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Environmental identity and Greening Ireland, a case study of the Banchees of Inisherin (2022), The Wonder (2022) and An Cailin Ciuin (2021).

Authors

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Abstract

The environmental activist Bill McKibben ('keep it in the ground') maintains that the 'real fight – all real fights – are over the zeitgeist. They're about who controls the vision of the future'. How to alter the ways we perceive and imagine our environmental past, present and futures depends upon who controls the social narrative of our time. The arts and humanities - including film in particular - have the power to both frame and change such perceptions and influence environmental policy. This is ultimately the aim of the environmental humanities - 'to reclaim the dominant narrative for a sustainable social and ecological vision of the future' (Gladwin & O'Connor 2018: 39).

The evolution of ecocinema which interrogates film from an environmental perspective broadly accepts that *all* types of film, from the excesses of Hollywood blockbusters, to the most rarefied and explicitly ecological art-house cinema, all in their own way assist in foregrounding ecological issues and concerns. The primary role of eco-film studies therefore is to help create public spaces for debate and argument over the claims of the environment for a place in political life (see Rust et al., 2013).

From an Irish perspective, this approach is most appropriate within the rural agricultural economy, producing high levels of methane and greenhouse gasses, not to mention water pollution. All of which goes against the grain of an erstwhile green idyllic island, especially from an outsider and a touristic perspective. There is a relatively small filmic output to help catalogue these challenging environmental debates. Nonetheless, Ireland affords a useful test site for environmental media, while calling out its 'laggard' status in facing up to the challenges of the climate crisis. This appears totally at odd with the nostalgic, pro-social rural stories highlighted in this paper, while also serving as a barometer of ever-changing ecological land ethics.

Historically, farmers have displayed a deep sense of place, communal solidarity and environmental stewardship, as evident in seminal Irish classics such as *Man of Aran* (1934), *The Quiet Man* (1952) and *The Field* (1990). While contemporary tales explored in this paper tend to echo and reformulate such tropes of beautiful landscape, primitive modes of production, while at the same time embracing deep nationalist values and foregrounding postcolonial - even a pathological - love of the land. Such values and attributes together with more contemporary themes around friendship and loss, much less drawing on dark tales of incest and religious guilt and retribution, as embodied within childhood innocence, are all brought into focus. Before finally celebrating representations of a quiet innocent girl (*An Cailin Ciuin* as against *The Quiet Man*), coping with

familial angst across more contemporary times, framed against a rural topography embedded within contrasting cultures and environmental values of two small farming families. All these recent tales afford a fruitful site to re-examine various forms of identity, trauma and habitat crisis within an erstwhile romanticised and idealist post-colonial touristic site.

Refs

Brereton, Pat 'Cultural and Visual Responses to Climate Change: Ecological Readings of Irish Zombie Movies' in *Ireland and the Climate Crisis*. Ed. David Robbins, Diarmuid Torney and Pat Brereton. Palgrave pp185-202. 2020.

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Key Words

eco-film, farming, Ireland, postcolonial identity,

The Journalistic Concretization of the Inflation Reduction Act as a “Historic” Climate Bill

Authors

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Abstract

In this paper, I examine how the Inflation Reduction Act (IRA) is covered by US journalists. Through a multimodal visual and critical discourse analysis of news coverage (text and images) published by *The New York Times (NYT)*, *Wall Street Journal (WSJ)*, *Washington Post (WaPo)*, and *USA Today*, I find that the IRA is represented as a superior climate bill in comparison with the Green New Deal (GND). Indeed, the GND is cast as a dangerous climate policy proposed by radical and young extremists supposedly emboldened by Rep. Alexandria Ocasio-Cortez (AOC) who is repeatedly denigrated as militant across the mainstream US press. The IRA and its supporters including President Biden and older figures of the Democratic Party such as Speaker of the House Nancy Pelosi are, comparatively, positioned as saviors and the IRA as a route back to more stable and moderate national conditions before the US was radicalized by extremists over the past decade. A clear “right” and “wrong” way of responding to the climate crisis is therefore established through the journalistic concretization of the IRA as a “landmark” and “historic” climate bill. The consistent referencing of the IRA as a “historic” achievement casts the legislation as fulfilling the (manifest) destiny of the US. Indeed, the US is portrayed as a guiding light leading the way forward through a “moderate” and “rational” response to both the climate crisis and the crisis of democracy / political extremism today.

This shared journalistic interpretation of the IRA as a “historic” climate bill, in turn, dismisses more robust, justice-oriented, and grassroots (as opposed to top-down) responses to the climate crisis as wrong and dangerous. Indeed, my analysis reveals how critiques of the IRA articulated by young supporters of the GND and climate justice activists are denigrated as both threatening to the stability of the nation *and* the stability the Earth’s climate. In this way, young climate justice activists are repeatedly represented (textually and visually) as obstructing the “urgent” action required to address the climate crisis. Climate justice activists are, therefore, positioned as on par with fossil fuel companies and are frequently portrayed as unruly and uncivil obstructionists.

Ultimately, this paper contributes a critical pause / theoretical intervention regarding scholarly understandings of discursive processes of (de)legitimization / how certain figures, perspectives, and responses to the climate crisis come to be understood as “right” and others as “wrong.” Many existing studies of climate communication overlook the role of nationalism and culture in processes of (de)legitimization and instead focus-in on mis/disinformation spun by fossil fuel companies and lobbyists alone. I challenge this unidimensional understanding of climate communication and politics in my paper through a critical analysis of how the IRA has come to be

interpreted and concretized as “historic” and “destined” while the GND has come to be dismissed as both dangerous and misguided across mainstream US journalism and wider political discourse.

Key Words

climate change, journalism, interpretive communities, critical discourse analysis

INDIAN DISCOURSES ON POST-APOCALYPTIC CLIMATE CHANGE FILMS

Authors

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Abstract

The last couple of decades have witnessed the intensification of public discourses surrounding climate change and issues pertinent to it, which include political, social and cultural facets. International conclaves and agreements on climate change and other environmental issues have hogged news space during this time more than ever before. The role of the media in highlighting these discourses and making them comprehensible through various means to the layperson has also been a subject of great academic interest. Creative representations of these issues such as films have been appreciated for their ability to touch audiences at an emotional level. By using creative visualization of problems in the real world, films hold the specific advantage of being able to drive home the graveness of existing real-world situations.

The paper focuses on the role of five climate change fictional films that fall in the category of end-of-the-world narratives and which portray extreme climate change and its repercussions. The films chosen for the study are 'The Colony' (2013), 'Snowpiercer' (2013), 'Into the Storm' (2009), 'Young Ones' (2014) and 'The Day After Tomorrow' (2004). The common premise shared by these films is that they are set in a dystopian world, which is a product of extreme climate change and environmental degradation. The films that are chosen for the analysis fall simultaneously under the categories of science fiction and post-apocalyptic climate change fiction. They depict resource extinction and the resulting human sufferings. 'Snowpiercer' weaves narratives of a class divide that emerges in the midst of common sufferings that ensue after the end-of-the-world is ushered in by a failed technological intervention to reverse global warming. 'The Colony' is the story of degeneration of humanity taking the shape of practices such as cannibalism in the face of lack of resources and rampant epidemics. 'Into the storm' is a story of extremely frequent and severe tornadoes ripping apart a city and causing great damage even as innovations are under way to study storm closer than ever before. 'Young Ones' is a narrative of tribulations of a world that fights for survival due to scarcity of water in a dystopian futuristic world. 'The Day After Tomorrow' presents images of extreme weather and destruction, which defy all scientific predictions. The study uncovers the commonalities in the ways in which the five films have depicted climate change while also accounting for the variations in their narrative techniques.

The theoretical framework for the study is Lawrence Buell's ecocritic approach, focusing on discourses surrounding climate change and related environmental issues. The study employs discourse analysis of narrative tropes, including both visual and non-visual elements. In the second part of the paper, we present the findings of a focus group discussion conducted among Indian students of environment and media to understand the Indian perspectives on Hollywood climate

change fiction. The films were screened to the audience comprising Indian students following which they were encouraged to discuss aspects of the films.

Key Words

Ecocriticism, film studies, environmental films, global warming, dystopian fiction

Earth Day for Future: Framing environmental awareness days through youth climate activism

Authors

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Abstract

This longitudinal study examines the representation of the transnational youth climate movement Fridays for Future (FFF) in relation to news about “Earth Day,” an event which has been taking place annually since 1970 in order to bring global awareness on climate change and environmental destruction. The overarching research question seeks to address in how far FFF occupies the public media discourse surrounding Earth Day. Specifically, this entails analyzing how the movement harnesses this global event to bolster their own movement agenda and how the news media connect an environmental event to the youth climate movement. The study includes a longitudinal data corpus of German news coverage (Germany, Switzerland, Austria) over a three-year period with a total of N=407 online news articles (2019: N=95; 2020: N=166; 2021: N=146). A news frame analysis reveals three key themes: authority on the climate crisis, mobilization for climate activism, elections and climate governance. The first theme (authority on climate crisis) synthesizes the news media’s amplification of Earth Day in connection to FFF; here, Greta Thunberg’s visit to the Pope to discuss climate matters dominates movement-related news on Earth Day in 2019. The second theme (mobilization for climate activism) summarizes the journalistic focus on FFF’s digital strike alternatives as Earth Day 2020 occurs on the same week as their first online Global Climate Strike. The third theme (elections and climate governance) concerns policy-related events in global politics, including the coinciding “Leaders Summit on Climate” put on by US-President Joe Biden. Importantly, the study finds that the annual context heavily impacts the focus of news coverage with pronounced differences on the journalistic emphasis in connecting the FFF to the global event. Overall, the amount of news coverage that connects the youth movement to global climate-related events underscores the key role of FFF in international media discourses on environmental issues. A key theoretical contribution of this study emerges around the notion of frame coupling; particularly the way in which a pre-existing environmental event becomes associated with a particular movement through news framing as a novel form of journalistic development in news reporting.

Key Words

climate activism, Fridays for Future, news framing, environmental movement

Manufacturing authenticity in science. A critical discourse analysis of how public relations negotiates compassion in animal experimentation

Authors

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Abstract

Whether animal experimentation is crucial for the progress of science or a barrier to it is a disputed issue. What it is undisputed, either by proponents and by opponents of animal experimentation, is the various psychological and physical harms, including death, that are inflicted on nonhuman animals in laboratories. Because of the increasing social concern and compassionate response by society towards animal suffering, the experimentation community has joined the compassion and care narrative towards nonhuman animals.

In this paper we examine how the animal experimentation industry negotiates compassion through strategic communication in public relations. To this end, we have studied the discourse of the largest Spanish lobby defending animal experimentation in Spain: SECAL (Sociedad Española para las Ciencias del Animal de Laboratorio, or the Spanish Society for the Laboratory Animal Science).

Our main goal was to examine how SECAL's narrative negotiates compassion – that is, to what extent the lobby's messages regarding animal suffering in laboratories are authentic or manufactured. By authentic we mean whether it honestly addresses the suffering of the animals involved in experiments. By manufactured we mean whether the narrative pretends to engage and encourage compassion but it is not doing so in reality or even doing the opposite, blocking the natural compassion that emerges amongst the public.

Whitin the theoretical framework of critical animal studies, critical public relations, and critical discourse analysis, our research studied a sample of 82 texts from SECAL's website (www.secal.es), including all relevant texts available and 30 editorials from the lobby's scientific journal. After a brainstorming amongst experts and a pilot test, we end up with a template of analysis that differentiated three levels of discourse, that representing: nonhuman animals used in laboratories, the animal experimentation industry, and society as a beneficiary of the experimentation. For each group we analyzed the explicit (literal) and implicit (implied) arguments used to represent each of them with a particular emphasis on how compassion is negotiated (encouraged, discouraged; with an authentic or manufactured narrative). The template also included a specific cross-analysis with androcentrism, speciesism and capitalism. For the three levels of analysis, we identified nomination strategies (how the actors were represented in terms of who they are), predication

strategies (how the actors were represented in terms of what they do) and argumentation strategies (whether beliefs or opinions were being justified).

Results show that SECAL is not negotiating compassion with authenticity but rather manufacturing it, that is, conveniently framing itself as concerned about animal suffering while at the same time discouraging the cultivation of compassion amongst the public, including the use of non-inclusive and sexist language, the reproduction of the inaccurate human/animal binary that presents humans as superior, and the commodification of animals as mere capitalist resources.

Ultimately, our examination pretends to illuminate how strategic communication is used in science to address the contradiction between the public opinion's positive attitudes toward animals and a human practice that consistently harm them and, therefore, needs to be discursively framed as appropriate to be accepted.

Key Words

scientific narratives, authenticity, animal experimentation, discourse, lobbies, compassion, interspecies ethics

International relations framing in national reporting on climate change: A frame analysis of climate coverage in countries allocated to the Global South and the Global North.

Authors

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Abstract

Rationale and theoretical approach

The description of the post-conference states that sustainability is manifested in 17 Sustainable Development Goals established by the United Nations (UN). Goal number 13 calls for “urgent action to combat climate change and its impacts” (UN n.y.). Knowledge of climate change cannot be obtained through direct experience since changes in climatic conditions stretch over long periods of time (Moser 2010). The individual perception relies on knowledge obtained through the media. Thus, climate change reporting presents an interesting research field since the media framing largely determines which aspects are emphasised or left out.

Climate change is a global issue, but journalism often prioritises national perspectives (Broadbent et al. 2016). This study aims to take into consideration the global scale of climate change and the global approach initiated by the UN in the Global Goals. In a frame analysis of news articles from different countries allocated to the Global North and the Global South, it should be investigated how international dynamics are reported in national media when it comes to climate change. The paper draws on sociological approaches to journalism studies as well as postcolonial studies and combines the different research fields to ensure a theoretically sound analysis. This also includes a debate about epistemic justice and global news flows.

Research design and empirical application

First, a comparative, quantitative frame analysis serves to identify dominant discourses. Second, qualitative semi-structured interviews with journalists are conducted to enhance the results from the frame analysis. The entire study includes a number of frames; however, the focus of this paper lies on the analysis of frames connected to global dynamics with regard to climate change. The main methodological challenge in comparative journalism studies is – at the most basic level – comparability. This will be addressed in more detail in the presentation of this paper.

The study analyses online articles from eight countries. The number of countries and outlets was partly determined by the scope of this project and the level of feasibility. The selected countries are Ghana, Kenya, Namibia, Nigeria, and South Africa from the African continent, and Germany, the UK and the US allocated to the Global North. These countries were chosen for several reasons: While this study can by no means account for an entire continent trying “to reach generalised conclusions about ‘the news coverage of Africa’” (Bunce et al. 2017: 8), the countries represent a range of (1) economy sizes, and (2) geographic areas, as well as varying (3) contributions to, and (4)

vulnerabilities to the impacts of climate change. This study is unique in that it does not only look at climate change coverage across countries and regions but also investigates climate change reporting with regards to international cooperation and relations.

The submitted piece is part of a monograph dissertation (PhD) and will give an overview over the research gap, the methodological challenges of this kind of comparative research and initial findings from the frame analysis and the interviews with journalists.

Key Words

climate change, postcolonial, global, climate justice, news values, frames

The Roles of Mass Media in Risk Communication: From the Experiences of Japanese Media

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Abstract

This paper attempts to examine media information in highly specialised and "uncertain" situation such as natural disasters including earthquake and typhoon as well as infectious diseases including COVID-19, where it is difficult to foresee disaster trends with little data or evidence. This paper empirically clarifies factors that cause problems of difficult-to-communicate information in high-risk situations as well as provides specific insights into the future of disaster communication through media.

For this purpose, we examine how Japanese media could have provided information under "uncertain" circumstances, especially under COVID-19, in order to promote appropriate actions among anxious and confused public, what problems and challenges media have encountered, and how they could have involved the public in risk communication, based upon an interactive, participatory, and democratic framework of risk communication.

Methodologically, we conducted an audience survey via the Internet and textual analysis using the NII Television Archive, as well as questionnaires and interviews with television, newspapers, and community FMs.

These surveys have revealed Japanese media's attitudes and beliefs toward risk communication. While TV and newspapers are aware of necessity of risk communication, few respondents understand the essence of its concept. In addition, most of coverages of COVID-19 were made from the standpoint of crisis communication, which is top-down and controlled communication in times of disaster. Overall, the survey highlighted that the concept and necessity of risk communication itself has not yet penetrated in the Japanese media.

Second, the following issues were found to be behind the difficulty in spreading risk communication across the media; (1) dilemma of their own social roles with the rise of SNS, (2) diversification of information dissemination in relation to regional characteristics, (3) polarization of values and ideologies, and (4) physical challenges and gaps including human resources and

budget. These media are at the mercy of rapidly changing social conditions and have lost sight of their own positions.

Third, the possibility of realising risk communication in Japanese media can be seen in examples of some advanced activities. A few TV stations and newspapers have taken a position of serving as local forums to capture needs of the publics and utilise them in their reporting. In some Community FMs, frameworks of risk communication already exist as participatory programming. Using these existing frameworks as platforms, it seems feasible to develop risk communication in Japan.

In uncertain and high-risk situations, where scientific and professional knowledge is exchanged, the role of media is not only to pass information from right to left. For risk communication to function soundly, the first step is for media to prepare a circuit to ensure that necessary information reaches each stakeholder. If information is uncertain and highly specialised, it must be provided in a manner that allows each stakeholder to discuss it, rather than being conveyed based solely on experts' idea and leaving the decision to the public. As both media technology and the social environment diversify, new roles as a compass for uncertain situations and as a medium for bridging social divides are expected for media.

Key Words

Risk Communication, Mass Media, Japan, Questionnaire, Interview

Perceptions of Business-Community Partnerships in Addressing Climate Change Issues in Suburban Kenyan Communities

Authors

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Abstract

Background: Climate change has affected the world's ecosystems and threatened the economic systems, community livelihoods, and availability of natural resources. With an increase in greenhouse gas emissions that include carbon dioxide, methane, water vapor, nitrous oxides, and other gasses, there is a profound effect on natural resources and on our living environments. According to the Intergovernmental Panel on Climate Change (IPCC), there are three mitigation strategies; 1) Afforestation (planting tree species and non-native and fast-growing species); 2) Reforestation (converting non-forested land to forest, planting native species); and 3) Deforestation avoidance (avoidance of conversion of carbon-risk forests to non-forest land) (Reyer et al, 2009).

One of the recommendations from the 2021 United Nations annual conference on climate change in Glasgow (COP26) is to work together to tackle the climate crisis through collaboration between government, businesses, and civil society (UNFCCC, 2022). Collaboration between businesses and communities they serve is crucial especially in resource-poor communities not only for the sustainability of projects but also for long-term brand relationships and overall social and community development.

Corporate social responsibility is when the business communities show commitment to contributing to the well-being of communities through various social and environmental measures. This implies that businesses take the initiative to evaluate stakeholders and their environmental needs and implement programs to manage them (Thomas & Simerly, 1994). However, there has been limited literature on community-corporate cooperation in addressing climate change, particularly in less-developed and resource-poor communities. A key question is whether corporate agencies perceive short- and long-term benefits for their contributions and if civil society values those contributions in the context of climate issues.

Purpose: With the recommendation for inter-agency collaborations, this study, therefore, examines the following: 1) the communities' or civil societies' knowledge, attitudes, perceptions, and motivations for addressing climate change issues as well as actions taken to address or mitigate them; 2) perceptions of the business community and their contributions in addressing those issues as part of CSR or otherwise; 3) how corporate contributions influence their position in society; and 4) culture-centered communication strategies for motivating climate change actions among suburban civil society and businesses.

Theory: The study will be informed by two theories – 1) the stakeholder theory that posits that corporations have an obligation to constituent groups in society other than stakeholders and

beyond that are prescribed by law or union contract (Jones, 1980); 2) the RISP (risk information seeking and processing) model that focuses on psychological factors that determine how people evaluate risk, in this case, climate-related risks, and seek/process the information to mitigate that risk.

Method: Data are gathered through focus groups with the civil society and in-depth interviews with the business community in Kenya to address people's perceptions about environmental risks and climate change issues as well as their views on community-corporate partnerships. Survey data will also be gathered to provide insights into participants' environmental literacy, attitudes, and risk perceptions related to climate change, and the motivations for environmental action.

Results: Results will show limited environmental literacy in Kenya, moderate risk perception, severity, and seriousness of climate-related issues, but a higher motivation for conservation among suburban communities. Qualitative results will show the perceived importance of partnerships between communities and businesses in addressing climate change, but businesses have a lower motivation to contribute as part of CSR. This project provided insights into business-civil society partnerships and make recommendations for researchers and practitioners in environmental communications, urban communication, business communication, public relations, and others in the climate change field. It also contributes to environment and climate change knowledge from the perspective of a resource-poor setting.

Key Words

Climate change, Business-civil society partnerships, suburban, knowledge, perceptions, environmental literacy,

Narrative and Position Bias in Social Media Bots' Global Warming Issues on Twitter

Authors

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Abstract

Introduction

As social media has become a powerful platform for public communication, enormous accounts were found not by humans but by AI algorithms. In environmental communication, despite many agreements supporting the global warming theory (Boussalis C. et al., 2016), divergent climate debates pose barriers to worldwide consensus and the following joint actions (Shi et al., 2020b). Some scholars have found that social bots contributed up to 15.4% of related content in climate change discussions on Twitter. As a result, climate change discussions on social media can't be equal to actual online users' opinions (Chen, C. F. et al., 2021). As global warming is an essential manifestation of climate change, social media discusses it well. Whether social bots are also involved in this topic is worth further investigation. This study uses a social bot detection tool to determine the narratives and positions of social bots on global warming topics on Twitter.

Research questions

RQ1: Are there social bots involved in posting Twitter posts about global warming?

RQ2: What are the topics of the content posted by social bots in Twitter posts about global warming? What are the content differences between human and machine postings?

RQ3: What is social bots' stance on global warming issues on Twitter?

Methodology

- **Data mining** Data mining was performed on the Twitter platform with the keyword "global warming" in 2021. A total of 65536 texts were obtained. In this paper, the texts were sampled month by month employing equidistant sampling, and a total of 2823 accounts were acquired and came into detection.
- **Account Detection** Botometer, a tool more commonly used for social bot detection, was used to detect the social bot identities of accounts on Twitter. The Botometer is a trained machine learning algorithm that obtains the public profile of an account by calling Twitter's API and transmitting it to the Botometer API, where each account is compared to tens of thousands of already-tagged accounts before being scored. The system is rated on a 5-point scale, where

the closer the score is to 5, the more likely it is to be a social bot. This study refers to existing studies and determines those with a score of 2.5 or higher as social bots (Varol O. et al., 2017).

- **LDA Topic Extraction** Based on the results of account detection, Twitter posting contents were classified according to human and social bots. Topics were extracted separately using LDA to compare the differences between human and social bot participation in the global warming topic discussion.

Results

On the topic of global warming, bots are involved in the discussion. According to the results of account detection, this study found that human accounts made 2095 posts (75.11%), and bot accounts made 728 posts (24.89%). In months, the percentage of bots involved in posting was higher in May and December, at 42.79% and 41.05%, respectively.

According to the results of the LDA analysis, six topics were extracted from human postings, including population growth (T1), long-term dramatic changes (T2), business activities (T3), global actions (T4), marine ecology (T5), and clean energy (T6). Six topics were extracted from bot postings, including posting subjects (T1), global actions (T2), economic measures (T3), climate judgment (T4), and U.S. action (T5).

Discussion

Although it has been shown that social bots are more common in manipulating public opinion on issues related to politics, international relations, and health (Mueller, M. et al., 2013; Bessi, A., & Ferrara, E., 2016; Shi, W. et al., 2020). The present study confirms that social robots have also been engaged in global warming and environmental topics.

In terms of specific content distribution, there is a certain logic to the human discussion on the topic of global warming in comparison. The six subjects extracted by LDA can be summarized as the causes and dynamics of global warming, the consequences that affect changes in marine ecology, and the actions taken and advocated globally. On the other hand, the topic of social robots is relatively scattered. Among the extracted subjects, the clustering of bots and websites manipulating the release of public opinion is more prominent, showing a specific commercial color. In contrast, at the action level, the clustering of U.S.-related elements is more pronounced, suggesting the major countries involved in global warming governance. It is thus inferred that the importance of the United States as a global warming governance entity is emphasized in the public opinion manipulated by bots.

Key Words

Global Warming, social media, bots, bias

Scientists under attack: A setback for public engagement with science and technology?

Authors

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Abstract

'I hope you die', headlined *Nature* in October 2021 (Nogrady, 2021) and discussed how the COVID-19 pandemic unleashed attacks on scientists. Derived from a self-hosted survey of more than 300 scientists who have given media interviews about COVID-19, two-thirds of the scientists reported negative experiences, and 15 percent even death threats (Nogrady, 2021). Threats against scientists in online media (Gewin, 2018) are not new phenomena, yet, the pandemic has changed the intensity (Makri, 2021). This may have permanently affected the relationship between science and the public. However, there is still a lack of research that can fully explain the scientists' coping behavior after public exposure during the pandemic and how this might affect public engagement and their willingness to science communication in the future.

Our study is based on Protection Motivation Theory (PMT; Rogers 1975, 1983; Witte, 1992; Floyd et al., 2000). PMT explains why people respond to a perceived external threat with specific protective behaviors. The motivation to protect oneself is the result of a threat that is perceived as both serious and personally relevant. A behavioral intention arises from this, however, only if there is an idea of what one can do about it. The protective measure must be perceived as both effective and within one's scope of action to be behaviorally relevant. Based on this, we argue that scientists who face hostility and perceive it to be seriously threatening will follow their innate flight instinct and aim at withdrawing from the public sphere. This mechanism can be overridden if the individuals concerned perceive other protective measures to be effective and at their disposal, e.g., academic institutions offer credible support. Since protection motivation is the result of a subjectively perceived threat, this mechanism may also occur in those scientists who have not publicly commented on COVID; e.g. scientists who have just followed the debate about the role of science in the pandemic intensively in the media but did not participate actively. Thus, second-hand experiences through media reports on hostility against scientists (through "lurking" and "listening"; Crawford, 2011, p.64) could have driven scientists – who had not yet been attacked – to avoid public exposure, too.

We conducted a standardized online survey of over 4,000 scientists from various disciplines affiliated with German universities or research institutes. The survey just ended in December 2022. Among others, we ask researchers about their experiences in the pandemic, whether they experienced hostility, and how these affect their attitudes toward public engagement. Our thorough analysis is still ongoing, and we would like to present and discuss our results at the

conference. We focus on multivariate analysis and by using PMT, we will be able to shed light on researchers' different coping strategies and future outcomes for the relationship between public and science.

Our study makes three contributions to the current state of research: It examines the scope of the "Covid effect" beyond those who have themselves spoken publicly about the pandemic and its response; it identifies conditions that must be in place so that external attacks on scientists do not lead to their withdrawal from the public sphere; it adds theoretical background to existing empirical observations.

Key Words

science communication; scientists; COVID-19; harassment; protection motivation theory; coping behavior;

The Impacts of Socio-Environmental Hazards on Maritime Trade Networks: A Computational-History Approach

Authors

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Abstract

This paper aims to present the preliminary results of an ongoing computational-history project where data-driven agent-based modelling and simulations (ABMS) are applied to study sea-lane resilience as a function of human agency and natural ecosystems. Socio-environmental hazards, such as tsunamis, earthquakes, and pandemics, arise from interacting factors within the social and environmental systems, placing threats and challenges on societies both past and present. Thus, this research project, supported by the Singapore Ministry of Education under its Academic Research Fund Tier 1, RT20/21, uses the historical landscape as a simplified but reliable laboratory to simulate hypotheses on how maritime trade networks reacted to socio-environmental hazards and ultimately model pathways for future sea-lane resilience.

A multidisciplinary approach sets up the necessary conditions and develops a proof of concept for applying ABMS to a preliminary combination of selected historical, archaeological, social, and environmental datasets. The significant advantage of ABMS is that we can juxtapose time, space, and actors at will. In practice, the research project designs and tests what-if analyses to study the impacts of socio-environmental hazards on sea lanes during the Afro-Eurasian maritime trade systems transition into Modernity. Firstly, the research team selects a range of proxy evidence (i.e., information recorded in historical documents and natural resources such as coastal sediments, caves, tree rings, and coral reefs, which preserve data about past events). Then, this evidence is parsed into machine-readable documents for the next stage: data modelling, analysis, and visualisation. To support the development of such models, the research team identifies necessary agents, events, conditions, and preferences and collates existing and new datasets of historical socio-environmental hazards. In this process, multidisciplinary human curation is of the essence to reorganise the information into comparable and computer-understandable formats.

The challenge for media and communication is making the research results accessible to policy and decision-makers when and where they need this information. From an environment, science and risk communication perspective, this paper showcases how the research team uses that award-winning open-access Engineering Historical Memory (EHM) platform. Ultimately, this paper shares a multidisciplinary approach to address the call made by the ESR working group of the 2023 IAMCR conference and demonstrates how scholars, new media, and technologies can work together and

contribute free access to relevant knowledge in supporting organisations facing socio-environmental challenges locally and globally.

Key Words

Socio-environmental hazard, data-driven agent-based modelling and simulations, maritime trade network

Science, misinformation, and the role of sarcasm

Authors

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Abstract

IAMCR2023

Environment, Science & Risk Communication (ESR) Working Group

Science, misinformation, and the role of sarcasm

Introduction

Current distrust of science and scientists (Rutjens et al., 2021) can greatly impact the public's understanding of scientific matters and diminish support for the recommendations of scientists and health organizations (Winter et al., 2022). To understand this phenomenon, this research examines how social media users express distrust by doubting the accuracy of science misinformation and by adopting a dismissive or sarcastic tone.

Literature Review

Studies have been conducted to show how science misinformation can be a potential cause of the public's distrust of science (Antiochou, 2021) and how distrust of science impact processing of misinformation (Tsang, 2022). This research aims to contribute to the scholarship examining perceptions of scientific misinformation (Scheufele et al., 2020) by constructing a framework in which to study the ways in which individuals express doubts, or even criticisms, about scientists and health organizations. Such a framework is useful for the detection of science misinformation. Very often, detection models rely on collective knowledge, such as users' comments. More specifically, when users express doubts, there is a greater likelihood that the information is problematic.

While these models were being generated, scholars found that, because many posters employ sarcasm, their comments are not very reliable or easy to interpret (Bouazizi & Ohtsuki, 2016). Sarcasm, which involves expressing the opposite of one's actual meaning, can be used for humorous purposes (Riloff et al., 2013) or to express annoyance or anger. In other words, sarcasm can be seen as a form of expression of distrust.

Method

To assist in identifying sarcastic comments among all users' comments, this research proposes a thematic analysis of users' comments posted in response to science misinformation debunked by IFCN-verified fact-checking organizations. The original source of misinformation on social media platforms will be tracked and the comments extracted and analyzed in terms of how users accuse scientists, health organizations (e.g., FDA, CDC, WHO), scientific findings, or science in general of being dishonest, or even evil. Thematic analysis will also identify (1) under what conditions

sarcasm is utilized and (2) whether there are any common features in the ways that this is expressed. A total of 3,000 comments will be analyzed.

Significance

By constructing a framework to understand sarcastic expressions in the context of scientific misinformation, we can learn how distrust towards scientists is formed and thus how the public understands scientific findings and recommendations. Theoretically, the findings could contribute to fake news detection research. Since some researchers incorporate users' comments as part of their fake news detection models, and because these comments include sarcastic comments that will lead to the development of poor models (Bouazizi & Ohtsuki, 2016), it is vital for the purposes of topic modelling and sentiment analysis to identify the presence of sarcastic comments and to accurately identify their true meaning.

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Key Words

science, misinformation, sarcasm

Framing the Public's Understanding of Science: the Impacts of Media Exposure and knowledge on the Audience Frames of GM Food

Authors

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Abstract

Given the inconsistent findings on knowledge and media usage in framing the public's understanding of genetically modified (GM) foods, this study identified four frame packages based on Entman's (1993) definition of framing (anti-nature, right to choose, scientific debate, and livelihood) and analyzed the media frames about GM foods published in mainstream and social media. Then, using survey data from 1385 Chinese respondents, we examined the impact of knowledge of GM foods and media exposure on the public's audience frames. The results indicated that the public's opinions are segmented according to inconsistent and even polarized audience frames. Further, we found that the predictive power of factual and perceived knowledge differs, with factual knowledge leading people to a more rational understanding of scientific issues, whereas perceived knowledge tends to reinforce an individual's existing belief system, even when their ideas are irrational and unscientific.

Background

A framing effect occurs when a media frame affects audience members' understanding of or opinion on an issue (Aarøe, 2017). Studies of the framing effects among controversial news events, the mass media, and the public have long been a fundamental part of media and communication research. Most framing studies, however, focus on political issues, leaving the extent to which the media influences public opinion on contentious scientific issues unexplored. The issue of GM foods and its related technology have generated immense public concern upon industrialization and commercialization, which has drawn the attention of communication scholars. This study attempts to investigate the framing effects of GM food on the Chinese audience, specifically what audience members perceive to be the most salient aspect of a scientific issue about GM food and what indicators influence and help them make sense of it.

Media exposure In recent years, both traditional media and social media platforms have become sources that significantly influence people's attitudes. Especially knowledge-sharing social media, compared with comprehensive social media, play a positive role in the communication of controversial scientific issues.

Knowledge Additionally, knowledge has received particular attention in the communication of science. This study classifies knowledge into factual and perceived knowledge and examines their relationships with public opinion on GM foods. Factual knowledge refers to objective knowledge

(measured using 11 true/false statements); perceived knowledge is the individual's self-evaluation of their knowledge capacity (measured by self-evaluation on four knowledge categories of GM foods).

This study seeks to find out: What are the dominant media frames of GM foods presented in traditional and social media in China? Does the use of different types of media sources and the factual and perceived knowledge affect the public's audience frames?

Methodology and findings

This study employs Entman's (1993) definition of framing (issue define, causation, moral judgment, remedy) to identify four frame packages and analyze the media frames together with the indicators of media exposure and knowledge of the public's audience frames. A total of 16 sub-frames were identified from these media outlets, which were categorized under four audience frame packages through factor analysis. Then through computer-assisted telephone interviews, this study randomly interviewed 1385 Chinese residents in the cities of Guangzhou and Zhengzhou to examine the impact of media exposure and factual and perceived knowledge on the public's selected sub-frames.

The 16 sub-frames generate four frame factors: anti-nature, right to choose, scientific debate, and livelihood. For example, the issue define sub-frame of "Violation of the laws of nature", the causation sub-frame of "Destroy the natural system", the moral judgment sub-frame of "Human intervention" and the remedy sub-frame of "Stop production" generates the frame factor of anti-nature. The four frame factors generated by the public were then considered dependent variables in order to measure the audience frames and investigate how they make sense of GM food and technology.

The results indicate that the public's opinions are segmented and even polarized by their social background, media use patterns, and knowledge of GM foods. In particular, opinions are polarized among participants with a high level of education and high social media exposure. Factual knowledge works as a powerful factor in predicting a more neutral or positive understanding of science, while perceived knowledge reinforces individuals' negative belief systems, and they regard GM foods as against the laws of nature despite their low factual knowledge of the issue. This study integrated a range of variables used in framing research, and the findings provide a useful reference for media professionals wanting to understand individuals' attitudes and behavioral changes in the face of scientifically controversial issues such as GM foods and technologies.

Key Words

audience frames, factual knowledge, GM foods, social media, perceived knowledge

The role of media pluralism in the communication of disasters: a case study of the Atacama Flood in Chile, 2015

Authors

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Dr. Claudio Salinas - University of Chile

Abstract

This presentation will account for the existing link between disaster risk reduction and media pluralism (Palma et al., 2022) by analyzing the press coverage and routines deployed around the floods in northern Chile in 2015. This is an exemplary case due to the temporal extension and the severe consequences for the area's population. Based on this project, we aim to build some guidelines to improve the media coverage of disasters.

This work is based on the assumption that there is an interdependence between media pluralism (Charney, 2021) and disaster risk management (Remes, J. & Horowitz, A. 2021; Bradshaw, S., & Fordham, M., 2015). Given the above, we establish a close link between democracy, quality, and density of pluralism and its impact on the multidimensional management of the disaster.

We understand media pluralism as a recognized value for contemporary democracies (and an indicator of its intensity) and, therefore, this is an attribute of the journalistic discourses and routines displayed within these political regimes (Salinas et al., 2015a; Salinas et al., 2015b; UNESCO, 2006). In this work, we will observe pluralism as a measure of the diversity of the topics covered, points of view, editorial lines, and social actors represented and incorporated into journalistic discourses (Checa, Lagos, and Limonado, 2019). The preceding, we propose, would impact a systemic approach to disasters beyond a look from the moment of emergency, which a notion of communication would complement as a continuous process rather than a hiatus (Palma, et al., 2022). In other words, multidimensional disaster management would depend on the quality and density of media pluralism, verified in the news items circulated in the media systems.

How are disasters and the intensity of democracy linked from an analysis of media pluralism in Chile? to answer this question, we will address the role of experts, as well as local knowledge and other actors involved in journalistic discourse; the temporality in the focus of the disaster, and its impact on the construction of the disaster; in addition to the rhetoric with which the news is framed.

The analyzed corpus corresponds to 850 news pieces, including national and local media, which address the disaster cycle. We propose a descriptive-inferential study of a mixed nature that considers a descriptive dimension of press coverage and an assessment dimension of the results obtained according to the existing literature on disasters, pluralism, and democracy.

Key Words

Media Pluralism, Disaster, Disaster Risk Reduction, Flood, Chile

How Are Novel Food Discussed On Facebook In Singapore: A Content Analysis

Authors

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Prof. Weiyu Zhang - National University of Singapore

Abstract

Against the backdrop of a global food crisis, a communicative study on novel food is timely and necessary. As the regional food and nutrition hub, Singapore has taken the lead in venturing into the emerging field of novel food. Over 15 alternative protein start-ups have been established in Singapore in the past two years. In 2019, the Singapore Food Agency (SFA) introduced a novel food regulatory framework, which requires companies to apply for foods and ingredients with no history of safe use. According to a study conducted on sustainability applications, a billion findings have revealed a seven-fold increase in local consumers' interest in plant-based protein compared to figures in 2019 (Begum, 2021). In addition, consumer reviews on alternative meat products have increased by 306 per cent (Begum, 2021). To support the shift in consumption patterns and reduce its overt reliance on food imports, Singapore sets a "30 by 30" goal to produce 30 per cent of its nutritional needs locally by 2030. With such a progressive move that allows for an innovative and experimental environment, novel food is expected to bloom in Singapore in the upcoming years. Therefore, conducting this study with our existing local data is necessary to understand our local consumer's concerns and the commercial viability of novel food.

This study investigates how novel food is discussed on Facebook through a quantitative content analysis of posts on Singapore-based public pages. As a science communication study, this paper is interested in the communication process between multiple social actors in a public discussion setting. This paper aims to depart from previous studies that often compare viewpoints between scientists and scientists and scientists and laypeople. Instead, this paper aims to study the different conversations on social media contributed by people of diverse backgrounds, expertise, and values. This paper takes on a communication ecology theory (CET) to understand the communication between groups and between groups of people with different backgrounds and experiences. The CET was applied to interpret meanings from the discussion's social, discursive, and technological layers. The paper further explores the salient sources, frames, values, and platform features involved in the discussion. Findings show that group users contributed more posts while individual users generated higher engagement. Results also showed that posts with societal benefits, innovation frames and posts with values received more likes than posts that do not have such frames or values. Also, posts that use photos received more likes than posts without photos.

This paper represents an initial application of CET in the context of novel food. This paper is also the first to conduct a content analysis of Facebook posts on novel food in Singapore, hoping to reveal beneficial results for future practical implications. Studies on novel food in Singapore should

explore deeper into the booming industry and ensure that the nature of research is adapted to the progressive and changing attitude of the public.

Key Words

Novel food, online discussion, Facebook, content analysis, communicative ecology theory

Business and Climate Change in China: The Climate Response of the 50 Largest Corporations

Authors

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Abstract

Purpose- The purpose of this paper is to explore the potential agenda-setting and discursive expression of climate change in corporate communications of China.

Design/methodology/approach- A combination of keyword count and quantitative content analysis is used to measure corporate communication about climate change in China. Meanwhile, the entire report was read and the sections relevant to climate change were extracted for qualitative textual analysis. Drawing on the discourse analysis method proposed by James Paul Gee, the seven dimensions of the construction task are used to examine enterprises' cognition and attitude toward climate change, analyze their corporate attitudes and actions reflected by the construction of climate change discourse, and explore the deeper reasons for their attitudes toward addressing climate change issues through discourse expression.

Findings- The analysis of keywords about climate science and climate change (climate change, greenhouse gas/GHG, global warming, carbon, carbon peaking and neutrality, UNFCCC/IPCC) shows that the most frequently reported keyword by corporations in China is “carbon peaking and neutrality”, with an average of 24, and the least reported keyword is “UNFCCC/IPCC”, with an average of 1. The study finds that Chinese corporations have reached a consensus on the current situation of climate change and maintain a positive response to the carbon peaking and neutrality strategy. However, at the same time, Chinese corporations take responsibility for climate change governance in social responsibility discourse but weaken their responsibility for the causes, and scientific knowledge-related discourse is rare in their expression.

Practical implications- For communication managers, this research can help them make comparisons among peers and companies in the same region to inform strategic corporate communication decisions. At the same time, focusing on the dissemination of information on public issues such as climate change can better communicate with stakeholders to optimize corporate public relations.

Social implications- China is increasingly emerging and gradually starting to move from the periphery of the world to the center of the world stage. China has also become one of the most dynamic regions in the world in terms of economic growth and is becoming a powerful engine of world economic development. Companies in China play an important role in this and understanding how they communicate climate science has important implications for organizational communication on public issues and strategic communication.

Originality/value- Based on the earlier study, this paper conducts a further study to expand the study area and focus the perspective on China, which has been the world's top energy consumer and CO2 emitter, accounting for 30% of global emissions.

Research limitations- This research only examined the top corporations in China and did not make a cross-sectional comparison with the world average. There is a further need for more longitudinal analysis to understand how organizations communicate about climate change to its stakeholders.

Key Words

CSR, Climate communication, Corporate communication, Organizational communication, Climate change communication

Data Centres as Technologies of Green Extractivism

Authors

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Abstract

The past several years have seen increased scholarly attention to the concept of “extraction” and more broadly “extractivism” as critical frameworks. In these analyses, extraction (and extractivism) are not only concepts and processes through which to understand material extraction – such as mining, oil drilling, and other activities of resource removal – but also expanded formations of extraction as requiring an assemblage of interlocking activities united under an umbrella of exploitative, material economic practices.

This paper argues that the coalescence of climate adaptation and tech capital is seeing not only the expansion of extractive activities but their optimization through a variety of overlapping mechanisms, including the so-called “development” of rural lands and communities otherwise abandoned by Industry 4.0, the increasing and expanded extraction of critical minerals for renewable energy technologies, and the increasing integration of smart and green technologies in the form of digital infrastructures. Natacha Bruna recently called this capitalist framework a “climate-smart world,” as “efficiency and environmental goals are the central combination of contemporary global processes of accumulation” (2021, 840), whether, as she notes, in processes of outright extraction and extractivism (agriculture, mining) or climate solutions like renewable energy and carbon accounting.

Building on theories of “green extractivism” in the digital sphere and drawing upon fieldwork and policy analysis in the data centre industry, this presentation will argue that in the form of interconnected climate and digital infrastructures, tech capital is shoring up its role in green transformations, including in the grid systems that will need to adapt away from fossil fuel supply to intermittent energy sources and increasing demand from data centres. Projects from Microsoft in Ireland, for example, indicate that big tech companies intend to provide “grid solutions” via their built-in on-site energy storage and resiliency technologies to sell power and services back to public utilities. In their extraction of value *through* the operation of public infrastructures like energy and water, facilities like data centres are becoming increasingly central in Ireland’s infrastructural futures. They are also, in a circular manner, essential for the “smart” optimization of the delivery of these same systems. In this way, data centres are becoming *technologies of green extractivism* for overlapping projects of digital grid transformations and climate smart capitalism.

Key Words

extraction, renewable energy, data centres, digital infrastructures, environmental media

Female expertise in demand? Visibility of female compared to male scientific experts in German media coverage of seven risk debates

Authors

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Mr. Nikolai Promies - Karlsruhe Institute of Technology

Prof. Markus Lehmkuhl - Karlsruhe Institute of Technology

Abstract

This year's IAMCR is dealing with "challenges" for media and communication. One such challenge, which the call for papers names, is inequalities in environmental, science, and risk communication. Our presentation deals with inequalities regarding the visibility of female scientists in German news coverage about three environmental (glyphosate, nitrogen oxides, and dioxin) and four health risk debates (COVID-19, Ebola, pandemic flu, and antibiotic resistance). As a fair representation of women is one of the most discussed questions of our time (Trepte & Loths, 2020), we ask

- 1) how often female scientific experts have their say in media coverage on health risk debates compared to male scientists,
- 2) if the proportion of women and men among scientific experts in media coverage corresponds to the respective proportions of female and male scientists in the relevant research areas and
- 3) to their hierarchical positions within the scientific system, and
- 4) what role the journalists' gender plays in the selection of male or female scientific experts for media coverage.

The question of gender diversity has already been addressed in studies on science reporting (e.g. Huber, 2014; Niemi & Pitkänen, 2017; Prommer & Stüwe, 2020; Soley, 1994). What is special about our approach is firstly that we answer our research questions from an issue-comparative perspective (instead of a single case study). Secondly, we compare the representation of female and male scientists in media coverage with extra media data, namely their representation in scientific research fields and their hierarchical positions within the scientific system. Thirdly, we also take the gender of the reporting journalists into account for our analyses.

We conducted standardized quantitative content analyses of the coverage of two German quality newspapers (Süddeutsche Zeitung, Die Welt), one news magazine (Der Spiegel) and one news agency (dpa) on the seven issues mentioned above between 1995 and 2020 (stratified random samples). We analyzed 4534 articles, in which we identified 1875 individual scientific actors (intercoder reliability: 0.75-1.00 according to Krippendorff's Alpha). In addition, we have gathered extra media data by analyzing a random sample of $n = 1972$ authors of scientific publications in the research areas corresponding to the seven analyzed issues (retrieved via Web of Science).

Our results show that 1) female scientists appear less frequently than male scientists in German news media coverage on the analyzed issues (on average of all seven issues: 16% versus 83%) and 2) are underrepresented compared to their respective shares in research fields (on average of all seven issues: 29% female scientists). However, the degree of under-representation varies between the seven issues (between 11% and 27% female scientists in media coverage; between 24% and 36% in respective research fields) and 3) in sum roughly reflects the proportion of women in scientific leading positions (on average of all seven issues: 19%). 4) The gender of the reporting journalist doesn't seem to matter for selection decisions: Female journalists select female scientific experts just as rarely as male journalists ($p = 0.854$). Altogether, journalism does not seem to (actively) "discriminate" female scientists, but reflects the existing structural discrimination of women in science.

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Key Words

gender; diversity; media coverage; content analysis; science communication; risk communication

Petro-Rhetoric in Canada: Narrating Extractivism

Authors

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Abstract

This presentation will share the main arguments from my book-in-progress, "petro-rhetoric in Canada," which examines the evolution of pro-bitumen discourses in Canada since the mid 2010s. For decades, the mining of Alberta's unconventional petroleum deposits—mixtures of sand, water, clay, and bitumen—has become a prominent and contentious political issue in Canada. In response, there has been a growing body of interdisciplinary scholarship (e.g., Carroll, 2021; Takach, 2017) attending to the various aspects of Canadian extractivism.

Drawing on recent theoretical advances in energy humanities and environmental communication, this mid-length monograph argues that the promotion of Alberta bitumen rests on three discursive pillars: petro-prosperity, petroleum-nationalism, and extractive populism. To elaborate the meanings and implications of each pillar, it examines three prominent public campaigns: Enbridge's "Life Takes Energy" campaign in 2014, the Alberta New Democratic Party (NDP) government's "Keep Canada Working" campaign in 2018, and the Alberta United Conservative Party (UCP) government's "Public Inquiry into Anti-Alberta Energy Campaigns" between 2019 and 2021.

The overarching methodological framework guiding this monograph's empirical analysis is multimodal critical discourse analysis (MCDA, Ledin & Machin, 2020). The three pro-bitumen public campaigns' publicly accessible texts, images, and videos will be qualitatively analyzed to identify and assess their shared discursive strategies. As this remains a book-in-progress. Below I outline the major arguments to be made in the book. via the analysis. I look forward to further discussing them with peers at the Environment, Science & Risk Communication Working Group.

"Life Takes Energy", a massive public campaign launched by Enbridge to promote the controversial Enbridge Pipeline project in 2014, exemplified the bitumen industry's shift toward lifestyle messaging, which legitimizes the further expansion of fossil fuel extraction by celebrating oil's pervasiveness in consumer culture. The analysis of "Life Takes Energy" seeks to reveal how the rhetoric of "petro-prosperity" is constructed via narratives around ordinary moments of everyday life and how these moments, ultimately, rely upon the operation of energy infrastructure. As such, "Life Takes Energy" and similar campaigns launched elsewhere can be considered as manifestations of petroculture, in which fossil fuel dependency functions as an epistemological justification confining our socio-cultural imaginary.

My analytical focus then shifts to the controversy surrounding the Trans Mountain Pipeline expansion between 2015 and 2019. During this time, Alberta was governed by the provincial New Democratic Party (NDP), which, compared to the provincial Conservative Party, which governed the province for more than four decades (1971–2015), took a more progressive approach to defending the bitumen industry's interests. The second analysis will focus on "Keep Canada

Working," a short-lived campaign launched by the Alberta NDP government in 2018 in an attempt to gain national support for the Trans Mountain Pipeline expansion project. I will discuss the rhetoric of "symbolic nationalization," which, by concealing the fact that the bitumen industry is a private sector heavily controlled by foreign capital, seeks to define extractivism as part of the Canadian identity. Echoing the theoretical discussion on petro-nationalism, the analysis will highlight the glaring contradiction between what homogenizing populist appeals promise and the reality on the ground.

The third analysis will focus on developments of the Trans Mountain Pipeline controversy after the Conservatives regained majority following the 2019 Alberta general election. The current Conservative government of Alberta has shifted the emphasis of its pro-bitumen narratives to portray opponents of the bitumen industry as radicals supported by foreign interests. I will analyze this turn to smear tactics by linking it to the rise of "extractive populism" in Canada. I argue that this trend reflects the growing radicalization of Canada's petro-bloc, whose members embrace alternative facts to deny the broad public consensus on the phase-out of fossil fuels. This argument is developed through a critical analysis of discourses associated with the "Public Inquiry into Anti-Alberta Energy Campaigns", which claims to reveal how "an alleged, well-funded foreign campaign has defamed Alberta's energy industry".

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Key Words

Framing, narrative, rhetoric, unconventional fossil fuels, extractivism

Science and Health: The WHO' Scientific and Risk Communication Strategy to promote coronavirus vaccination

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Abstract

When the approval of the first COVID-19 vaccine (U. S. Food & Drug, 2022) - Comirnaty from the Pfizer/BioNTech consortium - was announced worldwide in mid-December 2020, health authorities mobilized to define vaccination strategies. It was necessary to promptly determine in which stages vaccination would take place and which groups would be prioritized in the process (Lewandowsky et al., 2021). At the same time, it was necessary to inform the community, since the success of vaccination plans and the achievement of the immunity necessary to control the spread of the disease depended on high rates of vaccine acceptance (Rutten et al, 2021). It therefore became crucial to plan credible, clear and transparent communication to all groups involved in the vaccination process (Omer et al., 2021), especially since the rapid development of this new vaccine also generated hesitation and resistance in the population.

Focusing on the impact that Risk and Scientific Communication issued by public health organizations has on changing societal behaviors, this research aims to analyze the key messages that World Health Organization (WHO) defined to promote the vaccination program against COVID-19. To fulfill this purpose, a qualitative study methodology was undertaken, which privileged the use of content analysis published on the WHO's Facebook and Instagram pages during the period from April 1 to August 31, 2021. In total, 62 posts were analyzed.

After the content analysis of the referred publications, we understand that the WHO privileged four key messages to implement its Risk Communication strategy. First, it sought to convey an image of credibility, using experts (scientists and doctors) to disseminate information on the subject. Second, it oriented its publications to show the population that vaccines are safe and provide protection against the virus. The third key message focused on collective responsibility and promoting equity of access to the vaccine. And finally, the WHO tried to appeal to the more emotional side, associating the success of the vaccination program with the only alternative to restore the habits and values of a pre-pandemic society.

If we compare the strategy developed by the WHO with the academics' perspective on how the message should be constructed to counter vaccine hesitancy, we find a high degree of agreement. Appealing to the responsibility of individual and collective protection; presenting, with transparency, the risks and benefits associated with the vaccine; exposing and clarifying rumors and false news that were published throughout this period; clarifying common doubts and

answering collective questions were part of WHO's communication throughout the analyzed period.

The conclusion of this study is that, although equity of access to the vaccine is still a reality under construction, the near 70% of the world's population vaccinated suggests that the messages sent by the WHO in the context of Risk Communication may have contributed to building a positive image of the vaccination program.

Key Words

Health, Risk Communication, Science Communication, Vaccination, COVID-19, WHO.

Agenda building and topic modeling for analyzing environmental debates in the energy transition era: A case study in hard-rock mining.

Authors

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Abstract

This presentation examines debates that take place in the media around copper mining and correlated issues tied to hardrock extractions. The United States, because of its energy choices, is emblematic of the political, industrial and environmental issues associated with extractive industries and the related international implications for climate change. Yet copper mining results in irreversible destruction of ecosystems and landscapes and leads to health damage in communities due to persistent environmental pollution and to the heavy use of water resources. Our global project (Brooks & al. 2023) is guided by three related frameworks, the more general agenda building theory, the Stakeholder Theory and the pragma-dialectics model for the argumentative analysis. In this presentation, we focus on a specific case of environmental tension, an open-pit mine project in the East Santa Rita Mountains, near the city of Tucson, in Arizona.

This study is conceived as a mixed-method case study, or rather an “analysis of a case” that blends both inductive and deductive approaches to the data sets. This methodological choice allows for the associating of statistical with discursive analysis which has allowed us to identify topics, interest groups and positions taken by the stakeholders in the conflict. In order to understand the network of stakeholders and interest groups involved in the Rosemont mine conflict, the corpus collected comes from a local newspaper ((N= 668) a blog of an organization (RMT) opposed to the mining industry (N= 211) and company reports (N= 15) published between 2007 and 2022.

Topics and stakeholders’ standpoints were identified using a topic modeling approach and text mining analysis. Topic modeling, or Latent Dirichlet Analysis is based on the construction of a probabilistic model (Blei, et al., 2003). One of the interests of topic modeling is that it is possible to study the variation of the importance of topics over time, as well as to compare the distribution of topics between different articles.

We identify stakeholders in the corpora by using a classifier built with neural networks that categorizes named entities. Finally, argumentative analyses (van Eemeren, 2018) were conducted to support our research findings with text excerpts.

This study shows the newspaper insisted in the first five years on “Regulation Issues” then in the last five years on “Legal issues” topics while the RMT insisted first on “Financial Aspects” then, in the five last years on “Water & Mitigation” issues. Another important finding is about argumentative strategy of the mining company. First, company reports insisted on “*comply with*

the laws and regulations” then faced with the inability to meet these constraints, the company went to court to seek a change in the regulation.

Key Words

agenda building, hard-rock mining, topic modeling, NLP tools

Interfaces communicationnelles, imaginaires et pratiques de la vélocité électrique

Authors

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Abstract

Le vélo à assistance électrique (VAE) est devenu l’emblème des “nouvelles mobilités urbaines” : un transport à la fois doux et actif, qui rivalise avec la voiture, n’encombre pas les trottoirs, et facilite le déplacement dans la limite de l’autonomie de ses batteries. Notre étude explore les tensions entre d’une part la perception subjective des usagers, arrimée à l’idée que le vélo est synonyme de simplicité et légèreté (Bertho Lavenir, 1998), et de l’autre les imaginaires de la technique (Feenberg, 1999 ; Flichy, 2003 ; Kröger, Maestrutti, 2018) et les interfaces communicationnelles (écrans embarqués, applications, sites) qui sous-tendent leurs pratiques. Elle répond ainsi à l’axe 4 de l’appel général sur son volet « mobilités ». Concernant la section, elle réfère à l’axe « smart technologies and everyday life ».

L’étude relève d’un projet de recherche interdisciplinaire (IVES: Interfaces pour une Vélocité Électrique Smart) (2019 - 2023) qui vise à étudier les pratiques des VAE comme pratique sociale (Domenget et al., 2022). Les analyses se fondent sur une méthodologie intégrant notamment deux types de données : 19 entretiens avec des pratiquants, puis 30 séquences de trajets filmés avec quatre personnes suivies d’entretiens de confrontation. Ce matériau s’intègre dans une démarche plus large de conception (Pizelle, Hoffman, Aubouy, Verchère, 2014 ; Bonnet, 2021) d’un nouveau type d’interface, intégrant des séances de co-créativité, la réalisation d’un prototype et son évaluation.

Notre présentation éclaire les tensions entre d’un côté l’imaginaire et le vécu des usagers de la vélocité assistée en zones urbaines et péri-urbaines en France et de l’autre les pratiques dans leur contexte social, technique et communicationnel. Les analyses montrent premièrement que la pratique du VAE est encapacitante. Elle engage une extension du territoire accessible (Bonaccorsi et Cordonnier (dir), 2019) grâce à la force motrice, enrichit l’expérience de l’environnement (meilleure connaissance de la ville et de ses alentours, observation de la nature) et permet une articulation fine et fluide (von Pape, 2020) des moments de déplacement et d’activité. Une tension se fait jour entre cet imaginaire renforcé, attaché au vélo, et une augmentation de la charge mentale qui pèse sur les cyclistes (équipement, recharge de la batterie, sécurisation du vélo, sécurité pendant le trajet). De même, la prise en compte du contexte socio-économique, lié au

coût de ces vélos, souligne les inégalités face à ces nouvelles possibilités de mobilité urbaine. Dans un deuxième temps, les usagers des VAE, via l'interface embarquée sur le vélo ou d'autres, entrent dans un processus de prise de conscience : kilométrage, calories, dénivelés, vitesse, trajets, etc. Ces interfaces numériques, si elles sont parfois considérées comme accessoires, par l'accumulation de données, suscitent et guident des pratiques remettant en cause la liberté associée au vélo (trajets suggérés par exemple). Dans un troisième temps, si les enquêtés continuent d'évoquer un imaginaire imprégné de liberté, de simplicité et de sobriété, le choix du vélo, l'entretien, la réparation, l'immatriculation, etc. construisent de nouvelles relations à l'objet, à des entreprises spécialisées voire à des plate-formes recueillant des données.

Key Words

vélo à assistance électrique, mobilité, pratiques, interface numérique, imaginaires

How to combat anger-arousing misinformation about COVID-19: An eye-tracking approach

Authors

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Abstract

[Introduction]

The proliferation of misinformation during the COVID-19 outbreak caused alarm (WHO, 2022). Negative effects included misperceptions about COVID-19, insufficient protective behaviors, and reluctance to have a vaccine (Featherstone & Zhang, 2020; Jia & Luo, 2021; Lee, 2020). People in China were particularly enraged by misinformation when it came to social concerns (Chen et al., 2021). As a result, anger increased people's erroneous perceptions while passing judgment, which furthered the propagation of misinformation (Bodenhausen, 1994; Lee, 2020; Xing, 2013).

Misinformation correction was an effective way to contain misinformation (Eysenbach, 2020). However, earlier research found that some misinformation corrections did not diminish misperceptions and instead propagated misinformation, dubbed backfire effects (Cook et al., 2015; Lewandowsky & Chadwick, 2020).

Regarding the reasons for the failure of misinformation correction, scholarly opinion was mixed. An eye-tracking experiment was performed in this research to look into the potential reasons behind this phenomenon.

[Theoretical framework]

Defense motivation, which refers to the mentality that people desired to reinforce their views via information processing, was one of the processing objectives of the heuristic-systematic processing model (HSM) (Chaiken et al, 1996). It was more essential for people to defend their preexisting beliefs than to confirm the truth when they were acting out of defensive motivation (Todorov et al., 2002).

One of the salient features of defensive motivation in information processing, according to Chaiken & Ledgerwood (2012), is concentrating primarily on the portion of the signals that corroborates their prior views. In corrective messages, a heuristic cue was designed to question the legitimacy of the correction message, which was referred to as a conspiracy cue in this research. Thus, we hypothesized:

H1: Compared to those who were exposed to anger-neutral misinformation, those who were exposed to anger-arousing misinformation (a) paid more attention to conspiracy heuristic cues, (b) conducted a higher level of heuristic processing while exposed to correction messages, and (c) held a higher level of misleading beliefs after exposing to correction messages.

H2: Compared to those who were exposed to alternative explanation correction messages, those who were exposed to simple rebuttal correction messages (a) conducted a higher level of systematic processing while exposed to correction messages and (b) held a higher level of beliefs in correction messages.

[Method]

A 2×2 factorial design (i.e.: anger-arousing vs. anger neutral × alternative explanation vs. simple rebuttal) will be conducted. 43 Participants were randomly assigned to one of four conditions. They were progressively exposed to deceptive and corrective messages. Tobii Pro X3-120 Eye Tracker was used to record eye-tracking data at the sampling rate of 120Hz. They self-evaluated twice on the belief in misinformation at the time they were only exposed to misinformation (T1) and the time they were exposed to misinformation and correction messages (T2).

[Results]

The results showed that anger was positively related to belief in misinformation at T1 ($b=.23$, $p<.05$), belief in misinformation at T1 positively related to attention to the conspiracy cue ($b=.01$, $p<.05$), and attention to the conspiracy cues positively related to belief in misinformation at T2 ($b=15.15$, $p<.03$).

Key Words

Anger-arousing misinformation, heuristic-systematic processing model, Defense motivation, Eye-tracking experiment

Visualising COP: a comparative analysis of images, production practices and news values in Irish and Pakistani media

Authors

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Abstract

The visual communication of climate change is a growing area of environmental communications research interest due to the power of images to engage audiences, evoke emotions and increase cultural meaning (Hopke and Hestres 2018). Images are also an important consideration for news media production in the digital media landscape due to the centrality of images in everyday culture. This paper explores the visual representation of the UN conference of parties on climate change (COP) in news media. As global, staged political media events, the UN climate talks provide occasions for contestation with respect to the framing of climate politics. They are also focussing events or 'sudden attention-grabbing events' for both policy-makers and the public (Birkland 1998) that lead to spikes in global media attention. Thus they represent important sites for research at the nexus of visual communication, climate politics and news media agendas.

Previous studies reveal a focus on images of elite actors and dramatic climate impacts and the prevalence of 'contested' and 'distancing' frames (O'Neill and Smith 2015). However, while research has examined the role of key actors and social media in shaping the visual discourse at COPs (Wozniak et al., 2017), less is known about how news media visually represent international climate politics or the news values and production practices that shape this visual narrative. Studies also focus on dominant media systems in the Global North with relatively few comparative analyses. This is a significant research lacuna in the context of growing awareness that incremental change will not adequately address the global climate crisis and the need to build a common future. Acknowledging these gaps, this study examines how the COPs are visualised by news media systems in the Global North and Global South. Additionally, it examines the news values driving the selection of these images (Harcup and O'Neill 2001). The paper answers the following research questions: i) What images do news media use to represent COP, ii) How do these images make COP newsworthy, iii) Who are the key sources of images and iv) Do visual representations and news media production practices vary across media systems?

The research analyses daily news publications in Ireland and Pakistan during the two weeks of COP24 to COP27. This timeframe marks an interesting turning point in the international climate talks and representation of climate politics. It includes the drawing up of the 'rule book for the Paris Agreement' and the increasing warnings about climate impacts, as well as youth engagement, growing awareness of indigenous rights, and including marginalised voices (McKay et al. 2020). In other words, it covers a shift in global climate politics from contestations over climate science, to international decision-making about decarbonisation governance and increasing demands for

climate justice. As a result, we expect to see a change in the visual narrative compared to earlier research.

The study employs three stages. First, employing visual content analysis (O'Neill 2013) and focussing on denotative content, we map prevalent and marginalised images using a codebook based on existing literature as well as themes emerging from the data. Next we analyse the textual content of the accompanying headlines and captions, to explore potential image-language interactions and disjunctions. We also examine the sources of these images, to shed light on the news production practices that underpin the visual narrative. In doing so, we contribute to debate about the unevenness of resources in different media systems. Finally we draw on the findings to reflect on the role of news values in shaping the visual discourse about global climate politics.

Key Words

Climate Journalism; Visual Representation; Climate Politics; News Values; News Production

A discourse-theoretical analysis of the discursive assemblage of ecocentrism and its ethics in the Swedish television series *Jordskott*

Authors

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Abstract

The paper analyses the discursive construction of human-nature relationships in the Swedish television fiction series *Jordskott*, an example of “eco-critical fiction” (Souch, 2020: 108) and an “ecofantastic crime thriller” (Mäntymäki, 2017: 89), which revolves around a series of abductions and murders in the (fictional) Swedish town of Silverhöjd. A team of detectives slowly discover how these crimes are connected with a conflict over the North Woods, between the Thörnblad Mineral & Cellulosa company and an other-human people living underground. In saving the forest and rescuing the children, they are assisted by several other humanoid creatures, and by the extra-human capacities given to them by the *Jordskott*, a parasite that will eventually save the detectives’ lives. *Jordskott*’s narrative about the supernatural offers a highly creative and original location for analysis, as the supernatural, for instance, allows the allocation of agency to the forest, the introduction of a range of other-humans, and the deconstruction of dualist human/non-human models.

Driven by Laclau and Mouffe’s (1985) discourse theory and later extensions, we identify a series of key discourses that are activated by *Jordskott*, and simultaneously show how these discourses become articulated in networks—what we prefer to call ‘discursive assemblages’—where these discourses are seen to strengthen each other. In particular, *Jordskott* is an active intervention in the discursive struggle between ecocentrism and anthropocentrism (Corbett, 2006), siding with ecocentrism, and gaining strength from its articulation with entanglementism, posthumanism, indigenism and (anti-)romanticism.

Methodologically reverting to a discourse-theoretical analysis (Carpentier, 2017), the paper’s analysis of the first 10 episodes of *Jordskott* (series one) scrutinizes *Jordskott*’s three main actor categories—nature, humans and other-humans, to show the workings of this ecocentric discursive assemblage. In a second analytical phase, we then analyse how an ethical repertoire is used to strengthen the position of this ecocentric discursive assemblage, in its struggle with anthropocentrism. In particular, our analysis shows how *Jordskott* contains a harsh critique on the capitalist instrumentalization of nature, and its genocidal consequences for an indigenous people. In *Jordskott*, humans are not necessarily represented as kind and careful caretakers of the forest. Through the invocation of a balance-entanglementist discourse, we see that humans are the drivers of malevolence, but also that nature is perfectly capable of defending itself. Moreover, we

also see a posthumanist ethics, that refuses the construction of a dualist hierarchy between humans and non-humans. Instead, we see that Jordskott approvingly represents an egalitarian ethics that acknowledges internal and external diversity.

The paper concludes with the idea that the importance of Jordskott's narrative lies exactly in the activation of this ethical repertoire. Our analysis shows how the interventionist Jordskott narrative gently nudges its viewers towards an ecocentrist position, defending its ethical nature, which is to be preferred over the cruel anthropocentrism.

Key Words

television fiction, discursive struggle, discursive assemblage, ecocentrism, construction of nature

Local and Global Crises: Climate Catastrophe as “Elemental Media

Authors

Prof. Hart Cohen - Western Sydney University

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Abstract

This paper examines media narrative tropes that report on recurring catastrophes. We are interested in how the media operate to marshal or impede public opinion towards making political interventions, especially in relation to climate change (Lakoff, 2010; Oreskes & Conway, 2010; Gurney, 2017).

Global events and perspectives also affect how local disaster narratives are reported, with catastrophes significantly impacting the public’s psyche. We channel the recent concept of “elemental media” (Peters, 2015) to argue for a step-change in how media is defined and studied if we are to understand and intervene in how the planet’s current dilemma is publicly presented. Peters’ perspective, building on the work of seminal theorists such as Marshal McLuhan (1964) and Harold Innes (1951), is a means of expanding the definition of media (beyond recorded media) to serve the contemporary complex of communications processes more adequately in a time of permanent crisis.

The paper also inquires how the impacts of climate catastrophes are mitigated or made worse by media and what prospects there are for future intervention in the likelihood of further climate catastrophes (Mann, 2021; Huntley, 2020).

The paper explores these questions through two recent examples of climate catastrophes linked to two of Peters’ elemental media, that of fire and water: Australia’s 2019-2020 east coast bushfires and 2020-2022 floods that devastated the interior of Australia’s most populous state, New South Wales and the Northern Rivers region, and large parts of the states of Victoria and Western Australia (Rowland, 2021).

The concept of elemental media re-frames the global approaches to risk and climate catastrophe. It embeds the elements as media in the existential threats posed by the climate crisis. It further suggests that, as media researchers, we need to assess the inflexion of local media narratives and tropes through the lens of elemental media. In the discursive interventions associated with news and current affairs reportage about climate catastrophes, elemental media underpins the potency of future media research, making media analysis an effective tool for analysing climate catastrophes.

Key Words

Australia, elemental media, climate catastrophe, bushfire, flood, climate change, journalism

Examining the impact of particulate matter policy on news production and content: A 9-year time-series analysis of South Korean news

Authors

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Abstract

Ambient air pollution, including atmospheric particulate matter (PM), is a major threat to public health according to the World Health Organization (WHO, 2022). In 2013, WHO classified PM as a Group 1 carcinogen, making it a critical issue to address. This study explores the impact of PM-related policy on the news production and content in South Korea, examining the changes in frequency, sentiment, and content of news related to PM over a 9-year period. The findings of this time-series analysis will shed light on the influence of policy on media coverage of an important public health concern.

In 2016, the South Korean government enacted the Special Act on the Reduction and Management of PM. Previous studies have found a significant increase in news articles related to PM since 2013 (Cha et al., 2020) and a significant correlation between air quality in South Korea and China (Jia & Ku, 2019). However, there has not yet been a large-scale longitudinal time-series analysis of news frequency, sentiment, and content with a focus on the impact of policy implementation. This study aims to answer the following research questions: (1) How does the relationship between news frequency, sentiment, and reference to China change over a 9-year period? (2) How does the trend and seasonal pattern of news frequency change before and after the Special Act in South Korea? (3) How does the relationship between news frequency, sentiment, and reference to China change with policy implementation?

This study analyzes a total of 25,933 articles from seven major news outlets in South Korea, with varying political stances, published between January 1, 2013 and April 30, 2021. The sentiment and reference to China in each article were computationally measured, and the news frequency, sentiment, and reference to China were aggregated at a monthly level. The correlation between these time-series data was examined using Kendall's Tau. The time-series data of news frequency was decomposed into trend and seasonality using classical decomposition with an additive model. The preliminary results indicate significant negative relationships between news frequency and reference to China, sentiment and reference to China over the period, and differences in news production and content before and after implementing the Special Act. Prior to 2016, the frequency of news articles exhibited a strong seasonal pattern, with a peak frequency in March and low frequency from May to September. However, no significant correlation was observed between news frequency, sentiment, and reference to China. After the policy was enacted, the seasonal pattern was no longer present. Nevertheless, months with more negative sentiment in

news articles showed an increase in the number of articles related to PM and a higher proportion of articles mentioning China.

Key Words

particulate matter (PM), PM-related policy, news production, sentiment, time-series analysis

Popular environmental media in Australia: discussions about impact

Authors

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Dr. Danie Nilsson - CSIRO

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Abstract

Environmental and climate change is high on the public agenda, with the media playing a key role in representing and shaping environmental values, practices and possible futures. From high-profile international screen productions such as David Attenborough's *A Life on Our Planet* (2020) through to user-generated 'green' stories made for YouTube, TikTok or for domestic, local (or hyper-local) audiences, the contemporary environmental media landscape is complex, diverse and changing in profound ways.

This paper offers an empirically-informed discussion of multi-faceted environmental media-making in Australia – the country that has borne the brunt of natural disasters, most recently, extreme bushfires and floods – all the while the less/zero energy transition has encountered numerous political roadblocks. Drawing on original semi-structured expert interviews (conducted in 2022-2023) with media practitioners working across commercial, public and independent/activist sectors in Australia, and across various media genres and subjects, we examine how environmental content is made and distributed at the current juncture, paying special attention to the nexus of environmental science, engaging content and social impact.

Academic research has pursued this line of inquiry with different media-specific emphases - from the focus on lifestyle through to informative/educational media - and from different disciplinary and socio-cultural angles (Lewis, 2012; Robe, 2015; Debrett 2017; Smith 2017; Arnold 2018; Seeling 2019; Abbati 2019; Gottwald, Krainer and Karmasin 2021). The issue of popular media's social impacts has been of particular interest for academics and practitioners given its significance, and the well-recognised challenge in accounting for and measuring impact.

This study, anchored in the interdisciplinary expertise across media and communications, screen studies and behavioural science, investigates environmental media in the Australian context, reflecting critically on challenges and opportunities that increasingly complex digital media offer towards advancing (mediated) 'green/environmental citizenship' (Boyce and Lewis, 2009; Brevini and Lewis, 2018).

The paper responds to the sub-theme of the Environment, Science & Risk Communication Working Group: '*Science, the environment, and climate change in popular culture*' and the question of '*how to tell, show and convince, support change, or challenge citizens' responsibility*' (ESR Working Group).

Key Words

environmental media, Australia, social impact, public engagement, popular content

How Do Trust in Autonomous AI and News Media Attention Predict Public Adoption of AI Drones: Extending the UTAUT2 Model

Authors

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Prof. Shirley Ho - Wee Kim Wee School of Communication and Information, Nanyang Technological University

Abstract

Artificial intelligence (AI) has emerged as the new paradigm in 21st century technology. Scientists continue to develop AI into more outstanding forms, moving away from symbolic (i.e., rule-based) AI and closer to a robust AI with data-driven and machine-learning capabilities. For example, autonomous AI systems is on path to becoming capable of making decisions based not only on laws of physics, trained in a confined location, but also real-time physical data gathered unconstrained by geography through various sensors on agents such as autonomous vehicles and drones (Torregrosa et al., 2022). These breakthroughs made approaching AI from the perspective of the conventional communication viewpoint problematic because AI has transformed to not merely be a communicative technology between humans but rather a communicator itself, functioning as a “quasi-human partner” (Chen & Wen, 2021, p. 116). It seems therefore the question of how trust in this technology is associated with its acceptance becomes imperative in communication studies.

Previous studies have examined factors associated with the acceptance of autonomous AI systems, but they are challenged in two directions. First, while some examined trust in AI, they failed to differentiate between types of trust. For the most part, many of the measurements were designed to evaluate trust after the participants had taken part in the systems (e.g., Aroyo et al., 2018; Bafle et al., 2018; Berge, 2018). This is problematic not only because autonomous AI systems such as AI drones are still rare today, but they are also becoming more versatile, thereby requiring different value judgements, knowledge, and expectations to form trust. Second, previous studies did not examine the mechanisms to which cognitive and affective factors have on the acceptance of autonomous AI (e.g., Alsghan et al., 2022; Oksman & Kulji, 2022). Even when these mechanisms were explored (e.g., Hegner et al., 2019; Yuen et al., 2020), media effects were not examined as they did with new technologies such as such as biotechnology (Besley & Shanahan, 2005), embryonic stem cell research (Ho et al., 2008), and nanotechnology (Ho et al., 2010). To date, only Ho et al. (2020) has examined how attention to media predicted willingness to use autonomous vehicles (autonomous AI). Even so, it did not explore how this effect took place.

To address these issues, the present study articulates three types of trust (i.e., dispositional, situational, and learned) referenced from trusts in automation (Hoff & Bashir, 2013) and explores how these trusts affect intention to adopt AI drones under the Unified Theory of Acceptance and

Use of Technology (UTAUT2) framework. UTAUT2 is a theoretical model that measures factors associated with technology adoption and has been used in studies of 5G technology (Mustafa et al., 2022), augmented reality (Faqih & Jaradat, 2021), and AI acceptance (Gansser, & Reich, 2021). It measures seven basic constructs and their influence on technology adoption, which accounted for 56 to 74 percent of the variance (Chang, 2012). More concretely, the present study hypothesizes that news media attention would affect only situational trust, operationalized here in terms of trusts in science authority (i.e., engineers) and information given by the authority, as well as preexisting knowledge, and thereby behavioural intention. Indeed, Ho et al. (2019) found that news media attention indirectly predicted support for science and technology through knowledge, a construct well-established to have a direct influence on support (Akin et al., 2021; Lee & Scheufele, 2006), just as it is well-established for deference to scientific authority to predict public acceptance to new technologies (Ho et al., 2020; Ho et al., 2022).

Survey with a sample size of 1,000 adults will be collected in Singapore in April, 2023. The findings will explore the mechanisms of how news media attention act on public acceptance of the advanced technology of autonomous AI. More so, it will advance the theoretical understanding of the underlying dimensions of trust in autonomous AI systems, which will be integral to future AI studies.

Key Words

Trust in artificial intelligence, Media attention, Public acceptance, Autonomous drones

Integrating communication of climate change and social welfare through personal stories of health and food

Authors

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Abstract

The growing social and political concern about climate change risks running into a new eco-social divide that puts social and climate policies in competition with each other. On the one hand, climate communication often points to the most negative and conflicting factors of the relationship between climate and well-being, highlighting tragedy and conflict. On the other hand, the welfare state is in crisis, a fact that increases the perception that the resources to allocate to social policies could be jeopardized by climate change, and that it is necessary to prioritize issues perceived as closer and more urgent than the climate. The joint challenge of communicating social and climate policies is to integrate them by introducing the concept of more integrated eco-welfare states. The aim of the research is to identify personal stories that connect climate change and well-being in a positive way and in line with solutions journalism. Solutions journalism aims to put the focus on the evidence available concerning wicked policy issues, the possible solutions and the debate around them rather than highlighting the negative effects and tragedy. This research explores the integration of climate change and social policies in the areas of health, food, and the local economy in three European cities. Working with documentary analysis of social policies and semi-structured interviews, personal stories are identified. The characteristics of these personal stories include social involvement and entrepreneurship as opening doors to overcoming different social problems that are triggered or worsened by climate change. Examples of these stories include individuals suffering from health conditions worsened by air pollution who advocate for urban climate policies that can have a positive impact in air quality; or local entrepreneurs who advocate for food sovereignty policies and promote cooperatives that ensure food supply by invigorating peri-urban farming areas endangered by floods or wildfires due to climate change. The analysis of these stories shows how they can pave the way towards a climate communication model that contributes to policy integration, fights polarization, and inspires action.

Key Words

Climate change, social policies, solutions journalism, eco-social divide

Green struggle: An analysis of the way the Indian press frames environmental issues using frame theory

Authors

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Abstract

According to the World Population Review (2022), with a population of 1.54 billion, India is currently the second most populous nation in the world. As its population and economic affluence increase, so do its environmental and pollution challenges. Air pollution is undoubtedly one of India's top environmental concerns. India is home to 63 of the 100 most polluted cities globally, with the capital New Delhi having the poorest air quality, according to the World Air Quality Report (2021). Over one million people die every year due to air pollution in India (New York Times, 2017). The mass media is crucial for raising environmental awareness and bringing attention to pressing concerns. McCombs & Shaw (2017) argue that the news media significantly influence public opinion and priorities for environmental issues. Through frequent and extensive coverage, the media may establish some issues as urgent national priorities. With the advent of environmental movements in the 1960s and 1970s, the media played a critical role in turning public attention to environmental concerns (Hansen, 2011). This research aims to use framing analysis as a constructivist method to examine news discourse on environmental issues in India, concentrating on conceptualizing news texts into empirically operationalizable dimensions - syntactical, script and thematic structures - to collect data on how news media frame environmental issues in news texts. Framing theory allows us to analyse how media can disseminate information about a particular problem. However, framing theory may involve the construction of news and how it is perceived since frames are mental structures in both texts and audiences (Pan and Kosicki, 1993). According to Robert Entman (1993), "framing" emphasises certain aspects of perceived reality in a communicating text to support a specific problem description, moral assessment, causal interpretation, and treatment recommendation for the described thing. Whereas Goffman (1974) argues that frames are procedures for organising ideas or themes, connecting stories historically, and constructing a narrative across time and political context. This study will examine how the Indian print media has framed the issue of Delhi air pollution and its broader impact on people. It will examine news coverage in *The Hindu* and *The Times of India* daily newspapers over four months (October, November, December 2022, and January 2023), when Delhi was engulfed in the most poisonous smog. The rationale for choosing these publications was based on their popularity and readership (both newspapers are more than 100 years old). Studying environmental discourse in the press might be extremely valuable for establishing the nature of environmental discourse in our society and the government's involvement in addressing it.

Key Words

Environment, Media, Air Pollution, Frame Analysis, Print media, Press coverage

Carbon Neutrality or Carbon Politics? Proximity Principle and Attribution of Responsibility in Western Coverage of India and China

Authors

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Prof. Qi Yin - Xiamen university

Mr. Botao Cheng - Vistamar School

Abstract

- Introduction

To mitigate climate change, carbon neutrality has become a significant topic in the environmental field and international communication. In recent years, more than 100 countries have pledged to reach carbon neutrality. Notably, while major Western countries have set the goal of carbon neutrality by 2050, China and India, the first and third largest carbon emitters, commit to achieving the goal before 2060 and 2070 respectively, much later than Western countries. Furthermore, political aspects make the carbon-neutrality issue more complicated: India has a certain 'affinity' with the West in terms of the political system (Xu, et al., 2020); tensions between China and the West on political and diplomatic issues are manifested. Previous studies have shown a certain degree of politicization in the coverage of environmental issues (Mercado-Sáez et al., 2022; Karyotakis, 2022). However, these studies focused on a single country. Carbon neutrality is a global governing goal, and therefore multiple roles of countries under this goal can help us to explore multilateral relationships between the countries. What is more, Carbon neutrality as a form of global goal has attracted global news outlets not only to show nations that are associated with the aim, but also to help identify the attribution of responsibility.

In this case, based on an international relations perspective, this study examines how Western news outlets report the proposal of carbon-neutrality goals of China and India, and how the media attribute responsibilities to the West, China, and India. Studies in political science pointed out that the discourse on carbon is shaped by traditional political thinking and operation, and referred to it as 'carbon politics' (Huan, 2017). This study finds that journalistic practices regarding carbon neutrality echoed this phenomenon.

- Data and method

This study collects all Western coverages regarding carbon neutrality pledges of

China and India via Factiva and LexisNexis databases (the period is within one year of China and India's pledges). Finally, this study gets 216 articles (126 and 90 for China and India respectively) from 12 Western countries.

Methodologically, we use the important concept in social network analysis (SNA, see Calabrese, 2019), i.e. cohesive subgroups, to explain the relationship between social actors. To avoid 'low-

level linguistic results' (van Atteveldt, 2008, p. 67) of SNA, this study also utilizes critical discourse analysis (CDA, see Fairclough, 2013) to discuss the similarities, differences and interactions between different discourses (practices and the systems behind them).

- Conclusion and Discussion

The results of SNA reveal what Western media want to show their audiences. Firstly, it is no surprise that the topic related to 'pledges of carbon neutrality by presidents' is the most salient in two kinds of newspapers. However, the utility of different core vocabularies means that the media covered the topic differently: the core words 'government', 'strategy', and 'five-year plan' appear in the coverages of China; specifically, the media emphasized the leadership of China's government, and highlighted the difficulties of achieving carbon neutrality in the background of China's planned economy system; while the core terms of 'India', 'cop 26', and 'action' indicate that the media is more interested in the initiative of India regarding carbon neutrality. What is more, the topics related to technical cooperation (indicating the current state of relations between the West, China and India), and domestic environmental governance (presenting opportunities and challenges of China and India in the context of carbon neutrality) appear in both kinds of newspapers.

The results of CDA can be concluded as follows: in Western media, both China and India are not taking corresponding responsibility as major carbon emitters; however, China is constructed as a climate actor with "geopolitical purposes" and a threat to "global climate politics" (see McGrath, 2020), while India is given a rational interpretation by constructing discourses such as "the country's CO₂ emissions per capita are still much lower than other major economies" (see Martin Kuebler, 2021); the Western countries are considered to take the historical responsibility, reflecting in financial and technical support for developing countries. Rising to the dimension of social practice, the discourse conceals the national relations and interests between countries, embodying and constructing the praise of the West, the debasement of China, and the preference for India.

Key Words

carbon neutrality; international relations; social network analysis; critical discourse analysis

Dear Earth, No Thanks: How YouTube's Embrace of Neoliberal Environmentalism Impedes Meaningful Climate Progress

Authors

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Ms. Cassandra Troy - The Pennsylvania State University

Abstract

The findings of the 2022 Intergovernmental Panel on Climate Change (IPCC) report were predictably grim – emphasizing the increasingly substantial impact of climate change. Moreover, the most recent IPCC Working Group II report, focused on climate adaptation, highlighted the need for solutions implemented at government and industry-wide levels, noting that “political commitment and follow-through across all levels of government” are needed to avoid maladaptation and enable resilience in the face of climate change.

Vast amounts of environmental devastation stem from corporations that have spent decades deflecting public attention away from their role in the climate crisis and instead towards individual responsibility. This paper focuses on one such deflection; the 2021 YouTube Original Dear Earth. Self-described as “an epic global celebration of our planet and what we need to do to reverse climate change”, Dear Earth has amassed over 7 million views. The star-studded video aimed at young audiences features a range of well-known figures such as President Barack Obama, K-Pop group Blackpink, Pope Francis, and Spongebob Squarepants. Throughout the almost two-hour video, celebrities and public figures repeatedly assure the audience that there is hope in the face of climate change - grounded in acknowledging our shared responsibility. This is communicated through encouraging actions such as riding the bus, shopping second-hand, and eating vegan sandwiches. Ultimately, viewers are left with the impression that climate change is occurring thanks to poor consumer choices, that individual behaviour change is the answer, and that government and corporate systems will change – without any clear directive as to how - if we only shout loud enough. This individual focus is characteristic of neoliberal approaches to environmental issues.

We examine Dear Earth through the theoretical policy process of Narrative Policy Framework (NPF) Analysis. NPF examines the role of narratives (described as stories that include elements such as settings, characters, plots, and morals of the story) in the policy process and how said narratives may inform policy actors, persuade decision makers, or build a broader understanding of policy issues within communities. While NPF outlines that policy narratives are those constructed specifically about policy issues, our critique is grounded in the absence of such policy discussions in YouTube’s depiction of the climate crisis. We argue that, based on IPCC Working Group Report recommendations that emphasized the need for structural interventions, the lack of policy discussion from YouTube does not render the climate crisis any less of a policy issue.

This paper, grounded in the literature and analytical approaches of political economy and critical policy studies, examines how neoliberal environmentalism is propagated by media corporations who benefit from regulation-hesitant administrations through scrutinizing Dear Earth's 1) lack of attributed responsibility for the climate crisis; 2) emphasis on individual, neoliberal environmental solutions; and 3) failure to acknowledge the necessity of regulatory intervention. We problematize the video's simplification of the climate crisis and subsequent pacification of audiences through neoliberal environmentalism in order to argue that such framing actively suppresses policy action. Lastly, we provide suggestions for future mass-media outreach founded on climate scientists' and communication experts' recommendations.

Key Words

Environmental Neoliberalism; Regulation; Political Economy; Climate Change; Corporate Communication

Climate Change Discourse of Chinese and American Media on Twitter: An Investigation Based on the Perspective of Environmental Paradigm

Authors

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Abstract

Climate change is a risk issue of current global concern, and it is also an area closely related to exchanges with countries around the world. International cooperation and global action in response to the climate crisis are becoming increasingly urgent. It is essential to disseminate information on climate change so that the international public can understand it and participate in grappling with the climate change crisis.

Discourse is a medium for different subjects to communicate with the world. The expression of media climate discourse in the international discourse space not only constructs different connotations of climate change but also affects the practice of international climate crisis governance. However, this reflects the confrontation of different discourse concepts. The current international social media platform represented by Twitter has gradually evolved into a digital communication space for understanding and communication between international subjects. The existing studies have paid attention to the construction of digital environment discourse and the discourse effect and also carried out rich discussions on how to improve public climate awareness and environmental actions. However, a series of issues, such as the relationship between discourses and the environmental worldview, are the areas that have yet to be explored in existing research, which also limits a more comprehensive and refined understanding of global climate change discourse.

Different discourses and practices are carried out under the guidance of different environmental concepts. In the current global climate change debates, in addition to the sustainable development or ecological modernization theories advocated in Euro-American geographies, China has put forward the concept of ecological civilization in recent years and advocated it as an innovative Chinese solution to environmental problems in modern society.

This study focuses on the discourse of mainstream media in China and the United States on Twitter in the past ten years. We chose China Daily and New York Times as the research objects and obtained the tweets released by the Twitter accounts of the two media by using "climate change" as the search term. In the first stage, we adopted the content analysis method to extract the primary discourses of the two media organizations. We further adopted the method of qualitative discourse analysis to describe different climate change discourses in combination with specific cases, revealing how the media organize the discourse to narrate climate change, thus implying the corresponding environmental worldview. The "nested analysis" approach addresses the limitations of a particular method and contributes to a more nuanced understanding of different climate discourse practices and their guiding concepts.

The contribution of this study is to situate the communication of climate change discourses of diverse media organizations within the context of the expression and realization of the different environmental worldviews. This research perspective expands the boundaries and limitations of the current research on environmental discourse construction and its effects.

Key Words

Climate change; Environmental discourse; International communication ; Ecological civilization ; Environmental politics

How Chinese social media users understand and act in carbon emission reduction? Science communication governance for public participation in climate change ——An exploratory study

Authors

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Abstract

In 2020, the world's largest emitter of greenhouse gases set its first long-term climate goal. China's announcement that it would target carbon neutrality by 2060 elicited a huge response. This means that the Chinese public must raise awareness and act on low-carbon emission reductions. For a long time, China's climate change communication has been largely driven by political forces, and the public lacks the necessary scientific enlightenment on climate change.

At the current stage, what are the perceptions and attitudes of Chinese netizens on climate change issues, and how about public participation? What actions will they take to support carbon reduction? How to use risk communication to promote the public participation of Chinese netizens? This study takes Sina Weibo, the largest social media platform in China, as the object. Through big data text analysis (N=18062) and snowball sampling questionnaire survey (N=1538), it conducts empirical research on the public participation in climate change of Chinese Internet users, maps the leading framework of public discourse and text emotions, examines various cognitive and efficacy factors that affect public behavior, and explores effective ways of risk communication to promote public participation. Based on data analysis, this study puts forward a framework and specific suggestions for constructing localized climate change communication from the perspective of concept and practice. All these point to a constructive scientific communication orientation, reflecting the reflection and expansion of the classical climate communication model in the participatory model.

The study found that whether online public discourse discussion or offline public action participation, the Chinese public is still in a state of "high concern, high awareness, low action and low participation" on climate change.

On the social media platform, the posting and public interaction of climate change issues are relatively rare. Only some domestic mainstream media, local meteorological and environmental protection departments' microblogs maintain a certain degree of activity due to their institutional responsibilities, but their online influence is relatively limited. In contrast, Chinese netizens seem to be more willing to interact with some foreign governments and environmental protection agencies, and tend to think that energy conservation and emission reduction is a national and international matter, not a priority of citizens themselves. There is a great gap between the discourse frameworks of different communication subjects, which is more torn between the public discourse, the government discourse and the media discourse. Government microblogging and

media microblogging are used to using the “catastrophic consequences” framework. When faced with these “doomsday warning” and “risk irreversible” words, the public shows a high sense of avoidance, despair and powerlessness. The public discourse is full of many “climate change scepticism” and “western political conspiracy theory”, with a high proportion of negative attitudes, showing a certain negative, denial and even narrow nationalism attitude. All these reflect that many people have a cold, extreme or negative attitude towards climate change issues, and there is a certain lack of self-efficacy and coping-efficacy.

On the other hand, through a questionnaire survey (N=1538), this study found that Internet users are not performing well in citizen participation, and there is an obvious trend of group stratification. Among different communication subjects, media microblogging is positively influencing public participation. Self-efficacy positively affects public participation, and collective efficacy plays a regulatory role. Media microblogging is positively affecting public participation.

Based on the above data results, we need to explore a constructivist science communication path in line with the spirit of the times. That is, science is seen as a discursive practice and science communication as a rhetoric. In the context of the era transformation of science communication from “deficit model” to “public engagement with science”, based on the above empirical results, it is not difficult to find that Chinese traditional climate change communication model needs to be adjusted. From the perspective of stimulating multiple sense of efficacy, China’s climate change communication should first adjust the discourse framework, clearly indicate the climate change impact “about us, here and now”, narrow the psychological distance between the public and climate issues, and improve the public's knowledge of risk coping behavior strategies. Secondly, it is necessary to strengthen mutual attention and emotional bonding, so that participants can obtain emotional energy from the interaction process and produce a high degree of group identity. Finally, it is necessary to give full play to the communication effectiveness of the mainstream media as opinion leaders, so as to raise the collective effectiveness to a level that may produce valuable material, social and self-evaluation results.

Key Words

Science communication、 climate change、 public engagement、 public discourse

The Indian heatwaves of 2022: exploring English and Hindi language coverage

Authors

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Abstract

The heatwave affecting India from March to May 2022 was exceptional for its record temperatures, its early onset, its unusually long duration and the large area that was affected. It was responsible for several deaths, wheat crop failures, power outages and forest fires. March was declared the hottest in 122 years since the Indian weather bureau started maintaining records. The heat was particularly difficult for the most vulnerable and exposed people who run their livelihoods out of doors such as street vendors, construction workers, farm workers, and traffic police. Scientific studies by the World Weather Attribution group (1) and the UK Met Office (2) suggest that the heatwave was made much more likely as a result of man-driven climate change. The IPCC warned in 2021 that extreme weather events would increase in South Asia, including India, and that heatwaves would become more intense and frequent in the 21st century (3).

A previous study of the coverage of two Indian extreme weather events in 2015 (4) showed that journalists rarely made the link to climate change; they most commonly used generic phrases to describe the link; politicians and NGOs often 'blamed' climate change without reference to the science; and only a few quoted Extreme Event Attribution studies looking at how anthropogenic climate change had made the events more or less intense or frequent. However, this study is now dated, and only included English-language legacy print media.

The 2022 heatwaves attracted a considerable amount of coverage in a wide variety of Indian media, including legacy titles, digital start-ups, and television, both in English, Hindi and regional languages – a range of platforms and languages seldom included in Indian media studies. For that reason, in this study a team of English, Hindi and regional language speakers analyzed a large range of articles, reports and video coverage from a variety of media outlets, including print and TV. We applied traditional manual content analysis, based on a detailed code book of 30 variables. The sample included around 150 articles each in English and Hindi from five of the most read news online sites, smaller numbers of articles from news sites in regional languages (Marathi and Telegu), and television coverage in English and Hindi on a selection of key dates (e.g. when temperature records were broken).

Early results suggest that a high percentage of articles in English language sites accurately reported the links between climate change and the heatwaves, and widely covered the Event Attribution studies – in contrast to previous studies. However, Hindi language sites reported these aspects much less. Further analysis of the results will provide answers to i) the political dimensions of the coverage, as to whether politicians and others, by blaming climate change, were abnegating responsibility for addressing local drivers of extreme weather impacts, and ii) whether the

coverage adequately addressed factors beyond climate change that influence heatwave impacts, such as effective emergency responses, disaster preparation/planning, and community vulnerabilities and exposure.

Key words: climate change; extreme weather communication; Indian heatwaves; media; Hindi; content analysis

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Key Words

climate change; extreme weather; Indian heatwaves; media; Hindi; content analysis

The use of Twitter for disaster communication: a case study of the 2022 climate-fuelled super-flood in Pakistan

Authors

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Abstract

Pakistan is a country often ranked among the most vulnerable to climate change, and in 2022 it suffered extreme flooding submerging one third of the country. This 'super-flood' caused enormous loss of life, significant environmental destruction, and a large-scale humanitarian crisis. The climate-linked catastrophe[1], which some called 'the future of post-climate disaster' got the attention of both the international mainstream news and social media, specifically, on Twitter where it was extensively discussed by variety of actors and kept trending for several days. Though past studies have offered analyses of disasters using social media, especially Twitter (Doan et al., 2012; Hughes & Palen, 2012; Troy et al., 2022; Vera-Burgos & Griffin Padgett, 2020), most of these investigations have originated from Western countries and seldom focused on under-researched countries like Pakistan. Moreover, the few studies (e.g., Batool et al., 2021; Fatima & Anis, 2021; Murthy & Longwell, 2012) that have examined the use of Twitter during a disaster in Pakistan have usually relied on a small sample of tweets without examining their content, and never studied a climate change-related crisis. Consequently, we know very little about how the people of Pakistan use Twitter in the wake of a crisis, and specifically, a climate change-related crisis.

With this context in mind and keeping in view the importance of social media which provides space for crisis communication, the scale of the disaster, and the attention it received, the present study relies on a large sample of 576,408 tweets posted using #FloodsinPakistan between 23rd to 28th August 2022, both in English (39.5%) and in Urdu (53.6%). We use both computational and qualitative methods in the pursuit of three distinct aims, (a) to understand the use of social media in crisis communication: communal sense-making (Carey, 1989), negotiation of participant roles (Robinson, 2009), informational sourcing, and digital convergence (Hughes & Palen, 2012), (b) to explore the evolution of interaction networks and presence of key stakeholders within these networks over time, and (c) through manual content analysis to identify the broad frames used in the tweets, and specifically how the links are made between the disaster and climate change.

In doing so, through this descriptive and explorative study we add to the scholarship on environmental communication from an otherwise under-researched country; we show the presence and absence of key stakeholders from the discursive social networks; and we scrutinise people's (in)ability to link the disaster to climate change. The result of our preliminary analysis indicates that 87% tweets in our sample are retweets whereas only 11% constitute as original tweets. The network analysis shows that the absence of key stakeholders, i.e., incumbent government, crisis management agencies, and mainstream media organisations, whereas the conversation was largely driven by individual journalists, local NGOs, and oppositional political

party. With regards to attribution, very few users (mostly academics and individual journalists) link the disaster to climate change. We offer a wide discussion of the implications of these findings.

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Key Words

Twitter, environmental communication, Pakistan, social network analysis, crisis communication

Examining Australian climate action group tweets during the 2019-2020 Black Summer bushfires

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Abstract

As climate change increasingly affects many types of extreme weather around the world, researchers are examining discourse associated with these events across different communication channels. However, existing studies have yet to examine how environmental non-governmental organizations frame extreme weather events and their relationship to climate change on social media platforms. This is an important area for research as these groups play a significant role communicating science and advocating for environmental action. Furthermore, there are growing concerns that an overemphasis of climate change in communications about extreme weather could displace attention from the roles of vulnerability and disaster risk reduction strategies in limiting the impacts of these events. This study examines how Australian climate action groups framed the relationship of the 2019-2020 Black Summer bushfires to climate change on Twitter. Analyzing 2,077 bushfire-related tweets from a sample of 102 climate action group accounts through manual qualitative content analysis, we found that these groups frequently linked bushfires with climate change, representing 59% of their bushfire-related tweets during the period of the fires. 42% of tweets mentioned climate change without describing how it relates to bushfires; 16% described specifically how climate change influences the frequency and intensity of bushfires; and 1% made the inaccurate claim that climate change causes bushfires. 15% of tweets discussed factors beyond climate change that influence bushfire risks, such as firefighting, emergency responses, hazard reduction, and community vulnerabilities. We also examined to what extent these organizations tweeted about an extreme event attribution (EEA) study that found climate change made the fires at least 30% more likely to have occurred (van Oldenborough et al., 2020). Among our sample, only 15 tweets from 7 accounts mentioned the study. Based on these findings, we show how climate action groups could further utilize climate science to craft more precise attribution statements, as well as more holistically incorporate factors beyond climate change that influence the impacts of extreme weather events.

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Key Words

climate change communication; extreme weather; framing; Black Summer; climate activism

Hotting up: the media coverage of the Italian summer 2022 heatwaves

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Abstract

According to the Italian National Research Council, the summer of 2022 was the warmest in the history of Europe, or at least in the last two centuries. In several parts of Italy, record temperatures were reached which far exceeded 40 degrees Celsius, threatening the health of people and animals. Despite the exceptional temperatures, heatwaves are becoming a new and dangerous normality in Italy. They and other extreme weather events are one of the most tangible signs of climate change, and represent an important opportunity, a so-called “teachable moment”, to understand the risks and implications to which we are increasingly exposed (Wallace 2012; Ettinger et al. 2021).

In this, news media play a central role as the main source for information about climate change (Robertson 2022) capable of influencing the public agenda. The way news media report extreme weather events can have an important impact on the public perception of risk and climate change awareness (Painter et al. 2021). Within this context, this study analyzes the media coverage of the summer 2022 heatwaves in Italy.

The Italian case is of particular interest because it allows us to consider: 1) a country which is traditionally more familiar with summer heatwaves, which could lead the public and politicians to underestimate them as an effect of climate change; 2) a country where relatively few studies have been done to investigate the relationship between media and climate change, and even more so in the specific case of reporting extreme weather events.

To this aim, we analyze all the articles published by four of the main Italian newspapers (*Il Corriere della Sera, la Repubblica, Il Giornale, Il Fatto Quotidiano*), between June 1 to August 31, 2022, which contained at least one of a list of keywords related to heatwaves. The articles were collected through the Factiva - Dow Jones database. In total, 310 articles were analyzed through QDA Miner, a program for the qualitative analysis of texts, and WordStat, a text mining tool used to identify the most recurring themes within a corpus of articles. The print press was chosen as the focus of analysis as the best way to fill the existing gap in the literature about the Italian coverage of extreme weather events, and because Italian newspapers still shape the public agenda.

Based on heatwave data from the Italian Ministry of Health, the study observes how the heatwaves are presented and what are the main issues related to them with reference to heatwave trends. Specifically, an attempt is made to understand: a) how and when the link between heatwaves and climate change is presented in the media; b) whether sufficient emphasis is placed on the risk such heatwaves pose to the health of people and animals and related advice for coping with them; and c) whether broader considerations of environmental risk (drought, water crisis, etc.) are also included in the coverage.

Key Words: heatwaves, extreme weather events, climate change, media coverage, Italy

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Key Words

heatwaves, extreme weather events, climate change, media coverage, Italy

Armed Conflicts, or the Environment? The Impact of Conflicts on Media Students' Concerns in Climate and Environmental Issues: A Study of the Palestinian Case

Authors

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Abstract

Studies dealing with media students in universities, in terms of teaching and training, and the political, social and cultural environment in which they live, are of particular importance. Media students are the future journalists who will have a central role in directing the public opinion and influencing the society in various social, political, economic and environmental issues.

We observe an apparent concern in environmental issues in the world, where international organizations, in addition to governments of developed countries, are exerting efforts to face the challenge of the environmental risks resulting from natural and human factors. Thus, attention towards contributing to mitigating environmental risks, and searching for solutions to their impact on human life become a priority and of special significance.

Hence, this study aims to explore the concern of media students in Palestine in environmental issues in light of the continuing conflict with the Israeli occupation, especially the intensity of daily violent measures against the Palestinians, as well as the isolation of Palestinian society from the Arab and international environment.

This study also aims at identifying one of the most important reasons for the decreasing concern in climate and environment by a number of societies which are engaged in armed conflict, in the absence of an international will to resolve these conflicts. By solving conflicts, efforts will be directed to confront the risks of climate change and environmental deterioration which affect the universe.

The study assumes that concern for climate and environmental issues is not among the priorities of media students in light of a bloody conflict that puts human life in immediate danger, and puts climate and environment in a secondary place. Also, citizens who live harsh environmental conditions under occupation, consider that Israel (the occupation authority) is destroying the environment. This is represented in the destruction of crops, the confiscation of land and water, vis-a-vis the construction of settlements on the Palestinian land, despite the increasing number of the Palestinian population.

The researcher will use the analytical descriptive approach using a questionnaire tool by distributing it to the media major students at An-Najah National University, the largest Palestinian university.

Key Words

Media students, climate change, environment, conflict

Climate action obstruction in Spain: Stakeholders, discourses, and strategies

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Abstract

This paper is an overview of the obstruction of climate action in Spain by interest groups through strategic communication. To draw this picture, it first has a historical description of climate obstruction in this country. This paper distinguishes historically three stages: the first one of ignorance and inaction on the matter, in which the regulation of the electricity market and nuclear development were the main public issues concerning climate; a second stage of skepticism and rejection of climate evidence, where opposition to climate advances also has an international component and which in Spain materialized in the ups and downs surrounding renewable energies, and a third, current stage, of culture wars, where greenwashing plays an important role and where there is increasing awareness of climate, but actions are still not sufficient to confront the climate crisis. This research includes a description of the main stakeholders involved in climate action opposition in the country: the lobbies of polluting industries, neoliberal think tanks, specific sectors of the press and politics, as well as the citizenry. This work also reviews the strategies used, where communication plays a fundamental role since stakeholders want to introduce their ideas in public opinion, political debate, and media agenda. Finally, to better exemplify the discursive strategies of some actors, this paper includes two case studies. One is that of neoliberal think tanks through the analysis of their framing against climate action and their representation in the Spanish press. The other is that of the animal agriculture industry lobbies, through the study of their discursive strategies to curb animal compassion and boycott the transition to plant-based diets. This paper is informed by contributions from both an ongoing doctoral dissertation and three research projects, two on the role of think tanks in opposing climate action in Europe and one on lobbies against animal compassion in Spain. This paper aims to gather these inputs to focus on the Spanish context and draw a picture of the central facts, stakeholders, and strategies around opposition to climate policies, emphasizing the role of communication.

Key Words

climate change, climate obstructionism, strategic communication, public relations, denialism, Spain

Devil or a blessing in disguise? News coverage and crisis management in Spain (2017-2021). The use of social networks by journalists and public emergency officials during Covid-19, the listeriosis outbreak, forest fires and the La Palma volcano.

Authors

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Abstract

In recent years, crisis communication research has highlighted the divergence of opinion, contrasting criteria and distinct operative requirements when journalists and public officials are faced with the news coverage and technical management of an emergency (Ewart & McLean, 2019; Swindell & Hertog, 2012; Sallot, Steinfatt, & Salwen, 1998). In general terms, such studies reveal that emergency management teams accuse the media of sensationalism, propagation of rumours or of playing the blame game where they are often singled out while journalists refute these accusations and complain of obstructionist tactics, obstacles to access or the provision of low news value data on behalf of officials (Grassau, 2021). What is clear is that both sides are condemned to understanding each other: officials need the media to spread messages of precaution and security measures while the press often needs officials to obtain authorised first-hand information (Puente, Pellegrini, & Grassau, 2013a).

In this context, this paper sheds light on an aspect which is still relatively understudied: the benefits and hindrances of the role of social networks in the coverage and management of a public emergency as seen by the journalists and management officials themselves. In order to do so, it looks at the cohabitation between news professionals and crisis response teams during four major stores in recent Spanish history: the Covid pandemic (2020), the listeriosis outbreak in Andalucia (2019), the forest fires in Tarragona (2019) and the eruption of the volcano in La Palma (2021).

From a methodological perspective, semi-structured interviews were carried out with journalists from national and local media outlets along with crisis management representatives from organizations such as the Military Emergency Unit, local government or the 112 national emergency hotlines in order to contrast their positions on the pros and cons of the deployment of social networks such as Twitter, Instagram or Facebook. To complement the findings of these conversations, many of the interviewees were invited to a workshop at the university where their coinciding interests and differences of opinion were set out. The paper concludes by examining their sectorial use of social media and presenting their proposals for improvement in the public communication of emergencies.

Key Words

Emergencies, Spain, social networks, journalists, crisis management

Visualizing the invisible: Communicating Renewable Gas and Hydrogen

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Abstract

Background

The technologically advanced production of hydrogen can be based on renewable energy which makes it “green hydrogen” and thus a “future fuel”. Hydrogen is increasingly part of the public discourse as a response to the climate crisis. As a new form of renewable and sustainable source of energy, it has the advantage of being easy to transport and store. Further is the potential for the *gas industry* and its hydrogen related infrastructure in facilitating the production and the storage of hydrogen.

This can be challenging for the gas industry for not only communicating their ‘product’ but also since hydrogen is a complex energy source. To communicate (about) renewable energy production and hydrogen in particular requires a high degree of scientific and technological understanding. Existing literature supports the assumption that energy suppliers’ communication efforts are rather functional and therefore information focused, similar to related media coverage (Holmes, Garas and Richardson 2022). Also from a visual communication perspective, there are certain forms of material that are used to communicate information on energy. This is dominated by geo-satellite imagery, 2D/3D visualisations, heat maps etc. (Rozmi et al 2019; Figueroa-Acevedo et al 2020). However, while wind or water turbines and solar panels can be easily visualised (Sarrica et al 2014; Breukel et al 2016), gas and hydrogen are intangible and hard to visualise.

The project at hand analyses existing visual elements that accompany news articles on hydrogen and gas to answer the question: What are visual representations of hydrogen and gas in the media? The project wants to contribute to existing research to understand not only the limitations but also the (missed) potential of visual communication in renewable energy communication.

Methodology

With the increasing focus on hydrogen in the Australian energy sector, we selected a media sample from traditional Australian media for the analysis of visuals of hydrogen and gas. For the combined

quantitative and qualitative media content-analysis, the first set of data from Australian media outlets was collected with a google domain search for the last 5 years (2017-2022; wide array of search terms from thirteen newspapers), which was then filtered for relevance (natural gas and hydrogen) and scraped from the original sources (250 characters or more). We applied topic modelling to the sample of articles (N= 9,253) to distinguish themes in the discourse (Rose 2001, 136-7; 158-9), this was followed by a qualitative analysis of a randomised sample of N = 900 articles, where also the images were separately analysed and categorised (N/visuals = 822). The articles and resulting images were selected proportional from the topics, a visual analysis (manual coding / 1 coder) was applied (Smith et al., 2004; Moriarty, 2002; Ariello & Parry, 2019).

Findings

The analysis of visualisations of hydrogen in an Australian media sample offers two key findings:

Firstly, the visualisations related to an article on hydrogen and/or gas are predominantly photographs of infrastructure (details of metal pipes, smoke stacks, ship infrastructure). In a few cases the discourse around hydrogen is personified through photographs of the CEO of one of the biggest industry players supporting the development of hydrogen production for export in Australia (Andrew Forrest of Fortescue Metals).

This supports the second key finding. The visuals have been categorised along the frames that were developed and applied in the media content analysis of the text, which were an economic, a technology, political, an environmental and a civil society frame (see author et al., forthcoming). The analysis of the visuals related to gas and hydrogen shows that hydrogen is communicated mostly from a technology perspective; photos of engineering advancements, existing and future technologies, and technical details of infrastructure dominates the visual communication of hydrogen. There is a lack of diversity in the ways hydrogen is presented and a lack of motivational framing (Snow & Benford, 2002).

Conclusion/outlook

The paper offers new insights into the potential and limitations of communicating hydrogen as a future energy resource and about renewable energy. The findings point to challenges in visualising future technologies and highly complex systems (like infrastructure, gas industry, import and export of energy, energy supply etc.). The study points to missed potential of the (gas) industry's public communication endeavours and related media representations. The messages consist of basic common-sense visualisations, often repetitive and usually detached from the topic of hydrogen as future fuel. A diversification of visual communication is lacking, which needs to be further explored – also from a public engagement and acceptance of renewable energy perspective.

Key Words

hydrogen, visual communication, science communication, future fuel, climate change, Australia

Company towns: Communications, sport and local environmental harm

Authors

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Abstract

When an industry is reliant on access to local landscapes and resources to grow its business and markets, the need for community and political support is acute. Community sport and locally based teams and tournaments are an obvious means to reach into communities, given their embodiment of shared endeavour, community identities and histories, and social cohesion. Moreover, sport through its advertising and sponsorship infrastructures has long been a relatively safe harbour for socially contested communications, such as for chemical or fossil fuel companies (Glasson 2022; Hutchins 2022). It is no surprise then that when an industry is seeking to gain or maintain a social licence to operate, it turns to sport and its popular appeal to help achieve its aims. Yet, as environmental concerns and particularly climate change have emerged to dominate public consciousness and to drive individual and community practices and attitudes, sport has become a complex terrain for such industries. This is in part because sport's interrelationship with the environment is itself complicated. Sport, like most human activities, creates environmental harm. From duck shooting to air miles, leather footballs to the communications devices through which so much sport is mediated, the impacts of sport on climates, landscapes and species are now well documented and confronted. The potential of sport to champion environmental protection is also evident, for example, through sports organisations' sustainability practices and policies or the political intervention of celebrity players (see, for example, www.davidpocock.com.au). Finally, the damaged environment's capacity to harm sports practice or disrupt sporting business models has grown. Soaring temperatures, melting snow, polluted waterways and bushfire smoke have become impossible to ignore for many sporting codes, leagues, athletes and fans (Hutchins, Lester and Miller 2021). As the recent meetings of COP have highlighted, sport is now a key site for the enactment of environmental awareness and conflict (<https://www.sportatcop.org>).

Using the salmon industry in Tasmania, Australia, as our case study, we analyse discourses in corporate media outputs, including corporate and social responsibility documents, social media and media releases, to identify key features of the relationship between sport, community and environment. Revealing the dimensions of this interaction is important for three reasons. First, it can help build conceptual tools for understanding the spread of environmental or oppositional messages in and through sport. Second, sport is a visible 'public screen' (de Luca 2013), projecting the complicating paths towards environmental justice and slowing responses to looming environmental harm and disaster to communities and audiences (Woosnam 2022). Third, it helps sport, industry, and publics recognise the extent of their complicity in the promotion or containment of these messages.

Key Words

Environment, resource industries, community sport, fish farming

Rethinking Traditional Values: Analyzing How Messages of Climate Change Affect Family Planning Among Millennials and Generation Z (Phase I - Ghana)

Authors

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Abstract

Introduction

Climate change continues to be perceived as a significant risk, especially among younger demographics. Millennials (born 1981-1996), were found to be the most adamant about prioritizing the issue of climate change, with 71% of Millennials indicating climate change to be a top priority to protect and sustain the planet for future generations (Funk, 2021). Generation Z adults, those over the age of 18 (born 1997-2004), also share similar sentiments. According to a 2020 poll by *Morning Consult*, 1-in-4 Americans under the age of 45 indicated that climate change plays a role (major or minor) in their decision to not have children (Jenkins). A prior survey also measured the various reasons why young adults are choosing to have fewer children, with 37% of respondents expressing concerns with global instability and 33% specifying the burden of climate change (Miller, 2018).

Purpose of Study

This study is the initial phase in a series of cross-international research projects, beginning with Ghana (Phase I). So far, we have begun interviewing Millennial and Generation Z Ghanaians and collected approximately 500 survey responses. Both procedures explore how participants view climate change communications within Ghana and how (if at all) this impacts family planning. Our next step is to duplicate this study in the U.S. and eventually other countries to provide a comprehensive comparative analysis of climate change and family planning perceptions across the globe. The focus of this research is to observe three main areas: (1) views on climate change among Millennials and Generation Z adults, (2) how climate change messages are distributed and interpreted by country, and (3) the impact these perceptions have on family planning decisions. Through our analysis, we intend to answer the following question: What effects do messages about climate change have on Millennials and Generation Z and their desire to have children?

Theoretical Framework

In 1973, sociologist, cultural theorist, and political activist Stuart Hall introduced Reception Theory to explain how audiences interpret messages from various forms of media. In *Encoding and Decoding in the Television Discourse*, Hall provides a model to show how media messages are created, shared, and interpreted. He claims that communicators encode messages within their content and then audience members decode the meanings behind the messages they identify

through a combination of their social observations, personal values, and beliefs. Consequently, by establishing underlying meanings of the content they consume, viewers also can affect how these messages are disseminated and recognized through collective action. For this study, the process of encoding will be defined as the types of climate change messages shared and the way they are framed through mainstream media channels (digital/social platforms, television, and movies) by prominent leaders/outlets, environmental organizations, and popular culture influencers. By contrast, the process of decoding will cover the perceptions of climate change among Millennials and Generation Z, and the level of influence it has on this demographic's life choices.

This study also incorporates the two-pronged foundation of risk perception detailed by social scientists, Paul Slovic and Ellen Peters. This concept entails *Risk as feelings* as a reaction to sensations of danger and *Risk as analysis* as a logical assessment in the decision-making process (2006). Drawing inspiration from Slovic and Peters' affect heuristic model that displayed how information providing high/low benefits or high/low risks incite negative and positive emotions, thus impacting judgment-based decisions, and by implementing Hall's concept of encoding/decoding, we hypothesize that climate change tends to affect family planning decisions among Millennials and Generation Z when:

1. Climate change communication is prioritized within the media they consume.
2. The messages they consume provoke negative feelings (e.g., fear, sadness, hopelessness).

Significance and Broader Impacts

The dangers associated with climate change do not only pose a threat for future generations. It increases the likelihood of health risks, environmental disasters, and economic decline ("Climate Change Science," n.d.). Due to disparities in environmental education, resources, and activism around the world, many of the impacts generated by climate change are unknown or less visible, such as the steady decline of younger generations' willingness to have children. The more evidence that can be provided to demonstrate the seemingly endless harms caused by climate change, the more apparent the need is for prompt action. This study is aimed at building on existing theoretical frameworks to find solutions to better communicate and manage this global issue.

Key Words

Environment, Science, Risk Communication, Media Studies, Climate Change, Family Planning

The Changes of Chinese Media Discourses on Energy and Climate Cooperation between China and Europe (1994-2022): What does the News Framework Reveal?

Authors

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Abstract

China-Europe cooperation has significantly contributed to the resolutions of worldwide climate and energy issues in recent decades. From the perspective of Chinese mainstream media, this essay, with reference to the reporting framework theory, observes the attitudes of Chinese media towards China-Europe cooperation on climate and energy with the change of time.

By searching WiseSearch and PeopleData, this essay gathers news reports about China-Europe cooperation on environmental issues released by Chinese mainstream media (China Daily, CCTV News, the Xinhua News Agency, China Environment News, etc.) from 1994 to 2022. Keywords like “China-Europe Climate (zhong’ou Qihou)”, “China-Europe Energy (Zhong’ou Nengyuan)” and “China-Europe Environment (Zhong’ou Haunjing)” are adopted to search for and clean relevant data. Ultimately, 3,863 diachronic media texts are acquired. With coding analysis, this essay constructs eleven categories (identifiable frameworks), accordingly summarizing two main reporting frameworks: Category I-- fact-based framework, corresponding to the secondary frameworks of attribute-based framework, development-based framework, different/problem framework and perception/participation framework ;Category II--emotion-based framework, corresponding to the secondary frameworks of acceptance/collaboration framework, and the framework of mankind common interest.

This essay reveals that Chinese mainstream media has undergone three stages of reporting framework changes: *prospect in exchanges and dialogues*, *development in the midst of differences*, and *concentration on the destiny of all mankind*. From 1994 to 2005, the main entry point of Chinese media reports was the exchanges and dialogues between the leaders of China and Europe. The media discourses were constructive, with the hope of positive cooperation and the emphasis on potential benefits. From 2005 to 2013, China-Europe cooperation faced a series of differences in positions and conflicts. Consequently, the mass media assumed the responsibility of "rational consideration", reporting relevant information to guide and supervise public opinions. From 2013 to 2022, media discourses put a premium on emotional resonance, focusing on the topics of "what to develop" and “how to develop”, which connects China's destiny with the world in the context of globalisation and the influence of complex factors.

The reporting framework of China-Europe cooperation on environmental issues is enriched as time goes on. Under a multi-perspective reporting framework, a constructive media discourse system is

gradually established. On the one hand, such a system has extended the content of reports, the scope of topics, and the attention of the public, offering free expressions of media discourse. On the other hand, the mass media takes the development-based framework as the major way of reporting and coordinates the fact-based framework to report news from multiple angles. Such a strategy shows the actual changes in people's livelihood under the influence of China-Europe cooperation, and demonstrates that China-Europe cooperation has been internalised as an important part of China's development. Meanwhile, the transformation of the core of reporting, from "sustainable development" to "community with a shared future for mankind", has separated mass media reporting from the primary fact-based framework, which improves the empathy effect of news reports.

Overall, it is the deepening of China-Europe cooperation that is behind the continuous enrichment of media discourse. In terms of reporting perspective, the relevant reports switched their focuses from China and Europe to the world, reflecting the multi-level China-Europe relations in the trend of globalisation. Moreover, it also shows that China and Europe, as important global stability and constructive forces, have an important impact on global energy transition and economic recovery.

Key Words

China-Europe Cooperation, Mainstream Media, Reporting Framework, Climate Change, New Energy

Exploring the Role of Images in Climate Activism on Instagram: A Computational Approach

Authors

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Abstract

The climate crisis constitutes a pressing challenge to contemporary society (Klinenberg et al., 2020). Social media has become a critical platform for the production, dissemination, and mobilization of climate activism (Pearce et al., 2018; Vu et al., 2020). The current research on social media and climate activism primarily focuses on text-based analysis (Boulianne et al., 2020; Chen et al., 2021).

However, with the proliferation of visual data such as images in social media, the role of such visual elements in the dissemination and mobilization of climate activism has become increasingly salient. To date, studies exploring the role of images in climate action have employed case study methods and human coder, resulting in limitations such as small sample size and potential subjective biases (O'Neill, 2019; Molder et al., 2021). To address this limitation, this study employs large-scale computational vision methods to examine the role of visual elements in climate activism.

The research questions addressed in this study are:

RQ1. What are the key characteristics of climate activists' images on Instagram?

RQ2. What is the relationship between the features of climate activists' images and the level of public engagement on Instagram?

The methodology involved collecting images from Instagram utilizing the hashtag #climateactivist, followed by the application of computer vision analysis to extract photo features through unsupervised learning and clustering techniques. The relationship between image features and public engagement was then measured.

The results of this study highlight the emergence of a young, female-oriented, and emotive image constructed by climate activists on Instagram, suggesting a personalized image that personifies their cause. Additionally, the study establishes a correlation between public engagement and image features, demonstrating the impact of elements such as portraits in catalyzing activism.

In conclusion, this study provides valuable insights into the role of images in motivating climate action on social media, offering practical suggestions for the creation of effective climate communication images. Furthermore, this research highlights the potential for computational vision methods in advancing environmental/climate communication research.

Key Words

Climate communication ; Environmental communication; Climate Activism , Social Media; Computational Analysis

Predicting scientists' public communication intentions in social crisis : A survey in China during COVID-19

Authors

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Abstract

Amidst the public panic caused by COVID-19, the dissemination of scientific knowledge proves an important way to eliminate such panic, in which scientists themselves play a major role. Thus, exploring the influencing factors of scientists' public communication intentions has always been a research focus among the science communication community. However, the chaos and risks brought about by social crises might create inconsistencies between current and previous studies relating to how the influencing factors interact. The current research on scientists' public communication activities in social crisis is mostly a series of case studies of scientific controversies (Jahng&Lee, 2018), and mainly focuses on suggesting how scientists communicate with the public (Doyle, et al., 2015), or measuring the cognitive gap between experts and the public on risks or uncertainties (Lidskog, 2008). However, there is generally a lack of research on the influence of scientists' public communication intentions in social crises.

Theory of Planned Behavior, TBP for short, is an important model for exploring scientists' willingness to communicate science, and we modified it based on our specific context. Although the influence of moral norms on scientists' intention to popularize science is usually not significant (Poliakoff & Webb, 2007), the moral pressure generated by some special environments may strengthen the influence of moral factors on behavior (Holmes, et al., 2009). In addition, in developing countries, science communication is usually highly dependent on policies and government support, so organizational structure also becomes a potential factor that affect scientists' public communication intentions (Marcinkowski, et al., 2014). Based on the above analysis, The impact factors are including six variables: Attitudes, subjective norms, perceived behavioral control, moral norms, Perceived organizational support.

The research data comes from a questionnaire survey of Chinese scientists during the early stage of the COVID-19 outbreak from February to March 2020 in China (N=517). We commissioned a professional survey agency to issue questionnaires, and the participants were all in-service scientific researchers or university professors. After screening, the questionnaires had decent overall reliability and validity.

A structural equation modeling was employed to test the five hypotheses drawn from conceptual and empirical bases, and the factor validity and model fit met the requirements. After testing, the results showed that: (1) TBP model can positively predict scientists' science communication intentions in social crisis; (2) Moral factors can positively predict scientists' science communication intentions in social crisis; (3) After incorporating moral norms, the fitting degree of the TBP model

can be improved; (4) Moral norms as a mediate factor between perceived behavioral control and scientists' intention to public communication in social crisis; (5) perceived organizational support cannot positively affect scientists' public communication intentions in social crisis, but it can positively affect scientists' attitudes towards public communication in social crisis. In conclusion, this study confirms that the scientific communication behavior of scientists in social crisis is mostly a spontaneous behavior based on their own moral sense. In addition, scientists have a moral concept of "With great power comes great responsibility" in the social crisis, which drives them to carry out public communication behavior.

Key Words

public engagement, science communication, quantitative analysis, COVID-19 Pandemic, Crisis Communication

The Representation of "Wildness": A Content Analysis of Wild animal News in the People's Daily (1949-2021)

Authors

Mr. XINGYUAN LIANG - The Chinese University of Hong Kong

Abstract

The emergence of "animal turn" in the social sciences and the humanities demonstrates that human-animal relationships have been acknowledged as a research-worthy phenomenon, because various relationships or interactions can reveal different stages of ethics in human society.

This study observes the environment ethics of China's wild animals: Over the past two decades, the Chinese government has made remarkable contributions to ecological construction, gradually increasing their focus on wild animals, and realizing the inextricable connections between animals and the nature, civilization, and human's survival. However, wild animals like the South China tiger and sparrows did suffer from mass slaughters at middle of the 20th century. The *People's Daily*, the most influential official media outlet in China, has been publishing wild animal news stories that represent the mainstream ideologies, thereby witnessing and documenting the changing environment ethics regarding wild animals.

To examine the media representation of wild animals, this paper conducts a longitudinal study, uses content analysis and Chi-square test on SPSS 26.0 to analyze 1562 wild animal news articles from the *People's Daily* (1949-2021) and draws conclusions about the basic information of wild animals on media through the news frames, basic human attitudes toward animals, and three major environmental ethics.

Key findings are followed:

1. The number of wild animal news articles in the *People's Daily* has increased significantly over 70 years, covering both domestic and international regions, and mentioning a variety of wild animal species, but more biased on the representation of mammals and birds;
2. The mainstream news frames adopted show significant differences in different periods, shifting from "positive impacts from animals" to "positive impacts to animals". Human attitudes toward animals have also evolved from utilitarian to moralistic, ecologicistic, and scientific attitudes;
3. Environmental ethics on wild animal have transitioned from anthropocentrism to biocentrism and ecocentrism, and the social moral status of wild animal has clearly improved;
4. Chi-square test also proves that news frames and basic attitudes of these articles show certain correlations with environmental ethics: All variables are becoming more "de-anthropocentric".

By analyzing the wild animals' media representation in the *People's Daily* since 1949, these results outline position of wild animals in China's dominant ideologies and environmental

ethics. Even though ancient Chinese philosophers well developed ecological theories such as “unity of Heaven and humanity” or “nature is the true law”, the PRC still spent more than 70 years re-constructing human-animal relationship. According to thousands of articles, this procedure was influenced by economy, politics (social movements, top leaders’ policies), and public health emergency issues (SARS, Covid-19) etc. Eventually, the “animal turn” is encountered and de-anthropocentrism gradually accepted in modern China, which can’t be separated from China’s conflicts, co-existence, and reflections with wild animal.

Key Words

Environmental ethic; Wild Animal news; Media representation; People's Daily; Content analysis

Literacy, concern and behaviour towards climate change in Malaysia

Authors

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Abstract

In recent decades, the air temperature at the surface of Malaysia and Southeast Asia has increased dramatically. Malaysia is vulnerable to the impacts of climate change in terms of public health, crop production, food insecurity, and socioeconomic vulnerability. There has not been substantial participation from the general public in Malaysia in discussions regarding climate change adaptation and mitigation. Level of literacy, concern and behaviour towards climate change are important factors to consider in designing effective communication measures to increase awareness and minimise misinformation In regards to climate change issues. This study aims to gauge Malaysia's public perception and understanding on climate change and it's impacts, as well as their behavioural responses towards issues involving climate change. The study also examines Malaysians' media preference and trusted information sources to better understand how information regarding climate change issues can be more easily and effectively communicated. A nationally representative survey was carried out in August 2022. Descriptive statistics were used to analyze each question and audience segmentation was carried out utilizing the Six America Super Short Survey (SASSY!) Tool as has been used across diverse countries. The majority of Malaysians are Alarmed (45%) or Concerned (36%) about climate change. However, only 40% – 56% of Malaysians understand the terminologies often used in relation to climate change (e.g., greenhouse gas, low-carbon technology, mitigation and renewable energy). Despite this, 65-79% of Malaysians have already adopted common purchasing, energy and waste management behaviours to address climate change. The most trusted information sources for information on climate change are scientists (87% somewhat or highly trust), environmental groups (86% somewhat or highly trust) and academic journals/publications (80% somewhat or highly trust). These findings suggest that although Malaysians are alarmed and concerned about climate change, effective communication from reputable information sources is required to deliver accurate messages and counter misinformation.

Key Words

climate change literacy, audience segmentation, behaviour response

Attitudes of scientists towards hype in Science Communication

Authors

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Abstract

In scientific communication, 'hype' is defined as simplified, exaggerated and sensationalised science produced by R+D actors at all the stages of the research process to motivate support for research and obtain funding and socio-political capital (Roberson, 2020). Scientific 'hype' is also defined as the adoption of visions articulated through optimistic expectations about a desirable future to work towards or pessimistic expectations about undesirable future to work against (Roberson, 2019). The more common forms of hype on science news are exaggeration or distortion of facts (Auch, 2018).

'Hype' has become commonplace in science communication. Indeed, it appears to be an unavoidable constituent of it (Nerlich & McLeod, 2016), despite there being authors who warn about its negative consequences. For instance, Auch (2018) and Powers (2012) consider that 'hype' could potentially undermine the public trust on scientific work and the value of science. On the contrary, there are researchers who see positive aspects in the use of 'hype'. For example, Roberson (2019, 2020) believes 'hype' is an effective communicative device that fosters engagement in science and technology, contributes to shaping the future and expands the public discussions about science.

In communication scholarship, the most prolific way of studying hype adopts a perspective centred in how 'hype' propagates. These studies define 'hype' as media storms or news waves (i.e., Boydston et al., 2014; van Atteveldt et al., 2018) to which the intensity of media coverage is a fundamental aspect (i.e., Wien, 2018). A second perspective observes 'hype' as a promotional, marketing, or advertising genre (Powers, 2012). Within this, the necessity of turning to the receiver to understand 'hype' has been recently identified: Smith (2020) states that hypes require audience research, Auch (2018) insists that a full account of scientific 'hype' must explain how the media covers stories while evaluating the judgements of them, and Powers (2012) considers it fundamental to explain what people think when facing a 'hype'. Despite that, the scientists' perspectives on hype in media communication (its causes, manifestations and consequences) have been inexplicably ignored by academy despite their central role in the process.

With the aim of understanding the attitudes to 'hype' by scientists, this research conducted X online focus groups (FGs) over Zoom with the participation of 54 researchers (22.22% women)

from different disciplines [(5 FGs Quantum Physics (N = 24, 8.33% women), 3 FGs Artificial Intelligence (N = 13, 23.07% women), 3 FGs with Health Communication (N = 24, 38.46% women), 1 FG on Misinformation (N= 4, 75% women). The researchers worked at Universities and Research Institutes from various countries (i.e., Malaysia, Singapore, United Arab Emirates) and were at different stages of their careers. During the FGs, a semi-structured questionnaire was followed which included questions such as: What are the reasons for hype?, Who are responsible for hype in Science Communication?, What are the consequences of hype?, or Have you engaged in any form of hype during your career? The recordings of the interviews were transcribed verbatim. A thematic analysis was applied to their responses.

Preliminary results indicate that, regardless of their field of specialization, most researchers believe that hyping is a necessary and unavoidable practice in today's scientific work, which is caused by its competitiveness and limited funding. Moreover, the majority of them have hyped at some point of their careers, particularly in persuading Journal's editors of the merits of their research articles and on grants proposals. Scientists mostly blame two agents for the pervasiveness of hype in Science Communication: 1) research institutions, specifically their marketing departments, and 2) media journalists. Finally, depending on the discipline, they show a more positive attitude towards hype: Quantum Physicists and Artificial Intelligence researchers agree in that it promotes/promoted their fields/research within different publics while Health Communication and Misinformation specialists believe hype entails serious dangers. Finally, there are differences in the degree of acceptance of hype depending on the career stage: Senior researchers are definitively against engaging in any form of hype, while younger researchers unquestionably accept it as a necessary part of science.

This research informs Science Communication research. They help to explain the meaningful variables for creating and processing scientific news in the current media landscape, while nurturing future research conducted in different applied contexts and disciplines.

Key Words

Hype; Science Communication; Scientists' attitudes; Media Communication; Science practices.

Modes of Knowledge: Extreme weather events as sense making device for climate change in the interaction between media and audience perspective.

Authors

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Abstract

Climate and climate change are scientific concepts, based on the statistics of weather. This scientific concept is a challenge both for journalism and its task to “transmit” scientific knowledge, and for individual human beings and their understanding of scientific knowledge. Against this background, we assume, that the phenomenon of extreme weather events (EWE), understood as an indicator of climate change, enables communication based on (value-based) modes of knowledge that may link scientific research, media coverage and audiences’ understanding of climate change.

In this paper, we will discuss extreme weather events as a shared focus of communication between science, media and its audience and as a communicative bridge to overcome the perceived distance of climate change (Keller et al., 2021). We take “attribution research” on EWE in climate sciences as given, and will analyze and discuss the social construction of climate change in light of EWE (Zanocco et al., 2018) as a process of interaction between media and its audiences .

Theoretically, our starting point are concepts of knowledge (Oschatz 2018). We argue that ‘knowledge deficit models’ or ‘truth to power models’ (Bonfadelli, 2017) are not appropriate to share public knowledge on climate change as fundament for individual or political actions. Rather, ‘knowledge-value-concepts’, with strong links between information and values, symbolic legitimation and emotions will have the impact to deepen understanding and to strengthen individual and political actions. EWE, with its obvious risks and damages for human beings and environment, contain information and messages beyond scientific facts and figures, are closely related to emotions and values, and thus will resonate in the audience and broader publics.

Empirically we will discuss findings from our own study on the coverage of climate change, including EWE, in German TV, and its audience perception. Data were collected September - October 2022 (before COP 27). Program analyses included 20 TV stations in Germany (private and public service), text and video. Audience research was based on a standardized survey, representative for Germany (n = 1.202), as well as eight qualitative group discussions (n=40).

Preliminary analyses of the group discussions show, that EWE are taken as starting points for both sides, TV-production and audiences: The event-character of EWE enables both, the TV broadcasts as well as the audience, to share the object and focus of communication, and to explore reasons, responsibilities, solutions, and to share emotions and values. Many broadcasts are using several

formats, from short fact driven news focusing one specific EWE, to longer and more complex reportages. TV-users may discuss EWE as a topical field that is part of their daily life, and can be taken as “model-event” to further discuss climate change and its dangers in the local region, where the person lives. Thus, EWE breaks down the scientific concept of climate change to an everyday topic, and from a global to a regional phenomenon.

Data analyses of both components (program analyses and audience perception) of the study have started, and will be compiled before IAMCR conference.

[HI1]Das müsste ich nochmal korrigieren, wenn ich an die Zahlen komme, es stimmt nur ungefähr

Key Words

Knowledge; climate change; extreme weather events; media coverage; audience perception.

Contested frames and the media in local environmental protests: Shifting the geothermal debate in the Turkish Aegean

Authors

Prof. Burak Dogu - Izmir University of Economics

Mrs. Begüm Pasin - Izmir University of Economics

Abstract

Geothermal is considered an important source of clean and renewable energy (American Geosciences Institute). The Turkish Aegean hosts vast geothermal resources, particularly in the Buyuk Menderes basin, which is one of the most significant zones of advanced industrial production in Turkey. However, this region is also a very fertile agricultural land, where a variety of exclusive agricultural products are brought up among which are figs, olives, grapes, and chestnuts. Although the geothermal resources in the region offer an important potential for energy production, green housing and health tourism, the use of these resources, particularly for energy production, has an adverse impact on agriculture. Since the power plants do not flawlessly carry out the costly re-injection procedures, detrimental effects are realized both on the quality and quantity of products, as well as on the soil and water supplies. NGOs in the region are working to alert locals on the negative impacts of geothermal energy, while protests against the establishment and operation of geothermal plants have been organized.

From an environmental communication perspective, this study explores the coverage and framing of geothermal energy by the news media and compares it to the framing of those who are directly influenced by the geothermal ventures. We ask if the media frames can influence the locals' judgment despite the observed negative impacts of geothermal energy in the region, and examine the extent to which the NGOs shape local opinion. We study how this plays out in frame contests and focus on the tactics and strategies employed by the NGOs to develop counter-frames through social media and offline gatherings to provide accurate information, raise local awareness and influence public understanding of the risks associated with geothermal use.

The research is structured on three levels of analysis. In the first level, we examine the coverage of the mainstream and non-mainstream news media on geothermal energy. We apply framing analysis to a selected sample of pieces from the news media representing different factions. The second level relies on the analysis of the social media accounts and sharings. We focus on the Twitter accounts of the NGOs and their posts on Facebook, as well as the Facebook groups coordinated by the locals. The third level of analysis is carried out with reference to on-site data. Here, we turn to our semi-structured in-depth interviews, recently conducted with the NGO representatives and the locals, in order to assess their media use for mobilization. We also consult secondary sources, such as web articles, video documentaries and published reports to get additional information on the actors involved. Collected data in all phases are categorized and coded using a qualitative data analysis software, MAXQDA. By drawing on such an analysis, this

study will expose the dynamics of framing within the media and NGOs relationship and contribute to the literature on contested frames in environmental communication.

Key Words

environmental communication, contested frames, extractive industries, geothermal energy

The Connective Imagination and Action of the China's Youth Responding to Climate Change : Take CYCAN as a Case Study

Authors

Prof. Qian Deng - Hohai University

Ms. xiangmin lan - Hohai University

Abstract

Youth are directly linked to the governance of climate change in China and are one of the main actors in the response to climate change in China. This study focuses on public participation, and explores the communication practices of China's youth in response to climate change from the perspective of digitally networked action(DNA), based on the organization of China Youth Climate Action Network(CYCAN).

CYCAN generates digitally networked action issues in its personal expression, forming the discursive networks of responding to climate change through conceptual production, cognitive framework reconstruction and discursive integration practices. Firstly, the identity of youth is highlighted in response to climate change actions; the different social roles of youth are used to construct a common perception of climate change; the youth actors' perspectives in response to climate change actions are visualized to obtain a concrete perception of practical actions. Secondly, the youth cognitive model is reconstructed: defining youth actions on responding to climate change; embedding scientific discourse in youth actions; calling for more youth actors to join through emotional mobilization. Finally, through the practice of discourse engagement, the youth discourse of responding to climate change is integrated with the national will. Youth practice at the grassroots level will be consolidated into the national and global climate change governance process.

In the process of conducting digitally networked actions on climate change issues, it was found that the organizational mechanism of CYCAN is as follows: at first, identity forging. CYCAN recruits and calls for volunteers by issuing public announcements to gather young actors who are concerned about climate change actions and give them the identity of youth actors in climate change governance. In addition, a bidirectional information interaction work. CYCAN and the young volunteers have an equal and loose connection, and during the project, CYCAN actively organizes and volunteers voluntarily participate. Finally, putting the response to climate change actions into practice. The youth volunteers, who are primarily connected by their interests online, and CYCAN organised offline, practising through geographical proximity, enabling practical climate governance activities to be implemented on the ground.

The digital traces of CYCAN's digitally networked actions will remain in the Internet, kept in circulation as electronic records and linked to other electronic content for data linkage. The study found that there is a process of ephemeral change in youth participation of responding to climate change, from small-scale discussions at the beginning, dominated by awareness of climate change,

to raising awareness through participation in international events, and finally achieving millions of youth participation in climate change governance at domestic. Chinese youth representatives are given a voice in international dialogue. The spatialised data linkage also shows that public participation in response to climate change has moved from youth groups to an all-ages public, from youth voices to public comprehensive appeals and advocacy, forming a climate change communication practice of universal concern.

Key Words

Digitally Networked Action; Connective Imagination ; Connective Action; CYCAN ; Environmental Governance

From neighborhood culture to acquaintance community: Collectivism, Social Norms and Pro-environmental Behaviors among Chinese citizens

Authors

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Prof. Qian Wang - School of Media and Communication, Shanghai Jiao Tong University

Abstract

In recent years, Chinese citizens have attached great importance to adopting pro-environmental behavior. Pro-environmental behavior refers to an action taken from the perspective of the actor to change the environment. Studies have shown that culture plays a role in Chinese citizens' environmental behavior. Collectivism is one typical feature of Chinese culture. People in collectivistic cultures are more focused on group goals, relationships, and members' actions. Numerous studies have shown that social norms are an important factor influencing Chinese people's behavior under the cultural background of collectivism. Social norms represent the approval and restraint of individual behaviors by society, which are important factors to predict human behavior patterns. It also has an important impact on people's pro-environmental behavior.

In addition, citizens' perceptions of social norms cannot be separated from information exposure. Traditional media, new media, and interpersonal communication are the three main information sources. Information exposure in the three channels affects people to perceive social norms, which influence their cognition and behavior. Several studies have found that traditional media and new media have a positive impact on pro-environmental behavior through perceived social norms. Meanwhile, interpersonal communication can replace media as an information source that influences people's pro-environmental behavior. However, there were few comparative studies on pro-environmental behavior in the three channels, especially media and interpersonal communication. Therefore, this study uses social norms as mediating variables to investigate: How do social norms affect citizens' pro-environment behaviors? What is the difference between the influence of pro-environment information exposure in traditional media, new media, and interpersonal communication on pro-environment behavior?

The study applied an online survey to collect data. The formal online questionnaire survey used Sojump, an online questionnaire platform in China, to recruit participants from March 23, 2021 to June 30, 2021. Sojump has a national sampling pool of 2.6 million participants from mainland China, which represents a geographically extensive sample. In this study, 2,094 valid questionnaires were obtained from the sampling pool. Then we used SPSS 25.0 and SPSS PROCESS to conduct hierarchical regression analysis and the mediating effects test.

This study draws the following conclusions. Overall, social norms play a mediating role in the relationship between pro-environmental information exposure and pro-environmental behavior in the three channels. Social norms form from observing the actions of others in their surroundings, which inform about appropriate actions in different situations and influence an individual's

behavior. Numerous pro-environmental behaviors, such as recycling, are carried out in families, friends, or communities. Hence, individuals inevitably observe the group. In the context of Chinese collectivist culture, people tend to follow the group's eco-friendly values and abide by pro-environmental norms. Although it is often more constrained to take action, people still tend to follow the expectations of others. Hence, social norms are a powerful tool to affect behaviors.

Moreover, the finding supported that information exposure affects pro-environmental behavior. What calls for special attention is that interpersonal communication holds a more significant effect on pro-environmental behavior than traditional media and new media. Compared with the media, people can directly feel the pressure from others in interpersonal communication, which strengthens the restraining effect of social norms. The reason that information transmission is more direct and amiable, interpersonal communication plays an effective role in persuasion.

In future practice, the research results can also be applied to further cultivate Chinese citizens' pro-environment behavior from the perspective of culture and communication.

Key Words

pro-environmental behavior, collectivism, social norms, interpersonal communication

O Globo and the press coverage of the Cesium-137 accident in Brazil

Authors

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Mrs. Gilvania Ferreira - Comissão Nacional de Energia Nuclear

Abstract

The risks related to the use of the nuclear technology frightens modern society. In Brazil we find the same kind of feeling related to this science field, especially after the Cesium-137 tragedy, in 1987, when four people died and several others still suffer with the physical and mental consequences of the biggest accident of this kind in Brazil's history. This article presents a short analysis of the media coverage. We analyzed 47 news published by *O Globo*, one of the most important newspaper of the country. *O Globo* was chosen because it is a nationwide journal. We focused on the news framing (ENTMAN, 1991,1993), sources used and the plurality of voices presented (BAKHTIN, 2011). Twenty-eight (59,5%) of the 47 newspaper articles highlighted the radioactivity; 8 (17%) brought information about hospitals and patients' health; and the remaining 11 (23.5%) had different approaches related to the accident (police, public utility and first responders). We also observed that 50% of the sources used by *O Globo* were "Nuclear Energy experts" or "scientists", a positive aspect when it comes to media focused on science. Another important category of sources used in the reports was the "doctors". Once the victims were transported to Rio de Janeiro for treatment, selecting these professionals also helped the journalists' work to face an unprecedented tragedy in Brazil. Another relevant category was the "public security professionals" (12%), considering their role in the unfolding of the tragedy. It is the same case of "political authorities" (5%). When the news used the city of Goiânia's population as a source, the focus was on the issue of fear of new outbreaks of radiation, the health of their relatives contaminated by the radioactive substance and their testimony about how the accident occurred. There was an almost complete silence of this type of source in the headlines: only two titles made room for the population. Our analysis of *O Globo* shows that 30% of the texts contain only the journalist's voice. The remaining (70%) were constructed as it follows: 36% presented one source; 17%, two sources; 13%, three sources; 2% four sources and five sources also 2%. In the clipping used for this article, we observed that the *O Globo's* concern in bringing important information that explained the accident and its consequences to the population. As Beck (2011) explains, the risks are not exclusive to the nuclear area, but their effects are only felt when an incident or tragedy happens. In our view, access to scientific and technological knowledge is a matter of survival.

Key Words

cesium-137, risk, nuclear energy, radioactivity, journalism, science, scientific divulgation

South African Press Coverage of Climate Change Negotiations: From Concealed Agency to Blame-shifting

Authors

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Abstract

Global climate change negotiations are a complex geopolitical issue with far-reaching implications. The negotiations involve stakeholders with varying interests and priorities, including governments, non-government organisations, and corporations. The geopolitical nature of these negotiations arises from the fact that countries have distinct levels of responsibility for contributing to the problem of climate change, different capacities to take action, and different abilities to adapt. Furthermore, the issue has major economic, social, and environmental implications, making it a critical concern for nations globally. The negotiations are a platform for the countries to work together and come to a consensus on how to address the challenge of climate change. Still, the process is riddled with conflicting interests, political agendas, and limited resources. The geopolitical nature of these negotiations has significant ramifications for the outcome and effectiveness of international climate change agreements, making it essential to understand the complex dynamics at play. Negotiations are a prominent feature in the news. The geopolitical contestations are often played out and manifest in the news media. This way, journalists become central players in constructing the public's perspectives and worldviews regarding the nature and course of the negotiations. Through discourse analysis and articulation, this paper examines how four mainstream weekly newspapers in South Africa re/presented global climate change negotiations between 2011 and 2018. The findings show that the news media representation reproduces the geopolitical tensions between the developed global North and the developing global South. Newspapers in South Africa constructed the developed global North as selfish, unwilling to honour their historical responsibility and truant, while the developing global South is represented as a passive victim. The news media representation emphasised 'historical responsibility' while ignoring 'present responsibility', thereby concealing agency and blame-shifting responsibility. The study finds that the appeal towards the principle of Common but Differentiated Responsibilities (CBDR) by South African discourse actors is reproduced by the press as legitimate and moral, delegitimising neoliberals' calls towards 'equal responsibilities' in the global North. The exclusion of emissions contributions from Brazil, Russia, India, China, and South Africa (BRICS), Brazil, South Africa, India, and China (BASIC) countries and other nations in transition is pervasive in the media representations of climate change in South Africa. The study sheds light on the need for a more comprehensive and nuanced representation of global climate change negotiations in South African news media.

Key Words

Climate change, Negotiations, Representation, South Africa, Newspapers, Blame-shifting, Concealed responsibility

Faced with greenwashing, what do journalists write? On the quality of journalism regarding sustainable investments in Portugal

Authors

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Mr. André Pereira - Instituto de Ciências Sociais - Universidade de Lisboa

Abstract

In their 2022 report, the United Nations' High-Level Expert Group on the Net Zero Emissions Commitments of Non-State Entities points out: "The planet cannot afford delays, excuses, or more greenwashing". Concerns about sustainability claims from companies, governments and other organizations have been around for decades. At first glance, the "greening" of corporations is not a change for the worse, and some institutions genuinely lead sustainable transitions. However, others conceal their environmentally damaging operations behind a calculated image of environmental awareness in order to manipulate public opinion (Lyon & Montgomery, 2015; Gatti et al., 2019).

As greenwashing practices become more widespread, the media inevitably finds itself reporting on them. Quality journalism, as seen both by scholars (McQuail & Deuze, 2020) and by journalists (Jenkins & Nielsen, 2020), and even by audiences (Gladney, 1996; van der Wurff & Schoenbach, 2014) is defined as impartial, independent and integrous. We sustain that these qualities, when present, would mean that journalists question greenwashing claims and place them in the context of the company or institution's actual practices and impacts.

Among a growing multi-industry shift towards 'sustainable finance', some work has been done on the reporting of sustainable investments and the role of journalistic practice in providing a platform for uncontested claims about their benefits (Strauß, 2022).

In this work, we look at one month of articles printed in the Portuguese press regarding investments towards sustainability, in order to evaluate the quality of journalism on the subject. We selected articles mentioning the words "investment" and "sustainable" or "sustainability", published in the seven main printed press outlets in the country, including the two most read printed economics newspapers, according to data from Associação Portuguesa para o Controlo de Tiragem e Circulação. The resulting corpus, after exceptions have been made for agency-produced articles and others found to be less relevant, is made up of 83 news stories. These are analysed using a critical discourse analysis methodology based on Fairclough (1992), in order to classify them in regard to how the journalist positions themselves - critically or uncritically - when faced with greenwashing discourse from companies and institutions. Is the news story perpetuating or challenging greenwashing practices? In order to consistently assess which claims from institutions and companies could be considered a form of greenwashing, we use an integrated framework tool (Nemes et al., 2022), also testing its usability in such an exercise.

With a fairly large corpus made up of different dailies, weeklies, and specialist economics outlets, we expect to provide some preliminary insight on which newspapers are providing higher quality information to their readers on sustainable investments, and the role they are playing in greenwashing practices.

Key Words

greenwashing, sustainability, sustainable investments, journalism quality, newspapers, Portugal

Pankh: Communicating Sustainable Environments with Birds Care to Mitigate Climate Change for Biodiverse Ecosystems

Authors

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Abstract

This multimedia research focuses upon renewing vigor on environmental action by ramping up efforts to mitigate climate change, by protecting and restoring natural environments. This reflects on and reviews how to accelerate actions to achieve sustainable development transformations by equipping all segments of the society either children, youngsters or senior citizens for playing their part, in managing climate change. It provides a simple pathway for the citizens to achieve positive, sustainable and futuristic biodiverse ecosystems. The research approach is focused on increasing ambition and building societal partnerships for creating and maintaining biodiverse ecosystems.

The research objectives are:

- A. To advocate the simplest way for living in harmony with the nature, by maintaining ecosystem services for sustaining a healthy planet and ensuring biodiversity is valued, conserved, restored and wisely used.
- B. To depict description of the bird's nutritional and shelter care.
- C. To raise collective awareness about significance of bird's care that can bring towards mitigating climate change and therefore, facilitating mass behavior change by adopting and replicating in different social domains.

It's a universal right to healthy and sustainable environment. This multimedia research aims to help in protecting and reviving biodiversity. It focuses on efforts to respond to climate crises and start delivering by drawing such climate crises mitigating interventions in the environments to protect and restore ecosystems. For this purpose, an advocacy pathway as, applied research had been put into action by using a creative and innovative communication design, to address and fulfill the food, water and shelter for the birds. This research has used creative confirmatory campaign with qualitative approach of interviews and focus groups. Its execution and operations provide flexible financing to drive progress on climate stability, living in harmony with nature and moving towards a pollution free planet. For this initially, an environmental intervention had been placed at a public sector university campus. Geographic diversity for this research regarding its work force can be enhanced further by placing food and water for the birds along trees, in local parks, community centers, petrol pumps across the highways, far flung desert areas, across the riverbanks, schools, universities, homes, hospitals etc. Wherever human do exist and live they can contribute to the enhanced living that can restore natural ecosystems. This advocates the civil society where all people, everywhere, can enjoy their right to a healthy environment. The present research works with communities for collective actions around the local as well as global levels to provide

sustainable solutions to the growing nature crisis. This research uses qualitative campaign research based on creative approach and an advocacy campaign was launched at local societal as well as at global level. The interviews and focus groups helped about understanding of the audience what they know and think, how they self-identify in relation to bird's care issue and how they relate to the issue itself. It also helped to understand the information needs of our audiences and resonate with their personal and group interests.

The theoretical framework is based on a combo lens of social responsibility plus Social Innovation Behavioral Model, a reference model for collective awareness encompassing the behaviors. Furthermore, the competition motivational aspect was engrossed at both individual and collective level in a community; that can contribute towards protecting ecosystems and diversity of life by citizenship engagement. The identified levels of the issue awareness among target audiences lead to a detailed exploration of their attitudes, beliefs and values. The convenient language important to the audiences (including persons with disabilities) in the relevant discourses was used. Moreover, facts and narrations that change people's mind were understood, that underlies public opinion and behavior. Confirmatory creative campaign research helped in affirming and validating the predetermined strategy and message for the bird's care to combat climate change. The audience's perspectives had been included to show the existing as well as adapted sense of social responsibility towards bird care, as awareness. The style of this research is descriptive where the significance of food, water and shelter provision to the birds has been highlighted with its connection of living in harmony with nature.

Different advocacy videos were produced as a part of campaign. A total of approximately 5500 students plus 400 faculty and staff were advocated at the university's campus. Moreover, mainly local communities at Islamabad, Rawalpindi, Lahore, Karachi, Gujranwala, Abbottabad, Kashmir along with some more cities of Pakistan were also advocated through this. Moreover, people at Finland, UK, Spain, Sweden, USA and Norway were advocated through this intervention for bird's care.

Key Words

Communicating Sustainability, Climate Change, Biodiverse Ecosystems

Elite Perspectives on Climate Change in Pakistan: A Discourse Analysis of Dawn Op-Eds

Authors

Ms. Bei Liu - Tsinghua University

Abstract

Pakistan is facing a serious and growing threat from climate change, which is affecting the country's natural environment and its people in many ways. The country is experiencing rising temperatures, changing precipitation patterns, and more frequent and intense extreme weather events, such as heatwaves, droughts, and floods. In 2022, Pakistan faced a severe climate catastrophe as floods affected a third of the country's territory, drawing the attention of the global public. In the midst of political turmoil, economic downturn, and terrorism, the perspectives of intellectuals on the country's climate could serve as an indicator for the future direction of governance in Pakistan. In this article, we will use discourse analysis to apply F Fairclough's 3-D model to more than 20 op-eds related to Pakistan's climate change in 2022 in Dawn, which is the most famous English-language newspaper in Pakistan, to illustrate the Pakistani elite's views on the governance of climate issues.

The first dimension of the 3-D model focuses on describing the linguistic and rhetorical features of the text. The op-eds are written in clear and concise language, with a well-structured argument that is easy to follow. Most elite authors use a range of linguistic and stylistic devices to convey their message, including emotive language, vivid imagery, and rhetorical questions, to engage the reader and to convey the urgency and gravity of the situation.

The second dimension of the model focuses on interpreting the social meanings and ideologies that are embedded in the discourse. The columnists in Dawn have brought attention to the devastating impact of extreme climate events, such as floods, on Pakistan's infrastructure and the secondary disasters it triggers. They have stressed the urgency of addressing these impacts, which include food insecurity, resettlement of women and children, and post-disaster reconstruction. Through their arguments, the authors offer a critical interpretation of floods and challenge the dominant discourse that views these disasters as purely natural phenomena beyond human control. The authors call for immediate action to address the impacts of climate change in Pakistan.

The final interpretive dimension of Fairclough's 3-D model focuses on the relationship between the interpretive text and the broader social and political context in which it is produced and received. In the context of the op-ed on climate change in Pakistan, the authors argue that the root cause of extreme climate disasters, such as floods, is not only environmental factors but also systemic failures in governance and policymaking. The authors highlight the importance of noting that the failure of governments to take adequate measures to prevent disasters and protect citizens is driven by political interests and economic priorities that prioritize short-term gains over long-term sustainability. Through their analysis, the columnists are providing insight into the macro factors

that shape the discourse on climate change and drawing attention to the power relations and institutional norms that lead to the neglect and mismanagement of environmental and social issues in Pakistan.

Key Words

climate change, op-ed opinions, governance, discourse analysis

Filming the environment: Lessons from Earth Reel's film pedagogy initiative in Indian schools

Authors

Dr. Manoj Das - Sikkim University

Ms. Subha Das Mollick - Kolkata-based documentary filmmaker and a media scholar

Abstract

This paper examines an ingenious media initiative in India launched in 2013 to sensitise Kolkata's school children on compelling environmental issues identified from the neighbourhood. Called the Earth Reel, the environment filmmaking competition continues to date and has gone online post-Covid pandemic. The paper underscores how filmmaking as an engagement in discovering knowledge and creativity can be an effective tool in environmental education, rights, and even activism amongst young people. Though the scope of films as a medium to aid in teaching has been explored by scholars, the advantage of teaching filmmaking with the purpose of sensitising the filmmakers has not been experimented with or discussed much in scholarly literature. The current paper dwells upon an experiment in India that not only sustained itself over the years but also bolstered the spirit behind the initiative — generating sensitivity towards the environment. Examining some of the films on various environmental issues made by children of both elite and rural schools— shot on mobile phones or camcorders— the paper argues that different processes and activities subsumed in filmmaking contribute to multiple learning outcomes for the participants. Teacher-mentors' facilitation is also critical in such engaging initiatives and has a long-term effect on the participants. Through in-depth interviews with teacher-mentors and past and present students involved in the initiative, the paper posits that such media initiatives have a long-term positive effect not only on young minds — particularly in sustaining their interest in environmental issues and making them possible change agents in the future — but also on the teacher-mentors who, over the years, have become better guides and catalysts for sensitisation on various environmental issues and protection of the ecosystem in the SDG-context.

Key Words

Film pedagogy, filmmaking, research, environment awareness, school students, Earth Reel

Consensus and Divergence: A Study of Risk Communication and Perceptions of Official and Public Agendas in the Context of Emergencies

Authors

Ms. Yanchun Chen - Communication University of China

Ms. Gaogao Peng - Communication University of China

Ms. Yuwei Tu - Communication University of China

Abstract

The study of risk communication, which flourished in the 1980s, nowadays mainly refers to the interactive process of exchanging information and opinions among individuals, groups and institutions, and is principally concerned with the public's risk perceptions during emergencies. In fact, the interactivity between official and public agendas in the process of risk communication has been a key concern in the field of journalism subjects.

On the night of October 29, 2022, a mass stampede occurred in Itaewon, South Korea. As the ninth largest stampede in the 21st century, the non-governmental and systematic media platform represented by Twitter has become a voice channel for public opinion expression. Actually the different attitudes between the official and public agendas toward the event can highlight the effect of international risk communication in global emergencies. Therefore, the researchers took the tweets and comments of the Itaewon stampede information as the object of study.

The questions to be addressed in this study are as follows.

1. Which accounts actively post topics related to the Itaewon accident? What are the characteristics of the topics?
2. What are the characteristics of risk communication between the official and public agendas?
3. Do official and public agendas significantly affect public risk perceptions? How do they interact with each other in the differences?

The study mainly adopts the research methods of content analysis and agenda network analysis. Firstly, the official and public agendas are analyzed and coded separately for the temporal characteristics of the stampede accident, and then the unsupervised classification algorithm is used to cluster the keyword semantic matrix using the block model of the social network analysis tool Ucinet. Then the agenda networks of different subjects are presented in the form of visualization, and finally public comments were further measured to explore the influence of official and public agendas on public risk perception and risk behavior.

We found that the Itaewon accident showed the characteristics of staged coverage from the occurrence of the accident to the subsequent mourning and accountability. The official and public issue networks show both consistency and variation. The controversies on the issues of "incident history" and "accountability" both peak at specific points in time. However, the degree of attention

to different issues varies greatly between both sides, and there are still problems such as mismatch between information supply and demand, also divergent agendas. The official agenda, represented by KBS, is more focused on grand narrative issues and fulfills its basic role of transmitting information and eliminating uncertainty. On the other hand, the public agenda reflects the enthusiasm for participating in emergency events and pays more balanced attention to each issue. Finally, in the process of "gaming" between the official and public agendas, emotions act as a mediating channel to further strengthen the public's risk perception of emergencies.

Key Words

Risk Communication; Itaewon Stampede; Official Agenda; Public Agenda; Agenda Setting; Emergencies

Struggling for the environment in Southern America: The wetland movement in Argentina

Authors

Dr. Ezequiel Pinat - Autonomous University of Barcelona

Abstract

This paper proposes a qualitative analysis of a social movement that struggles for environmental conservation. This organisation is based in the north of Argentina and is called 'Wetlands multiple-sectors' ("Multisectorial Humedales" in its original Spanish). It claims the preservation and restoration of the Paraná River wetlands, as well as those ones located in the rest of the country. This delta is affected by the flood pulse and by the fire regime. Transforming wetlands into terrestrial ecosystems by creating a water management infrastructure, building urban recreational areas, cattle grazing, forestry, and agricultural areas are taking place in order of economic development. Although burning grassland for cattle ranching purposes have been a traditional land management practice in the region, conflict became worst in the last years (Del Valle, Sione and Aceñolaza: 2020).

Paraná is the third-largest river in the American continent, after the Mississippi and the Amazonas. In this heterogeneous wetland, more than 80% of the vegetation is herbaceous and highly diverse, while only 4% is occupied by native forests. This landscape has suffered recurrent fire episodes in recent decades, especially in 2008 and 2012, with dense smokes that affected a large region in Central Argentina, the town of Rosario and even Buenos Aires, the capital city.

The Argentinian Ministry of Environment and Sustainable Development estimated in 3290 square km the surface burned just in 2020 (2020).

The movement struggles to promote a national environmental law that protects land at the same time as punishes those people that criminalise them. Argentina is constituted as a federal republic, where the head of the government is the President (since 2019, in the hands of Alberto Fernández). But Fernández, although having a progressive profile, is not showing any interest in moving forward. A complex balance between political parties, regional governments in the Parliament and economic establishment constituted a handicap to get a deal that satisfy activists.

Social movements traditionally had a conflictive relationship with the press. They complained about the way that the media portrayed them, focusing on the violence of the actions and not showing the main claims, the protests' reasons (Rucht, 2004). Against this situation, organisations reacted to this scenario by scheduling the activities, contacting journalists beforehand or just hiring them to develop communication strategies. In the last decades, despite the rise of Web 2.0 applications, such as Facebook and Twitter, and the mass self-communication phenomenon (Castells, 2009), this dependance did not change.

The methodology applied is in-depth interviews conducted with members from two main groups. The first one, with journalists that have covered the issue during the last two years. And the second one, with activists that participated in any of the actions that were promoted by the movement in the same period. The activists have developed a strong relation with journalists, who empathises with the group and its cause, and are in constant contact through instant message applications. Although this fluent connection, the visibility in the media is small. Interviewed agreed that one of the main reasons is the struggle among media ownership, political parties agenda and economic interest of wetlands properties.

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Rucht, Dieter (2004). The quadruple 'A': Media strategies of protest movements since the 1960s. In Win van de Donk, Brian D. Loader, Paul G. Nixon & Dieter Rucht (Eds.). *Cyberprotest: New media, citizens and social movements*. London: Routledge, 29-56.

Key Words

Social movements, Environmental communication, press, qualitative analysis, Southamerica, Argentinian wetlands

Women of the Great Barrier Reef: The Personal is Political in Environmental Communication

Authors

Dr. Kerrie Foxwell-Norton - Griffith University

Dr. Deb Anderson - Monash University

Abstract

The Great Barrier Reef (the Reef) is a national and international natural and cultural icon, and how we understand, communicate and remember the Reef bears consequences far beyond its aesthetic, scientific and economic credentials. The public story of the Reef has been largely told through science, industry and politics – arenas where women have struggled for power, access and visibility. Our project, *Women of the Great Barrier Reef* (Foxwell-Norton, Anderson and Leitch, 2021) is collecting the oral histories of women who have been involved in its care and protection, as a contribution to the retelling of Reef history through the lives of women. The project is an effort to correct the communication blind spot that, at best, obscures women's contribution to Reef conservation and their broader contribution to environmental issues and challenges in Australia and globally.

Beyond the value of the women's stories proper, how we communicate the Reef – and who is included and excluded in both historical and contemporary public debate and conversations – has the potential to both limit and expand our opportunities for more positive futures as individuals, as communities, nationally and internationally. It is in communication – and the more than verbal link between the words 'common, community and communication' – that the Reef comes to exist in human lives and experiences (Dewey, 1916). In amplifying women, we expand and recognise the diversity of voices – the richness, depth and diversity of stories - that have, and continue to impact our prospects for 'saving the Reef', especially in an era marked by ecological and climate crises where coral reefs are harbinger of environmental collapse and catastrophe. Importantly, our project brings the entwined politics of gender and nature (see Plumwood, 1993) into sharper focus as it tells new stories about the Reef that expand participation in its past and, critically, in its future.

Our paper focusses on the stories of three women, Terrie Ridgway, Alison Rickert and Carden Wallace who first encountered the Reef during the 1960's and 1970's. To uncover their stories, we enlist shared elements of narrative inquiry, feminist oral history and long form journalism. The work of oral history generally and feminist oral history is a political project, evident in attempts to bring marginalised voices to the fore, with the later focussed on the experiences of women. It is in these oral histories that both acknowledgement of individuals contributions and the structures that often limit women's opportunities can be balanced and explored. Through their distinctive and often shared life experiences as individuals and within patriarchal structures, we begin to register the significance of gender both personally and publicly in environmental communication.

We conclude with reflections on the scholarly work of environmental communication, asking critically self-reflexive questions about our own practices and assumptions about gender.

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Key Words

Great Barrier Reef, Gender, Environmental Communication, Climate Change, Oral History

All Roads Lead to Rome at What Costs? The Geopolitics of the Internet Data Center in Taiwan

Authors

Dr. Shih-che Tang - National Chung Cheng University

Abstract

Identifying the data center as a key infrastructure of cloud technology and information economy, the article examines how it works as a logistic device of capital switching and rent seeking in the daily operation of digital economy. Focusing on the Google's investment of information infrastructure in Taiwan, the article discusses the social and political-economic implication of "location" by highlighting the issue of extraction involved in the production and consumption logics of the Internet data center.

With cloud technology growing to become "where the internet lives" (Holt & Vonderau, 2015), and rising global awareness of its environmental impact, the internet data center has become a global-local infrastructural setup: global in a sense of data processing capacity, local in a sense outsourcing the consumption of energies in various parts of the world. As a response to the RE-100 initiative of reducing carbon emission, giant tech. companies search for remote sites where cheap and clean energies are available. Electricity and water--two elements that human livelihood also relies upon, have driven the data center industry around the globe for their ample supply. "Extraction" emerges as a revived keyword long after industrial capitalism turned earthly nature into exploitable material resources, only that this time what has been exploited are not minerals, fossil fuel, or rocks, but "climate" (see Neison & Rossiter, 2021; Brodie, 2020)

Climate-driven, hyperscale data centers are seated in nature yet remain close to the metropolitan information hubs. Their settlement at specific local areas are out of economic concerns. Yet the recent global supply-chain blockage due to Russo-Ukrainian War and the U.S.-China confrontation on all fronts have also tinted the "siting" issue with geo-political hues. Besides, the energy-gobbling data centers are nimby (not-in-my-backyard) devices. Their settlement often entails conflicts, negotiation, and compromise among transnational corporations, the local government, and the local communities over issues of distributional injustice and the impetus they made to the community life.

The article seeks to address the above concerns by case-studying the data center's "footprint" in Taiwan. Over the decade, Taiwan has allured high-tech gate keepers such as Google, Microsoft, and Line to invest in the construction of information infrastructures. Of the four hyperscale data centers Google built in Asia, three are located in Taiwan. Data center, joining Taiwan's booming semiconductor foundry, has become the government's strategic "industry," carrying dual purposes of nudging Taiwan's local economy more closely in connecting with the global supply chain of the information market, at the same time leveraging against the military threat from China. The so-

called “magic mountain that protects the nation” has been conferred to high-tech and information-communication industries amidst the war-prone atmosphere.

Yet technological developmentalism comes at a cost. The need for green energies generated from solar panels and off-coast wind turbines amounts to yielding lands and coastlines to the booming information economy. Patches of land along the western plain that were once rice paddy, orchards, fishponds, or hillside nature reserves were transformed into photovoltaic farms, “farming” is now “farming electricity.” Accumulation by dispossession, as coined by David Harvey (2005), has been the case as Taiwan’s country-wide fallacy over building a “green technology island” caters to the rent-seeking conducts by global information capitalism.

The article addresses these concerns as “geo-political.” I argue that geography is an overlooked subject in communication studies, and “geo-political” issues should be epistemologically re-examined as what Bruno Latour terms “Realpolitik” (Latour, 2015, 2017) Following Latour and Michel Serres, the new “geo-social” questions is to turn the attention to the “terrestrial,” as multiple ecological “margins” should be factored in against the centralizing tendency of technologically determinism.

Key Words

ecology, extraction, geopolitics, infrastructure, Internet data centers, Latour, Realpolitik, Taiwan

Visual environmental communication in Japanese media: Does the visual framing of natural environment influence the Japanese view of nature and environmental attitude?

Authors

Prof. Miki Kawabata - Mejiro University

Abstract

The purpose of this study is to discuss how Japanese media has been mediating the images of natural environment and how they influenced Japanese view of nature, from a visual framing perspective. One of the theories of media effects research, media framing, focuses on the mass media contents and their effects on the audience. Most of the existing research on media framing focused on the textual contents of the media, but some of the recent studies focused on the visual contents (e.g., Rodriguez & Dimitrova, 2016).

Kawabata(2021) conducted a content analysis of the images of nature in Japanese newspapers with visual framing, to find out what kind of images of nature were mediated to the audience. In the analysis, the results from 2009 to 2019 were examined and compared. It was discovered that the visual frames of nature in images varied in each period, for example, there were more wildlife preservation frame used in the early period and more wildlife invasion frame used in the later period.

The visual framing of nature in media may affect the audience's view of nature or the attitude towards environmental problems. According to Maebayashi (2016), numerous natural disasters throughout the history influenced Japanese view of nature. In 18th century, one of the most popular topics in Kawaraban, woodblock printed flyer of news, was natural disaster. Even in current news media, the images of damage by natural disasters are repeatedly presented. Such images may have affected the construction of the reality of the audience as well as their view of nature, the risk perception about disaster, and their self-efficacy to deal with disasters.

Kawabata (2021) also analyzed the images of natural disasters in newspapers in Japan with visual framing. The images about recent major disasters including the Great East Japan Earthquake in 2011 were taken from newspaper database and analyzed. As the result, there were a lot of images of the destruction without human presence. It was concluded that the images of de-humanized representation of natural disasters might keep audience's psychological distance away from nature and make them think the nature is beyond human intelligence. It also might lower their self-efficacy to deal with disasters.

Based on these findings, in this study, the author examines how Japanese media has been mediating the images of natural environment longitudinally and discusses how they influenced Japanese view of nature or environmental attitude. There are three questions to examine: Firstly, what kind of visual frames about nature were used in each period since 1950s? Secondly, what

kind of visual frames were used in the different categories of natural or environmental events such as natural disasters? Thirdly, how did these visual frames influence the view of nature or environmental attitude? By using the data of content analysis and the survey results, these questions are examined. With all the results, the author discusses what kind of visual frames should be used for better environmental communication in Japan.

Key Words

environmental communication, visual framing, view of nature, environmental attitudes

Discursive Practices in Controversial Scientific Events from the Perspective of Socio-Technical Imagination: The Case of GMO

Authors

Ms. yuling lin - Beijing Jiaotong university

Abstract

In China, a large number of science and technology policies rooted at the national level have generally faced difficulties in real-world input, especially in the case of genetic modification, vaccines, Chinese and Western medicine, and other science and technology topics that have long been controversial in cyberspace and frequently encountered public resistance and social conflicts. In particular, GM technology, which has a bright vision of improving food to be more productive and nutritious, and thus solving the resource constraints in the real environment, has not only faced the contradiction between technical controversies and the need to increase the yield and quality of crops, but also frequently attracted criticism and discussion from professionals, which has triggered a large number of audience debates. Such scientific controversies pose a major threat to the development of science as a whole and reshape the way society views and discusses genetic modification.

This paper explores how social actors imagine transgenic technologies and what discursive practices emerge from these imaginaries through the lens of sociotechnical imaginaries. Sociotechnical imaginaries are "associated with the active exercise of state power, such as the selection of development priorities, the allocation of funds, and the investment in physical infrastructure," and because of this, imaginaries are often controversial (Jasanoff & Kim, 2009). In China, in particular, scientific and technological development has become a subtext for national wealth and power, which has subtly changed the overall attitude of the public toward science. Especially in the face of science with its strong "uncertainty," the public has also begun to censor science in terms of its potential negative outcomes (Scheufele, 2013). In this way, the "imaginary" is not a state-dominated possession, but can permeate popular culture and find expression in mass media and unofficial forms (Jasanoff & Kim, 2015), shaping the public's understanding of a technology and thus making it part of the socio-technical imaginary.

This study examines the discursive differences between the state, the media, and the public involved in the public discussion of GM in the Chinese context through the concept of socio-technical imagination. Content analysis was used to distill themes and analyze semantic networks in GM policy documents, mainstream media reports, and public discourse.

It was found that socio-technical imaginaries not only provide a good vision, but also exist in society as a form of resistance and form corresponding social actions. These imaginaries allow transgenic technologies to spread from the technological framework itself, from local to national, and from small scale to large scale environment, embedded in the whole social structure. When

the scale changes, socio-technical imaginaries can be reinterpreted and their original meaning lost to some extent, depending on the interaction of imaginaries in this.

Key Words

socio-technical imagination; genetic modification; nationalism; Controversial Scientific Events

Did Xi outshine Trump? Examining US and Chinese media representation of global climate leadership in 2016-2021

Authors

Ms. Zheng Cui - The Pennsylvania State University

Abstract

This paper aims to examine how US and Chinese media portrayed leadership of the global climate regime from the year 2016 to 2021.

International regimes are defined as “principles, norms, rules, and decision-making procedures around which actors expectations converge in a given issue-area” (Krasner, 1983, p.1). The formation of a new international regime, the global climate regime, has been identified in recent years, as transnational governance is vital to combating the existential crisis. (Andresen & Agrawala, 2002; Keohane & Victor, 2011). And climate leadership, as a critical role that determines the success or failure of institutional arrangements, has received much scholarly attention.

Since its inception, the global climate regime has always been deemed to be under the leadership of the west-centralized US-EU partnership in policy negotiation and enforcement (Karlsson et al., 2011; Meidan, 2020). However, in 2016, this long-established trajectory was interrupted by the United States quitting Paris Agreement, the signatory of global climate action, promised by Donald Trump during his presidential campaign and later officially announced in June 2017, leaving a leadership vacuum and uncertainty for the future of international climate governance. On the other side, China, once considered a “wrecker” in global climate cooperation (Clegg, 2011; Gao, 2018), has been gradually changing its image in the stage of the climate regime. After the US's withdrawal, China continued to take the initiative in UN negotiations by releasing more ambitious mitigation goals and maintaining a high profile at the summits.

As such, during Donald Trump's presidency, there seemed to be a leadership alteration as some of China's moves were proclaimed internationally as efforts to “fill the leadership void” left by the United States in global climate governance (Martin, 2017) until the Biden Administration announced rejoining Paris Agreement on their first day of tenure (U.S. Department of State, 2021). This time frame also marks the second term of Xi Jinping's administration and his expansion of power both in domestic control and international influence, to ensure the legitimacy of a third, possibly infinite presidential term.

Media in both China and the US reacted quickly in picking up this drastic change. On the US side, a *New York Times* piece suggested Trump has “gifted” Xi the leader position (Sanger & Perlez, 2017); a headline in *Scientific American* reads, “China's Xi Outshines Trump as the World's Future Energy Leader” (Biello, 2017). On China's side, state-controlled media repeatedly claimed that China had become a “global leader” in combating climate change, as the Trump administration's refuting scientific evidence and withholding efforts.

However, Western media also voiced concerns - some coverages analyzed that China hasn't prioritized climate change over the need for economic development, while others argued that China didn't have the capacity or qualification to fill in for the United States, and overeager gesture has been more of a stunt than a concrete effort and emphasizes the alliance of multilateral factors in forming new leadership (Economy, 2017; Lewis et al., 2008; Meidan, 2020).

To systematically explore this unique phenomenon, this project employs the lens of news media frames. More and more scholarly attention has been paid to how media covers international climate governance and negotiation, especially how they cover focal international documents and global events coordinated by the United Nations (e.g., Asayama & Ishii, 2014; Boykoff & Pearman, 2019; Pan et al., 2019). And this project contributes to this line of study by examining media portrayals of the leading roles of nation-states in global climate governance that have not been thoroughly studied, especially during the unique time from 2016 to 2021.

Data analyzed in this project are news articles produced between 1/1/2016 to 12/31/2021 by the Associated Press in the US and the English service of Xinhua Agency in China, retrieved from the news database Nexis Uni, with keywords related to global climate leadership.

Firstly, quantitatively content analysis will be conducted looking for patterns of frequency of framing the US as a leader or China as a leader; Secondly, qualitative content analysis will be employed by reading into the media messages, systematically sampled from the above-mentioned dataset, to find frames that emerged in reporting global climate leadership. When analyzing the qualitative data, previously identified generic frames of climate reporting from the literature will be considered, and issue-specific frames adopted for depicting the global climate leadership shift during this time will also be identified and analyzed.

Key Words

Global climate regime, Framing, climate leadership

“It’s just one drug replacing another”: How patient-doctor communication may shape patient’s attitudes toward medication-assisted treatment for opioid dependence.

Authors

Dr. Lola Xie - The Pennsylvania State University

Dr. Bu Zhong - Hong Kong Baptist University

Abstract

Opioid addiction has been a pressing public health crisis for many communities across the globe, especially rural ones. Medications to treat opioid use disorder (MOUD) have been clinically proven to be more effective in providing a long-lasting holistic recovery with fewer adverse outcomes and a higher retention rate among patients with opioid use disorder (OUD) (Wakeman et al., 2020). Despite its safety, efficacy, and relative ease of use, MOUD remains underutilized (Jones et al., 2015), especially in rural regions with persistently increasing drug overdose rates in the current opioid epidemic (Rosenblatt et al., 2015). Recent research has identified intervention stigma as a major barrier to effective MOUD treatment in addition to regulatory and socioeconomic hurdles (Mackey et al., 2020).

Extensive research has explored how MOUD stigma impacts patients’ decision to start medication-assisted treatment (Dickson-Gomez et al., 2022, Madden, 2019), but less is known about how MOUD stigma continuously influences patients during MOUD treatment. Once patients start their treatment, the way health practitioners interact and communicate with patients during treatment can play an essential role in shaping patients’ attitudes toward MOUD, as well as their treatment experiences, retention, and outcomes. Yet less research has examined how health practitioners communicate with patients, and subsequently how patients perceive their interactions with health practitioners. Understanding how patients interact with health practitioners and how they make sense of their treatment experiences can provide critical insight into the role communication plays in reducing or instigating MOUD stigma during treatment, and helping patients understand the risk and benefits associated with MOUD.

In this study, we interviewed 19 patients with opioid addiction and 3 medical professionals helping them in a rural addiction clinic in Eastern USA, aiming to examine how patient-doctor communication and interaction could shape patients’ treatment experience, attitudes toward MOUD, and treatment outcomes. Semi-structured interviews, lasting around 45 minutes, were conducted on-site, and the interview data were then transcribed verbatim and analyzed using the interpretative phenomenological analysis (IPA) approach. Through analysis of patients’ and practitioners’ lived experiences in treatment, we identified three major drivers of MOUD stigma: lack of accurate health information, negative experiences in treatment, and mutual distrust. Based on our findings, we propose a new patient-doctor communication model specifically for opioid dependence treatment.

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Key Words

Opioid, OUD stigma, MOUD, patient-doctor communication, rural community, qualitative research

Epistemic Standpoints, Visual Stories and Caricatures: Science as a dialectic subculture within Communication Studies

Authors

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Abstract

Science Communication, is an expansive study discipline - established in certain countries, emerging in other. There are also spaces where science communication themes could be identified through related study areas. Science communication today, is (1) mediated through technology in a huge way – its access or lack of it, (2) cultural zones – in the way people receive the communication or resist it and (3) within the world of scholarship – the boundary specific epistemic standpoints – humanities, arts or social sciences (H-A-SS) versus sciences itself; especially when viewed from the disciplinary plane of Communication Studies.

Research agendas pertaining to Health Communication seem prominent than Science Communication. Health communication and science communication, are considered closely related themes, used interchangeably at times. Most of the academic Communication groups, such as AMIC, ICA, IAMCR, AEJMC, for instance have a health communication division, which have strong juxtapositions in science communication. Science Communication within Communication Departments in India, too, often manifests in the form of health communication, risk or crisis communication and recently is also embedded within covid-19 references in research and deliberations. How often do we recognize climate change narratives, urban communication discourses or scientific discoveries, as core themes within science communication? Is there an overarching dominance of health related themes within science communication? Can we map the applied research that takes place within science communication, especially in the South Asian spaces? Science Communication as a sub-culture, does it have an explicit presence in Indian departments? Do academicians and practitioners, consciously recognize science communication? These are pertinent questions, this work considers.

While, exploring this theme, science as dialectical subculture seems apparent because of the emerging zones of convergences and divergences. The pilot study (with 6 interviews at present), suggests that, often the entry point to science communication and close relatedness to the term, has often been through visual stories and caricatures, which are of high prominence to those within the discipline of Communication Studies. There are many zones of relatedness. Health communication research efforts and courses offered in this realm by Communication departments in India are also covered in this work, as often there is a convergence between health and science communication in academic as well as in spheres of practice. Additionally, how science communication is grasped by H-A-SS departments is also explored. Science Communication and Fake news too, has a close link making it pertinent for Communication and Journalism

departments. The Visual Communication dimension within science communication also makes the bond, hard to overlook or ignore.

The ongoing qualitative study, rooted within the phenomenological tradition of Communication, at this point of time, suggests a (i) strong ethnocentric undercurrents, (ii) an acceptance as well as a resistance to the word – ‘science’ and (iii) certain stereotypical interludes such as those from sciences questioning how (H-A-SS) scholars can decipher complex scientific premises and with communication scholars pointing out how they have an edge in understanding, simplifying and communicating better with audiences.

Key Words

science communication, epistemic standpoint, phenomenological tradition, visual stories, caricature, India

Managing the Power of Images: River Watchers, Networked Public Screens and Environmental Activism in China

Authors

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Abstract

Facing intensive environmental problems, the Chinese authorities have allowed environment-focused NGOs (ENGOS) and citizens to get involved in environmental governance to relieve the environmental burdens and avoid any potential social instability caused by environmental disputes (Zhan and Tang, 2013). To reduce and prevent water pollution in Hunan Province, a locally based grassroots ENGO called Green Hunan has initiated an online image-oriented environmental advocacy campaign since April 2011 till now. By using mobile phones, the concerned volunteers who are called River Watchers regularly record test results and water conditions in local rivers, especially where chemical plants are located these areas, then post the images via their personal social media accounts. To date, they have exploited Chinese social media as public screens to create a couple of successful image events. Beyond, they have also obtained leverage to transform the visible interaction staging on the networked public screen into invisible interaction with local states by using the networked “institutionalized” screen.

Scholars have long researched the ‘wildness’ or ‘tameness’ of public screens for staging image events (DeLuca et al., 2016; Ewalt, et al., 2013). These discussions have inspired us to think deeply about how non-state actors manipulate the wildness and tameness of protest content and tactics to interact strategically with the state in the process of constructing networked public screens. Therefore, this study seeks to understand how networked public screens are constructed strategically by non-governmental organizations (NGOs) and how image events can serve as a mechanism for state–society interaction in the context of China.

This study predominantly relies upon qualitative and ethnographic data collection processes. By conducting two rounds of fieldwork and 22 in-depth interviews in Hunan Province, this study identified two interactive strategies that were organized around networked public screens. One was a visible interaction through which activists manipulated the mediated visibility of environmental problems by constructing networked public screens. The other was an invisible interplay through which states and NGOs interacted behind closed doors to solve the problems exposed. These two forms of interaction, either visible or invisible, form a circuit and are interconvertible in specific situations. With the shrinking of institutional space, invisible interaction is becoming the dominant mode of interacting with the state. The formation of such an interactive

circuit has largely confined the power of environmental images to social mobilization with constraints.

This study argues that in nondemocratic contexts, public screens are not totally wild or tame but are constrained by institutional limits, straddling the tame and the wild as they interact strategically with the state. In networked public screens, activists should keep a careful balance between tameness and wildness, staging 'interactive' images on social media to conduct bottom-up social mobilizations to pressure the local state while avoiding being perceived as a threat.

Key Words

networked public screens, visual rhetoric, state-society interaction, environmental activism, China

Human-nature relationships represented in Tattoos

Authors

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Abstract

Objective: Tattoos communicate key elements of their identity as well as sense of being to themselves and to the wider world. Therefore, our guiding research question is how (much) tattoos of images and symbols of nature or rather abstract ornaments (re)create the eco-cultural identity of the person wearing it and what role storytelling plays in restoring human-nature relationships in interpersonal conversations related to the tattoo.

Theoretical background: Currently, tattoo-related literature focuses on self-presentation, the creation of self-identity or strategic impression management (see i.e., Krtalic et al., 2021), performance or bodies in society (i.e., Dann & Callaghan, 2019). Only limited studies have been done from a communication perspective focusing on meaning and interpretations of tattoos and representations in the media (visual communication) (ie., Alter-Muri, 2020 or tattoos as a narrative device (Paterson, 2017). The understanding of the communicative role of tattoos is novel and there is limited understanding of the meaning making process (Krtalić et al. 2021).

Goffman (1976) offered a useful theoretical concept to understand both people's impression management and **rituals** (practices, procedures for interaction, practices following/modifying rules) embedding individuals into society. Within his dramaturgical approach, the communicative value of tattoos lies beyond the visual and exists within the narratives and interactions surrounding them.

For this project, we consider the notion of communicating *care* for the environment as a key indicator of a balanced, restorative human-nature relationship (Milstein 2008). We conceptualize **tattooing as ritual** that is "realized", emphasized, and re-created by conversations around the tattoo, a ritual where **care for** the non-human world or elements of the non-human world is expressed (Milstein & Castro-Sotomayor, 2020; Weder & Milstein, 2021).

Methodology: Existing studies on tattoos, visual representations, identity, or tattoo culture mostly work with semiotic or hermeneutic techniques to decode symbols, the semiotic of a specific image, symbol or ornament. Ethnographic techniques build upon this i.e., discussed by Barron (2019). In this study, we listen to and analyse the storytelling (sense and meaning making related to tattoos) and explore how individual relationships to nature and non-human environment is (re)produced in these stories.

To explore this new field of environmental and eco-cultural communication, the researchers conducted a first series of (n = 10) explorative, in-depth-interviews with tattoo artists with various cultural backgrounds. The interviews were recorded, transcribed and analysed with a 2-step categorization process following Mayring (2014; 2020; QCAmap).

Findings: With a series of semi-structured interviews we explored storytelling and eco-cultural identity building before, during or after the tattooing process and what the stories are influenced by. The findings show that meaning-making occurs in interactions between the tattoo artist and the client during the process of collaboratively designing a tattoo piece and the tattooing itself. The meaning of a tattoo can *'change with you'*, *'a canvas when you paint on it...it's done'*, but *'when it's on a living human...it will always change'*.

The interviewees felt that meaning is influenced by connection, memories, and the self. These categories are fluid and coexist, becoming present across the meaning-making process. Tattoos signified a way of solidifying connection to culture, nature, people, and place with interviewee 5 acknowledging that people are *"honouring the spirit of that plant or that animal that they feel they have a connection to"*. However, modern society erases this connection, with the urbanisation of landscapes depriving people of natural spaces, culture and connection. Through tattooing, people sought out ways to embed themselves back into something bigger than themselves and create meaningful connections.

Discussion / Outlook: The explorative interviews show that tattoos are both a storytelling method and a device. Bodies were landscapes where the individuals' stories were carved out through both the process of tattooing and the ritual interactions tattooed bodies have with others. Tattoos re-story the body and shape it in ways that created meaning for the tattoo-artist, wearer and society; however, meaning making seems to be diverse, fluid and socially constructed through storytelling.

The redefinition of the self in connection to nature and thus eco-cultural identities are related rituals, such that tattooing should be further explored from an environmental communication perspective. The sample size of this study is not representative and place-based, relying on largely Western perspectives of tattooing. However, the small sample size showcases that people who get nature-related tattoos do have care for nature and create meaning through ritual interactionism with both their natural environment and other people. The next step will be to capture stories of people wearing tattoos and learn more about conversations in which eco-cultural identities are created.

Key Words

Eco-cultural identity, tattoo, conversation, storytelling, meaning making

What Motivates Individuals to Purchase NEVs and Support Double Carbon Policies in China: Based on an Extended Theory of Planned Behavior Model

Authors

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Abstract

Introduction and Theoretical Framework:

Recently, climate change has become a challenging issue in China. To mitigate the unprecedented global warming rate, the Chinese government has released policies, that is, carbon peak and carbon neutrality (i.e., double carbon), to arouse individuals to purchase new-energy vehicles to reduce carbon emissions. Being a major energy consumer, China is under intense pressure to reduce its energy requirements and greenhouse emissions. New energy vehicles, a sustainable form of automobile transportation, can take away the country's dependence on fossil while significantly decreasing its carbon footprints. However, the implementation of these policies is far from satisfactory, varying from person to person. This further invites questions about what motivates individuals to purchase new-energy vehicles and support double-carbon policies. Building from the theory of planned behavior, which has been recognized as one of the most powerful theories to predict individuals' behavior (Chen & Fu, 2022), the current study aims to examine the factors to influence individuals' intention to purchase NEV and ultimately support for double carbon policies.

Method: To address our research question, an online survey was administered by a professional survey company in China, Credamo. In order to recruit a representative sample, the company recruited participants who are residents of the eastern, western, northern, and southern parts of China (Sichuan Province, Zhejiang Province, Liaoning Province, and Guangdong province, respectively). Prior to answering our questionnaire, respondents should sign a consent form indicating their willingness to participate in our study. A total of 521 Chinese respondents participated in our study. Control variables included demographic variables such as age, gender, education, and ethnics.

Results: We administered structural equation modeling to test our hypotheses. The results demonstrated that media attention was positively associated with cognitive attitude, affective attitude, subjective norms, and perceived behavioral control. In addition, affective attitude, subjective norms, and perceived behavioral control were positively associated with individuals' intention to purchase new energy vehicles. However, cognitive attitude was not significantly associated with behavioral intention. The results also demonstrated that behavioral intention was positively associated with policy support for double carbon policies.

Implications: Our study made several theoretical contributions. First, we examined the antecedents of the theory of planned behavior by exploring the role of media attention. Second, the study also extended attitude into two dimensions: affective attitude and cognitive attitude. Third, we also extended the theory of planned behavior into a new context of purchasing NEV. From the perspective of practical contribution, the current study offers several suggestions for policymakers to make use of media to enhance individuals' attitude, subjective norms, and perceived behavioral control to influence individuals to purchase NEVs and support double carbon policies.

Key Words

NEVs, Double Carbon Policies, TPB

Sharing responsibility for risk: codesigning media for bushfire resilience

Authors

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Abstract

Catastrophic bushfires in Australia since 2009 have highlighted the need for both governments and communities to develop strategies to build resilience and to share responsibility for the risks. Where previously authorities encouraged people living in high-risk areas to either 'prepare, stay and defend or to leave early', governments now seek to work with communities to manage threats. This approach assumes residents are aware of, understand, and are able to respond to the risks they face in relation to bushfires (Cooper et al., 2020; McLennan & Handmer, 2012). Local, state, and federal governments have sought to educate people about threats via community outreach, printed and electronic media, and signage. This communication tends to be instructional, informational, one-directional, with limited feedback from the community (Johnston et al. 2020); as such, it is not designed for collaboration or empowerment, which are essential in the development of community agency (Akama et al., 2016).

This paper details research that aims to codesign communication, systems, and processes with communities to support action in response to increased disaster risks. Our research focuses on the communities of Mount Glorious and Mount Nebo, in the D'Aguilar range north-west of Brisbane, Australia, which are at very high risk of intense bushfires. This is partly due to the mountain terrain, extensive bush coverage, and limited water supply. Furthermore, many of the houses are not built to withstand bushfire and most are very close to dense bushland that is managed by multiple government agencies. Other risks stem from land management practices, communication strategies, limited understanding of fire and a widespread assumption that in the event of a disaster, residents would be able to evacuate and insurance would cover the costs to rebuild.

We discuss findings from a series of in-depth interviews with agency representatives and residents about practices, priorities, and values in relation to bushfire and identify opportunities to design communication that supports shared responsibility. The data reveals differing expectations among agencies and residents about how and when information about bushfire should be communicated. In addition, there is an expressed desire to shift discourse about bushfire risk away from focusing on protecting life and property, toward creating a healthier environment less prone to destructive fire. We present concepts for alternative ways to engage communities in building bushfire

resilience. These proposals for media design are targeted to foster community engagement and action towards realising a fire-resilient future.

Key Words

bushfire, codesign, disaster communication, community engagement, environment, media, risk.

Reporting the creeping crisis of invasive species: A comparative study of US and Aotearoa New Zealand journalists' approaches

Authors

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Abstract

This paper explores how agricultural and science journalists are responding to the 'creeping crisis' of invasive species or biosecurity. Colonialism, globalisation, tourism and human-induced climate change have accelerated the spread of pest species between previously distinct habitats, with sometimes devastating consequences on biodiversity, agriculture, the ways of life of indigenous people, health and food security. In some estimates, a fifth of the planet faces such biosecurity risks. Discussing the connections between these issues is difficult and contentious, as it puts parts of the economy and society in tension with each other and requires coordinated activity, including sometimes restrictions on people's lives. Journalists play a significant role in building public knowledge and engagement with biosecurity, whether that is legitimating government crisis responses, fostering debate, driving change or holding state and business actors accountable. Little research exists on how journalists understand these various roles, the environmental or societal risks involved and the resources they need to tell biosecurity stories well. This exploratory study compares the responses of journalists at two contrasting sites, Aotearoa New Zealand and the biodiverse region of North Carolina and eastern Tennessee. We analysed the tweets of 58 science and agricultural journalists and conducted follow-up interviews with 20 journalists. Early results from the study suggest limited approaches to the topic at both sites, usually focused on specific incursions and often drawing on a narrow invasion and eradication discourse that favoured technical solutions rather than societal or cultural responses. At times, US specialist science media were influential in setting an agenda that connected invasive species to the climate crisis. Among Aotearoa New Zealand journalists, a clear divergence of agricultural and environmental or science journalists from each other and a long state history of biosecurity controls led to limited, stable narratives and compartmentalised reporting. There was little connection of Aotearoa New Zealand to global issues but also more commitment to a consensus on responses. The paper concludes with reflections on the value of journalism engaging with a Latourian 'new politics' that is more inclusive of the non-human, but also with concrete proposals for ways of making the scientific and policy debates on the risks to biodiversity, agriculture and related issues more available to a wider range of journalists in both countries.

Key Words

biosecurity, invasive species, science journalism, agricultural journalism, US, New Zealand

Framing in Emerging Scientific and Technological Communication: A Systematic Review

Authors

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Abstract

The emergence and development of emerging science and technologies appeared as an autonomous process and technology itself, also as something single and definitive (Bauer & Bogner, 2020). This public understanding of emerging science and technological progress has changed significantly with rising awareness of the unintended and unforeseen side effects and unknown risks surrounding them. Emerging science and technologies have increasingly become the popular domain of societal conflicts (Bogner & Torgersen, 2015), in which opposing socio-technical visions, promissory and problematic constantly collide. The discussion and communication of emerging technology is not only a matter of simple technology or a product of social progress but also includes various commercial, political, and ethical risks and issues in the current social context.

Given the growing prominence of emerging science and technology, it is essential to understand how the public views science and technology and what shapes their opinions about it (Bingaman et al., 2021). The media plays a vital role in shaping public attitudes toward emerging technologies and promoting public understanding of science. Its coverage of emerging science and technology issues is often multi-faceted. The question of how people conceptualize emerging science and technology is related to media coverage, in other words, frame building (Scheufele, 1999). Framing theory provides a good perspective for conducting a review of scientific communication as framing essentially involves the media selection of some aspects of a perceived reality and makes them more salient in a communicating text (Entman, 1993). Although there is some disagreement in the field regarding the definition of the concept of framing (Cacciatore, Scheufele, & Iyengar, 2016), scholars agree that (a) framing is an essential part of how the general public processes information and (b) the framing of a message can have an impact on its communication effect because frames are never neutral: they define problems, interpreter causes, make a moral evaluation, and shape proposed solutions (Entman, 1993).

From the previously controversial nanotechnology to the current popular artificial intelligence, it is necessary to systematically review the recent research on science communication frameworks to understand this field's development better and contribute to future research and public understanding of science and technology communication. Therefore, this study provides a systematic and structured overview of empirical communication science research on framing in emerging science and technologies. This study aimed to analyze how framing can be applied as a concept in emerging science and technology communication by systematically reviewing the published peer-reviewed articles in this sub-field. The findings contribute to helping communication researchers gauge the quality and depth of existing framing in order to better

integrate framing research in the field and effectively inform future framing research or research on the effects of framing.

Key Words

Emerging science and technological communication; Framing; Systematic review

Environmental Journalism and Social Justice: Media coverage of Water Issues in India

Authors

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Abstract

Environmental issues are being considered as the concerns of social justice. In India, among the other environmental problems, the crises related to water are becoming increasingly visible affecting the health and livelihoods of millions of people. The scarcity of water caused due to indiscriminate exploitation of the natural resources, lack of water management efforts, urbanisation and others, have raised serious questions related to issues of social justice that emerge out of the consequence of such crises. Much of the popular knowledge about these issues is created by different kinds of media.

The scale of water scarcity in India has been on continuous rise for the last few years which has caught media attention widely. The incidences of water scarcity were, earlier, usually identified with rural areas have, now, started surfacing in the urban areas too where adequate water supply infrastructure has been put in place. While in many remote areas, the stories of women walking several kilometres to fetch water are common, in the cities too, these days, the sights of people crowding the supply tankers and struggling to procure water from them especially during the summer season have become usual. According to Government of India policy think tank, National Institute for Transforming India (NITI) Aayog (commission), 40 per cent of the country's population will not have access to the clean drinking water by 2030. Such alarming situation will massively affect the communities living on the margins.

The most vulnerable sections, in a situation of water crisis, are the disenfranchised populations of the society. Water scarcity not only affects the health and livelihood of such communities but it also causes hunger, and affect the education of their children. As such, the occurrences of water crises cause huge obstacles in attaining social justice. While in many rural pockets of the country, women are bearing the burden of procuring water for their families, in urban areas, those living in slums and low-income settlements are facing the brunt of the water crisis. The nature of media coverage of such issues plays important role in determining how do people and governments see and act on them. This paper seeks to assess the state of media coverage of the water crisis situations and the related issues of social justice in India.

This paper will particularly review the coverage of two English newspapers in India namely *The Times of India* & *The Hindu* and two Hindi newspapers *Amar Ujala* and *Dainik Jagran* from March 2023 to May 2023. A systematic review of available literature on the topic will also be done to analyse the data gathered from the content analysis of these four newspapers. Theoretically, the paper will borrow from the scholarships of Wyss (2019) on covering the environment, Poornanada

(2022) on environmental journalism in India, Pezzulo & Cox (2018) on environmental communication and the public sphere, and more recently, Takahashi et. al. (2022) on news media coverage of the environment.

Key Words

Water crisis, environment, social justice, media coverage, environmental communication, India

Common but Differentiated “We”: Positioning (Inter)national Identity by National Deixis and Personal Pronouns in Chinese Climate Change Posts (2015-2020)

Authors

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Abstract

Cyber-nationalism is an important feature in China and goes on the rise in the recent decade (Wu, 2007). Nationalism is a feeling of identity and superiority that bears sovereignty, loyalty, and collective solidarity (Greenfeld, 1992). Cyber-nationalism in China is a combination of both the elite-led nationalism and the grassroots-led popular nationalism, while both of them emphasized on national identity and national interests (Nossek, 2004; Wang & Tao, 2021). Social media such as Sina Weibo plays a substantial role in disseminating of cyber-nationalism (Fu, Chan, & Chau, 2013; Zhang, 2020).

This complicated dichotomization between nationalism and globalism reflects the difference of in-group and out-group identity. While globalism projects an image of “our” world, nationalism emphasized on an exclusive identity (Yang & Chen, 2021). Tensions between the two is a feature in the Chinese online communication environment, as nationalism has been used to defend against the west-led global world (Zheng, 2004). Meanwhile, China’s nationalism was also augmented in the long-term international relationship (Chan, 2014).

Although Chinese cyber-nationalism has been studied through government role, politician speech and media effects, the fewer of them included the expression of the general public (Zhang, 2020). According to the “banal nationalism” proposed by Billig (1995), nationalism constructed in the routine expression by the public has been recognized as an effective and natural way (Özkırmılı 2000). As social media provides a platform for public discussion, this study aimed at exploring how the Chinese public express nationalism or globalism in climate change discussion online.

National identity in climate change communication : National identity in this study was divided by two dimensions, in accordance to the situation of climate change communication in China.

National Identity versus International Identity. The imagined “group-self” broke the stereotype of sovereignty superiority principle in Westphalia system, which highlighted the “bonds of solidarity” and “sense of belonging” among national members, and thereof makes people position their nation via continuous interaction between the self and the other (Anderson, 2006; Fraser, 1990; Katzenstein, 1996; Smith, 1991).

Elite Speakers versus Non-elite Speakers. Both the new media and the traditional media contributed to construct national discourse (Hyun, Kim, & Sun, 2014), while institutional elites

often inculcate the national identity in the general public by reinforcing the nation's legitimacy and evoking a sense of nationalism (Becker, 2009).

Plural Pronouns in Constructing National Identity: “We”-versus-“they” construction is a tradition following banal nationalism (Gao, 2022). “We” as personal pronouns was regarded the most important factor in constructing national identity (De Cillia, Reisigl, & Wodak, 1999). Even there is no explicit reference to national identity, articles using the word “we” in the context of shared culture can be interpreted as a reflection of national identity (Brookes, 1999).

An obvious boundary was usually found in discourse of national identity that split the “we” from “they” (Boon, 2018). Except for membership categorization, the moral sense is also important in positioning oneself, aligning with the other and constructing solidarity (Du Bois, 2007). Hence, national identity construction is a process of interpreting the ingroups and outgroups (Wendt, 1999).

National-we versus International-we. National issues tend to be domesticated due to the “national schemas” (Bonikowski, 2016). The “national-we” and “foreign-they” were often identified in daily language use. The consciousness of solidarity and pride even posits the binary opposition between “national-we” and “foreign-they” (Billig, 1995).

Inclusive-we versus Exclusive-we. “Inclusive-we” and “exclusive-we”, as linguistic tactics to classify the relationship, were regarded as the key points to form and maintain national identity (Riggins, 1997). Specifically, “inclusive-we” indicates “the speaker and the addressee(s)”, while “exclusive-we” means a “speaker-only” situation.

Data Analysis : 260,958 posts on keyword “climate change” were collected by a self-developed Python web crawler from the 1 Jan 2015 to 31 Oct 2020.

Top 30 stakeholders each year were selected by PageRank scores in repost network each year (N = 180) and classified manually by account types (government accounts, media accounts, NGO accounts, public accounts).

It is a wordlist comprising of (inter)national identity-related entities manually identified and supplemented by researcher based on the 10% random sample (N = 26,096) of all climate change posts from 2015 to 2020.

The usage of pronouns in each post was automatically calculated by linguistic features of “plural pronoun - we/they”, “cognitive mechanism - inclusion/exclusion words”, “affect - positive/negative emotion” in Wenxin (a Chinese version linguistic software of LIWC).

Pagerank was chosen to be an influence indicator in the repost network, as it assumed users with more important are more likely to receive reposts from other influencers.

Key Words

cyber-nationalism, national entity, personal pronouns, social network analysis

Public health issue and climate change; The case of media framing of heatwaves in Pakistan

Authors

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Abstract

Almost two third of climate attribution studies from 2004 to 2018 show that climate change has increased the probability or severity of extreme weather events (Schiermeier, 2018). According to extreme event attribution studies, due to human-induced climate change, heat waves are likely to become more frequent and intense (Ma et al., 2020). However, there is little known about how media presents such issues, and scarce literature in the field is from the Global North (O'Neill et al., 2022), where media presents a heatwave as fun in the sun.

Pakistan is one climate-vulnerable country where extreme weather events such as heat waves are getting increasingly severe, frequent, and prolonged. This study intends to investigate media coverage of two distinct heat wave incidents in six leading newspaper publications (Urdu and English) in Pakistan, with an emphasis on how the media frames the issue of heat waves and Who was mentioned as a source in the news? Heatwave events (2015 and 2018) selected for the study are significantly important because they resulted in many casualties due to heatstroke. Quantitative content analysis is triangulated with qualitative framing analysis to understand media coverage of heat waves in Pakistan.

Findings show that media covers climate change events like a heatwave, but the magnitude of the event defines the level of coverage in mainstream media. Media commentary shows that it foregrounded attribution of responsibility frame, public health concerns, disastrous impacts of heatwaves, and the response of government and various institutions to manage the crisis. However, the link to climate change remained an under-represented issue. Overall, this study contributes to the limited literature on media coverage of extreme weather events induced by climate change in the Global south besides media framing strategies of such issues in low-income countries.

Key Words

heatwaves, media, disaster, extreme weather events, frame

Environmental risk communication in the digital conversation on Twitter: Big Data analysis of the case of Spanish wildfires

Authors

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Abstract

This paper presents a case study of the public discourse on Twitter about wildfires in Spain. Based on the idea that fires represent one of the most symbolic extreme weather phenomena directly related to climate change, the study focuses on the communication of this phenomenon in a medium such as Twitter, which is characterised by promoting communicative mobilisations (hashtivism) capable of informing, raising awareness and mobilising (Fownes and Margolin, 2018; Mihăeş et al., 2021). Considering the context in which it has become crucial to raise awareness of concepts like climate disinformation or inaction (Mann, 2021), this case study shows how communication about wildfires on social media promotes communication that is close to hashtivism, punctual and with a discourse focused on the consequences.

The study takes the year 2022 as a time frame, declared as the worst year of the 21st century in terms of the number of hectares burned -more than 200,000- in wildfires in Spain. The fact that the worst fires have coincided with two of the year's major heatwaves is indicative of the relationship between these fires and climate change. In the same year, the IPCC's Sixth Assessment Report presented one of the most complete scientific descriptions of the impacts of climate change to date. In this urgent scenario, the scientific community demands that climate change be communicated not only in terms of its consequences but also in terms of its causes and solutions. Certainly, causes and solutions are key concepts in this crisis paradigm, together with the idea of continuous communication of the phenomenon (Holmes and Richardson, 2020; O'Neill, 2020).

The study proposes a qualitative methodological approach focused on the digital conversation on Twitter, which is examined using Social Media Analysis techniques (SMA). Based on the analysis of climate hashtags and user accounts, the study creates a network of mentions using Gephi software, and it also examines the characteristics of the main qualitative communities generated around this phenomenon using clustering algorithms.

The results show how communities with weight and influence in the digital public debate focus their discourse on the attribution of responsibility for the fires, as well as on denouncing the lack of resources. On the other hand, the weight of communities with global discourses focused on the prevention and solution of wildfires is much lower in terms of the number of users and influence in the digital conversation. The combination of both forms of interaction reveals a coexistence between some more ethereal discourses and others that are more profound and global. Such a

combination in digital conversations can be considered positive, as long as hashtivism has a place within the different roles observed. The characteristics of the communities observed open the debate around the need for deep and continuous hashtivism, which accounts for the spatial and temporal breadth of a phenomenon as complex as climate change.

Key Words

Hashtivism, Twitter, Social Media Analysis (SMA), algorithms, risk communication, environment

Role of New Media Literacy in Combating Plastic Pollution: A Mixed Method Study of Young Respondents of Delhi

Authors

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Dr. Kulveen Trehan - Guru Gobind Singh Indraprastha University

Abstract

In a low-income country like India, plastic pollution has become an inevitable issue. It aggravates climate change and global warming, in turn adversely affecting all living beings. Ingestion of smaller fragments of plastic (known as microplastics) leads to the death of marine and terrestrial animals. Humans are trapped in this chain as it travels to the food chain, which affects their health and causes various diseases like cancer, heart disease, diabetes and infertility (*Kumar et al., 2021*). It is well documented that media plays a crucial role in framing issues on climate change and the environment, including plastic pollution, through vivid and impactful messages and images to shape public opinion (*Chakravorty & Tilak, 2020*). With increasing digitization in developing countries, public discourse on new media messages in climate change communication needs critical inquiry.

The COP27 (Conference of Parties) also fixed the spotlight on plastic pollution (*COP27 Side Event: How Combatting Plastic Pollution and Illegal Traffic in Plastic Waste Can Help Reduce Carbon Emissions, n.d.*), especially in underdeveloped countries programmes such as the Swachh Bharat Mission, GoLitter Partnerships Project, Prakriti initiative, India Plastics Pact, Project REPLAN, Un-Plastic collective (UPC) have been initiated in India to address the issue of plastic pollution. To reduce carbon footprint, the Government imposed a ban on the distribution, sale, manufacturing, stocking and use of Single-use plastic products (which have low utility and littering potential) in the capital city of India, Delhi, from July 1, 2022. Single-use plastics are a significant contributor to plastic waste, and individuals must alter their consumption behaviours and habits to decrease the production of SUPs (*D. P. Singh & Mathur, 2019*). While substantial research exists on climate change action and media literacy, limited work is available on new media literacies and plastic pollution in India.

In view of the recent ban, an explanatory sequential mixed methods study was undertaken to gather critical insights from a cross-section of urban students in higher education institutions (HEIs) of Delhi regarding their new media literacy and engagement with the issue of plastic pollution and the development of pro-social behaviours. The study assesses the influence of new media messages on University students' knowledge, attitude and engagement about plastic pollution and identifies the frames and potential use of new media platforms to promote sustainable behaviour by combating plastic pollution. Since students in Delhi are active consumers of new media and are also stakeholders in combating plastic pollution, the framework on attention-grabbing factors within the agenda-setting theory by *Liu (2011)* for citizens' opinions on plastic pollution was

adopted. The data obtained from the cross-sectional survey and focus group discussions (FGDs) with a select group of media literate students will be triangulated. The outcome of this study will provide valuable insights into the effectiveness of new media in promoting various sub-factors related to plastic pollution in India and creating digital citizenship for environmental protection.

Key Words

Plastic Pollution, Environmental sustainability, Public discourses and ecological transition

Risques environnementaux : une analyse de communication de Petrobras dans ses rapports de développement durable

Authors

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Dr. Larissa Conceição dos Santos - Universidade de São Paulo - ECA USP

Abstract

L'article aborde comme problèmes centraux le risque (Beck, 1998) dans l'ère actuel, en mettant l'accent sur les questions environnementales et climatiques résultant de la modernisation dite tardive et (in)réfléchie (Giddens; Lash; Beck, 1995) et la façon dont les organisations, en particulier celles du secteur pétrolier, abordent les controverses environnementales à travers des stratégies de communication, telles que des discours (Orlandi, 2020) et des récits de légitimation (Lyotard, 1979) en mettant l'accent sur la durabilité, comme moyen de renforcer son engagement et sa fonction sociale.

La découpe de recherche met en évidence le contexte brésilien et adopte, comme objet d'analyse, la compagnie pétrolière Petrobras. Choix justifié, du fait de la notoriété et de l'impact environnemental produits pétrochimiques et de l'actualisation d'une réflexion critique sur la problématique du risque lié au secteur au Brésil. Petrobras a été fondée au Brésil en 1953, son origine remonte à la recherche de l'indépendance économique dans le secteur de l'énergie et, l'organisation a acquis une reconnaissance internationale dans le secteur du pétrole et des dérivés (Santos, 2021), mais a également été au centre de controverses pour les nombreuses catastrophes et accidents environnementaux (Santos; D'Almeida; Peliz, 2012).

L'agenda ESG (Environment, Social and Governance) souligne l'importance des facteurs environnementaux, sociaux et de gouvernance sur les marchés financiers à l'échelle mondiale. Les classements ESG sont également connus sous le nom de classements de durabilité ou de responsabilité sociale des entreprises. La pertinence des rapports ESG s'est accrue ces dernières années, car ils concernent les pratiques qui favorisent le développement économique durable. Cependant, les organisations dont le modèle d'entreprise et l'impact sont moindres peuvent mesurer un petit nombre de paramètres liés aux risques et opportunités environnementaux et sociaux. Lorsque la complexité des activités augmente, les mesures utilisées doivent devenir plus sophistiquées pour garantir que la mesure se rapproche le plus possible de l'impact réel.

Les organisations qui présentent un plus grand risque par rapport à la perte de biodiversité, sont configurées comme présentant un plus grand risque de marché, ont moins de liquidité dans leurs actions et ont un impact sur les institutions financières, provoquant une instabilité dans l'économie du pays si leur gouvernance est " faible " (Jacobi, 2012). Ces organisations ont besoin de stratégies pour lutter contre les pertes de biodiversité en cartographiant les risques pour cela elles ont besoin d'une communication organisationnelle stratégique (Kunsch, 2016).

En ce sens, il nous intéresse d'observer l'approche sur le risque environnemental officiellement communiquée par Petrobras, puisque le secteur pétrolier est l'un des segments ayant le plus grand impact environnemental (IPCC, 2013) et la manière dont ces organisations construisent leurs rapports sur les pratiques en faveur du développement durable devenant, des stratégies importantes de légitimation sociale centrées sur l'ESG. La méthodologie adopte une perspective réflexive et critique, basée sur une recherche bibliographique et documentaire, dont le corpus analytique se concentre sur les rapports de durabilité de Petrobras des dix dernières années, dans le but d'analyser la construction officielle du récit organisationnel (Santos, 2022) sur l'approche du risque environnemental par l'entreprise brésilienne.

Key Words

Communication, Risque environnemental, Responsabilité sociale des entreprises, Récit organisationnel, ESG.

A Comparative Study of Discourses on Climate Justice during COP27 between Chinese and American Media

Authors

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Abstract

The concepts of equity and justice are rising narratives within global climate change discourse. Though securing historic progress in the Sharm el Sheikh climate conference, explicit attribution of climate reparations and divergences among countries still remain unsolved. This article analyzes how Chinese and American media report differently on issues concerning climate justice, and probes into their hidden ideologies and core concerns of interests in terms of climate reparations. Reports related to climate justice are selected from four quality newspapers (*China Daily*, *People's Daily*, *The New York Times*, and *The Wall Street Journal*) throughout COP27, during which the "loss and damage fund" mechanism was set up after rounds of negotiations. This study adapts Fairclough's three-dimensional critical discourse analysis: description regarding the linguistic features of the discourse, interpretation and explanation of considering US and China's ideologies and their respective social, especially political and cultural particularities. Results show that all these newspapers show overall positive attitudes towards the mechanism and consider it a historical leap in securing climate justice. Nevertheless, implicit ideologies are shown in the reports as well, demonstrated by their choices of words, discursive strategies, reporting patterns, etc. Specifically, Western media attempt to deconstruct America's status as "the largest historical emitter", legitimize its unfulfilled climate responsibilities and divert global attention to other rapidly developed countries such as China and India. Chinese media uphold the principle of "polluters pay up", underline China's partnership with climate-vulnerable developing countries and call for a shared destiny of human beings to address the climate crisis. It is hoped that this study can shed light on adapting critical discourse analysis (CDA) to analyze different concerns of interests and try to bridge the gap and provide a more reasonable and widely acceptable mechanism of climate reparations.

Key Words

climate justice, climate reparations, critical discourse analysis, COP27, media reports.

Discursive legitimation of platform companies as actors in sustainability transition

Authors

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Prof. Mervi Pantti - University of Helsinki

Abstract

Digital technology is often considered a less-wasteful way to consume media, and an enabler for solving major global challenges like climate change and achieving carbon neutrality. While digital media platforms have the potential to further sustainability through information sharing and facilitating mobilizations for sustainable development, at the same time, platforms and the devices we use them with produce massive amounts of both material and digital waste. Accordingly, major digital platforms have shown a growing interest in sustainability, as part of their CSR initiatives, which include a wide spectrum of issues ranging from carbon free energy sources to cleaner data centres.

The paper aims to broaden our understanding on the question of environmental responsibility of digital technology and social accountability of the companies that produce and provide it. It explores how the environmental responsibility of the major technology and platform companies (Amazon, Apple, Google, Meta, Microsoft and Twitter) has been addressed by the companies themselves. We use data collected from digital platforms' corporate blogs and their environmental/sustainability reports, which we understand to represent forms of discursive justification and strategic legitimation of the actions of these platform corporations amidst the calls for more sustainable societies. Using this data, we examine how their sustainability agenda has evolved over the years, how they frame their own responsibility and initiatives regarding sustainable future, and how these differ between platforms.

We used dictionary-based filtering to select blog posts that were related to the topic of environmental sustainability and then unsupervised topic modelling to understand the main themes discussed in the data. We combined digital methods with discourse analysis of selected posts to provide critical and contextual insights in their responsibility strategies. Main environmental concerns for the companies were related to their energy sources. Platform companies highlighted the role of their technologies in more sustainable practices and information dissemination, as well as in NGO collaboration.

Key Words

Digital platforms, responsibility, accountability, corporate blogs, topic modelling, discourse analysis

Framing developmentalist relations in China: a critical discourse analysis of Ant Forest's digital trees planting campaign

Authors

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Ms. Huining Liu - The Chinese University of Hongkong

Abstract

With the advance of digital technologies, messages in relation to environmental protection have been widely spread and promoted, and so as digital environmental protection campaigns. A slew of campaigns has been launched, attracting netizens to engage in nature conservation. Intensive studies explored how digital environmental protection campaigns mobilize the public to engage in environmental projects through the mechanism of the commodification of nature. Yet, it remains little known how the campaigns frame the relation between the developed regions where projects are initiated and funded and the developing regions where the projects are implemented.

This paper proposes the question: How developmentalist relations between developed and developing regions in China are produced in Ant Forest's digital tree planting campaign? It conducted a critical discourse analysis of the digital trees planting campaign launched by the Chinese app Ant Forest, an Alipay mini app where users accumulate "green energy" through everyday practices such as online or offline payments, low-carbon transportation, and cutlery-free take-out, and exchange the "green energy" for real saplings. Ant Forest and non-profit organizations plant the saplings earned by users in desertification areas which are mostly in interior and rural regions, to improve the environment. The paper collected data based on Ant Forest's official website, annual development reports, and app user observations. The three-dimensional framework proposed by Fairclough was employed to analyze the data from three levels – text, discourse practice, sociocultural context, and the interplay among them.

The paper argues that Ant Forest's campaign commodifies natural representations and advocates the "right" consumption as the market solutions to environmental problems. This encourages users to more purchase behavior while calling for ecological protection while obscuring the fact that overproduction and overproduction associated with consumerism can accelerate further environmental destruction, which reconciles with scholarship on the impact of digital technologies on environmental protection. The paper provides an empirical case and contributes to the discussion on environmental justice by arguing that the national narrative of revitalization is appropriated by the campaign to articulate the significance of environmental protection and reinforce the Chinese developmentalist logic that values economic and inter-regional support. With unequal power relations still firmly in place, developed regions determine the ways and measures to protect the ecology of developing regions. This can be problematic to underdeveloped regions since dominant economic actors' preferences might be incongruent with

actors of marginalized communities at the local level when the dominant economic actors are the ones that drive development.

Together, the paper contends that developmentalist relationship between regions persists, and so do the uneven power dynamics between regions. Also, while digital technologies may seem to contribute to more online netizen engagement in the environmental protection movement, digital campaigns that are closely linked to consumerism, are often incompatible with the goals of the movement.

Key Words

environmental protection, critical discourse analysis, digital trees planting campaign

Communicating Planetary Health - A Scoping Review

Authors

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Abstract

For a couple of decades, human civilization has been increasingly interfering with the environment through greenhouse gas emissions, deforestation, and the extraction of raw materials, to name some examples. However, these interventions do not only affect the environmental but also human health. The concept of planetary health, on which this study is based, supposes a connection between the “health of human civilisation and the state of the natural systems on which it depends” (Whitmee et al., 2015, pp. 1978). Extreme temperature rise may cause higher heat-related mortality and malnutrition through poor harvest. Mental health consequences can range from post-traumatic stress disorder to depression, or substance misuse, for example. Since scientific information on climate change is complex, communication about it is an important research object. Highlighting health aspects may shift climate change from a rather abstract issue to one that affects people personally, which helps to promote climate mitigation. Communication science can hence make a valuable contribution to planetary health research. Several communication science studies already deal with the health implications of climate change, but there is no systematic overview about it. Therefore, this study primarily focuses on literature from communication science dealing with the health consequences regarding climate change.

Planetary health is a relatively new and dynamic field of research. Therefore, a scoping review will be conducted that investigates the state of the research in communication science and aims at screening out research gaps. First, the questions are raised about how publications on the health impacts of climate change from communication science develop over time (RQ1a), and where they were published (RQ1b). In addition, theoretical concepts will be examined (RQ2) before analyzing the methodological approaches (RQ3).

To address these research questions, the scoping review follows the PRSIMA-ScR. The data collection will be conducted using a defined search string with CMMC (Communication & Mass Media Complete, via EBSCO) and Web of Science. First, the title and abstract will be screened, followed by the full text. For that purpose, different in- and exclusion criteria are defined (e.g., peer-reviewed, English or German language, empirical approach). The studies must be published between 1990 and 2023 because the first IPCC report was released in 1990, addressing the health impacts of climate change. Additional studies will be extracted through citations of thematically relevant publications. The following steps include the construction of the search string, the preregistration on Prospero, and finally, the collection of scholarly publications with the software tool Rayyan.

In summary, this study investigates the relatively new perspective of planetary health and its application in communication science. Examining the literature and identifying research gaps can

develop ideas for future studies. Further, empirical studies can result in practical recommendations for media organizations, journalists, or policymakers.

Key Words

climate change, global warming, climate communication, planetary health

Sign the manifesto: Examining corporate advocacy efforts in the creation of a mandate to negotiate a legally binding instrument on plastic pollution at the United Nations

Authors

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Abstract

In June 2022, the United Nations Environment Assembly (UNEA) passed resolution 5/14, giving the body a mandate to negotiate a legally binding plastic pollution treaty. Two years earlier, a group of prominent consumer goods brands, including major contributors to plastic litter globally, such as Pepsi and Nestle, formed the Business Coalition for a UN Treaty on Plastic Pollution in partnership with the World Wildlife Fund and the Ellen MacArthur Foundation. The coalition embraced circular economy principles, such as decoupling economic activity from the production of waste, and called for UN member states to "commit to the development of a global treaty on plastic pollution." For many, this call was welcome: the primary producers of plastic pollution taking a pro-regulatory stance towards an international regulatory response to the plastic pollution crisis. Proponents of the proposed treaty took the business call as a breakthrough, a sign that "stakeholders who have traditionally been on opposing sides of various environmental debates" (Ford, 2021) had found consensus on responding to plastic pollution.

The ongoing activity of the Business Coalition raises critical questions about whether there is a direct role for business interests in the negotiation of a multilateral treaty. Research on corporate involvement in governing waste management, such as Hess (2007) and MacBride (2012), suggest that corporate interventions in the policy process shift responsibility to consumers, through programs addressing littering and recycling, rather than to corporate responsibilities such as packaging design. Critical research also notes how business interests create parallel standards to avoid or delay more rigorous regulation and boost their public images or fund and engage in public reframings of environmental concerns that delay coordinated regulation (Aronczyk & Espinoza, 2021; Delmas & Montes-Sancho, 2010). This history invites scepticism of the role of the private sector in the negotiation of the plastic pollution treaty, articulated as concerns about greenwashing and regulatory capture. These critical views emphasize how the pursuit of consensus allows business interests to dilute or delay action on urgent issues.

This paper investigates business involvement in the creation of a negotiation mandate and analyses how that involvement affected the policy-making process at the United Nations Environmental Assembly between 2017 and 2022. The analysis examines hundreds of documents taken from the UN ad hoc open-ended expert group on marine litter and microplastics (AHEG), the Business Coalition, reports provided by the UNEA secretariat, as well as contemporary reporting from groups such as the Progress on Plastic Coalition and Earth Bulletin. The analysis draws on new institutionalism (Bannerman & Haggart, 2015) and epistemic community (Cross, 2013) frameworks

to create a snapshot of key actors, ideas, and interests in the negotiation period leading up to the passage of UNEA resolution 5/14. It identifies governance gaps as a key justification for private sector involvement in plastic pollution regulation and the creation of a global regulatory instrument along with shifts in industry opposition to global regulation. The paper concludes by discussing the implications of these findings for global regulation of plastic pollution.

Key Words

plastic pollution, corporate social responsibility, greenwashing, policy, regulation, United Nations

A Top-down Approach of Political Concept in Academic Discourse and Green Rhetoric: The Government's Role in the Development of Ecological Civilization in China

Authors

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Abstract

China's frenetic pace of economic development in recent years has caused significant environmental costs. Confronted with this current situation, the Chinese government has proposed a series of political concepts as a goal for sustainability and a guide to environmental actions, such as ecological civilization. The theoretical justification for the Chinese government's political promotion of ecological civilization is that it might offer an alternative theory of development and result in a transition to a more eco-conscious world. Despite the prominence of these ideas in Chinese environmental discourse, little is known about how they are discussed both inside and outside of China by academic researchers. Does ecological civilization offer a new theory of development enabling Chinese scholars to contribute meaningfully to the global discussion on sustainable development? In this article, we examine how knowledge and power interact by thoroughly analyzing Chinese-language literature found in publications related to journalism and communication. 453 articles that were published between 2007 and 2022 in total were examined. Our qualitative discourse analysis reveals three major findings: (1) Chinese academic discourse has historically emphasized ecological civilization as the primary framework for environmental governance; (2) Chinese scholars have shifted from environmental crisis response to concept building in the last decade; however, the political discourse of ecological civilization has increasingly restricted how scholars engage critically with capitalism, democracy, and other aspects of green political theory; and (3) the exploration of Chinese academic discourse is a top-down approach which is consisted of four dimensions of Chinese environmental communication. In light of these findings, we conclude by highlighting the influence of ecological civilization on advancing global conversations to the global scientific discussion on sustainability.

Key Words

environmental communication; ecological civilization; governance framework; a top-down approach

Narratives, Tones, and Popularity of Tweets on the COVID-19 Vaccines: An Investigation Using the Health Belief Model

Authors

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Ms. Lefan Xiong - ISPA

Abstract

With the global transmission of COVID-19 diseases, effectively communicating with the public scientific COVID-19 information is posed on the agenda (Mohd Hanafiah, Ng, & Wan, 2021). Vaccination is recognized as the most effective approach in preventing transmissible public health diseases; according to WHO, around 1.5 million deaths could be avoided each year if vaccination coverage can be improved (WHO, 2019a). Particularly, vaccine hesitancy was believed to be one of the top 10 threats to global health during the COVID-19 pandemic (WHO, 2019b). However, previous literature demonstrated conflicting results on the effects of facts, stories, and various narrative constructions on persuasion through health communication messages. For example, Jolly and Douglas's (2014) study found corrective information – refuting anti-vaccine messages – does not effectively reduce belief in anti-vaccine information or increase vaccination intentions. By contrast, Schmid and Betsch's (2019) results showed the presence of an advocate providing corrective scientific facts had positive effects on vaccination intentions and attitudes. Moreover, mixed results were found on the backfire of refuting misinformation in health messages, for which a correction leads to an individual *increasing* their belief in the very misconception the correction is aiming to rectify (Swire-Thompson, DeGutis, & Lazer, 2020). This makes researching the effective public communication of scientific messages significant.

Using large-scale data analysis and qualitative textual analysis of the influencers' most retweeted original tweets, this study seeks to delve deeper into the most popular original tweets' narrative constructions (narrative vs. non-narrative) and tones (positive, neutral, or negative), and understand how Health Belief Model (HBM) (Becker, 1974) cues may influence the communication effects of public health messages.

The Health Belief Model (HBM) (Becker, 1974), one of the most widely applied theories in the health behavior (Glanz & Bishop, 2010), theorized messages with cues that successfully target an individual's perceived barriers, benefits, self-efficacy, and threat motivate individuals to take effective measures.

Network analysis and sentiment analysis were executed on 5,554,372 tweets collected from November 3, 2021, to May 5, 2022, by searching keywords "pfizervaccine", "modernavaccine", "Johnson&Johnsonvaccine", and "COVID-19 vaccine" with hashtags via the Twitter API. Analysis showed that 934 English original tweets posted by the top 1,000 influencers who contributed the most original user-generated content to network conversational communications, received the most retweets. Their number of retweets ranged from 1,000 to 96,989 times. Through qualitative

analysis of the most popular sample tweets' narrative constructs and tones based on the HBM model, the purpose of this research study is to understand how an individual's expressions of the COVID-19 vaccines' susceptibility, severity, barriers, benefits, self-efficacy, and threat using narratives – personal experience or cultural stories, non-narratives – statistical data and educational messages – and tones in a tweet may impact Twitter users' endorsement (retweet) of the message.

With sustaining public health interventions toward pandemic recovery becoming a new normality (Mohd Hanafiah et al., 2021), the results of this research will be especially useful for scholars interested in persuasion effects of public health messages, providing references of creating effective intervention messages aligning with the HBM, and ultimately reducing vaccine hesitancy to benefit the public's well-being.

Key Words

COVID-19 vaccine, Health Belief Model, narrative constructions, large-scale data, retweet

Reviving Community Engagement through Eco Cinema as a Wetland Conservation Advocacy Intervention in India

Authors

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Ms. Sneh Gupta - Guru Gobind Singh Indraprastha University

Abstract

Wetlands are highly productive ecosystems. More than one billion people depend on them for a living, and 40% of the world's species live and breed in wetlands. They are disappearing three times faster than forests, with more than 35% of them degraded or lost (UNEP, 2022). India has designated nearly 4.6% of its land as wetlands, covering an area of 15.26 million hectares, with 49 sites listed as Ramsar sites. Dhanuari Inland Wetland is a proposed Ramsar site in north India. It is home to about 211 species of waterbirds and is the biggest habitat of the sarus crane in the region, which is listed as a "vulnerable species" on the IUCN Red List. Due to excessive waste and pollution by the community, the incessant growth of water hyacinth, and groundwater depletion, Dhanuari is in a dire state. Sustainable management of wetlands requires active local community engagement and effective public campaigns for wetlands policy awareness (Zebardast, L. et al., 2020). Most of the scholarly work in India about wetlands has been found under the themes of water quality assessment and the health of the aquatic ecosystem. The studies on eco-tourism, aquatic species, the effects of urbanization, and community engagement in wetlands have been few. (Biswas Roy et al., 2022). Environmental education and awareness through Eco-cinema tools and techniques can form an effective, pluralist environmental discourse towards understanding of wetland conservation (Rust et al., 2015, Rust et al., 2012, Rust et al., 2022) creating powerful ambassadors for biodiversity and ecosystem conservation (Shah and Atisa 2021). This study is part of an ongoing mixed-methods participatory action research project that involves members of the local agrarian community, youth leaders, and women in increasing eco-awareness for conservation, wise use, and restoration of wetlands. The study tries to find out: does eco-cinema encourage viewers to think and act eco-critically? Could ecocinema content necessarily promote eco-awareness and eco-consciousness among the community? Multiple screenings of select eco-cinema content developed in the local language, sensitization workshops, and focus group discussions were organized. Photovoice method exercises were done with the members to measure their awareness levels towards the conservation of wetlands. The overarching framework of the Environmental Citizenship Model (Hungerford and Volk, 1990) has also been used to evaluate the engagement. The preliminary results indicate entry-level variables—such as general sensitivity to and knowledge of the environment—along with ownership variables—including in-depth knowledge, personal commitment, and resolve—were found to be overwhelming in the community at Dhanuari. But empowerment variables—especially action skills and locus of control—were less. However, intention to act was measured at a satisfactory level. It was also highlighted in the analysis of expert interviews that to achieve personal commitment for significant

mitigation action, it is prudent to organize on-the-ground interventions along with incentivization of the process. For instance, capacity-building activities for prospective community employment in regional tourism and promotion of these locations of eco-tourism potential This research presents societally advantageous research outcomes of significant ecological use.

Key Words

Environmental Citizenry, Eco Cinema, Photovoice, Community participation, wetland conservation

Low-cost Communication of Science Journalism: Discourse Analysis of the 2022 Weibo News on Arctic Glacier Melting

Authors

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Prof. Jinghong Xu - Beijing Normal University

Abstract

1. Background

With the development of the Global South's network and communications, the possibilities of using social media for science communication have been further noticed (Bouvier, 2015). As the largest Global South country in the world, China's social media practice of science journalism started early (Gu et al., 2008). After a period of development, the topics, subjects, and communication environment of science news on Weibo (one of the largest social media platforms in China) have become diverse and complex, but "global warming" has always been one of the hotly debated scientific topics (Riley et al., 2016). In the summer of 2022, temperatures in many parts of the Arctic Circle exceeded historical extremes, and the issue of melting glaciers received widespread attention from the Chinese (CMA, 2022).

2. Theoretical frameworks

Science journalism faces both opportunities and challenges in China. On the one hand, rapidly developing media technologies have facilitated the production and dissemination of science news by different actors and provided conditions for the public to participate in the communication process (Mou & Lin, 2014). On the other hand, rumors and science news coexist in cyberspace, and rumors adversely affect audiences' scientific perceptions and behaviors (Ren & Zhai, 2013).

Weibo's scientific news discourse can be regarded as tendentious text and information to some extent, as it is through the selective expression of specific scientific content that the dissemination effect of science journalism can be strengthened. Habitus theory is previously used to investigate the discourse production and performance of scientific news on Weibo, which is conducive to exploring the social psychology and social structure behind the news (Hu & Cheong, 2021).

3. Method

We use the keywords "Arctic glacier AND melting" to collect relevant samples from Weibo from June 1 to August 10, 2022. This study uses the "text-oriented discourse analysis" method proposed by Fairclough (2003) to analyze the sample in terms of "news discourse, actors, and user evaluation."

4. Result

The study finds that the authority and influence of the media are amplified on Weibo, the discursive reality constructed by various actors is characterized by selective reporting, and the

traditional habitus of "humans are responsible for the melting of Arctic glaciers" is under attack in China. In terms of discursive facts, actors, and social influence, the dissemination of case events can be divided into the following stages.

The discourse facts constructed by Weibo news

Phase-1 Weather reports on high temperatures and glacier melting in the Arctic.

Phase-2 Retrospection about the causes and phenomena of glacier melting.

Phase-3 the crisis warning and global implications of glaciers melting.

Actors in science journalism on Weibo

Phases-1&2 Media dominated while other actors participated less.

Phase-3 Media and the government dominated together.

Social influence of Weibo news Discourse

Phase-1 Arctic weather changes cause concern and reflection of the audience.

Phase-2 Audiences are divided over the causes of Arctic glaciers melting.

Phase-3 Audience comments deviate from the discourse reality constructed by the news.

Key Words

Science communication; The Global South; Arctic; Weibo; Extreme weather

Modern Homesteading and (White) Settler Identity

Authors

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Abstract

As environmental crisis looms closer and larger, and North Americans are offered little more than individualized solutions and narratives of personal responsibility, modern homesteading practices have become popular as a more environmentally-conscious way of living. Modern homesteading trends are driven by a collection of blogs that serve as repositories of recipes, manuals, and instructions for everything from baking from scratch to tending goats, as well as offering lifestyle models and advice. Homesteading blogs frame the practices and ways of life they offer as not just sustainable but also more traditional, recalling a time in which “we” lived in closer relationship with the land, claiming to draw on “ancestral” knowledge. They invoke the growing sense of disconnect and purport to offer a lifestyle that is more rooted, both in tradition and to the land of North America. Aside from offering practices that further harm ecosystems, modern homesteading taps into romanticized ideas about the frontier, reframing settler colonial history as one of environmental harmony. Modern Homesteading, and the reframing of history that it offers, whitewashes truths of dispossession, extraction, and genocide, and can undermine efforts to restore Indigenous sovereignty and stewardship of the land.

Lubarda (2020) has developed a framework of far-right ecogism (FRE) that considers the values of naturalism, spirituality, mysticism, authority, organicism, autarky, nostalgia, and Manicheanism to assess how extremist groups relate to environmentalism and conservation. Similarly, Stern (2022), Mattheis (2022), and Leidig (2022) have all shown how women in white supremacist movements have taken the lead in exploiting and corrupting back-to-the-land and traditional living trends online, including cottagecore and trad(itional) wives, which overlap closely with modern homesteading. Building upon these scholars and through examination of explicitly white supremacist and more ambiguous modern homesteading blogs, I argue that through this reframing, narratives around modern homesteading as a whole serve to re(construct) settler identity in the United States and Canada around the land itself, and are used to elevate white supremacist ideals. These concerns demand a hard look at mainstream conceptions of sustainability, and consideration of whether individualized solutions such as modern homesteading can truly reshape human relationships to the land.

Key Words

homesteading, environmentalism, identity, white supremacy

The Aspect of Voluntariness in Pandemic Communication and Innovation Processes

Authors

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Abstract

During the COVID-19 pandemic, the information needs of society increased dramatically compared with the swine flu pandemic in 2009/2010. The main reason behind this is the increasing information exchange with the help of mobile devices. While the mobile device traffic worldwide was just 10.88% in 2012, it has increased by today to 58.99%, reflecting an urgent need for platforms that enables quick access to and exchange of accurate information from different sources and stakeholders. According to the Quintuple Helix Innovation model, sustainable innovation processes to combat the pandemic need the knowledge exchange of five systems – science, politics, economy, the media-based public as well as the natural environment of societies (Carayannis et al., 2012). Efficient knowledge exchange of all systems is based on trustworthiness and voluntariness. Accordingly, a platform requires a design which supports on the one hand low-threshold access in both, receiving and providing knowledge.; on the other hand, it should also consider the different kinds of knowledge which are produced in different systems of society. Consequently, it can be assumed that the platforms with contributions from all systems will provide a mix of evidence-based and opinion-based knowledge. However, the degree of uncertain knowledge provided during the pandemic times is quite high. As a result, an efficient evaluation process including experts from academia is vital.

This paper presents the scientific outcomes of the project “PandeVITA” funded by the Horizon 2020 project of the European Union. Within this scope, a dashboard and contact tracing application was developed. The development process was based on the design thinking method (Plattner et al., 2015, Dorst, 2015) and user story methodology (Jeffries, 2001). With help of discrete choice experiments in the Netherlands and Turkey (Folkvord et al., 2022), focus group events and interviews in Germany, the Netherlands, Spain and Turkey, as well as pilot implementations in the four countries mentioned and Finland, whereby aspects of voluntariness and trustworthiness in the context of knowledge exchange were discussed and the needs of all systems of the quintuple helix were evaluated. It could be understood that opinion-based knowledge of the public has a high potential for misinformation but should not be excluded from the process of knowledge exchange. Rather, it needs to negotiate and evaluated by the scientific system to keep the motivation high for voluntary participation of the public.

Key Words

pandemic communication, knowledge exchange, misinformation, voluntariness

Polarize and identify ? An analysis of the dissemination picture of "peak carbon dioxide emission and net-zero" on Weibo platform

Authors

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Abstract

Global warming is recognized as the biggest crises faced by mankind in the 21st century. The governance and responsibility allocation of climate issues affect international relations and international public opinion. Carbon emission is no longer a simple scientific issue, but a complex international political and economic development and diplomatic power competition.

The development of intelligent media technologies has brought more visibility to communication, provided opportunities for interaction between different circles, and made it possible for cross-circle communication of issues. Whether the media logic is permeated into climate communication issues, and whether the new media technology makes the folk voice with the public as the main body of communication visible , whether the conflict interaction between the official and civil society on the social media platform can alleviate the contradictions between different groups on environmental issues in the real world, and whether environmental issues can be spread through the circle.

The article aims to investigate the dissemination of climate issue in social media, by using content analysis, co-word analysis and framework of analysis on the posts of Weibo, a china's social platform with 536.5 million registered users. What discourse framework exists in the communication network of climate change on Weibo? What are the main subjects of discourse production and which discourse production modes are adopted respectively.

Study methods divide into four steps:the first is to crawl all Weibo data related to "peak carbon dioxide emission and net-zero" from September 21 to October 20, 2021, as this period includes President Xi Jinping's speech at the General Debate of the 76th United Nations General Assembly, and obtain a total of about 6,711 pieces of raw data including key data such as blogger nickname, post time, blog post content, and blogger account attributes, with an average of 224 Weibo texts related to the topic every day, and 4,381 Weibo texts were obtained after cleaning. The topic of "net-zero" is an important discourse of international communication, and the evaluation and feedback of non-China sides have research value. The study hopes to depict the discourse narrative of non-China sides participating in the topic by analyzing what they post on Weibo. The second is to manually code social texts with the theme of "carbon neutrality and carbon peak" by content analysis method, and quantitatively count the release subject, discourse strategy, narrative framework and communication attitude according to the sampling of 10% of the text at the release time. The third is to construct a co-occurrence word matrix with each microblog text as the co-word unit, conduct cluster analysis and multi-dimensional scale analysis of high-frequency keywords, and summarize the rhetoric and discourse production mode , and present related

specific issues .The fourth is to analyze the semantic network of the text content of different discourse production subjects, and investigate the diversity of different discourse production strategies. In order to fully present the ideal results of semantic network changes, and at the same time avoid multiple nodes in the semantic network around an absolute center and thus affect in-depth analysis and judgment, the keywords "carbon peak" and "net-zero" are excluded.

The study found that constructive discourse is the most common discourse used by governments, media agencies and social organizations. In contrast, adversarial and critical discourses are commonly used by the public. Although public groups have the highest level of engagement on the topic "peak carbon dioxide emission and net-zero", they cannot represent ordinary people for the reason that they are mostly composed of elites and the urban middle class. Although social media provides a space for public discussion that dialogues are formed between scientific groups and the public, official and non-governmental, central and local, the "visibility" of the dissemination brought about by the flow of opinions is not the actual result of "being seen", and the current "breaking circle" of climate communication is still limited. Under the leadership of the governments, media agencies, social organizations and elites on Weibo, the concept of "peak carbon dioxide emission and net-zero" has been politicized and economicalized.

Key Words

Carbon emission control; Content analysis; Co-word analysis; Mediatization

Risk communication in the fourth wave of digital communication: The case of radon gas.

Authors

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Dr. Berta García - Universidade de Santiago de Compostela

Abstract

When exists or arises a public health risk, it brings with it a series of challenges that affect many dimensions. In the case of the risk of radon, a noble gas present throughout the earth's crust and to which we are all exposed, communication plays a key role and must face several challenges. According to the EPA, radon is the leading cause of lung cancer among non-smokers, and the second leading cause of all lung cancers. Therefore, identifying risk communication as one of the main mitigation measures against the threat posed by this risk to people's health is a first step in trying to approach this issue (Glik et al., 2008; Lofstedt, 2019).

So far, according to the results obtained by the research team, it is a continuous, serious, and hidden or minimized risk in public opinion, especially by the media. This risk is currently facing new communicative actors beyond the traditional ones that can misinform.

This proposition focuses on the scientific sector, based on the importance given to it by numerous studies in the field of risk communication. For this purpose, a case study is carried out in Spain, a country with maximum risk areas in the European Union and in full development of the National Plan on radon.

A holistic study of the scientific sector specialized in radon is chosen. The hermeneutic perspective focuses on risk communication and the Social Amplification of Risk Model (Bakir, 2006). The methodology used was literature review, content analysis, network analysis and in-depth interviews with the heads of radon science centers in Spain. For the last three techniques, *ad hoc* measurement instruments have been developed for this research. Descriptive exploratory research with a blind hypothesis was carried out to analyze the perception of the scientific field of this problem, as well as the current situation of the communication that is being carried out and the possibilities offered by digital communication in this regard.

The main results highlight the need for a well-formed and informed public opinion on this risk, as well as the importance of communication in this process. In this sense, the sample denotes a lack of communication and information actions at national level, both on digital platforms and in physical format, thus allowing the problem to remain hidden. This study, which was the first of its kind to be carried out in the country, marks a roadmap on which to develop future research that seeks to further deepen risk communication on radon.

The main results highlight the need for a well-formed and informed public opinion on this risk, as well as the importance of communication in this process. In this sense, is emphasized the lack of

exploitation of the whole potential and resources offered by digital platforms. In turn, the sample denotes a lack of communication and information actions at national level, both on digital platforms and in physical format, thus allowing the problem to remain hidden. This study was the first of its kind to be carried out in the country and marks a roadmap on which to develop future research that seeks to further deepen risk communication on radon.

Key Words

Journalism, Digital communication, social media, Radon, Risk communication, Public health

Risk communication for public health: case study of radon gas

Authors

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Prof. José Sixto-García - Universidade de Santiago de Compostela

Mrs. Tania Forja-Pena - Universidade de Santiago de Compostela

Abstract

Public risk communication (PRC) is conceived as an interdisciplinary field with multiple approaches to address individual resilience. PRC must involve all stakeholders, including policy decisions and institutional frameworks (Agyepong & Liang, 2022). It also cannot be understood and implemented without instructional communication that enables people to understand and appreciate risks in order to protect themselves and their environment (Johansson et al., 2021). Therefore, it is crucial that risk communicators develop effective and culturally appropriate health messages (Boyd & Furgal, 2022), while media should also play a central role in this task (Ferreira, 2006).

However, the hypothesis of this research is that the organisations involved in preventing radon gas risks are not adequately communicating their warnings to society, which, indirectly, would lead to a lack of public awareness of the health risks posed by radon gas. Recent studies continue to stress risk communication as a key aspect of public health response (Thomas et al., 2022) and, although health risks are often front-page news (Renn, 2006), risk communication efforts are ineffective in the case of radon (Bouder et al., 2021).

The lack of current studies and research on the roles of all actors involved in communicating radon risks as a public health problem justify the need for this research. Communicating these risks requires an interdisciplinary approach that considers the actions taken by (1) those who manage health prevention (health agencies), (2) those who do research (research centres), (3) those who legislate (public administration), (4) those who build (the construction and housing protection sector) and (5) those who communicate (the media).

The aim of this study is to analyse the role that these sectors play in the communication of radon gas as a public health risk. Three research questions are drawn from this objective: How is the risk being communicated in their official channels?; What improvement actions are considered for the communication of radon as a public health risk?; As stakeholder organisations, what role is assigned to media in communicating this risk?

In order to answer these questions, this research presents a mixed method design involving the triangulation of two techniques. On the one hand, semistructured in-depth interviews were conducted with experts and professionals from the aforementioned five sectors and, on the other, a content analysis of their official channels (web, social networks) was carried out.

The results point to the lack of strategies aimed at communicating radon gas as a risk to public health, even though all sectors point to the need to make society aware of the health implications

of this gas. The dissemination of information on radon in official channels is scarce, and mainly focuses on reporting about contamination: the concentration of the gas in the air. The message of its association with lung cancer is also present, but tends to be secondary in many of these digital communications. As actions for improvement, public institutions are called upon to take a central and constant role in risk communication.

Key Words

risk communication, public health communication, radon gas, instructional communication

Contextual Science: How Chinese Users Talk about the Big Bang Theory on Social Media

Authors

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Abstract

In recent decades, in terms of science communication practice, compared with the traditional way of science communication, that is, to convey scientific knowledge to the public in the form of science and education programs, books, etc., integrating science into popular cultural products is easier to mobilize the public's interest and attention. A bunch of studies have examined how science elements are presented in popular culture such as sci-fi novels, movies or TV series, however, how those science elements are perceived by the audience, and how audience engage in the discussion with popular science products are still remained uncovered.

In this study, we first introduce the concept of "boundary objects" (Star & Griesemer, 1989; Shackley & Wynne, 1996; Latour, 2005; Bucchi & Lorenzet, 2008) in science, technology and society studies (STS), in order to demonstrate that sci-fi movies and TV series could be regarded as boundary objects between science and media (or popular culture in general). Later on, this study adopts the concept of "participatory culture" (Jenkins, 2009) in cultural studies to generate a new analytical framework to explore how Chinese audiences understand scientific knowledge in sci-fi movies and TV series and how to participate in discussions on the Internet.

Methodologically, this study selected the American TV series *The Big Bang Theory*, which is quite popular among Chinese users, as the research text and investigated how Chinese users express their opinions about it on two social platforms, i.e., Zhihu (知乎) and Douban (豆瓣).

Combining content analysis and textual analysis, this study found that in the context of popular culture, the practice of public participation in science can be regarded as a daily performance of science, and the public's online discussion around science generates a discourse of contextualized science (Irwin, 2006, 2014), which incorporates into the production of "local knowledge" as an empirical supplement. In this process, scientific knowledge learning becomes periphery by-product while users build affective alliance with the series through their daily practice.

The contribution of this study is that on the one hand, it proposes the concept of "participatory culture" in public participation in science; on the other hand, it sheds light on the transcultural perspectives when understanding the relationship among public, science and media.

Key Words

contextual science, participatory culture, public participation in science, popular science

Gamifying pro-environmental behavior: Are environmental game players more environmental-friendly than others?

Authors

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Abstract

Environmental protection presents a typical social dilemma regarding the cost-benefit tradeoffs between individual and collective group environment governance. Promoting personal pro-environmental motivations and behaviors is a crucial issue that has attracted widespread practical and scholarly attention. Previous studies have indicated that two sources can motivate pro-environmental behavior: intrinsic motivations(i.e., social norms, environmental values, etc.) and external interventions(i.e., regulations, incentives, and information-based policy instruments). In recent years, gamification has been adopted as an external and painless intervention strategy to engage individuals in pro-environmental activities. Does the playing of environmental games improve public pro-environmental behavior? If so, how long will the effects of such game-based interventions last?

Goal frames theory states that environmental behavior cannot occur without three core goals: hedonic reasons, gain reasons, and normative reasons. Existing studies reveal the applicability of gamification strategies based on these elements in environmental protection. For example, pre-programmed game rules in functional games can provide a pleasurable experience that stimulates pro-environmental behavior; the ecological issues represented in various digital games can influence players' perceptions. However, the mechanisms by which games influence players' cognition and behavior are not identical to traditional media, and new theoretical interpretations need to be introduced.

On the whole, the existing researches have the following main shortcomings: Firstly, since environmental games have an ecological purpose, players may be influenced by intrinsic environmental motivations when deciding whether to engage in the game. Still, existing studies need to control more factors, such as awareness of environmental issues and environmental values, when exploring the continued use of environmental games. Secondly, the current study focuses on why players are engaged in the game. In this paper, we focus the dependent variable on environmental behavior rather than game behavior and include the public in different game states to test the impact of environmental games on environmental behavior. Finally, some studies ignore the perspective of players' perceptions of environmentally friendly games, and the choice of mediating variables focuses on hedonic and gain reasons. The discussion of specific mechanisms is more one-sided. The relationship between games and players' perceptions is subtle and multifaceted. Adam Chapman proposed five ways of analyzing historical games: simulation form, time, space, narrative, and affordance. Therefore, this paper adopts grounded theory to

conceptualize how players perceive environmental games and thus discusses the specific mechanism of action between game elements and environmental behavior.

This study selects a typical Chinese environmental game, "Ant Forest," as the research object:

Firstly, we should understand how players experience environmental games and how they describe complex feelings and perceptions. We selected representative players of environmental games as potential sampling subjects based on purposive sampling. We established a series of interview questions, such as "Why do players engage in environmental games?" "What are the main elements of the experience of environmental games?" "How do players perceive the environmental issues and concepts constructed by these games?". After that, a total of 15 players of environmental games were recruited for this study, and semi-structured in-depth interviews were conducted to collect data effectively. Based on grounded theory, this study initially established four categories of motivations: gratification, competitiveness, sociability, and function. These motivations make players more willing to participate in games and adopt environmentally friendly behaviors. Then we proposes corresponding hypotheses to explore the mediating effects between playing games and pro-environmental behaviors.

Secondly, this study devised a scale by combining the existing research and the above coding results. We distributed questionnaires that collected data from 326 individual respondents. A series of regression analyses indicate that "players" have a higher tendency to engage in pro-environmental behavior. The underlying mechanism for this relationship is mediated by gratification, competitiveness, and sociability. On the one hand, the social connection in the game forms a new monitoring mechanism for players' environmental behavior. Participating in ecological actions in the game helps shape their image as environmentalists and enhances their recognition of pro-environmental behavior. On the other hand, gratification, competitiveness, and other game elements attract some users but also drive some players away, and the over-crowding of users' time online may cause players to become aesthetically tired of real-world environmental practices.

This study provides empirical evidence to support the idea that playing a pro-environmental game has a positive impact on individual pro-environmental behavior. The findings have important implications for solving the collective action dilemma in environmental protection. Future research can explore other potential mechanisms of game-based intervention strategies in diverse contexts to facilitate innovations in environmental governance.

(This is a working paper)

Key Words

Gamification; pro-environmental behavior; environmental communication

Communicating with the Devil: Pervasive Plastics in Indigenous Lifeworlds

Authors

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Abstract

No other innovation has, arguably, wreaked as much havoc and violence upon the natural world, colonising all ecosystems (terrestrial, freshwater and marine habitats) equally and persisting within human and nonhuman lifeworlds, as have plastics. Introduced in the 1950s, over 300 million tonnes of plastic is produced annually worldwide, of which a third is discarded (Reed, 2015), finding its way into landfills and water systems. Plastics have reportedly been found almost everywhere, including the tallest mountains. Plastic's durable and lightweight characteristic helps it travel long distances, posing environmental threats (Ryan et al., 2009). Natural terrestrial, freshwater and marine habitats are reported to be contaminated with discarded plastic (Thompson, et al, 2009). Recent research has focused on marine environments (Law, 2017); and nano-plastics in the aquatic environment (Mattsson, Hansson and Cedervall, 2015). The use of plastics in agriculture, known as 'plasticulture' has been reported to decrease biodiversity and alter landscapes (Levin et al., 2007) but is being used widely in India and could introduce carcinogens into the food chain (Srinidhi, 2018).

In moving beyond the boundaries of the nation-state it contributes to the 5 trillion plastic debris in the oceans. Asia now produces nearly half the world's plastic, yet lacks many regulatory frameworks to handle plastic production and waste, calling into question gaps in capacity and the global political economy of plastic. In an explicit appropriation of materialism, the inherent disposability of plastic has had profound impacts on cultural and human ecologies (affecting agricultural practices, re-shaping rituals) of countries like India. The uses of plastic transgress many visible boundaries: not only is it used in packaging, transport and telecommunications but is also an invisible component of clothing, footwear and cosmetic products, and perhaps more significantly, microplastics have been found everywhere, including in many animals and human beings (Lim, 2021). The pervasiveness of plastic has meant its increasing presence in even secluded Indigenous regions, presenting new social, cultural and environmental challenges.

Although plastics are somewhat "understudied" within environmental communication there is a growing body of work in this area (Rice and Moxley, 2022). This paper, drawing from ethnographic research, reflects upon the presence and increasing pervasiveness of plastics within Indigenous lifeworlds in India, where Indigenous peoples' experiences of plastic are shaped by an unregulated flow of the innovation that is rapidly shaping human ecology, leading to community responses and confusion over a seemingly-disposable object that does not disintegrate. The paper looks at the ways in which Indigenous communities are appropriating, negotiating and communicating with

plastics both knowingly and unknowingly, while also examining some of the socio-political discourses that shape the flow and use of plastics.

Key Words

Indigenous people, plastic, environmental communication, pollution

Environmental Accountability: Creating A Training Program for Community Journalists in Kansas to Help Build Consensus on Climate Change and Take Action.

Authors

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Abstract

Climate change is a universal problem and one that threatens our survival as a species. This is especially critical in Kansas, which is a recognized leader in agriculture in the United States. Approximately 22 percent of the farmland in Kansas is irrigated, mostly with ground water from the High Plains Aquifer System. As a result, this aquifer is becoming depleted. Rising temperatures, drier soils, and decreasing water availability present challenges for Kansas farms and needs to be addressed urgently.

Unfortunately the issue of climate change has been politicized and is a polarizing topic. Particularly in the United States, the debate on climate change has joined other issues such as abortion and gun control as part of a wider cultural schism. A stock-taking study that reviewed scholarly works on climate change communication published over the last 10 years concluded that significant progress has been made in raising climate change awareness and enhancing support for climate and energy policies. There also has been considerable progress in understanding of how to effectively communicate climate change. It spells out remaining challenges as: superficial public understanding of climate change, transitioning from awareness and concern to action, communicating in deeply politicized and polarized environments, dealing with the growing sense of overwhelm and hopelessness, and closing the gap between climate science researchers and journalists (Moser, 2016). Bruggeman (2017) argues that when dealing with such divisive topics, journalists occupy a unique place as advocates of discourse that can lead to an enhanced understanding among the participants of the debate through the exchange of opinions backed by justifications. That is where community media comes in. Community journalists actively advocate on issues for common good and are ideally suited to drive the conversation around climate change and possible solutions. This project seeks to create training modules that will be accessible to community journalists in Kansas to help them navigate and cover this difficult topic. The modules will be hosted on the Huck Boyd Community Media Center website at Kansas State University and be freely accessible for self-paced training. They will be organized as follows:

How to Cover Climate Change:

Module 1: How do we Know? Science and Facts. This module will present useful scientific resources containing data and facts. It will also suggest ways to visualize that data and to humanize it to make it accessible and digestible to the readers.

Module 2: What is a climate story: Connecting climate stories to the various beats of community journalism. A beat in journalism refers to a topic that is regularly covered. Examples include business, health, education, environment, city hall, agriculture, etc. The media has a tendency to treat climate change as a story about the environment. This module will help journalists learn to connect climate change stories to any beat they cover.

Module 3: Identifying and addressing disinformation. This module will respond to the disinformation campaigns carried out by the fossil fuel industry.

Module 4: How to Help your community Find Solutions. This module will teach journalists how to use community engagement strategies to move communities to action.

Key Words

Environment, Community Journalism, Climate Change

Outsourcing Socioenvironmental Damage: Uncovering the Life Cycle of Digital Eco-Imperialism

Authors

Dr. Ana Valdivia - University of Oxford

Dr. Sebastian Lehuende - University of Cambridge

Abstract

In recent years, different voices have highlighted the multiple ways in which digital technologies come to interact with, and erode, the environment. However, less emphasis has been put on exploring the socioenvironmental impacts of such technologies from an environmental justice perspective. As the extraction of lithium in the Southern cone of Latin America or the dump of e-waste in Kenya illustrate, there are relevant asymmetries to attend in this field.

In this paper we develop the concept of eco-imperialism to scrutinise the socioenvironmental impacts of digital technologies from a global social justice perspective. Applying the thought of Rosa Luxemburg to the field of technological development, we show that digital technologies are inherently eco-imperialist in that they would not exist without the outsourcing of socioenvironmental damage to regions that are not at the core of technological design and development nor enjoy the profits generated by the technology industry. As of today, both liberal market and state-led market societies (mainly the US and China) are involved in digital eco-imperialism.

To substantiate our argument, we identify three processes underpinning the lifecycle of digital eco-imperialism: (1) Nature Extraction, (2) Infrastructural Growth and (3) Electronic Waste Dumping. In each case we refer to resistance groups drawing attention to the eco-imperialist nature of digital technologies.

First, Nature Extraction refers to one of the implications of chips manufacturing, a key for crafting digital technologies. Mineral extractivism and appropriation of water resources by large corporations based in the North are exhaustively impacting local communities and territories. We draw on the case of lithium, a mineral used for building rechargeable batteries, to illustrate this point.

The second dynamic of Infrastructural Growth points to the frenetic expansion of the infrastructure required to analyse vast amounts of data. The rise of 'the cloud' made it possible to manage and process data at a distance. This, in turn, prompted the development of data infrastructure, including cable optic cables and data centres, in different regions of the planet. Led by US companies or Chinese public-private partnerships, this infrastructure is expanding in the South despite their massive energy and water consumption.

The final dynamic, that of 'Electronic Waste Dumping', explains how digital technologies from the North are dumped on historically marginalised areas in the South. Following journalistic

investigations in Ghana and Kenya, we demonstrate that this dimension of digital eco-imperialism has also profoundly harmful consequences on local communities and territories: this waste creates toxic emissions that contaminates land and water resources and have been proven to be harmful for human health.

Through this paper, we connect the points in the North and in the South to better understand and denounce the outsourcing of socioenvironmental damage of digital technologies. As a whole, we call for giving visibility in different global fora to the lifecycle of digital-eco imperialism.

Key Words

digital technologies, environment, climate crisis, eco-imperialism, global south, china, US

Mobilising Water: Elemental Resistance Against Terricidal Technologies in Chile

Authors

Dr. Sebastian Lehuédé - University of Cambridge

Abstract

The socioenvironmental damage brought about by the development of digital technologies is prompting the rise of activism by communities directly affected by this situation. Compared to other forms of technology activism, these groups are undertaking an *elemental* form of resistance, i.e., politicising the constituent parts that make up both digital technologies and the environment.

Based on fieldwork conducted in Chile, in this presentation I discuss the mobilisation of water in the struggle of Lickan Antay Indigenous groups against lithium extraction in the Atacama Desert and of neighbours opposing the construction of a Google Data centre in Santiago.

In the conceptual discussion, I first introduce the notion of terricidal technologies. Inspired by Mapuche activist Moira Millán, this concept points to technologies that are complicit with the erosion of Earth and the destruction of Indigenous worlds. After that, I draw on elemental philosophy and discussions on elemental media to point to a way of thinking about technology that focuses on its constituent parts and the substances and substrates that make their development possible. Unlike 'nature', elements such as water and fire are present in our everyday life. At the same time, foregrounding the elements makes it easier to grasp the agency of nature.

After that, I turn to the empirical data and show that the opposition to terricidal technologies I analysed constitutes a form of elemental resistance. In both cases (lithium extraction and data centre construction), activists purposely focused their struggle on water. For them, this made it easy to draw attention and obtain public support for their cause. Other options, such as digital rights, were discarded as they sounded more obscure.

Another aspect of elemental resistance pertains to available information. In both cases, activists have requested reports on the availability of water. In a context of mega drought, the communities could not know whether lithium extraction and the data centre would consume all available water.

In the case of the Indigenous people, the mass-scale use of water for lithium extraction constituted a disruption of their ancestral practices. The Lickan Antay people live in the Atacama Desert, one of the driest areas of the world, and water has a special place in their worldview. In this regard, elemental activism consisted of highlighting how terricidal technologies encompassed an attack on a crucial dimension of their ancestral traditions.

As a conclusion, I argue that elemental resistance opens up new possibilities in the struggle against hegemonic technologies. In a way, it brings technology resistance home by foregrounding the concrete and vital consequences of the expansion of digital tools. Finally, it can infuse a social justice perspective to the whole chain of technological production, asking what communities and

elements are involved and how can a peaceful relationship between them get restored. Both concrete and mobilising, elemental resistance is opening a new horizon in the struggle for digital rights.

Key Words

digital technologies, terricide, elements, water, data centre, lithium, infrastructure

From CliFi to fiction for change : the contribution of fiction and design to media and communication research on digital sobriety

Authors

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Abstract

From digital interfaces to wearable tech, new media and digital technologies have developed by being part of imaginaries of the design of technologies based on a vision of the planet as an infinite resource. Awareness of ecological limits is still emerging, as shown by recent work on smartphone ecology (Allard, Monnin, Nova, 2022). Yet, despite being denounced by researchers who study the impacts of the technosphere on the biosphere, these "zombie technologies" (Halloy, 2022) are kept alive by those who produce them and profit from them. Other imaginaries from science fiction circulate in the form of utopian or dystopian fictions on technology, in literature, cinema, or via digital networks. For instance, to express our fears linked to the ecological issues of technologies, CliFi circulate online as in traditional media, and echo the tradition of eco-fiction in literature and the performing arts (Kressner and al. 2019. Cherbourg, 2019) . Moreover, the ecological crisis questions the recent orientations of the design of technologies to project ourselves into a future with limited resources. This involves many challenges for the design of technologies, which take into account social, environmental and ethical issues.

How to mobilize fiction and design to support research on digital sobriety (Bordage, 2018)? What mediation system can be imagined to support students towards a critical analysis while supporting their ability to act? We propose to study the theme of communication and environment, by analyzing two pedagogical experimentations aimed at making students from different backgrounds aware of the eco-criticism of technologies, to make them contribute to this emerging field. The objective was to offer them the opportunity to make alternative uses of everyday digital objects possible, during a one-week workshop.

The paper will present a comparative analysis of these two workshops on topics related to digital sobriety: music sharing without streaming, and the uses of a smartphone without networks. These experiments have in common to rethink digital every day life by drawing inspiration from innovation through withdrawal (Vinck, Gourlet, 2022), to rely on fiction and visual, creative and narrative methods (Mannay, 2016). Cross-cutting questions focus on how to get students to develop a critical perspective on technologies, to project themselves into possible and desirable alternatives, rooted in a creative ethics of technologies (Catoir-Brisson, 2019). Thus, design and what we call « fiction for change » make it possible to enrich communication and media research to embody the trajectories of more sober technologies and explore the multiple voices/pathways of techno-discernment (Illitch, 2014).

Our methodology is rooted in media studies (Mitchell and Hansen, 2010) to study the role of fiction and intermediate objects (Vinck, 2009) produced by students. These mediation objects support communication between actors, and are relevant to analyze to contribute to communication research on digital sobriety. Our analysis is rooted in semiotics and the anthropology of communication (Winkin, 2001) to study the factitivity of the media materiality of the intermediate objects that circulate in each team (Catoir-Brisson, 2022).

The communication will propose a theoretical contribution on the concepts of digital sobriety and low-tech design in particular, and methodological one, from the reflexive analysis of the mediation system designed in the form of a workshop. Finally, we will specify the contribution of this form of "narr'activism" which is based on the narration and the materialization of ideas in a tangible way, to hack binary hegemonic imaginaries and deploy new ones, alternative and open to the pluriverse (Escobar, 2018).

Key Words

Digital sobriety, fiction, design, low-tech, digital everyday life, visual methodologies.

Public collaboration and engagement in and for municipal environment communication development

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Abstract

The proposed paper summarizes results of series of studies done within the framework of the research-and-development projects in the field of environmental governance, particularly, environmental communication in the public sphere, at national and local/municipal level. A goal of the research was to identify major factors, driving forces and preconditions that are shaping municipal environmental communication, identifying pragmatic and constituent element's role in the environmental communication process and content development, as well as, its integration into municipal development planning practice.

The methodological concept of the research work is based on qualitative research traditions that are adapted for studying environmental governance problems and for building and applying new practice-based theoretical concepts within environmental communication field, particularly, action-oriented communication approach, complementary combining environmental information and education/training, environmental participation and pro-environmental behavior.

The research material is collected from extensive policy document studies and analysis of institutional practice of national administration and municipalities in Latvia, involving stake-holder survey methods and builds on comprehensive case study research methodology application, what covers over 50 local level municipalities of different size and circumstances. In this paper we are particularly focusing on detailed analysis of two municipalities: Liepaja and Valmiera townships, as well as particularly, emphasizing environmental communication development in water resources sector and its linkage with other environmental sectors. The latter municipality case has been based on recent research-and-development approach application including both complementary activities - studying municipal environmental communication practice (incl. all stakeholder's interviews and household's questioner) and developing main stakeholder's collaboration process for designing Environmental Communication Strategy for Valmiera municipality as the first this type voluntary planning document in Latvia.

The study provides comprehensive overview of development phases of municipal environmental communication governance practice that has been influenced by multifaceted internal and external factors and reveals gradual evolution of environmental communication not only as a policy instrument, but also as a disciplinary environmental governance sector, even horizontal one in parallel and complementary to traditional ones as waste governance, water resources

governance etc. As well as environmental communication is to be seen as an integration tool used for integrative (municipal) development planning and its implementation.

In conclusion, a basic set of preconditions for municipal environmental communication governance system has been proposed, consisting of detailed elaborations for collaborative-designed environmental communication governance triple bottom line – governance content and process, and also stakeholder segments. Integration approach is analyzed and further developed based in different contexts and particularly focusing on collaborative governance principle, involving stakeholders' collaboration integration, content integration for admin levels and sectors (horizontal-vertical), process integration with whole set of complementary governance instruments and top-down/bottom-up monitoring system (indicators/pointers), and, all in all, covered by collaboration communication.

Key Words

Collaboration, stake-holders, environmental communication, instrumental complementarity, municipal governance and planning

Journalism's responses to the chaos of Covid-19 data, and their implications

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Abstract

Covid-19 brought data and statistics to the centre of daily life like never before: everything we did in response to the virus at individual, organisational and societal levels depended literally on what the numbers tell us. As the exponential virus loomed large into an existential threat in the Spring of 2020, an influx of numbers that would normally stay within the domain of specialist expertise suddenly occupied the physical and cultural space of the lockdown family. "Scary" concepts – R-naught, infection rate, transmission rate, death rate, excess deaths, false positive, false negative, relative risk, absolute risk, random sampling, statistical modelling and so on – abounded everywhere, from the TV and computer screens to husband-wife or even parent-child musings.

With that came a statistical chaos that continues, albeit to a much lesser extent, today. Associated with such numbers is an unprecedented level of complexity and uncertainty due to the novelty of the virus. At the same time, they were subject to a rather fierce battle between different frames and narratives, in which scientists dispute with each other as well as compete – not always successfully – with religion, culture and, most importantly, politics.

Drawing on ongoing research with science and data journalists in the UK, this paper will explore how journalism, a profession that is rarely commended for their ability to engage and deal with numbers, responded to that statistical chaos. What were the major challenges? How did journalists performed in in questioning, scrutinising and communicating Covid-19 data, including debunking statistical "lies and damn lies"? What methods, techniques and platforms did journalists use to obtain, unpack, portray and deliver Covid-19 data and statistics to help people make sense of the pandemic? Are journalists all that bad at numbers after all? What lessons can be learnt? What are the implications for the journalism-statistics relationship?

Key Words

Data journalism, health journalism, science journalism, pandemic news

Politics for future Earth: young people's imaginaries in their own voices and in television news

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Abstract

In the last few years, young people have become a more visible face with regards to communication on climate change in public spaces. Greta Thunberg's political act of school-striking and doing so front of the Swedish Parliament inspired many around the world and led to large-scale demonstrations which gained substantial media coverage. Although COVID-19, the war in Ukraine and inflation diverted attention away from climate change, young activism is well alive. Many young people continue asking not only 'what's the point of going to school if there is no future for us' but also when and how are the root causes of climate change going to be addressed seriously by those in positions of power.

How do young people reason about the politics of the future in connection to climate change? We are interested in understanding how they envision modes of socio-political organization and of governance that may be desirable to respond to climate change.

In an early study of young climate activism, O'Brien, Selboe and Hayward (2018) have identified 'dutiful', 'disruptive' and 'dangerous' dissent, showing a range of positionalities among activists.

An analysis of the socio-technical imaginaries of the Fridays for Future movement in Germany suggested that it was divided between 'moderation' and 'radical ideas' with regards to the current socio-economic and political systems (Marquardt, 2020). Yet, other studies indicate that young climate activists do not aspire for much political change but instead for a 'better-functioning representative system with politicians who listen to their demands' (Huttunen, 2021).

Apart from what young climate activists may think or say, the portrayal of their views and claims in the media are crucial to the wider public debate. Extant research has shown that in many cases media have offered ageist depictions of 'pupils' missing school and being over-emotional (e.g. Bergmann and Ossewaarde, 2020; Mayes & Hartup, 2021; Poot & Bouwens, 2022) and ignored their political message and agency.

This paper brings together various types of research conducted under a large project on young people's political imaginaries concerning climate change. It focuses on Portugal, a country that is highly vulnerable to climate change and that has a set of particularly active young climate activist movements. It draws on extensive analysis of the websites and social media of six groups of young

climate activists; on over ten focus groups with young climate activists; and on analysis of television news over four years. Analysis of those various discourses points to a split between, on the one hand, rather elaborate (although heterogeneous) political reflections and ideas expressed both in written and multimodal online speak and in focus groups discussions by young climate activists and, on the other hand, a televised image that has awarded them voice but has significantly limited the possibility of affirming their views for the future politics of climate change.

Key Words

climate change, young climate activism, discourse, television, political imaginaries