MEDIA'S SOCIAL CONSTRUCTION OF ENVIRONMENTAL ISSUES: Focus on Global Warming - A Comparative Study

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Abstract

Global warming has been a well recognized environmental issue in the United States for the past ten years, even though scientists had identified it as a potential problem years before in 1896. We find debate about the issue in the United States media coverage while controversy among the majority of scientists is rare. The role that media plays in constructing the norms and ideas in society is researched to understand how they socially construct global warming and other environmental issues. To identify if the U.S. Media presents a biased view of global warming, the following are discussed 1) the theoretical perspective of media and the environment; 2) scientific overview and history of global warming; 3) media coverage of global warming, and 4) research findings from the content analysis of three countries' newspaper articles and two international scientific journals produced in 2000 with comparison of these countries economies, industries, and environments. In conclusion, our research demonstrates that the U.S. with differing industries, predominantly dominated by the fossil fuel industry, in comparison to New Zealand and Finland has a significant impact on the media coverage of global warming. The U.S's media states that global warming is controversial and theoretical, yet the other two countries portray the story that is commonly found in the international scientific journals. Therefore, media, acting as one driving force, is providing citizens with piecemeal information that is necessary to assess the social, environmental and political conditions of the country and world.

> *Over the last decade, the fossil fuel lobby has mounted an extremely effective campaign of disinformation to persuade the public and policymakers that the issue of atmospheric warming is still stuck in the limbo of uncertainty. That campaign for the longest time targeted the science. It then misrepresented the economics. And most recently it attacked the diplomatic foundations of the climate convention. And it has been extraordi-*

narily successful in creating a relentless drumbeat of doubt in the public mind. *Ross Gelbspan June 2000*[1]

The media furnishes our consciousness with the people, places and events that we call reality (Stein, 1972). Most of us depend on the media to help make sense of the deluge of information presented to us, especially information about environmental risks, technologies, and initiatives (Hannigan, 1995). The news media play a very important role in a democratic society, thus media power has been a critical issue in American politics since colonial times (Gilens and Hertzman, 2000: 369). Therefore we need to question whether or not media presents us with an objective story, especially when the story, like global warming, is controversial.

The Intergovernmental Panel on Climate Change (IPCC) has identified that we are experiencing and causing climate change, yet society is still presented with the "statistical fuzziness" of the issue by the media. Collective actors operating outside the political system or outside large organizations normally have fewer chances to influence the content and views presented by the media (Habermas, 1996). As David Edwards states in his article in *The Ecologist* issue of June 2000, "The mass media is made up of profit-seeking corporations owned by wealthy individuals and a handful of transnational parent companies." In other words, the mass media may prefer not to depict the corporate devastation of the environment because of the consequences it may have on their business.

After so many years of knowledge, countries around the world, especially the United States, are still in debate on how to address this problem. Countries have their own vested interests that shape their policy demands. For instance, third world countries want the same opportunities that the United States had in growing their economy. These third world countries are just beginning to use diesel fuels, coal and automobiles. The conglomerate of developed countries are trying to prevent the use of these materials, because they have learned through their mistakes and their developments that they will further cause envi-

ronmental degradation. On the other hand, the United States who is considered the most powerful country is still holding back from implementing very strict enforcements and strategies to slow down the global warming effects. In the first few months of the Bush administration, the Kyoto Protocol has been dismissed as unfair to the economy of the United States.

The vested interests of all these countries shape their policies just as the vested interests of media controllers may shape the news that is displayed to the public. In addition, the media controllers typically represent the major industries present in the area (Gilens and Hertzman, 2000: 370). The role that media plays in constructing the norms and ideas in society is researched to understand how the social construction of global warming and other environmental issues develop in the United States. This knowledge is integral to changing the global warming framework.

To identify if a biased view of global warming exists in the US media, two questions need to be answered: 1) how does the U.S. media coverage of global warming differ from other countries, and 2) what would contribute to the difference in coverage? These questions are answered by first providing an overview of the theoretical perspective of media and the environment. The second section reviews the development of the strong scientific consensus regarding global warming. In the third section, global warming in the media and an overview of some case studies are detailed specifically on the United States. In the fourth section, the method is outlined for the content research of articles printed in *The New Zealand Herald, Helsingin Sanomat, The New York Times* and *Washington Post as well two international scientific journals, Science* and *Nature* for the year 2000. Lastly, the results are presented for the content research of articles and the differing economies, major industries and environments in New Zealand, Finland and United States. In conclusion, how and why the global warming debate has not changed and why it is important that it does is summarized.

Theoretical Perspective

The means by which citizens act together to pursue their common interests has long been a topic of both intellectual inquiry and the motivation of political practice. The important role played by a democratic civil society in the maintenance, legitimacy, and stability of democratic society has been recently examined by a number of authors (Barber 1984, Habermas 1984, 1987, 1996, Putnam 1995, 2000, Fiorina and Skocpol 1999). The underlying idea is that civil society forms a site independent of the imperatives of the market economy or bureaucratic state organizations. Thus it provides a site in which free citizens can associate with one-another (Cohen & Arato 1992:139, Calhoun 1987:24, 1994:392-393, Habermas 1991). Through open communication, citizens develop an ethical life and exercise their citizenship through the formation and maintenance of the public sphere (Habermas 1987:142, Offe 1990:76). The public sphere thus provides society with a self-reflexive capacity to renew its social institutions and to adapt to changing circumstances (Habermas 1984, 1987, 1998:252).

One crucial component of civil society is the formation of a free and independent media. A democratic and open society is premised on the free flow of information among its citizenry. This debate is largely shaped by the operation of the media industries. These institutions "collect information, make decisions about the selection and presentation of 'programs' and to a certain extent control the entry of topics, contributions, and authors into the mass-media dominated public sphere (Habermas 1996:376)." By creating an open and democratic decision-making process, a social situation is created which allows for testing the validity of the information on which collectively binding decisions are made. Such a decision-making process can lead to the generation of new meanings, understandings, and relationships that can, in turn, lead to joint problem solving in the social order. Thus an open media is vital to the functioning of a self-reflexive society (Schiller 1989, Croteau and Hoynes 2001, Habermas 1996: 378).

However, the dominant model of the public media is one that is characterized by "the manipulative deployment of media power to pro-

cure mass loyalty, consumer demand, and compliance with systemic imperatives (Habermas 1992:452)". The result of this process is the removal of the public from making informed decisions about their own future. Thus it is important to examine the impacts of the institutional structure of the mass media in order to first understand how this process occurs, and then, to develop strategies to modify the media along more democratic and open lines.

In meeting existence, the human community forms symbolic expressions of meaning within which our consciousness exists. To create a comprehensible world, humans use symbolic expressions of meaning. They bind up lived experience into coherent phenomena and make reality comprehensible. Through this, the perceived world is brought into existence. Taken together, these expressions of meaning create an intersubjective cultural tradition that is expressed in a common language. This common language creates a horizon of understanding within which our social institutions exist. Thus the maintenance and change of the taken-for-granted reality is the locus of political struggle. Changes in social structures are brought about through a redefinition of what constitutes the common sense embodied in the everyday practices of society. Thus the key to the realization of power in society is through the ability to define what constitutes the common sense reality that applies to a field of practice. Accordingly, Bourdieu sees that control over the symbolic definition of reality forms political power: "Knowledge of the social world and, more precisely, the categories that make it possible, are the stakes, par excellence, of political struggle, the inextricably theoretical and practical struggle for the power to conserve or transform the social world by conserving or transforming the categories through which it is perceived (Bourdieu 1985:729)." This allows us to see the symbolic dynamics of the political community as being based on the interaction between the dominant world view and its challengers.

This competition is best described by the notion of cultural hegemony developed by Gramsci (1971). For Gramsci, the successful mobilization and reproduction of the active consent of the dominated groups by the ruling class is made possible through the construction of

a common sense that explains and legitimates the ruling of dominant groups. These dominant groups form a hegemonic bloc that exercise moral and cultural leadership by maintaining a definition of the situation in which the hegemonic bloc's particular interests are accepted as the general interest. The mass media, and in particular, the news media serve as an important institution for the reproduction of hegemony. The media help to define social reality through the "active work of selecting and presenting, of structuring and shaping; not merely the transmitting of an already-existing meaning, but the more active labor of making things mean (Hall, 1982: 64)." The news media accomplishes this through a systematic sorting and encoding of selected events. This active construction results in some events presented as meaningful, and others are ignored or marginalized.

Media and the Environment

Without media coverage it is unlikely that an important problem will either enter the arena of public discourse or become part of political issues. As previously stated, most of us depend on the media to help make sense of the deluge of information presented to us, especially information about environmental risks, technologies, and initiatives (Hannigan, 1995). Media is key to forming a framework for global warming, as well as keeping this important problem out of the public discourse. As noted by Schudon (1982): "The power of media lies not only (and not even primarily) in its power to declare things to be true, but in the power to provide the form in which the declaration appears. News in a newspaper or on television has a relationship to the "real world", not only in content but in form; that is, in the way the world is incorporated into unquestionable and unnoticed conventions of narrations, and then transfigured no longer for discussion, but as a premise of any convention at all."

Just as Kuhn (1996) states that changing the perspective or dominant paradigm changes the picture sketched by the empirical evidence, the transfer of information from media to individuals also changes the picture of reality. Considerable evidence since the 1970's has shown that journalists play a key role in shaping our picture of the

world as they go about their daily task of choosing and reporting the news (Bryant and Zillmann, 1986). According to Schiller (1973), the American media mangers are mind managers that create a false sense of reality and produce a consciousness that cannot comprehend or willfully reject the actual conditions of life, personal or social. In Schiller's book *The Mind Managers*, he quotes Paulo Freire who states that manipulation of human minds "is an instrument of conquest", and is one of the means by which "the dominant elites try to conform the masses to their objectives." Schiller continues to describe the United States as a divided society in which manipulation is one of the chief instruments of control in the hands of a small governing group of corporate and governmental decision-makers.

According to many researchers, the media is a great and important influence in our society. Media can promote and inhibit social change of which values and attitudes toward the environment and environmental policy has changed (Neuzil and Kovarik, 1996). Therefore, the media should be addressed in understanding the lack of knowledge about global warming in our society and the lack of importance attributed to global warming.

Who determines what we see and hear in the media? How is this information filtered? Who provides the information to the media? Why is a story covered? These are all important questions to understanding the extent of environmental coverage by the media. We begin to answer these questions by identifying those factors that are involved in filtering the news stories, which include the following gatekeepers that may represent industry perspectives: reporters/journalists, advertisers, and corporate owners.

Gatekeepers

Each day journalists go through the same routine with the news. First, they decide which news to cover and report. Second, all the available reports are assessed, on which a typical day a newspaper will reject over 75% of the potential news. Once the information passes through, the journalists need to assess what type of treatment these topics will

receive. Some are used at length and prominently displayed. Others receive only brief attention (Bryant and Zillmann, 1986).

Choices for information can be left to the message senders, like government officials, interest group leaders, etc., those eager to foster their own agendas, or the choices can be left to the gatekeepers: the print and broadcast journalists, advertisers, and media owners. A gatekeeper in the media is inclusive of those individuals that play a major role in deciding what makes news or articles. In essence, no single party, interest group, or news organization should serve as the sole gatekeeper, and to keep a variety of news there should be a variety of newspapers and magazines and writers and editors (Graber, McQuail and Norris, 1998).

Obviously these gatekeepers are looking foremost for fresh stories, a story that has not been told yet. Second, they will typically look for stories that are in the realm of economic, social, and governmental/political agendas. The gatekeepers for news stories consist of the reporters/journalists who are basically told from the lead gatekeepers, advertisers and corporate owners, what and how to cover news stories.

Reporters/Journalists

Reporters determine what is newsworthy by determining if the story consists of the following qualities: publicly recognized, important, and interesting. Thus the news that consists of extraordinary qualities will above others likely gain the media attention (McAdam, McCarthy and Zald, 1996). In addition, news clips, which fit more easily into existing formats, are favored over longer, more nuanced stories, which deal with underlying causes and conditions (Hannigan, 1995) like global warming.

Although journalists claim that the news is a mirror held up to society, it is actually a highly selective account of events. News is a version of reality shaped in significant part by journalistic norms and conventions. In addition, journalists are shaped by pressures by those who have a vested interest in the topic or the newspaper/magazine.

Several norms or conventions exist in the journalism field that help to identify what type of article a journalist will publish. These norms include: the company the journalist works for, the objectivity versus subjectivity of the journalist, and whether or not the journalist is a guardian or messenger.

A spectrum exists in the journalism field, whereby newspapers and magazines can be liberal, conservative, or "in-between". For instance, The *Washington Post* was judged the most liberal of the major U.S. news organizations, and *The New York Times* was placed on the right. Therefore, left-of-center and right-of-center journalists have exhibited different tendencies in their news decisions (Graber, McQuail, and Norris, 1998). For example, in a story involving reduction of carbon dioxide to offset global warming, the left-of-center journalists are more likely to emphasize the resultant improvements (but may be a little more conservative if the topic affects the shareholders of the company) whereas the right-of-center journalists are more likely to focus on the costs to business due to these standards.

Objectivity is the defining norm in journalism today. U.S. journalists expressed the highest level of support for the norm, thus would appear to greatly govern journalists' thinking. But in a study conducted by Thomas Patterson and Wolfgang Donsbach on the understanding of objectivity in a five-country survey of journalists, U.S. journalists are not in agreement with the definition of objectivity. The journalists surveyed defined objectivity in four different ways:

1. An equally thorough questioning of the position of each side in a political dispute.
2. Going beyond the statements of the contending sides to the hard facts of a political dispute.
3. Expressing fairly the position of each side in a political dispute.
4. Not allowing your own political beliefs to affect the presentation of the subject (Graber, McQuail, and Norris, 1998).

Since the 1970's, American journalists have embraced a more interpretive reporting style. This new style replaces the traditional de-

scriptive style where the journalist's guidelines are the five W's of news reporting: who said what, when, where, and why. Today facts and analysis are more freely intermixed in U.S. news reporting. Stories are built around interpretive themes. Neither forms of objectivity guarantee the existence of a free marketplace of ideas (Graber, McQuail and Norris, 1998).

Lastly, journalists will go to leaders of organizations and parties as their prime source of information. Therefore, these leaders have a vested interest in building relationships with reporters to get their interests across to the public. Dependent upon the journalist they may be pressured or influenced to deliver the message given to them by their source as opposed to being the "gatekeeper" and filtering through the information that they objectively deem important and newsworthy. Other voices that gain access to the media are those that belong to groups already established, and therefore resource poor groups will continue to have a difficult time in getting their message before the public (McAdam, McCarthy, and Zald, 1996).

When journalists/reporters retain certain sources for news information, sometimes they will tell only one side of an important story in exchange for a scoop. For instance an exchange for a scoop occurred during the $5 billion merger between United Airlines and US Airways. According to Howard Kurtz, media reporter for the *Washington Post*, "a publicist hired by United Airlines and US Airways offered three major newspapers a deal that none of them could refuse. The pitch: We'll give you the exclusive details of a $5 billion merger if you promise not to call any outsiders for comments." All three papers, *Washington Post, The New York Times,* and *Wall Street Journal* all agreed (Sexton, 1999). This scoop exchange is just one example why the public only sees one side of a story.

Again, journalists/reporters only hold one piece to the three pieces that shape news coverage. They are in turn dictated by the other two pieces of the news world: advertisers and corporate owners.

Advertisers

U.S. newspapers are almost wholly dependent on advertising revenue. For example, the content of the *New York Times* is 60 percent advertisements. This domination by the advertisers puts a constraint on what is published in the newspaper. In essence, the media's main order of business is manufacturing attention and delivering it to advertisers (Stein, 1972). In 1981 newspapers, magazines, and broadcasters collected $33 billion a year from advertisers and only $7 billion from their audiences. Therefore, they make 75 percent of their revenue from advertisers and devote 65 percent of their space to them (Bagdikian, 1997).

Newspapers and magazines are pressured to increase their profits and to do so would require maintaining their advertising companies and/or bringing in more advertising business. This pressure also requires that the newspapers show to their advertisers that they have a high-quality audience, in other words the percentage of society that can spend money at the advertisers stores, etc. Therefore, the newspapers will run stories that appeal to this high-quality audience and will lose subscribers that are less wealthy and do not fit into their marketing scheme (Bagdikian, 1997).

Mass advertising has produced a monopoly in newspapers. The larger these papers become, the smaller the news sections become. From 1940 to 1980, the average number of pages in a newspaper increased from thirty-one to sixty-six, with an increase of news pages from eighteen and a half to twenty-three pages. This small increase in news pages is still an overstatement. Most of these added pages were considered "fluff", a term to mean a gray fuzzy area between news and ads. Therefore, editors began selecting articles not only on the basis of their expected interest for the readers but for their influence on advertisers (Bagdikian, 1997).

Certain companies dictate specific rules for placing advertisements. One such company is Proctor and Gamble which stated the following:

> There will be no material on any of our programs which could in any way further the concept of business as cold, ruthless, and lacking all sentiment or spiritual motivation.
>
> If a businessman is cast in the role of villain, it must be made clear that he is not typical but is as much despised by his fellow businessmen as he is by other members of society.
>
> Special attention shall be given to *any* mention, however innocuous, of the grocery and drug business as well as any other group of customers of the company. This includes industrial users of the company's products, such as bakeries, restaurants, and laundries (Bagdikian, 1997).

Media owners pay for not abiding to the above rules given to them by their advertisers. In 1957, magazines were carrying accurate articles about the tobacco-disease link, in which many suffered for it. In July 1957, *Reader's Digest* ran a strong article on this link, and later that month the advertising agency, the one used by the magazine for twenty-eight years, said it no longer wanted the *Digest* as a client. The advertising agency was given a choice to select between using the magazine or keeping the American Tobacco Company as its client, who spent $22 million a year with the agency (Bagdikian, 1997).

Newspaper Owners/Corporate

The global commercial media system is dominated by a small number of super-powerful, mostly U.S. based transnational media corporations. It is a system that works to advance the cause of the global market and promote commercial values, while integrating our journalism and culture into their long-run corporate interests (McChesney, 1997). Corporate elites reap the principal benefits of profit-making, social privilege, and political influence from the advertiser-supported media system operating today. In essence, the monopolistic control over media information and cultural production by an elite group of political and business insiders subverts democracy (Mazzocco, 1994).

This global commercial system recently developed in the 1980's. Up to this point, the basic broadcasting systems and newspaper industries were domestically owned and regulated. Pressure from the

IMF, World Bank and U.S. government to deregulate and privatize media and communication systems coincided with new satellite and digital technologies, resulting in the rise of transnational media giants (McChesney, 1997).

These gatekeepers of truth in our media-driven society have the power to marginalize dissident voices and discredit political opponents who may threaten their interests. Concentrated media ownership provides elite business interests with the apparatus for citizen thought control (e.g. Mazzocco, 1994) and therefore socially construct global warming. These media corporations are all tied up into the stock market and are all highly dependent on advertising revenue. A survey by the American Society of Newspaper Editors revealed that a third of editors "would not feel free to run a news story that was damaging to their parent firm (Edwards, 2000)".

This power structure in the media consistently inhibits global warming from being removed from the framework that the media has created. Society is given a social construction of a reality in which anthropogenically caused global warming is only supported by 50% of the scientists. However, the more accurate image is that the theory of global warming has an extremely high level of scientific support, and is supported by more than 80% of atmospheric scientists.

Environmental issues create a fundamental challenge, not only to specific business interests, but to the legitimacy of the entire industrial society. Environmental problems are "a crisis of industrial society itself, deeply rooted in the foundation of its institutions (Beck 1995: 140)". As such, they expose a fundamental contradiction in the nature of economic growth. With economic growth, individual security and health are increasingly threatened by the growth of associated environmental risks. This challenges the notion of progress and modernity. As Beck notes: "Where this "security pact" is violated wholesale and systematically, the consensus on progress itself is consequently up for grabs (Beck 1995: 22)". Need to be politically minimized to maintain the legitimacy of the ruling hegemonic bloc. Nowhere is this more evident than in the coverage of the issue of global warming.

Global Warming and the Media

Understanding the nature of the development of this strong scientific consensus regarding global warming will help to better understand if a distortion exists in the media. The narrative on global warming is provided as follows: 1) identifying the interchangeable global warming terms, 2) detailing the history, and 3) presenting the latest scientific consensus about global warming.

Global Warming Definitions

Global warming, commonly referred to as the greenhouse effect or climate change, has various definitions dependent upon which of the aforementioned terms are used. Global warming can be defined as the raising of the Earth's temperature by various mechanisms: anthropogenic actions such as the introduction of carbon dioxide, methane, and other gases, sunspots or the natural variation of temperature change by the evolution of the Earth.

The greenhouse effect is a natural phenomenon that is globally recognized whereby certain gases in the atmosphere keep the earth's temperature significantly higher than it would otherwise be, making it suitable for life (Patterson, 1996). This term is also used to mean the enhancement of this natural phenomenon by increasing the earth's temperature.

Lastly, climate change is a more encompassing definition of the situation. Climate change includes the increase of the earth's temperature at the surface, but may also mean the decrease of the earth's temperature in the stratosphere. This term also includes the changing of the temperature in various places around the globe, not necessarily recognizing that all locations are experiencing an increase in temperature. In addition, this climate change may arise from any source. The IPCC (Intergovernmental Panel on Climate Change) uses the term climate change to refer exclusively to change in the climate brought about by human activities. Throughout this paper, global warming is used as it relates to the anthropogenic effects. As defined by the IPCC, we are

experiencing global warming as a result of the changes being induced by humans (1995).

History of Global Warming

In 1827, Baron Jean Baptiste Joseph Fourier was generally recognized as the first person to have made an argument about the greenhouse-like properties of the atmosphere, and to suggest that the atmosphere was important in determining the earth's surface temperature (Paterson, 1996). Throughout the 19th century, experiments and observations were undertaken to understand the effects of the gases involved, and recognized that carbon dioxide (CO_2) and water vapor are the most important greenhouse gases.

In 1863, a British scientist, John Tyndall, was the first person to suggest that the ice ages were caused by a drop in atmospheric carbon dioxide concentrations, and also claimed that CO_2 rises would cause an increase in temperature. From this point on a number of meteorologists began to recognize the importance of this issue, and a number of organizations worked to explore this topic further. Such organizations included: Leipzig Conference of Meteorologists, World Meteorological Organization, the International Council for Scientific Unions, the United Nations, World Weather Watch, etc (Paterson, 1996).

At the end of the nineteenth century, Swedish scientist, Svante Arrhenius calculated that if the concentration of carbon dioxide in the atmosphere doubled, then the temperature of the planet would increase by between 5 and 6 degrees Celsius. He also first claimed in his book that human industrial activities might significantly affect climate (Paterson, 1996). Many years after Arrhenius' claim, scientists believed that any extra CO_2 emitted would be absorbed by the oceans. In 1957, Revelle and Suess first gave good reasons to believe otherwise, and also claimed that humanity was conducting a "large scale geophysical experiment". During the 1970's and 1980's WMO (World Meteorological Organization) and ICSU (International Council for Scientific Union) developed a scientific consensus on global warming: humans are changing climate inadvertently.

Throughout the 1960's, climate research was viewed as a precursor to humans consciously changing climate to make it more favorable. In 1961, US President Kennedy proposed to the UN General Assembly to further cooperate on efforts to predict the weather and eventually control the weather (Weiss, 1975). As environmentalism started to form in the 1970's, this attitude toward domination over the earth's climate changed to one where humans are dependent on climate. The turning point in awareness of climate issues was initiated by two studies in 1970 and 1971, the *Study of Critical Environmental Problems* and the *Study on Man's Impact on Climate,* respectively. These two studies caused the problem of climate change to be included on the environmental agendas of national and international institutions (Cain, 1983).

Several extreme climate events in the early 1970's also caused a change in the awareness of climate issues. These events included the Sahel five-year drought, the monsoon failure in India and the drought in Europe. In June 1979, the Eighth WMO Congress formally established the World Climate Programme (WCP). In 1985, the WCP held an "International Conference on the Assessment of the role of carbon dioxide and other greenhouse gases in climate variations and associated impacts" in Villach, Austria. At this conference a scientific consensus on global warming appeared for the first time: the most advanced experiments show increases of the global mean surface temperature of between 1.5 and 4.5 C for a doubling of the atmospheric carbon dioxide concentrations (WMO, 1986).

After global warming began to develop into a political issue, UNEP and WMO established the IPCC (Intergovernmental Panel on Climate Change) in 1988. The IPCC was established to assess available information on the science of climate change, particularly those arising from human activities. IPCC had determined in 1990 that the increase in atmospheric concentrations of greenhouse gases had altered the balance of the Earth/atmosphere and global warming would result. In 1995, the IPCC investigated the greenhouse gases and aerosols and their radiative forcing, the observed trends and patterns in climate and sea level, detection of climate change and attribution of

causes, and prospects for future climate change. They then determined that global warming/climate change was occurring, and their primary concern was the relative magnitude of human and natural factors in driving these changes (IPCC, 1995). The participating scientists have arrived at the following strong scientific consensus about global warming.

- Over the 20th century the global average surface temperature has increased by over 1°F.
- Precipitation has increased nationally by 5 to 10%.
- Global sea level rose 4 to 8 inches during the 20th century.
- Assuming continued growth in world greenhouse gas emission, the primary climate models project that temperatures in the U.S. will rise 5-9°F on average in the next 100 years (U.S. Global Change Research Program, 2000).

Media Coverage

Some studies show that in general, coverage of environmental topics in the *New York Times* has increased over the 1890 to 1990 period, with a peak occurring during the years of the first Earth Day (Lester, 1995). It is not that no coverage occurs, but the coverage is fragmented and confusing. Media cite bits and pieces of the growing evidence that demonstrates climate change is occurring. In the United States the strong scientific consensus underlying the apparent changes in global climate has mostly been kept out of public view. Therefore, what most Americans know about global warming is confused and inaccurate (Kempton et. al. 1995:63-85).

Kris Wilson conducted a study in 1995 to identify what people learn by the media portrayal of global warming. Wilson conducted the study using six hundred forty nine students from the University of Colorado-Boulder. Results from the study indicated that the media was an integral source of knowledge about global warming. In the assessment, more than half (57%) of the students stated that they felt prepared to participate as informed citizens in a global warming discussion, yet when they answered other questions in the survey

about global warming, the study showed that far fewer were actually armed with the necessary global warming information to participate as responsible citizens.

A Gallup survey conducted in six nations in 1992 explored public perceptions of global warming in some detail. Dunlap reports that the survey results indicated that in the U.S. global warming was ranked number 7, the least serious world environmental problem, and very serious by only 47% of the individuals surveyed. In addition, 44% of the individuals surveyed in the U.S. reported their understanding of global warming as "not very well" and "not at all" (Dunlap, 1998).

As early as the 1970's, scientists predicted that the melting of Antarctica's ice shelf would signal the warming of the planet. They were not wrong. Two months after this prediction a three-hundred foot-deep ice shelf collapsed in the Weddell Sea. More of these predictions continue to become reality, but a majority of the population does not know about the immediacy and seriousness of climate threat. Some individuals do not want the public to know, and have been waging a persistent campaign of denial and suppression that is very effective (Gelbspan, 1998).

The media gatekeepers have a strong influence on what is portrayed to Americans as news. How do they get away with showing partial truths? These partial truths are supported by individuals, such as experts or scientists in the field, paid by the industries to prevent a social change in the attitudes toward global warming. Most of what is displayed to the public is the one percent of the scientific community that dispute global warming. For instance, there is a scientific consensus on the link between chlorofluorocarbons and the ozone hole, yet reporters still produce articles that compare this scientific consensus to the less than one percent of scientists that dispute this link, making it appear that this connection is still uncertain (Helvarg, 1994).

In addition, these industries fund organizations under the Wise Use Movement to portray a different side to the global warming problem. In the U.S., companies pay $1 billion annually for the services of anti-environmental public relations firms and of other professionals

who promote their green corporate image (Helvarg, 1994). Articles written from this Wise Use/Property Rights perspective have appeared in *Reader's Digest, U.S. News & World Report, Fortune,* and *Wall Street Journal*. Media advocates of this movement include Rush Limbaugh, columnist/commentators George Will and Pat Buchanan, John Fund and David Brooks from the *Wall Street Journal*, and environmental reporter Keith Schneider from *The New York Times* (Helvarg, 1994).

Evidence for the media controller's bias toward environmental issues, specifically global warming, is needed. Case studies are given below that detail the number of stories that are intended to portray global warming as a problem and the stories that are intended to portray statistical fuzziness.

Case Studies – Global Warming

Example of the media's selectivity occurred in several September 1999 articles in the *New York Times*. Daily stories of the viral outbreaks occurring in temperate climates mentioned global warming just once, a one-sentence quote by a doctor on September 10th denying that there was any connection with the outbreak and climate change, when there is a scientific consensus that tropical diseases in temperate climates are manifestations of climate change (Gordon, 1999). These articles and many more provide adequate evidence for the lack of environmental reporting that targets serious risks.

One study by Moti Nissani (1999) shows that out of a hundred articles from May to September 1997 in *The Christian Science Monitor, New York Times, the San Francisco Chronicle*, and the *Washington Post* almost all of the coverage on greenhouse-related issues suffered from shallowness and pro-corporate bias in comparison to the mainstream scientific literature. A number of key points was brought out by reviewing the hundred articles; some of these points are listed below.

1. On May 21, 1997, twenty-one "leading ecologists" sent President Clinton a letter warning that the enhanced greenhouse effect must be slowed down. This warning has been cited only by the *San Francisco Chronicle*. The *New York Times* and the

Washington Post considered the letter but decided not to use it. Instead during that same time period, cited the views of corporate experts and owners, in a manner described by Nissani (1999) as "countless."

2. In September, 1997 the US Department of Energy (DOE) created a lengthy report involving numerous reputable experts, agencies, and organizations that stated that America can become richer by reducing greenhouse emissions. Again only one of the four investigated journals mentioned this study, and it appeared only once out of the hundred articles surveyed. The study was mentioned between a misleading title and the opinions of Ford Motor Company.

3. Industry's views were almost always given respectfully and at length. The newspapers repeatedly cited a small minority of scientists whose views happened to coincide with the oil, coal, auto and petrochemical industries.

Thus, Nissani demonstrates that media partiality and superficiality towards global warming was most likely based upon the large number of editors that do not want to defame the parent company's name.

Another similar study was conducted by Katherine McComas and James Shanahan. The researchers conducted a content analysis of the *New York Times* and the *Washington Post* stories from 1980 to 1995. Their purpose was to show how media construct narratives about global warming and how these narratives may influence attention cycles. Their content analysis revealed that implied danger and consequences of global warming gain more prominence on the upswing of newspaper attention, whereas controversy among scientists receive greater attention in the maintenance phase. They believed that issues including the environment pass through five stages: a pre-problem stage, a period of alarmed discovery, public realization of significant progress, gradual decline of intense public interest, and post-problem phase. Journalists claim that issues must be exciting, dramatic or sensational to gain public interests due to their need to upkeep ratings, advertising sales, and institutional competitiveness (McComas

and Shanahan, 1999). Therefore, quality and quantity of important issues like global warming are subjected to being assigned a dollar value.

There are relatively few media studies that are concerned with coverage of environmental issues. Still those that do exist find much controversy with the way the media portrays environmental issues and conclude that the media needs to make a new commitment to environmental reporting. Based upon the few media studies available, the following research was conducted into the realm of media social construction based upon the power structure outline above.

Research Questions

Media studies demonstrate that media coverage of environmental issues in the U.S. is contradictory and sometimes sparse. The questions that need to be answered are the following: 1) how does the U.S. media coverage of global warming compare to other countries and 2) what accounts for the differences or similarities in coverage? Previous studies have used several approaches for determining news bias. One approach incorporated by Gilens and Hertzman (2000) is to focus on issues for which different media owners have different interests. A topic of media coverage must be identified that 1) has received substantial media coverage, 2) has clear implications for the financial interests of corporate media owners, and 3) has different implications for the interests of different corporate owners.

The following research incorporates some aspects of this approach by analyzing three countries' news coverage of global warming during a time when news coverage was extensive due to the Kyoto Protocol and using countries with differing economies, environments and major industries. Specifically, to examine the extent of bias in media coverage regarding global warming, articles produced by *The New York Times* and the *Washington Post* and *Science* and *Nature* were analyzed and compared to the *Helsingin Sanomat* and the *New Zealand Herald* in the year 2000.

Data and Methods of Analysis

Two countries, Finland and New Zealand, were selected for comparison to the United States. Points of comparison included: economies, major industries, environmental issues and media coverage. The government, economic, industry and environmental information was obtained from the CIA's *World Factbook 2002*. An archive research of articles was conducted for the year 2000 on the websites of the selected countries' largest daily newspapers: *New York Times* and *Washington Post* (United States), *Helsingin Sanomat* (Finland) and the *New Zealand Herald* (New Zealand) as well as the two international scientific journals, *Science* and *Nature* using the key words, global warming.

These articles were separated into three categories based upon at least one sentence mentioning global warming in either of the following two ways: support or against global warming as an anthropogenic effect and combination of both in the same article. "Support" category is defined as the article containing text (minimum one sentence) that supports the assertion that global warming is anthropogenically produced and occurring; whereas the "against" category is defined as the article containing text that does not support the assertion that global warming is anthropogenically produced and occurring. The "both" category is coded for an article that contains both supportive and unsupportive lines of text. Corporate ownership was also evaluated for *The New York Times* and the *Washington Post* to determine the major industries that played a part on the board of directors of these newspapers. This information was obtained from *Fair* magazine website.

Results

Table one below details the number of articles in each category for each journal and newspaper which allows for a comparison among these differing media channels.

The majority of the articles from the *Washington Post* were identified as "both" followed by 36% of the articles supporting global warming. *The New York Times* exhibited similar results. In contrast,

the *Helsingin Sanomat* and the *New Zealand Herald* were dominated by articles in support of global warming indicating very little controversy about the issue. Of all the articles applicable to this study, a large portion of the articles in *The New York Times* and the *Washington Post* are expressing uncertainty about the occurrence and human production of global warming. In *The New York Times* and the *Washington Post*, 57% and 58% of the articles state uncertainty related to the global warming theory whereas the New Zealand and Finland newspapers express less than 9% uncertainty.

Table 1. Research Findings

Newspaper	"Support"	"Against"	"Both"	Total
New York Times	16	6	15	37
% of Total	43%	16%	41%	
Washington Post	13	5	16	34
% of Total	36%	14%	44%	
Helsingin Sanomat	7	0	0	7
% of Total	100%	0%	0%	
New Zealand Herald	40	1	4	45
% of Total	89%	2%	9%	
Nature	23	0	3	26
% of Total	88%	0%	12%	
Science	11	0	3	14
% of Total	73%	0%	27%	

Comparing the U.S. newspaper results to the scientific journals, the same variance is found. These scientific journals did not publish any articles for the year 2000 in the "against" category for these two journals and only produced three articles in each journal that expressed both supporting and opposing views. This research indicates a systematic pattern of coverage of global warming in the U.S., in that it systematically includes the opinions of global warming dissenters. This is at variance from the media in two other countries, as well as the premier scientific journals in the United States.

Table 2. Country Profiles

	United States	**New Zealand**	**Finland**
Government	federal republic; strong democratic tradition	parliamentary democracy	republic
Economy	In this market-oriented economy, private individuals and business firms make most of the decisions, and the federal and state governments buy needed goods and services predominantly in the private marketplace.	An agrarian economy dependent on concessionary British market access toward a more industrialized, free market economy that can compete globally. New Zealand's heavy dependence on trade leaves its growth prospects vulnerable to economic performance in Asia, Europe, and the US.	Finland has a highly industrialized, largely free-market economy. Its key economic sector is manufacturing - principally the wood, metals, engineering, telecommunications, and electronics industries. Trade is important, with exports equaling more than one-third of GDP. Except for timber and several minerals, Finland depends on imports of raw materials, energy, and some components for manufactured goods. Forestry, an important export earner, provides a secondary occupation for the rural population.
Industries	petroleum, steel, motor vehicles, aerospace, telecommunications, chemicals, electronics, food processing, consumer goods, lumber, mining	food processing, wood and paper products, textiles, machinery, transportation equipment, banking and insurance, tourism, mining	metal products, shipbuilding, pulp and paper, copper refining, foodstuffs, chemicals, textiles, clothing
GDP – composition by sector	*agriculture:* 2% *industry:* 18% *services:* 80% (2001 est.)	*agriculture:* 8% *industry:* 23% *services:* 69% (1999)	*agriculture:* 3.5% *industry:* 29% *services:* 67.5% (1999)

The question of why this variance occurs can be illuminated through an examination of the industries that dominate the economies of these different countries. As noted earlier, the media of an area generally represents the interests of the major industries present in the area (Gilens and Hertzman, 2000:370). To examine the economic variances between the economies in New Zealand, Finland, and the United States, Table 2 (previous page) was constructed. It lists the economies, government types, and industries in these three countries.

The three countries are located in different areas of the world; thus comprised of differing natural resources. Their economies are free market driven or are leading to becoming free markets. Their governments differ slightly but all have democratic principles. However, the major economic influences vary dramatically. Only the U.S. has a significant fossil fuel industry. The fossil fuel industry does not have a presence in New Zealand and Finland anywhere like the United States. This variance of industrial concentration could be a significant predictor of the variation in coverage of global warming issues across the sample of nations in this paper. Thus the evidence supports the thesis proposed by Gilens and Hertzman (2000) that the media coverage of a given environmental issue reflects the dominant industries of the area served by a media outlet. The United States economy would have to undergo a major transformation, a shift away from reliance on petroleum and coal as its major energy source. Therefore, there is a vested interest on the part of the petrochemical industries to extend the debate and to sow uncertainty regarding the overwhelming scientific consensus regarding global warming. Without such a vested interest, New Zealand and Finland have a media that generally follows scientific consensus on this matter.

Conclusion

After one hundred plus years of identifying global warming as a problem, we still find debate about the issue in the media even though the controversy among scientists has waned. Society members need to realize how they are controlled and manipulated by the media.

The media is known for retarding progress in social movements. For instance, in the nineteenth century American newspapers played a role in slowing the momentum for women's rights, thereby abusing the power it wields. Newspapers also can play a role in promoting progress as seen in the civil rights movement. Still, whatever role the media plays, their stance can have major impacts on society. John Swinton, editor of the *New York Tribune* was at a banquet making a toast to his fellow-editors:

> The business of the New York journalist is to destroy the truth, to lie outright, to pervert, to vilify, to fawn at the feet of Mammon, and to sell his race and his country for his daily bread.....We are the tools and vassals of rich men behind the scenes. We are the jumping-jacks; they pull the string and we dance. Our talents, our possibilities and our lives are all the property of other men. We are intellectual prostitutes (Nissani, 1999).

The global warming debate presses onward as long as the media wields its power in the same way as it has done. The media controllers will try to keep the construction of global warming, since many of these controllers have money tied into industries that rely on continuously polluting our environment. Journalists may lose their jobs for running stories that defame the parent company; therefore they will look out for the interests of the string holders.

The studies conducted on the environmental coverage by the U.S. media show how much ambiguity is presented to the people in society. The average person learns from the media controllers that global warming is controversial and possibly not related to human actions. Therefore, media is preventing the change needed in society to reduce consumption and preserve the environment.

According to a study conducted by Dietz, York and Rosa (2001), they suggest that ecological democracy has three requisite conditions: altruism, access to scientific information and openness of the state (8). A democratic society does not automatically lead to the best interest of the majority. A democratic society can be an oligarchy due to economic and cultural hegemony especially when a small class or an organization interests dominate (Gramsci, 1971).

This research has demonstrated that different interests and openness of states allows for openness of media coverage, such as with global warming. The U.S. tends to distort global warming in contrast to other countries' presentation of the issue and in contrast to scientists' views on the issue. The U.S. economy is strongly tied into the fossil fuel industry; therefore it is in their interest to present information to society members that global warming is not a serious problem. We encourage further research in order to substantiate or not our conclusion. This should include the continued analyses of other U.S. newspapers as well as newspapers worldwide.

Additional research into the control of media is needed to identify and expose to the public the abusive powers that exist within the media power structure. This exposure will better allow society members to criticize the information produced by the media as well as to research and formulate their thoughts and opinions. Only then can members of society bring issues of importance into the larger public arena rather than be dictated by the corporate and political forces on issues of importance only to them.

Endnote

1. "The Mismatch Between the Cultures of Journalism and Science." Speaking presentation for C3Conference in Waterloo, Ontario

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