CLIMATE CHANGE AS A NEW COMMUNICATION TOOL IN THE CONTEXT OF SCIENCE DIPLOMACY

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Abstract

Science diplomacy, conceptually, emerges not only as a contribution to the literature but also as a method by which countries can utilize knowledge as a form of power within the framework of public diplomacy. As part of the sustainable development goals, climate targets, affecting all countries directly, assume a role of soft power in the communication processes related to public diplomacy. Communication tools play a strategic role in transforming scientific research and approaches into an instrument of diplomacy. In this context, the fact that countries utilize mass communication tools to express their responsibilities concerning climate change points to an instrumentality both within the context of public diplomacy and science diplomacy. From this perspective, this study analyzes the news containing Türkiye's official statements during the United Nations COP28 climate summit through the lens of framing theory, evaluating the process of reputation management in climate change-related news within the contexts of public and science diplomacy. Through this sample, the study explores how, while climate change represents shared concerns among nations, countries have turned it into a component of reputation management through the media instrumentality of science diplomacy within the scope of their public diplomacy strategies.

Keywords

Science Diplomacy, Communication, Climate Change, COP, Public Diplomacy

Introduction

Many methods hold today's world together and shape, strengthen, and render all international ties continuous. These are also consulted when seeking solutions to common global problems. Science is, of course, one of the most important among these methods. Today, science is a common ground for transnational solutions to national problems. In this context, science diplomacy reveals the necessity of discussing how this common ground is transformed into a tool. Science diplomacy, while encouraging international approaches, research, and scientific developments, provides a ground for the search for common solutions for the development of relations between countries.

The concept of science diplomacy can be confused with the concept of public diplomacy. However, public diplomacy is different from science diplomacy. The process of managing countries' image and perception within global communities can be defined as public diplomacy. Public diplomacy includes the representation of a country's goals and values in different fields such as culture, humanitarian aid, and education within the context of foreign policies. Public diplomacy can also be expressed, especially within the context of foreign policy, as a part of the representation and implementation of high-level structures such as security and the economy. When science diplomacy and public diplomacy come together, they reveal how scientific studies can serve as an example in the international arena. They serve as an example of what kinds of solutions can be proposed for a global issue.

One of the most important topics of science diplomacy today is climate change. Climate change, which is one of the most significant global threats, perhaps the most significant, and the crises caused by climate change must today be among the priorities of countries. This necessity leads countries to develop both national and transnational scientific studies and urges them to act together on this common global issue.

Global threats such as climate justice, climate migration, environmental protection, drought, and water policies necessitate scientific representations at the international level. In this context, climate change becomes the common point of science diplomacy and public diplomacy. Within the context of science diplomacy, science and technology play an important role in conducting scientific research and joint solutions in various areas such as climate change studies, renewable energy technologies, and the reduction of greenhouse gas emissions, and in enabling countries to represent themselves through these studies.

Media tools and their instrumentality undertake an important task in conveying all these processes. Especially through the instrumentality of news, as well as reports, documentaries, and digital communication channels, how science diplomacy, public diplomacy, climate change, and scientific developments are perceived and understood by the global public is determined.

The media's ability to provide accurate and impartial information possesses critical power in creating social awareness and policy change on these issues. When this power is combined with the "soft power" concept of public diplomacy, it causes scientific studies

to turn into a sphere of influence. For this reason, in the study, in order to exemplify the soft power that the media possesses within the context of the concept of science diplomacy, the official statements of the Republic of Türkiye during the COP28 process have been analyzed using the method of textual content analysis within the context of framing theory.

Purpose and Method

In order to analyze Türkiye's use of media tools in 2023 within the context of COP28[1] from the perspective of science diplomacy, the method of textual content analysis will be used. Only through the textual analysis of the examples of framing theory can it be analyzed whether climate change has turned into a tool within the context of science diplomacy.

Textual content analysis is a research method used in communication, sociology, psychology, political science, media studies, and other social sciences. This method aims at the systematic examination of written or spoken texts and the identification of meaningful patterns, themes, concepts, or relationships (Neuendorf, 2017, p. 5). For this study, official websites and official social media accounts were used as data collection methods. In order to enable in-depth analysis, frequently expressed words and their contexts were evaluated together. Within the context of framing theory, news texts and contents were textually analyzed using the model known as Latent Dirichlet Allocation.

The term "Latent Dirichlet Allocation" refers to a machine learning model known as LDA. LDA is a probabilistic model used to analyze textual data and determine its themes. LDA is a probability model used to represent a collection of documents. It is a frequently used unsupervised learning method in textual content analysis (Blei, Ng, & Jordan, 2003). It is built upon the analysis of word/text groups found in texts such as social media data in order to determine the theme of the text. With this method, textual analysis was conducted, and within the context of framing theory, the statements and text-based posts made by the Presidency of Climate Change and the Presidency of Communications of the Republic of Türkiyeregarding climate change during the COP28 process (November 30 – December 12) were examined.

Science diplomacy plays an important role in the fight against climate change. Climate change is considered a global issue, and its solution requires international cooperation and scientific research. Within the context of science diplomacy, the common point and certain expressions of official news that center climate change and are made by referencing scientific studies, reporting, and research are as follows. The common point of all these news items is that they were shared between November 30 and December 12 on the official website of the Climate Change Presidency, its social media account, and the accounts of the Directorate of Communications. Therefore, the texts, content, and visuals shared within the context of science diplomacy all carry the characteristic of being a representation of the state.

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[1] COP ve COP28: Conference of the Parties. Cop28 Dubai

The expressions "loss and damage fund, climate finance, global adaptation goals, greenhouse gas emissions, medium-term plans, regional activity center, common regional framework, the importance and value of women in the work, marine protected areas, mitigation strategy" were given priority. The selected expressions were used in a way that sought alignment with global solution proposals within the context of science diplomacy and climate change. When the relationship between the framing and the titles of the news texts is evaluated, in all of them, visuals of individuals at the level of Minister or President from meeting rooms and/or conference halls are included. Within the context of framing theory, these themes carry strategic messages such as prioritization in public and decision-maker perception, centrality, and risk–responsibility sharing. Since all the news items are integrated with social media, they have been included on social media accounts with the same framing system. All of the texts used in the news articles were constructed with positive expressions.

Within the analyses presented below as two separate tables, Table 1 contains the thematic grouping in which expressions that highlight the country's policies in a "positive" manner, especially in the context of diplomacy and international cooperation, are included. Table 2, on the other hand, indicates in which framework and with what prioritization these themes are addressed in the context of news and instrumentality. The representation of themes such as diplomacy, finance, health, mitigation as diplomatic elements through bilateral meetings, press statements, and report presentations in meeting halls, and Türkiye's execution of presentations on these topics with scientific studies and fieldwork within the context of process management, is one of the most significant examples of how science serves as a soft power through media instrumentality and of the intent to manifest this through a transnational news power.

Table 1

Thematic Groups Identified During the COP28 Process

Theme	Keywords	Thematic Focus
1. Diplomacy & International Cooperation	COP28, declaration, coalition, initiatives	Türkiye's position in international platforms, signed declarations (e.g., CHAMP, Health Declaration)
2. Adaptation & Resilience	panel, adaptation, agriculture, food systems, nature-based solutions	Side events focused on agriculture-consultancy, urban-resilience, nature-based solutions
3. Mitigation & Technology	carbon, technology, net-zero, renewable, energy efficiency	Net-zero strategy, renewable energy pledges, technology panels
4. Finance & Just Transition	finance, green fund, loss-damage, just transition	Climate finance calls, loss and damage fund, emphasis on developing countries
5. Health & Public Awareness	health, declaration, air pollution, society	Health-interactive declaration, health-centered framings

Table 2
Framing of Thematic Groups and Channels Used

Theme	Frame	Example Text	Channel
Diplomacy	Türkiye builds global cooperation	"Our country signed initiatives like mangrove and CHAMP at COP28…"	Website announcement & Twitter
Adaptation	Emphasis on local resilience	"In our panel on nature-based solutions, ecological corridors were discussed…"	YouTube / LinkedIn
Mitigation	Technology perception toward net-zero	"We shared our long-term strategy at the 2050 Pathways panel."	Website, social media
Finance	Right of developing countries	"Türkiye also wants to benefit from the Loss and Damage Fund."	Announcement, Twitter
Health	Climate–health connection	"We signed the Health Declaration together with 120 countries."	Website, LinkedIn

Through these tables, it is also seen that within the context of framing theory, the way news texts and countries' scientific studies are represented on international and digital platforms emerges as a part of countries' diplomatic representations. In addition, especially the thematic news during the COP28 process has become a soft power through the instrumentality of science as a part of the country's reputation within the context of public diplomacy.

Science Diplomacy In Conceptual Terms

Science diplomacy and public diplomacy are two important concepts that serve different purposes in international relations and guide, manage, and build connections in interactions between countries. Both play critical roles in protecting national interests, ensuring representation, supporting foreign policy objectives, and enabling representation in transnational domains. There is a strong relationship between science diplomacy and public diplomacy. While scientific discoveries and technological advancements strengthen a country's relations with the global community, the correct understanding of these developments by the media and public is ensured through public diplomacy. Science diplomacy emphasizes how scientific knowledge serves as a bridge in the international arena and highlights its potential to bring solutions to global problems.

By referencing Demir, Büyükdoğan offers a generalization of definitions of public diplomacy, stating that it prioritizes national interests and becomes part of governmental communication policy, identifying it as a practice outside traditional diplomacy. He adds that it enables perception management and image shaping for countries and constitutes a structure that lays the foundation for inter-state relations on the international level (Demir, 2012; Büyükdoğan, 2024). This perspective and definition of public diplomacy raise the need to question the perception management power of science diplomacy. The representation of the scientific image and studies established appears as a multi-layered structure. This structure can be perceived as a relay race, and at the same time as a mechanism of reputation management. At its core, science diplomacy is an approach that, as part of reputation management, promotes scientific collaboration in international relations and reflects the belief that scientific discoveries can contribute to global peace and cooperation (Society, 2010).

Science diplomacy is used by countries as a tool for many different purposes, primarily to strengthen scientific collaborations. It can serve as a common language to overcome scientific and political differences. This is important for establishing a shared cultural unity. Such a common language creates a space for sharing scientific data securely (Society, 2010). Another aspect of collaboration is the long-term partnerships generated by scientific studies, for example, the positive representation created through Türkiye's polar research studies and their presence in the media. This example also illustrates another layer of science diplomacy: the collective search for solutions to global problems (Society, 2010). Through science diplomacy, long-term joint efforts to develop solutions to global issues highlight countries' reputations and their visibility through scientific research. Scientists coming together on behalf of different countries nourish each other through their studies while simultaneously representing their national values and proposed solutions.

Science diplomacy is not only significant for promoting scientific progress but also for ensuring international cooperation, stability, and continuity in partnerships. This situation repeatedly reveals a country's representation and image as a form of soft power. A country's scientific achievements and contributions can increase its prestige in the international arena. This, in turn, can strengthen its image and international relations (J. S. Nye Jr., 2008). Although this is addressed within the framework of science diplomacy, it is based on soft power in terms of public diplomacy (Nye, 2021, p. 197; Büyükdoğan, 2024). This soft power can be transformed into an instrument, disseminated more powerfully through various tools, and become a constant element of national reputation through the space of representation it creates (Melissen, 2005, p. 96). As in many different examples, this instrument often appears in the form of media tools and turns into a medium of science diplomacy.

The fundamental goal of science diplomacy can be defined as the secure transmission of solutions to global problems (Society, 2010). The most reliable method to achieve this goal is to develop a shared and trustworthy scientific language, while also requiring a medium through which the country is to be conveyed and portrayed. This medium can take the form of any type of media outlet.

Media is an important tool for effectively conveying science diplomacy and communicating it to the public. Scientific discoveries, technological advancements, and international cooperation initiatives are delivered to broad audiences through the media. The power of the media is significant not only for international purposes but also for national values and public awareness. The media can help ensure that scientific research is known, supported, and understood by a wide audience (Nisbet & Scheufele, 2009). The news coverage and promotion of scientific discoveries encourage international collaborations while enabling science to converge in a shared language.

Although these scientific studies are always presented in more positive terms, they play a much more critical role, especially in the context of common global problems. Climate change in particular, manifesting through global temperature rise, sea level rise, and extreme weather events, is among the greatest threats and dangers facing humanity, and

science diplomacy forms a common ground in addressing it (IPCC, 2021). Science diplomacy is an important tool to enhance international cooperation on climate change, to encourage scientific research, and to contribute to the development of solution-oriented policies. In this context, the methods and instruments through which science diplomacy is implemented come to the fore (Nisbet & Scheufele, 2009).

The media plays a crucial role in conveying scientific findings and policy recommendations on climate change to broad audiences. At this point, it becomes a part of, and even a vehicle for, science diplomacy. Within the context of science diplomacy, climate change is a new tool. Media instrumentality has become the new means of being visible, both as a solution provider and as an agenda setter, when presenting joint scientific solutions. The accurate framing of climate change news can increase public awareness and have a significant impact on policymakers. However, the media also bears a major responsibility for providing accurate information on climate change, and in this regard, it is important to include the views of scientists. How these scientific opinions and recommendations are presented can also appear, be represented, and be framed as part of science diplomacy. At this point, what brings science diplomacy's scope and quality to the forefront through media instrumentality is the transmission of information through accurate structuring. In this context, the content, titles, and visuals used in news reports, documentaries, digital media materials, and even fictional films can be considered essential components of science diplomacy.

Media Instrumentality and Framing Theory

During the 1960s and 1970s, when the influence and scope of mass communication tools began to change, the paradigms and societal impacts of mass media started to be reconsidered (Özçetin, 2019, p. 117; Goffman, 1986). These years are also referred to as the period of the "return to strong effects" paradigm. It marks a time when technology was increasingly accepted and its societal effects began to be re-evaluated. This paradigm argues that technologies shape and transform social structures. In other words, technologies are believed to cause fundamental changes in social, economic, and political arrangements. The acceptance, usage patterns, and effects of technologies are shaped by societal values, norms, and policies. In this context, it is reasonable to consider the return to the strong effects paradigm as significant in terms of media representations within the scope of science diplomacy. At this point, theories such as framing theory, part of the strong effects paradigm, can contribute to the analysis of how technological developments are presented and perceived in fields like science, technology, and media.

Framing theory is a concept used in communication and social psychology. This theory seeks to explain how the presentation of information and events affects people's perceptions and interpretations. In communication, framing is a crucial factor that determines how people understand and interpret information, playing an important role in processes like media, politics, and campaigns (Scheufele, 1999; Özçetin, 2019). "Agenda-setting theory posited that the media doesn't tell people what to think, but rather what to think about. Framing theory, on the other hand, suggests that the media tells people how to think about certain issues" (Özçetin, 2019, p. 121).

Framing can function to produce effects and meaning. Especially in news reporting, framing occurs when information is presented within a particular structure, combined with visual and textual coherence (Entman, 1993). Framing theory is a critical tool for political campaigns, public opinion strategies, advertising, and other communication efforts. Politicians and campaign managers use specific frames to generate desired reactions from target audiences. Framing influences how people think and feel about a topic. When an issue is presented with either a positive or negative frame, the audience's attitudes align accordingly. In communication, framing plays a pivotal role in meaning-making. People interpret the information they receive within the context of the frame, which significantly affects how it is understood and remembered. For this reason, framing theory is important in the context of science diplomacy. It is an effective method when scientific studies offering solutions to climate change and its associated crises are represented in the media.

News reports about climate change can generally be framed in either a problem-oriented or solution-oriented way. Problem-oriented framing focuses on the destructive effects of climate change, alarming data, and negative scenarios. Such framing may lead audiences to adopt anxious and pessimistic views about climate change. When assessed within the scope of science diplomacy, this area of influence can also be interpreted as part of a nation's ideological projection. On the other hand, news about climate change may be presented with a solution-oriented perspective. This type of framing emphasizes positive developments such as renewable energy technologies, energy efficiency solutions, policy proposals, and international cooperation, thereby constructing a representation of scientific partnerships and a shared scientific language in the context of science diplomacy. Solution-oriented framing may unite people in hopeful, proactive efforts toward addressing the issue. How climate change news is presented can influence both policymakers' and the public's sensitivity and response to the topic. Strong framing can encourage policy change and raise public awareness. In conclusion, framing theory is a powerful tool for explaining how climate change news is presented and how this presentation affects public perception and attitudes. Therefore, effective and accurate framing of climate-related news can enable society to respond more appropriately to this vital issue and may play a significant role in shaping climate policies. This role may also manifest as a representation of national policies in terms of public diplomacy. All these framing approaches may also be considered political ideologies. At this point, both framing and science diplomacy become ideological tools. There is a significant relationship between framing theory and science diplomacy.

Science diplomacy is a tool used in international relations to promote scientific and academic cooperation. In the fight against global issues such as climate change, science diplomacy can determine how these topics are framed and communicated. For instance, through science diplomacy, the scientific foundations and proposed solutions to climate change can be effectively framed on international platforms, fostering shared understanding and coordinated action. Science diplomacy determines how scientific findings, discoveries, and innovations are communicated and understood across international communities. These communication strategies can be used to promote

advancements in science and technology, as well as the work and discoveries of scientists worldwide. In conclusion, framing theory and science diplomacy are tools that help establish a framework for understanding how scientific knowledge and discoveries can be used and shaped in international communication and cooperation processes.

Conclusion

In conclusion, the relationship between science diplomacy and climate change is a critical factor in the development and implementation of effective global policies. At the international level, scientific cooperation and diplomacy continue to be essential tools for addressing the problem of climate change. Climate change is one of the most significant environmental and social challenges facing the world and cannot be effectively addressed without international collaboration. Science diplomacy plays a crucial role in overcoming this challenge. In this context, media texts assume a significant responsibility as instruments in this diplomatic process.

During the COP28 process-when the impacts and consequences of climate change were most intensely discussed and scientific data was most extensively shared-Türkiye, through official institutional statements, expressed its intention to align with these scientific approaches and reiterated its commitment to collaboration, which is one of the most vital steps of science diplomacy. The scientific and diplomatic dimensions of the process were highlighted under the following themes. In addition, information was shared about future projects intended to promote further scientific studies in the coming years:

- Political framing: Türkiye is presented as an active and responsible actor at COP28.
- Risk–responsibility axis: Through the discourse on loss and damage claims, the disproportionate impact of the climate crisis on developing countries is emphasized.
- Long-term focus: By drawing attention to the 2050 strategy, a strong emphasis is placed on "preparing for th future."
- Public perception: The connection between health and climate is underlined to raise public awareness and foster a sense of urgency.

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