our research also attempts to analyze the frequency of frame distribution among all five newspapers, whether the use of the frames differs between the years 2011 and 2016, as well as among the three community newspapers themselves. We attempt to answer these questions by first conducting a descriptive analysis that shows the prevalence of the five frames among the newspapers. A chi-square test is used to examine differences between the national and community scales and between the two years and among the three community newspapers. Our findings indicate that there is a statistically significant difference when comparing between national and community as well as between the three community papers, indicating the importance of local context, specifically in media

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Tyler J. Spradlin

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**Framing Climate Change in Local Context:
Newspaper Coverage of Climate Change
In Three Mountain Towns in the Intermountain West
Compared to National Coverage**

Abstract:

Past research has focused on how journalists cover and frame the issue of climate change or global warming in mainly nationally circulated newspapers. This study compares and contrasts the framing of climate change between two nationally circulated newspapers, *The New York Times* and *The Washington Post*, and three intermountain west community newspapers, *Jackson Hole News & Guide* in Jackson Hole, WY, *Summit Daily* in Summit County, CO, and *Park Record* in Park City, UT. This research incorporates the five generic frames, *responsibility*, *conflict*, *human-interest*, *economic consequences*, and *morality* frames defined by Semetko and Valkenburg (2000) when analyzing the newspapers. In addition to comparing between both national and community papers, our research also attempts to analyze the frequency of frame distribution among all five newspapers, whether the use of the frames differs between the years 2011 and 2016, as well as among the three community newspapers themselves. We attempt to answer these questions by first conducting a descriptive analysis that shows the prevalence of the five frames among the newspapers. A chi-square test is used to examine differences between the national and community scales and between the two years and among the three community newspapers. Our findings indicate that there is a statistically significant difference when comparing between national and community as well as between the three community papers, indicating the importance of local context, specifically in media coverage of climate change and in frame analysis more generally. The national newspapers most frequently employed the responsibility frame, followed by the conflict frame, the human-interest frame, and then the economic consequence frame, while the community newspapers most frequently employed the human-interest frame, followed by the responsibility frame. Both the national and community newspapers used the morality frame the least often. This study design allows me to compare newspaper framing of climate change at different scales, over time, and in different contexts. We know that media coverage of climate change is a partisan issue, but community newspapers may be less partisan, so analyzing newspaper coverage at various scales adds to our understanding of media coverage of climate change and how different contexts shape this coverage, which in turn may shape views on climate change.

Introduction

The media have a profound effect on the public's perception of climate change, and how climate change is portrayed in the media can influence policy engagement (Ford and King, 2015). Recent research shows that media representations of climate change can powerfully shape translations between science, policy and the public (Boykoff and Rajan, 2007). Other research finds the impact of media is more significant than education and experience in translating scientific knowledge, and it plays an important role in the public's perceptions of risks associated with climate change by framing such risks in specific ways (Dirikx and Gelders, 2010). Thus, prior research indicates it is important to understand how the media frame climate change. Framing is placing information in a specific context so that certain elements of the issue are received more by individuals and this influences their judgement (Pan and Kosicki, 1993). Framing is an inherent part of human cognition for organizing and contextualizing events, and frame analysis methods are important to test the effect of media framing (Dirikx and Gelders, 2010; Ford and King, 2015).

This study compares and contrasts framing of climate change between local and national newspapers in the years 2011 and 2016 using five generic frames defined by Semetko and Valkenburg (2000). This research analyzes community newspapers from three mountain towns in the intermountain west (Park City, Utah's *Park Record*, Summit County, Colorado's *Summit Daily*, and Jackson, Wyoming's *Jackson Hole News & Guide*) and two nationally circulated newspapers (*The New York Times* and *The*

Washington Post). In addition to comparing local and national newspapers, we also compare the frequency of the five climate related frames from both years, and look at comparisons between the three local communities.

Past research has focused on how journalists cover and frame the issue of climate change or global warming in mainly nationally circulated newspapers (Boykoff, 2007; Boykoff and Boykoff, 2004; Dirikx and Gelders, 2010; Ford and King, 2015; Matthes, 2009; Shehata and Hopmann, 2012; Trumbo, 1996; Wagner and Payne, 2017), with little focus on community level newspapers (Antilla, 2005; Bohr, 2020). Previous research has also identified five generic news frames, which we will explain further below (Semetko and Valkenburg, 2000). Applying previous research on news media coverage to media coverage of climate change in the context of three local intermountain-west ski towns can contribute to frame analysis research by showing whether those five frames found at the national level also apply at the community scale, and specifically to three mountain communities. We compare to see if the proportions of those five frames are the same for all three intermountain newspapers, for two recent years, 2011 and 2016, and compare those community papers to national newspapers. The study design allows me to compare whether the findings differ at different scales and in different contexts and assess if the situation has changed over time, and thus contributes to our understanding of the portrayal of climate change in the media.

This master's thesis proceeds as follows. First, I discuss the history of framing research in general, and I discuss how journalists may use framing techniques to make more salient specific issues that have the potential to benefit particular interest groups. Second, I review the literature that discusses how a specific issue such as climate change

is framed in the media and the effects those frames have on public and policy discourse. Next I present my methods. I use a deductive quantitative content analysis to analyze newspaper coverage of climate change and global warming in three local and two national newspapers. I present my results, and then in the discussion and conclusion sections I highlight their implications and directions for future research.

Framing

Frame analysis is a thriving approach to analyze media content and effects. Some of the first theoretical concepts on frame analysis come from Goffman (1974). Goffman stated that “we tend to perceive events in terms of primary frameworks, and the type of framework we employ provides a way of describing the events to which it is applied” (Goffman 1974, pg. 24). Goffman’s primary frameworks consist of what he called natural and social. The natural primary framework includes purely physical natural determinants, where no agency or actor guides the outcome (Goffman, 1974). Social frameworks on the other hand incorporate the will, aim, and controlling effort of an intelligent human being. This is what Goffman describes as “guided doings” where motive and intent are involved (Goffman, 1974). In the domain of risk, Kahneman and Tversky (1984) demonstrate that framing effects influence whether or not an individual exhibits risk seeking or risk averse behavior for the same scenario. This study is consistent with Goffman’s social framework and specifically addresses the issues of climate change.

Framing is placing information in a specific context so that certain elements of the issue are received more by the audience and this can influence their judgement (Pan and Kosicki, 1993). Journalism is a way to interpret the world, and focusing on journalistic

practices is a useful extension of framing research (Brüggemann, 2014). Frames can be detected by looking at key words, metaphors, concepts, visual images, and ideas within news narrative (D'Angelo and Kuypers, 2009) and then researchers can analyze the effects of such frames. For example, Valkenburg et al. (1999) found that how journalists frame crime in news stories affected the readers' thoughts and recall and defined the ways the readers presented the information. These framing effects occur when small changes in the presentation of an issue produce larger changes of beliefs and opinions (Chong and Druckman, 2007). These small changes, also known as construction of news discourse, is what Scheufele (1998), terms *frame building*, where frames are built on organizational pressures, ideologies, and attitudes. *Frame setting*, on the other hand, reflects the way journalists frame the news coverage and how this affects public perceptions (Sampei and Aoyagi-Usui, 2008; Stamm et al., 2000).

Previous studies looking at frame analysis rely on a wide range of definitions of framing (Matthes, 2009). At its foundation, the concept of framing “refers to subtle alterations in the statement or presentation of judgment and choice problems” (Iyengar, 1994, pg. 11). Ford and King (2015, pg. 138) define framing as “the process by which broad organizing themes are selected and emphasized, elements of a story such as the scenes, their characters and actors are emphasized, and supporting documentation is used.” These themes that emerge in media representation can be called frames (Pan and Kosicki, 1993; Valkenburg et al. 1999). Tuchman also highlights that news work is shown to emphasize how journalists make us aware of different news categories, such as “hard news” and “soft news”. Hard news refers to news that reports factual presentations of events, whereas soft news reports more on the human interest story (Tuchman, 1973).

Below, my results between the national and community level somewhat highlight these simple classifications of news stories. D'Angelo and Kuypers define framing in a similar fashion as "the process whereby communicators act--consciously or not--to construct a particular point of view that encourages the facts of a given situation to be viewed in a particular manner, with some facts made more noticeable than others" (2009, pg. 300). Chong and Druckman state that "framing refers to the process by which people develop a particular conceptualization of an issue or reorient their thinking about an issue" (2007, pg. 104). Additionally, "frames are organizing devices that allow journalists to more efficiently net, sort and transmit information" (Tuchman, 1978). Whereas a media frame is a "central organizing idea or story line that provides meaning to an unfolding strip of events,...The frame suggests what the controversy is about, the essence of the issue (Gamson and Modigliani, 1994 pg. 376); see also Gamson, 1989; Gamson and Modigliani, 1989.) Media serve as a bridge that allows the public to access a multitude of information that can inform society on a range of issues. Lastly, Entman's definition of framing states "to frame is to select some aspect of a perceived reality and make them more salient in a communication text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendations" (1993, pg. 52). For this research we rely on Entman's definition of framing to maintain consistency with previous studies because it is the most used definition when studying framing. The use of frame definitions is central to frame validity. For instance, some frame definitions are general definitions of the term, while others define the term "frame" with some form of operational guidelines. The choice of frame definitions helps the researcher ground the readers in the framing literature (Matthes, 2009).

Several key articles inform this proposed research regarding framing. One study looking at the framing of domestic violence fatalities in newspapers in Washington State in 1998 finds that domestic violence fatalities are framed in a way that misrepresents the overall problem of domestic violence and obscures that domestic violence is actually indicative of a much larger societal problem related to gender inequality (Bullock and Cubert, 2002). The authors find that domestic violence fatalities are framed in one of four ways: (1) as a police frame, where just the facts are reported, the who, what, when, why etc., (2) where the newspapers blame the victim or excuse the perpetrator, (3) where individuals involved in domestic violence fatalities are framed as different from the rest of us, or (4) a frame that suggests perpetrators as not normal individuals and they should be easily recognizable (Bullock and Cubert, 2002).

Bullock (2007) builds on this earlier research by analyzing how domestic violence fatalities are framed in Utah newspapers. The 2007 study looks at domestic violence fatalities between April 1, 2002 and March 31, 2003 and identifies three separate frames. Two of those frames, the police frame and individuals involved frame, are similar to the Washington State study. The third frame is how domestic violence fatalities affect others and not just those involved. Both of these studies demonstrate that domestic violence fatalities are framed in a way that suggests they are limited to a specific demographic, when in reality domestic violence has no sex, race, or socioeconomic boundary, but instead is a representation of patriarchal institutions, and societal norms of power imbalance (Bullock, 2007).

Framing processes and practices are important and influential in shaping public opinion and bringing about social movements and the need for collective action (Benford

and Snow, 2000). Framing research analyzes a variety of topics and transcends virtually every political issue from fracking and climate change (Dirikx and Gelders, 2010; Olive and Delshad, 2017), to the anti-nuclear movement (Entman and Rojecki, 1993), social security, immigration reform and domestic violence fatalities (Bullock, 2007; Bullock and Cubert, 2002; Chong and Druckman, 2007).

Choices of words and their organization into news stories are not a trivial matter, they define the issues under consideration, and frames are tools newsmakers use in constructing news discourse (Pan and Kosicki, 1993). For example, when analyzing media coverage and framing of hydraulic fracturing in four U.S and Canadian newspapers, Olive and Delshad (2017) find that the dominant frame around fracking has to do with public concern over water quality.

Analyzing news frames also alludes to the intent of the sender which highlights the possibility that a certain frame may represent the interest of a particular organization or group that further advances their agenda while simultaneously silencing its opponents (Gamson, 1989). One study on public opinion on nuclear power from 1945 to 1989 finds that views on this issue can be understood by how the issue was framed in general audience media such as television news coverage, newsmagazines, editorial cartoons and opinion columns (Gamson and Modigliani, 1989). In another example, adhering to the agenda setting theory, Entman and Rojecki conducted a study from 1980 to 1983 to see how the anti-nuclear movement was reported in *The New York Times* and *Time* magazine; they found that judgments made by the journalists, such as the concept of expertise or the ability of the movement to recommend valid policy measures, affected the anti-nuclear movement's ability to gain support and mobilize (1993). Though the previous study

highlights the importance of agenda setting theory, the authors demonstrate that how journalists reported the anti-nuclear movement in the papers affected the anti-nuclear movement's ability to galvanize others. The journalists' negative portrayal of mass movements may have been influenced by powerful elites who were threatened by the level of political power the anti-nuclear movement was attracting.

In another key piece of research that informs the current study, Sociologist Kari Norgaard (2011) looks at the effects of climate change in a small community in Norway where skiing and outdoor recreation is a major part of the culture. During the three-month period between November 2000 and January 2001, the community experienced an unusually warm winter that delayed the first snowfall two months. During this time, Norgaard (2011) only found 11 articles that referenced the unusual snow fall, while most other references to the weather were made in connections to skiing, leading her to draw conclusions about the construction of a general attitude of denial in relation to climate change (Norgaard, 2011).

Shanto Iyengar's book, *Is Anyone Responsible?*, demonstrates how important and influential frames can be in the media. For example, depending on how the issues were framed in television news, either episodic or thematic, determined how people attribute responsibility. For instance, when poverty was reported on the news as episodic framing, focusing on a specific individual or family, viewers tend to attribute responsibility to the poor themselves. However, when poverty was reported as a thematic frame, highlighting poverty in terms of high unemployment, viewers tend to attribute responsibility to societal agents and institutions. The results were similar when looking at racial inequality, terrorism, and crime (Iyengar, 1994). How the anti-nuclear movement was

framed in *The New York Times* and *Time* magazine reveals patterns that inhibited the movement's success (Entman and Rojecki, 1993). "For a movement with national ambitions...the media will be crucial for getting the word out to the mass of potential supporters" (Entman and Rojecki, 1993 pg. 156). In Norway, the local newspapers framed the warmer winter as a unique event, rather than alluding to the possibility of climate change or scientific predictions, and worked to reassure the readers that "all is well" (Norgaard, 2011 pg. 47).

The sociological focus on framing is sometimes traced to the mid-fifties and Gregory Bateson's (1955) essay 'A theory of play and fantasy: A report on theoretical aspects of the project for study of the role of paradoxes of abstraction in communication' (Vliegenthart and van Zoonen, 2011). However, since the early '90s, frame research has largely been dominated by media and communication studies with very little contribution from the field of sociology. Thus, some previous framing research points to more individual differences in meaning and interpretations whereas a more sociological perspective would look at not only individuals' knowledge or attitudes, but at social contexts, professional and organizational processes, and power structures (Vliegenthart and van Zoonen, 2011). Although sociologists focus on frames as part of media discourse and how journalists frame specific issues in their news stories, some would argue that journalists are objective in their reporting and would not let their values influence how issues are defined (Brüggemann, 2014; Entman, 1993; Wagner and Payne, 2017). However, from a sociological standpoint, how issues are framed and interpreted is seen as part of a broader social construct.

Past framing studies contain a range of and different operationalizations. For instance, the distinction between Iyengar's use of "episodic" and "thematic frame" and De Vreese's (2007) "issue-specific" and "generic" frames are not always clear, and methods used to find frames have also been widely diverse (Vliegenthart and Zoonen, 2011). The episodic news frame takes the perspective of an event-oriented report and highlights public issues in terms of concrete events, while the thematic frame showcases public issues in a more general way (Iyengar, 1994). Frame analysis can be divided into either inductive approaches, where news stories are analyzed for an array of frames, or deductive approaches, where frames are predefined and content analysis is performed to verify the extent to which these frames occur (Semetko and Valkenburg, 2000).

According to Iyengar (1994), content analysis "may be defined as a systematic effort to classify textual material" (Iyengar, 1994 pg. 18). Inductive frame analysis consists of episodic and issue-specific frames, which are considered case specific and are limited in their ability to generalize and compare across studies, whereas generic and thematic frames are considered deductive where framing methods are more generalizable and allow the researcher to compare frames and framing practices (Dirikx and Gelders, 2010; Matthes, 2009; Semetko and Valkenburg, 2000; Vliegenthart and van Zoonen, 2011).

However, there are instances in which researchers will employ a mixture of inductive and thematic frame analysis in their methods. For example, McCright and Dunlap (2000) relied on inductive coding procedures for identifying specific themes in a sub-sample of 50 documents. These themes were later interpreted and generalized to code the content of all documents. Examples of deductive frames are Semetko and Valkenburg's (2000) five generic frames: responsibility, conflict, human interest, economic consequences, and

morality. These are the frames we use in this study, and we discuss these in more detail below.

Framing of climate change

In the context of climate change, previous research on public understanding of the issue concluded that generally the public is misinformed (Trumbo, 1996). A more recent study conducted by Reynolds et al. (2010) showed that between 1992 and 2009, survey respondents showed higher awareness and comprehension of some issues surrounding climate change. However, overall, the public was still generally misinformed about the relationships between human activities and climate change (Reynolds et al., 2010; see also, Hamilton and Saito, 2015; McCright et al., 2016). Few issues have gained such contradictory views and coverage than that of climate change, which consistently is characterized by controversy or skepticism. Perhaps in part because of this, attempts to address climate change often fail to lead to the creation and implementation of effective policies to mitigate or adapt to climate change.

One explanation for the skepticism surrounding climate change can be attributed to the idea of balanced reporting, where equal attention is given to contrarian views (Boykoff and Boykoff, 2004). Balanced reporting allows the mass media to frame climate change as a debate, controversy, or even in terms of uncertain science by allowing equal attention to climate deniers or skeptics (Antilla, 2005; Bailey et al. 2014; Brüggemann and Engesser, 2014). This often leads to journalists quoting climate skeptics which increases the conflict surrounding the issue of climate change (Brüggemann and Engesser, 2014).

In conjunction with the journalistic norm of balanced reporting, another explanation for climate change skepticism is that interests' groups, elite government officials, and others may provide journalists with selective information, which then shapes how the media frame the issue to the general audience (Entman and Rojecki, 1993; Olive and Delshad, 2017). The contradictory ways climate change is framed and reported can lead to the spread of misinformation and increase confusion and conflict. Climate skeptic movements are often orchestrated by conservative think tanks that present their own counter claims regarding global warming which can lead to policy changes and further spread of misinformation (McCright and Dunlap, 2000). Additionally, McCright and Dunlap (2000) state, "we see that the conservative movement employs counter-claims that serve to block any proposed action on global warming that challenges its interests" (pg. 528). McCright and Dunlap note that the three counter claim themes identified in their paper were also highly visible and widely used by conservative activists and think tanks in an effort to halt the United States endorsement of Kyoto Protocol; "these and other examples of the conservative movement's heightened activities seem to indicate that the counter-claims identified in this paper have real-world practicality" (pg. 518; McCright and Dunlap, 2003). While public understanding of climate change could potentially influence policy makers to adopt strategies to address climate change, norms such as balanced reporting or intentional misrepresentation, which then gets conveyed to the public in part by how issues are framed, can obstruct such action.

News media play a central role in shaping views when reporting on climate change, whether it be from television or print. One study looked at Fox, CNN and

MSNBC news coverage of climate change through 2007 to 2008 and concluded that Fox dismisses climate change more often and regularly hosts climate skeptics more than climate scientists (Feldman et al. 2012). The study further found that people's political ideology and views on climate change were positively or negatively affected by the news programs they watched. For example, Republicans who routinely watched Fox news over CNN or MSNBC had more negative beliefs and opinions regarding climate change opposed to Republicans who regularly watched CNN and MSNBC. These results emerged even after the study controlled for demographics, other media usage, political partisanship, as well beliefs and values regarding science and the environment (Feldman et al. 2012). This highlights that Fox News frames climate change as skeptical and uncertain. A similar and more recent study found that political ideology and education predict news media choices, and these media sources serve as variables that reinforce and amplify existing beliefs about climate change (Bolin and Hamilton, 2018). For example, in a longitudinal analysis Carmichael et al. (2017) provide evidence that partisan media coverage of climate change may have an effect on partisan public concern. They state that media outlets "are able to strengthen views held by their audiences when framing is consistent with the audiences' pre-existing beliefs" (Carmichael et al, 2017 pg. 609). Their research supports claims about "echo-chambers" and "boomerang-effects" that were established by communication scholars. This is where media outlets frame the issue of climate change that reinforces pre-existing views of the audience members (i.e., "echo-chamber") or when the public is introduced to views that are inconsistent with their own, they appear to strengthen their views (i.e., "boomerang-effect") (Carmichael et al, 2017). Overall public opinion on climate change is influenced by a range of factors, one such

factor is media coverage, which has a significant impact on public concern over climate change (Brulle et al, 2012). It is important to note that these studies looked at national media outlets such as *The New York Time* and *The Wall Street Journal*. By including local community papers in my research, there is the possibility that these newspapers are not as politically divided on the issue of climate change and potentially reach a more politically diverse group in the community. For instance, a study published in 2016 found that during an election cycle in Virginia, third party candidates were covered more by community level newspapers compared to *The Washington Post* and other larger daily papers (Kirch, 2016). Community newspapers are a vibrant part of local media and their environment as well as a vital source in political campaign information (Shaker, 2011). This is a factor in deciding to include local community level newspapers in my analysis.

When communicating a complex issue such as climate change, communicators activate frames so the information that the media are trying to convey can be easily understood and received by the public (Lakoff, 2010).

One study looking at U.S newspaper coverage and reporting of 32 scientific claims and studies over a one year period from March 1, 2003, to February 2004 found that although there were numerous examples of frames constructing climate change as valid science, articles that framed climate change in terms of a debate, controversy, or uncertainty were also common (Antilla, 2005). This indicates that even when climate change is accurately represented in the news, it may be overlooked due to the higher volume of stories representing climate change as uncertain.

By selecting some aspects of a story through the process of framing, the media define certain issues for the public, which in turn has the potential to influence their

preferences on certain issue related policies (Chong and Druckman, 2007; Olive and Delshad, 2017). Climate change is an important issue. Understanding how climate change is framed, specifically in print media, can help address certain journalistic practices when communicating important issues and provide a better understanding of the framing of such issues. As Wagner and Payne state (2017), “By understanding how climate change is framed, we can see how newspapers classify and categorize the problem” (pg. 7).

Five generic frames

One particular approach to frame analysis is the use of the five generic frames defined by Semetko and Valkenburg, (2000). The five generic frames--responsibility, conflict, human interest, economic consequence, and morality. Using these five frames as a standard set of content analysis indicators, as suggested by Semetko and Valkenburg (2000), allows for studying change across research efforts and across contexts, topics, media outlets, and over time. These five frames have been used repeatedly in content analysis studies due to their generic nature, which allows researchers to apply these frames to multiple disciplines and multiple studies.

Here, we describe Semetko and Valkenburg’s (2000) five frames in more detail.

Responsibility frame. This frame “presents an issue or problem in such a way as to attribute responsibility for its cause or solution to either the government or to an individual or group” (Semetko and Valkenburg, 2000, p. 96). This frame refers to a

party's involvement in the problem and whether they are capable of solving the issue or responsible for its outcome (Biswas and Kim, 2016; Dirikx and Gelders, 2010).

Conflict frame. This frame “emphasizes conflict between individuals, groups, or institutions as a means of capturing audience interest” (Semetko and Valkenburg, 2000, pg. 95). Also, it stresses divergence between parties/individuals concerning climate change and is mainly focused on winning and losing (Valkenburg et al. 1999). In the climate change context, conflict frames can be organized around disagreements about causes, climate finance issues, and level of commitment for reducing greenhouse gas emissions, among others (Biswas and Kim, 2016). For example, Boykoff and Boykoff (2004) argue that the prestige press gives equal attention to climate change “defenders” and to climate change “skeptics”, causing more confusion and controversy surrounding human-induced climate change. Nonetheless, Boykoff (2007) demonstrates that between 2003 and 2006 balanced reporting declined significantly, and a more recent similar study found no evidence for the norm of journalistic balance reporting (Schmid-Petri et al. 2017). Although these studies seem to suggest that conflict surrounding the reality and cause of climate change has decreased, some studies show that the conflict frame in general was still the most frequently reported (An and Gower, 2009; Biswas and Kim, 2016; Matthes, 2009; Semetko and Valkenburg, 2000).

Human interest frame “brings a human face or an emotional angle to the presentation of an event, issue or problem” (Semetko and Valkenburg, 2000, pg. 95). It appeals to the emotional side of the individual by personalizing an issue or problem, such as climate

change, to bring it closer to people's everyday lives (Dirikx and Gelders, 2010; Valkenburg et al. 1999). Looking at how climate change adaptation is framed in influential North American newspapers from 1993-2013, Ford and King (2015) found that most of the stories focus primarily on the need to adapt, as opposed to adaptations that have taken place. This focus on the need to adapt to climate change often brings a humanistic quality to reporting by speaking directly to the individual that it is in their best interest to adapt and respond to extreme weather events that are exacerbated by climate change.

Economic consequences frame. This frame “reports an event, problem, or issue in terms of the consequences it will have economically on an individual, group, institution, region, or country” (Semetko and Valkenburg, 2000, pg. 96). In the context of climate change, this frame emphasizes the way in which climate change will (economically) affect people, and that news reporting will often use the consequence frame to dramatize the issue to their audience (Valkenburg et al. 1999). For instance, the National Oceanic and Atmospheric Administration released an article in February 2019 in which it reported that for the year 2018 there were 14 climate disasters totaling about \$91 billion dollars in damages, with the most catastrophic being hurricane Michael which was responsible for \$25 billion alone (“National Oceanic and Atmospheric Association”, 2019). Further research shows that after a natural disaster, often the discourse of climate change in the news and media increase, suggesting that climate change is presented as a terrible and catastrophic phenomenon (Boykoff, 2011). A content analysis of the five generic frames

in Dutch and French newspapers between 2001 and 2007 found the economic consequences frame as having the most appearances (Dirikx and Gelders, 2010).

Morality frame. This frame “puts the event, problem, or issue in the context of religious tenets or moral prescriptions” (Semetko and Valkenburg, 2000, pg. 96). As stated previously, this frame is rarely used, and when it is used is done so indirectly by journalists (An and Gower, 2009). However, reports of the morality frame being used in climate coverage tend to focus on whether the environmental impact is necessary or right or wrong (Biswas and Kim, 2016).

Frame analysis studies that have employed all or some of these five frames cover a diverse set of topics from politics, climate change and adaption to crises in the news (An and Gower, 2009; Biswas and Kim, 2016; Chetty, Devadas, and Fleming, 2015; Semetko and Valkenburg, 2000). However, few studies looking at climate change strictly adhere to these five frames, while other studies only include some but not all of the five frames (Dirikx and Gelders, 2010). For example, An and Gower studied crisis news frames by analyzing various types of crises based on news coverage in 2006, and found that responsibility and economic consequences frames were predominantly used, which is consistent with Semetko and Valkenburg’s findings (2000). Similarly, a study comparing news coverage of climate issues around the Paris Climate Conference in 2015 between the U.S. and Indian newspapers found that the conflict frame along with human interest were predominantly used (Biswas and Kim, 2016). The majority of studies that included the morality frame reported that that frame was used the least (An and Gower, 2009;

Chetty, Devadas, and Fleming, 2015; Dirikx and Gelders, 2010; Semetko and Valkenburg, 2000; Valkenburg et al. 1999).

Framing is one way to allude to the power of a communicating text, and by analyzing frames we can illuminate precisely the ways that journalists and the media can influence human consciousness (Entman, 1993). Additionally, “framing analysis places the analysis of news text in a theoretical framework built on the point of convergence between the sociological and cognitive formulations of the frame concept” (Pan and Kosicki, 1993 pg. 69). Media frame analysis is important as it can help to test framing effects in further research (Dirikx and Gelders, 2010).

Newspaper framing of climate change in three ski towns in the Intermountain West

In addition to posing many general threats, climate change poses real long-term challenges to the tourism industry across North America, and research shows that the natural environment is important in determining the attractiveness of a region for tourism (Scott, 2003). The west in particular faces threats to the ski tourism industry in the form of declining snowfall and snowpack. Taking a Western regional focus, the three local newspapers we analyze are: *Park Record* in Park City Utah, *Summit Daily* in Summit County Colorado and *Jackson Hole News & Guide* in Jackson Hole Wyoming. Both *Jackson Hole News & Guide* and *Summit Daily* are published daily, whereas *Park Record* is published twice weekly, however we compare the three papers because all three community papers are the main community newspaper for their town. As stated above, for comparison we will also analyze two nationally circulated papers, *The New York Times*, and *The Washington Post*.

The three western mountain towns were selected because they are major recreation towns that generate a substantial portion of their economy through tourism, and they have substantial local newspapers. These mountain areas are sensitive to climate change, which can have huge impacts on the tourism industry across all nation-states and particularly within North American mountain regions (Burki et al. 2003; Norgaard 2011; Scott, 2003; VanLandingham, (2008); Williamson et al. 2008; Wobus et al. 2017).

According to the Bureau of Economic Analysis, in 2017 alone the outdoor recreation economy accounted for 2.2 percent of the Gross Domestic Product; “for the first time, Outdoor Recreation Satellite Account (ORSA) includes information on the contribution of outdoor recreation activities to GDP” (Bureau of Economic Analysis, 2019). From a state level, the contribution of outdoor activities ranges from 5.4 percent of GDP for Hawaii, to 1.2 percent GDP for the District of Columbia; while both Utah and Colorado’s outdoor recreation contribute 3.3 percent to their GDP, and Wyoming’s recreational activities make up 4.4 percent of their GDP. This further demonstrates that climate change encompasses more than just environmental degradation and species loss, but highlights the potential impacts on national and especially local economies. One study looked at 247 ski locations across private and public lands throughout the United States and found that under future impacts of climate change, nearly all lengths for winter activity will decline by 2050 and will further decrease by the year 2090 (Wobus et al. 2017). A warmer climate can lead to fewer ski days, which has a negative rippling effect across North American mountain communities (VanLandingham, 2017). More specifically, when looking at the impacts of climate change at a state level, over the last century Colorado has experienced rising temperatures and the state as a whole has

warmed faster than both the U.S. and global average (Williamson et al. 2008). As climate change intensifies over the next 100 years, one of the largest economic impacts from increased temperatures will be on Colorado's tourism sector, particularly skiing and other related winter activities (Williamson et al. 2008). It is evident that climate change has a huge impact on tourism in mountain regions, which is why looking into how climate change is framed, particularly in these three mountain towns, is extremely important and provides us a window as to how climate change is perceived.

I focused on the west/intermountain west because of its abundance of big ski towns with economies that may be particularly impacted by climate change. We chose Park City, Utah, because as residents of Utah, we are familiar with the area and the community's local paper. Since we are not basing this analysis on just one town, we looked for two other comparable towns. Jackson Hole, Wyoming, and Summit County, Colorado, are similar in population size, and all three counties voted Democrat in the 2016 Presidential election. All three intermountain west communities are characterized by heavy tourism and recreation activities, to which climate change poses a real threat. The threat of climate change is a situation that has been identified in previous sociological research (Norgaard, 2011). Given how vulnerable these towns are to the impacts of climate change we found it particularly relevant to analyze how climate change is reported or discussed in their local newspapers. This project is also funded in part from Utah Agriculture Experiment station funding, influencing my decision to have a regional focus.

According to the National Newspaper Association, roughly 150 million people in the U.S. read community newspapers. A 2013 survey of community newspaper readers in

small U.S. towns found that 83 percent of readers agreed that they rely on their local newspapers for information. In addition, 71 percent of respondents say they read their local newspapers at least once per week, while 52 percent are daily readers. Lastly, 92 percent of those who responded to the survey thought their community newspapers were informative. A little over half said they preferred their newspapers over television and radio as their source of information ("National Newspaper Association", 2013). This provided additional justification for including small community newspapers in my research. We do note that all three papers cover towns that are ski towns, all three papers are owned by different parent companies, and the differences are also not clearly explained by cost of the paper or publication schedule (Teton Media Works, Inc., owns the *Jackson Hole News & Guide* which is a free daily paper; Swift Media Communications owns the *Park Record* which is published twice weekly and is not free; Colorado Mountain News Media is the parent company of *Summit Daily News*, a free daily).

This research contributes to research on media framing of climate change. Much of the literature on climate change and media framing focuses on national newspaper coverage, while not a lot of research is done on small county print media framing of climate change. This research aims to fill that gap and provide insight into climate change framing practices in local community newspapers.

Research questions and hypotheses

My research attempts to answer the following questions. First, how do the three intermountain community papers frame the issue of climate change? Second, comparing

local community newspaper coverage of climate change to national coverage, is there a difference in how the issue is framed? Third, are there differences or similarities between the two years 2011 and 2016? Lastly, do the three intermountain community newspapers differ among themselves in how they frame climate change or global warming?

I examine how the five generic frames defined by Semetko and Valkenburg (2000) are applied to the coverage of climate change in three newspapers in ski towns in the intermountain west, as well as two national newspapers. This research will contribute to the overall literature on media coverage of climate change, but it differs in that my research incorporates smaller, local, less prestigious and less circulated newspapers, and it focuses on a specific type of community where social environmental relationships are key to the community's identity as well as economy. This will allow me to assess how climate change is framed in this media context and contribute to literature on framing in general (Semetko and Valkenburg 2000) and framing of climate change in particular (Dirikx and Gelders, 2010). We analyze the following newspapers, *Park Record*, *Summit Daily*, *Jackson Hole News & Guide*, *The New York Times* and *The Washington Post*, for the years 2011 and 2016.

Limited studies on climate change have analyzed media coverage in smaller newspapers and there are few empirical studies comparing local and national newspaper coverage of climate change (Antilla, 2005; Bohr, 2020). Thus, this study is somewhat exploratory. Based on previous research that has employed these five frames (An and Gower, 2009; Chetty, Devadas, and Fleming, 2015; Dirikx and Gelders, 2010; Matthes, 2009; Semetko and Valkenburg, 2000), my first hypothesis is that the human-interest frame and the conflict frame will appear less often in both the national and the

community newspapers. My second hypothesis is that the responsibility and economic consequences frame will appear more frequently in both national and local newspapers. I predict the framing practices over time and between the three community newspapers will not differ significantly.

Methods

Although we are analyzing community newspapers along with nationally circulated newspapers, the methods and frame analysis we have chosen are used specifically to study framing in a generalizable way (Matthes, 2009; Semetko and Valkenburg, 2000). When analyzing nationally circulated print media I decided to look at both *The New York Times* and *The Washington Post*. These national newspapers are the two most circulated daily newspapers (Ford and King, 2010) and are the most often included in previous studies employing frame analysis in national print media (Antilla, 2005; Boykoff and Boykoff, 2004; Matthes, 2009; Reynolds et al., 2007; Shehata and Hopmann, 2012; Trumbo, 1996). Each of the five newspapers was screened for articles mentioning key words *climate change* OR *global warming* within the entire article. When gathering articles for *The New York Times* and *The Washington Post*, we used Lexis Uni via the Utah State University library website, while for the local papers we used each paper's search feature. After removing articles that were not related to climate change or global warming, there were 1,327 articles from *The New York Times* (384 for 2011, 988 for 2016) and 584 for *The Washington Post* (129 for 2011, 455 for 2016). For the community papers there were 308 articles that mentioned climate change OR global

warming. *Park Record* consisted of 24 articles for 2011 and 42 for 2016. *Summit Daily* consisted of 10 for 2011 and 46 for 2016. Lastly *Jackson Hole News & Guide* consisted of 19 articles for 2011 and 167 articles for 2016. Given the high number of articles in the nationally circulated newspapers, we selected a random sample of 25% of the national articles, while coding 100% of the articles from the three community papers. The numbers of articles this includes are displayed in Table 1. This methodology is similar to past studies that analyze the U.S. prestige press for their coverage of global warming (Boykoff, 2007; Boykoff and Boykoff, 2004). Similar to other studies and to remain consistent, editorials, opinion columns, letters to the editor and advertisements were excluded from our analysis (Shehata and Hopmann, 2012; Trumbo, 1996).

Table 1. Newspaper Articles

Newspaper	2011	2016	total
Jackson Hole News & Guide	19	167	186
Park Record	24	42	66
Summit Daily	10	46	56
The New York Times	102	244	364
The Washington Post	38	115	153

Our analysis utilizes the five generic frames that were defined by Semetko and Valkenburg (2000). To measure the extent to which each of the five frames appeared in the stories mentioning any of the two key terms, climate change or global warming, we answer yes (1) or no (0) to each of the twenty questions developed by Semetko and Valkenburg (2000) (see Table 2). We utilize this same questionnaire and attend to remaining consistent when coding to ensure reliability and validity, described further below. Previous studies applied this same questionnaire and found that all twenty questions were reliable in capturing all the five generic frames (Dirikx and Gelders,

2010). In qualitative content analysis researchers read text in context and then code into specific categories which ultimately allows the researchers to develop their frames inductively (Church et al., 2019). Here, we use a deductive quantitative content analysis and employ the five frames defined by Semetko and Valkenburg (2000).

Table 2. Content Analysis Measure for Frames (Semetko and Valkenburg, 2000)

Attribution of responsibility

- Does the story suggest that some level of government has the ability to alleviate the problem?
- Does the story suggest that some level of government is responsible for the issue/problem?
- Does the story suggest solution(s) to the problem/issue?
- Does the story suggest that an individual (or group of people in society) is responsible for the issue/problem?
- Does the story suggest that the problem requires urgent action?

Human interest frame

- Does the story provide a human example or “human face” on the issue?
- Does the story employ adjectives or personal vignettes that generate feelings of outrage, empathy, caring, sympathy, or compassion?
- Does the story emphasize how individuals and groups are affected by the issue/problem?
- Does the story go into the private or personal lives of the actors?
- Does the story contain visual information that might generate feelings of outrage, empathy, caring, sympathy, or compassion?

Conflict frame

- Does the story reflect disagreement between parties/individuals/groups/countries?
- Does one party/individual/group/country reproach another?
- Does the story refer to two sides or to more than two sides of the problem or issue?
- Does the story refer to winners and losers?

Morality frame

- Does the story contain any moral message?
- Does the story make reference to morality, God, and other religious tenets?
- Does the story offer specific social prescriptions about how to behave?

Economic consequences frame

- Is there a mention of (financial) losses or gains now or in the future?
- Is there a mention of the costs/degree of expense involved?

– Is there a reference to (economic) consequences of pursuing or not pursuing a course of action?

My unit of analysis is the whole article, including photo captions and the title.

One other graduate student was hired to conduct an intercoder reliability test in which we each independently coded 30 random articles from NYT, WP and all three intermountain community papers. During the coding process each coder read through and coded each article by running a Krippendorff's alpha to measure our intercoder reliability and intercoder agreement score. After we each finished our 30 articles we met one on one via Skype to discuss our Krippendorff's alpha and any discrepancies in coding. After multiple rounds of intercoder reliability testing was done the highest Krippendorff's alpha that we attained was .67 for national papers and a .74 for community newspapers. We continued to reconcile every 30 articles in hopes of achieving a Krippendorff's alpha of .8. Although our Krippendorff's alpha never reached a .8, our intercoder agreement was eventually 80% or greater for all variables that were coded. Because we never reached the Krippendorff's alpha of .8, all articles were eventually coded by both coders. Reconciliation consisted of each researcher coding the transcript then actively discussing their respective codes with the goal of arriving at a completed version in which all codes were agreed upon; this is also referred to as a "negotiated approach" (Garrison et al, 2006). According to Campbell et al. (2013), intercoder reliability requires 2 or more coders to work independently from one another and select the same code for the same unit of text, while intercoder agreement requires two or more coders the ability to reconcile their coding discrepancies they may have for their unit of analysis (2013).

Results

My first research question asks how each of the three intermountain community newspapers frame the issue of climate change. Table 3 shows that for all three mountain town newspapers, the human-interest and responsibility frames had the highest average appearance overall, although there was some variation between the three community papers, discussed further below. For example, a human-interest recurring theme among the community papers was this notion of activism among the residents. One article by Jeff Dempsey, “Citizen’s climate lobby looks for Park City Support” in *Park Record* (2016, February 16) highlighted how Al Gore’s “An Inconvenient Truth” inspired one man to get involved.

That film put things in stark relief.... then I heard about the Citizens’ Climate Lobby and attended a meeting, that was about a year ago, and I’ve been very involved since.

While others who are known to speak up in regards to social or political activism have found a new directive towards climate change such as folk-music icon and social activist Peter Yarrow. An article by Scott Iwasaki, “Singer Peter Yarrow is still the activist” in *Park Record* (2016, May 17) highlights the singer’s passion for activism and music.

Today, socially conscious music sits right in the climate movement. It is not just the policy that needs to change, it needs to happen in the hearts of the people.

That will take a lot of work, a lot of effort, a lot of singing... and a lot of listening.

With regards to the responsibility frame, one example from a *Summit Daily* article titled “Coal mining rejected for climate risks is back on the table” by Elizabeth Shogren (2016,

March 1), highlighted the lack of responsible steps taken by government agencies and administrations.

The Obama administration had again proposed letting coal companies mine in a roadless area of Colorado's North Fork Valley. The U.S. Forest Service wants to allow mining despite its own new analysis that reveals the mining could result in a net cost to society...because a federal judge last year found the government's original environmental analysis failed to take a "hard look" at the potential contributions to climate change. This helped environmental groups "sue the government for its failure to adequately consider climate change in its actions related to federal fossil fuels across the West.

The average appearance of the human-interest frame for *Jackson Hole News & Guide* was (49%), *Park Record* was (89%), and *Summit Daily* was (40%). The average appearance of the responsibility frame for *Jackson Hole News & Guide* (JH) was (43%), for *Park Record* (PR) was (41%), and for *Summit Daily* (SD) was (63%). Following the human-interest and responsibility frames for the community newspapers were the *economic* consequences and the conflict frame. The average appearance of the economic consequences frame for JH was (29%), PR was (22%), and SD was (36%). The conflict frame had an average appearance of (11.8%) for JH, (14.8%) for PR, and (49.5%) for SD. The morality frame was used the least out of all other frames with slightly less than five percent overall. My hypotheses based on the literature were that the responsibility and economic consequences frames would appear more often and the human interest and conflict frames would appear less often, which is not consistent with my findings. The human-interest frame was actually the most prevalent frame among the intermountain

town newspapers, followed by the responsibility, economic consequences, conflict, and morality frames, respectively.

Table 3. Average Appearance of Frames

Average Appearance of Responsibility Frame				
Newspapers	2011	2016	Total Percent	Total Number
NYT	55%	52%	53%	346
WP	71%	57%	60%	153
JH	47%	38%	39%	186
PR	21%	62%	47%	66
SD	70%	57%	59%	56
Average Appearance of Human-Interest Frame				
NYT	27%	25%	25%	346
WP	39%	30%	32%	153
JH	58%	40%	41%	186
PR	92%	86%	88%	66
SD	40%	39%	39%	56
Average Appearance of Morality Frame				
NYT	3%	1%	1%	346
WP	5%	4%	5%	153
JH	16%	4%	5%	186
PR	0%	5%	3%	66
SD	0%	4%	4%	56
Average Appearance of Economic Frame				
NYT	26%	25%	25%	346
WP	32%	25%	27%	153
JH	42%	16%	19%	186
PR	21%	24%	23%	66
SD	20%	52%	46%	56
Average Appearance of Conflict Frame				
NYT	35%	31%	32%	346
WP	47%	40%	42%	153
JH	11%	13%	13%	186
PR	8%	21%	17%	66
SD	60%	39%	43%	56

The second research question sought to know the difference in how climate change is framed between both national newspapers and the three community newspapers. Unlike the three mountain town community newspapers, the most frequently

used frame among the national newspaper coverage was the responsibility frame (55%), followed by the conflict frame (35%), then the human-interest (27%) and economic consequences frame (26%). As with the three community newspapers the morality frame appeared least of all in both national newspapers, at just under 5%. See Table 4.

To further investigate whether the use of the five frames varied in a statistically significant way between the national and community newspapers, we conduct a series of chi-square tests. This part of our analysis was somewhat exploratory; we wanted to learn if the use of the five frames would vary significantly by scale. We find the differences in the use of the five frames between the national and the community scale are statistically significantly different for the responsibility, human-interest, and conflict frames. One potential reason for a non-statistical significance with respect to the morality frame is likely due to a limited number of articles that framed the issue of climate change as a morality problem. These results are displayed in Table 4.

Table 4. Statistical Significance

Statistically Significant Difference Between Frames by Scale, Time, and Place					
	Responsibility frame	Human-Interest Frame	Conflict Frame	Morality Frame	Economic Consequences Frame
Scale					
National	55%	27%	35%	2%	26%
TOTALS N=(499)					
Community	44%	51%	19%	5%	25%
TOTALS N=(307)					
Pearson X^2	9.14**	45.48***	23.42***	2.79	0.13
Time					
2011	54%	41%	33%	4%	28%

TOTALS N=(193)					
2016	50%	35%	28%	3%	25%
TOTALS N=(614)					
Pearson χ^2	0.88	2.75	2.13	0.69	0.88
Community					
Jackson Hole News	39%	41%	13%	5%	19%
TOTALS N=(186)					
Pearson χ^2	5.64*	17.23***	11.85**	0.74	8.67**
Park Record	47%	88%	17%	3%	23%
TOTALS N=(66)					
Pearson χ^2	0.26	45.77***	0.33	0.44	0.17
Summit Daily	59%	39%	43%	4%	46%
TOTALS N=(56)					
Pearson χ^2	6.05*	3.74	24.82***	0.14	17.42***
Pearson χ^2 Overall	7.40*	45.85***	25.27***	0.76	17.82***

Note. N= Total number of Newspaper Articles

Chi-square tests marked for statistical significance: *** $p < .001$, ** $p < .01$, * $p < .05$

These findings indicate that the local newspapers may be more likely to frame climate change in a way that highlights the effects on a community level by personalizing the issue or problem. For instance, a major theme among the intermountain community newspapers framing of climate change was how it could potentially impact the amount of snowfall or delay the ski season, which would have an impact on particular individuals or groups in their work related to the tourism economy.

The goal of the third research question was to determine if the five frames differ by the years 2011 and 2016. A Pearson's chi-square test was carried out to see whether

the use of the five frames by year were statistically significant. This study did not find that there is a statistically significant difference between the five frames for 2011 and 2016. None of the five Pearson chi-square tests reached the .05 threshold of statistical significance. The results for these analyses are also displayed in Table 4. We also note that overall, the coverage of climate change increased from 2011 to 2016, but the overall use of all five of the frames declined slightly over time. Yet this decline is not statistically significant in our data, which also indicates the ongoing usefulness of employing Semetko and Valkenburg's (2000) five frames to analyze media coverage of climate change and to make these analyses comparable across studies.

The goal of the fourth and final research question is to determine if the use of the five generic frames differ among the three intermountain town community newspapers. Table 3 shows that the *Jackson Hole News & Guide* and the *Park Record* both utilize the human-interest frame and then the responsibility frame more frequently, whereas the *Summit Daily* utilizes the responsibility and conflict frames most frequently, more in line with the national papers. To test if there are statistically significant differences between the use of the five frames by the three papers, we conduct a Pearson's chi square test of significance. I found the use of the five frames between the three community newspapers are statistically significantly different for the responsibility, human-interest, conflict, and economic consequence's frame. For instance there is a significant relationship among the conflict frame $X^2(2, N=307) = 25.2, p < .001$, human-interest frame $X^2(2, N=307) = 45.8, p < .001$, economic consequences frame $X^2(2, N=307) = 17.8 p < .001$, and the responsibility frame $X^2(2, N=307) = 7.40 p < .05$ and all three intermountain community newspapers. However, the morality frame was not statistically significant $X^2(2, N=307)$

= .767 $p > .05$. These results show that in addition to detecting difference between the national and the community level, we also find significant differences in the use of framing between the three communities. This shows that not only does national vs. local context matter in newspaper coverage and framing of climate change, but local contexts also matter and vary significantly.

Discussion:

The first aim of this study is to assess how Semetko and Valkenburg's (2000) five frames are used in framing climate change in three small mountain community newspapers in the Intermountain West as well as in two nationally circulated newspapers. We relied on the 20 framing questions developed by Semetko and Valkenburg (2000) and analyzed if those five frames appeared in the three local and two national newspapers. Using the methods of deductive quantitative frame analysis, we analyzed the framing of climate change and global warming and found that all five of the newspapers often frame the issue using one or more of the five generic frames. Of the five frames that were found in our research the morality frame was the least prevalent, which is consistent with prior studies.

Overall, the articles most often reflected the responsibility, conflict and human-interest frame. In the three community papers the human-interest frame was used most frequently overall. Local newspapers aim to connect their audience or readers to their community and more importantly to each other. Stories published in local newspapers are often times more personal and display local impacts. This is shown in my research by the community papers' use of the human-interest frame more frequently. Looking at the two national newspapers, the responsibility frame was used most frequently. Both *The New*

York Times and *The Washington Post* newspaper coverage reflect similar patterns in focusing on responsibility aspects of climate change. Both newspapers made references that suggested governments are responsible for climate change and at the same time capable of alleviating its impacts, while other articles emphasized the importance for individual action and responsibility. As for national newspapers, their goal is to provide a window into the broader world that surrounds us. The stories published are geared towards the general population and issues that affect the majority of communities, cities and states. For example, articles alluded to legislative efforts to cap carbon emissions and increase the use of renewable energy, while others suggested ways to mitigate the effects of global warming at an individual or community level by focusing on local individual concerns, grassroots movements, and organized political action.

In national newspapers, after the responsibility frame the conflict frame was used most often. This may be attributed in large part to the 2016 election of Donald Trump and his stance on questioning the reality of global warming and climate change. National articles highlighted disagreement related to climate change as a major conflict between political parties and individuals who did or did not support the scientific consensus on climate change. This was further exacerbated by the Trump administration's tendency to appoint outspoken climate deniers to government positions, for example, Rex Tillerson as Secretary of State. A follow-up study that looks at article sourcing could explore these ideas further.

Unlike the two national newspapers, the three community newspapers overall utilized the human interest frame the most, followed by the responsibility frame, with the exception of *Summit Daily* where the responsibility frame was more dominant than the

human-interest frame. This might be due to local newspapers personalizing the effects of climate change or “bringing an emotional angle to the presentation of an event” (Semetko and Valkenburg, 2000 pg. 95). This showcases that the role of the community papers is to write about how local, state, or national issues affect the community’s individuals or businesses. The findings in this research help to solidify the notion that local print media take a personal tone with regards to stories about climate change.

Similar to the national newspapers, the local newspapers use of the responsibility frame was geared toward governmental policies that either helped or hindered the impacts of climate change. For instance, some articles highlighted the case for saving the Paris Climate agreement, while others mentioned Donald Trump’s plan to take the U.S. out of the Paris Climate Accord. Both the national and community newspapers used the responsibility frame in a similar manner that highlighted the important role governments have in efforts to combat and reduce the impacts of climate change.

Given that all three mountain town communities rely heavily on recreational tourism, climate change was often presented as having negative consequences to their economy. For example, numerous articles mentioned how a delayed snow fall due to a warmer climate affected their ski season and ultimately their economy and well-being.

When we compared the five frames between the two years, 2011 and 2016, we did not find a statistically significant difference between the two years for any of the five frames. However, we did observe that even though there were more articles that made reference to climate change or global warming in 2016, each of the five frames were used at a higher rate in the year 2011. For example, the responsibility frame was found in 54% of the articles in 2011 while only 50% for the year 2016. We found consistent results for

the human-interest frame (41% to 35%), conflict frame (33% to 28%) economic consequences frame (28% to 25%) and morality frame (4% to 3%). One explanation could be attributed to the 2016 presidential campaign in which the issue of climate change was mentioned as a political talking point, but not in the context of one of the five frames. For instance, many articles in 2016 covered candidates' speeches and highlighted topics that they were likely to address such as climate change, healthcare, immigration without making clear references to government responsibility or solutions.

Given the extent to which such frames are present in both national and community newspapers, it is reasonable to conclude that Semetko and Valkenburg's (2000) five frames are still a useful tool for analyzing variation in media coverage of climate change across scales, time, and contexts. Although not directly related to the five frames, in reading the newspaper articles I also observed that there is still a debate regarding the scientific uncertainty related to climate change in the U.S. media, at least through 2016. One explanation could be the way scientists present their studies on climate change related effects. For example, Howe et al. (2019) found that when scientist provide a best- and worst-case scenario for predicted sea level rise, there is an increased level of trust in scientists and their message among the general population, however, when scientists include in their predictions a level of uncertainty regarding the consequences of sea level rise, such as structural damage or population displacement, it was met with lower levels of trust and a reduction in message acceptance (Howe et al., 2019). Some articles, mainly in the community newspapers, feature stories on how some community members don't see the immediate impact of climate change on their ski season and feel that the impacts are being exaggerated by scientists and politicians.

Conclusion

In earlier research, scholars who analyzed print media frames primarily focused on national or prestigious newspapers in their analyses. We aimed to contribute to the literature by including in our comparative study an analysis of three community newspapers. In our research we found that all five frames defined by Semetko and Valkenburg (2000) were used in both the three local and the two national newspapers, indicating the ongoing relevance of the use of these five frames for conducting media analyses that are generalizable and comparable across studies.

We also found significant differences among the use of the frames at the local scale compared to the national scale, indicating the importance of community context in terms of scale. In the local newspapers the human-interest frame was used most frequently overall and the responsibility frame was used the second most frequently. The national newspapers, on the other hand, most frequently employed the responsibility frame, followed by the conflict frame, and then the human-interest frame, and the economic consequence frame. While both papers used the morality frame, this frame was used least often. We know that media coverage of climate change is a partisan issue but community newspapers may be less partisan, adding to our understanding of how different contexts shape media coverage of climate change and in turn shape views on climate change. We chose to analyze three ski-town newspapers in the Intermountain West region of the U.S. We selected this type of mountain town because climate change is likely to have a direct impact on these types of communities. Also, these three communities are somewhat politically similar in that they are in counties that tend to vote

more Democratic, but are within states that tend to vote more Republican than the county ("Presidential Election Results: Donald J. Trump Wins"). Future research would do well to explore further variety in local contexts. For example, future research could analyze media coverage of climate change in ski towns in other regions of the U.S., towns whose economies may be affected by climate change for different reasons, or towns whose economies may not be as directly affected by climate change.

We also found significant differences in the use of four of the five frames between communities, indicating the importance of local context. Based on our analyses we can't explain exactly *why* this occurs, especially because the counties at a glance are relatively similar politically, but our results point to the importance of local community context, and future research could explore the role of local context further. Political, economic, sociocultural, and other considerations probably come into play. Future research could employ both quantitative methods at larger scales and qualitative analyses, especially in the form of inductive textual analysis or community case studies. A limitation of this study is that we omitted editorial and opinion pieces from our analysis, in line with other research at the national scale, however an analysis of these types of articles could also shed further light on variation in individual community context.

We noted a decreased rate overall over time of the use of the five frames. This may point to the increased use of climate change as a talking point in politics or the increasingly diverse coverage of climate change. Other frames that may not be perfectly captured by the five frames, such as the debate over scientific uncertainty or outright climate change denial, may need to be studied inductively in future research.

As past studies have shown, how climate change is framed can influence the public's knowledge and perception on the issue, which can impact what measures or policies are implemented to mitigate climate change or adapt to the impacts. For instance, one can speculate that as the topic of climate change becomes more salient throughout print media, the level of public knowledge and concern regarding the consequences of climate change could also increase. Presumably this could create pressure on our elected officials to pass legislation that mitigates the impacts of climate change and to divest from fossil fuels to a path more reliant on renewable energies. Future research could aim to make links between media coverage and difference in public opinion or policy enactment. In many communities, the impacts of climate change extend beyond just environmental consequences and include economic and well-being consequences; this increases the desire for business and others to seek opportunities for alternatives, including alternative energy solutions (Biswas and Kim, 2016). By looking at print media on a local community level, we can potentially gain a clearer understanding of how the topic of climate change is framed. This, in turn, could help policy-makers and other interested parties enact specific policies and adaptive strategies that cover all the issues that are exacerbated by climate change.

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