

## **Strengthening the Quest for Sustainable Development Through Persuasive Climate Argumentation**

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**ABSTRACT:** *This study explored the nexus between framing, persuasion and the quest for sustainable development in a competitive policy debate setting using content analysis approach. Evidence from the analysis reveals several insights about the underlying mechanism that governs persuasive climate argumentation which shapes sustainable development trajectory. First, the study showed that arguers construct arguments that appeals to logos as a major persuasion strategy. Second, it demonstrated how persuasion strategy entrench a culture of persuasion in climate debates. Third, it found a discordant relationship between fallacies and persuasion strategy in climate argumentation, which jeopardises arguments' persuasive power. Finally, the study evaluated how tensions in the mainstream socio-economic and environmental ecosystem creeps into climate arguments and limit persuasive power of climate arguments. These are regarded as reflective pattern of climate argumentation that are capable of stimulating behavioural change and communication strategies for sustainable development.*

**KEYWORDS:** sustainable development, persuasive climate argumentation, sustainable development trajectory

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### **INTRODUCTION**

In recent times, debates on climate change and sustainable development have been saturated with different dissenting views on the causes and impact of climate change on sustainable livelihood. At the heart of these views lies efforts at finding the best way to achieve a targeted carbon emission reduction. This is based on the assumption that carbon emission impedes progress towards sustainable production, consumption and investment. Undeniably, framing such consensus and assumptions in a logical and persuasive way is among the critical challenges to impactful climate action for sustainable development. Indeed, a common feature of argumentation in climate science is characterised by rhetoric, misinformation and the deliberate undermining of science, which contributed to misperceptions of the scientific

consensus, uncertainty, disregarded risk, urgency, and dissent<sup>1</sup>. This suggests that persuasive framing and logic in climate science is capable of driving climate action for sustainable development in all directions; from knowledge mapping and management, to policy conception, formulation, implementation and communication. This study, therefore, attempts an analytical inquiry that traverses framing, persuasion and quest for sustainable development from a competitive debate policy perspective. It aims at finding what evidence is there that controversies and deliberate undermining of science distort logical framing and use of persuasion in climate arguments? Other specific question focusses on finding the extent to which persuasive climate argumentation drives sustainable development. Related to this is finding the nature of relationship between fallacious arguments and persuasive strategies in an argument; and how logical arguments serve as persuasive tools in driving sustainable development. The motive for asking these questions is to draw insights and new perspectives that could further cement the nexus between framing, persuasion and the quest for sustainable development.

## RELATED LITERATURE

### Previous Studies

The literature has strong evidence supporting the application of the persuasive strategy to influence attitudes and decisions from politics to advertising, public health, behavioural change campaigns, climate communication and advocacy. The work of Gupta & Bhaveshkumar<sup>2</sup> falls within this category as they examined the influence of persuasion appeals; *ethos*, *pathos* and *logos* on purchase decision of GenZ consumers in India. The result found appeals positively influence the purchasing decisions. Additionally, Mark et al.<sup>3</sup> offered some interesting insights into the relationship between persuasion and the psychological characteristics of individuals by assessing the adaptation of persuasive appeals to the psychological characteristics of prominent individuals. The findings suggest that the application of psychological targeting make it possible to influence the behaviour of large groups of people by tailoring persuasive appeals to the psychological needs of the target audience. Similarly, Hornik et al.<sup>4</sup> provided measures of the relative impact of each type of persuasive appeal and the significant difference among them. The results found that emotional appeals led by sex and humour appear more effective than fear and rational appeals. These sample studies provide proof on the effectiveness of persuasion strategy in

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<sup>1</sup> IPCC, "Climate change 2022; Impacts, Adaptation and Vulnerability". 2022. <https://www.ipcc.ch/report/sixth-assessment-report-working-group-ii/# p.1939> (accessed on June 30, 2023).

<sup>2</sup> Hemant, Gupta and Bhaveshkumar Parmar. A Journey from Persuasion to Decision Of Generation: Empirical Evidence Of Rhetoric Effect Strategies In Advertisement. *Academy of Marketing Studies Journal*, 27(2). 2023, 4.

<sup>3</sup>Matz, Mark, et al. Psychological Targeting As An Effective Approach To Digital Mass Persuasion. *Proceedings of the National Academy of Sciences*. 2017, 114-119. DOI:10966.10.1073/. (Accessed August 23, 2023).

<sup>4</sup> Jacob, Hornik, Chezy Ofir and Matti Rachamim. Quantitative Evaluation of Persuasive Appeals Using Comparative Meta-analysis, *The Communication Review*, 19:3. 2016, 192-222, DOI: 10.1080/10714421.2016.1195204.

influencing opinions and decisions. Intuitively, advancing behavioural change strategies for sustainable consumption and development with sound and persuasive framing is therefore instructive.

However, the link between persuasive framing and climate arguments is relatively equivocal and sometimes little in the literature. For instance, Ballantyne<sup>5</sup> explored the role of climate visualisation in climate change communication from an audience perspective, focusing specifically on how lay audiences make meaning of climate change. In another study, Bartolutti et al.<sup>6</sup> investigated how individuals with different climate change beliefs evaluated gain-and-loss-framed messages on a related policy's environmental and economic impact. They found that the evaluation of the message depended on the reviewer's prior beliefs on the existence and severity of climate change and the type of argument used to describe the expected consequences of the policy. Similarly, Mathew et al.<sup>7</sup> test the immediate and delayed impact of climate fiction on the reader's beliefs and attitudes about climate change and found that reading climate fiction had a small but significant positive effect on several important beliefs and attitudes about global warming, owing to the persuasive appeal in the fiction. These touched lightly on the relevance of persuasion in framing arguments and messages for climate communication and the quest for sustainable development. Indeed, studies along this trajectory focus mainly on the impact of persuasion on the targeted audience, with little interest in framing persuasive arguments to drive action for sustainable development. Perhaps based on this realisation and specifically drawing on theoretical conceptualisation, Moernaut et al.<sup>8</sup> argued that framing in empirical studies needs to provide more thorough insights. They attempted to add more depth and breadth to the research on climate change framing by analysing three mainstream and two alternative news outlets. They concluded that effective frames should be provided to engage the audience and encourage them to act. These are significant loopholes that require deep inquiry into the art of persuasion and framing to strengthen the quest for sustainable development through persuasive climate argumentation.

Additionally, the link between climate argumentation and the sustainable development is believed to be weak. But while the intellectual argument for integration between the two areas has been strongly made, its realization in the policy realm has been less successful<sup>9</sup>. Indeed, Rob et al<sup>10</sup> revisit the intellectual

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<sup>5</sup> Anne Gammelgaard, Ballantyne. Exploring the Role of Visualisation in Climate Change Communication; An Audience Perspective. Linköping Studies in Arts and Sciences, No. 744, Linköping; Linköping University. 2018, 134.

<sup>6</sup> Mauro, Bartolutti, et al. Framing Messages on the Economic Impact of Climate Change Policies: Effects on Climate Believers and Climate Sceptics. Environmental Communication Journal. DOI: 10.1080/17524032.2021, 16.

<sup>7</sup> Mark, Maslin. "Climate Change: A Very Short Introduction" Oxford Academic. 2021. <https://doi.org/10.1093/actrade/9780198867869.001.0001>. Accessed June 16, 2023.

<sup>8</sup> Renée, Moernaut, et al. Framing Climate Change: A Multi-level Model. In W. L. Filho, E. Manolas, A. M. Azul, U. M. Azeiteiro H. McGhie (eds.), Handbook of Climate Change Communication. Springer. 2017, 215-271. DOI; 10.1007/978-3-319-69838-0\_14.

<sup>9</sup> Swart, Rob, et al. Climate change and sustainable development: expanding the options. Climate Policy, 3;1. 2003, 20. <https://doi.org/10.1016/j.clipol.2003.10.010>.

<sup>10</sup> Ibid., 21.

arguments on the integration and linkage between the climate change and sustainable development priorities. They suggest revising the linkages between climate change and wider sustainable development priorities with intention to make progress in both areas. This study intends look at the underlying mechanism that could be used to drive the impact of such priorities through logic and argumentation with specific interest on framing and persuasive appeals.

### Theoretical Framework

Persuasion has a long and storied history in shaping public opinion and decisions dating back to Aristotle<sup>11</sup>. This is predicated on the assumption that arguments are framed logically and conclusions are drawn from valid premises with sound persuasive appeals. It is conceptualised as a symbolic transaction which uses emotional appeals to alter behaviour.<sup>12</sup> Aristotle wrote about the three modes of persuasion furnished by the spoken word. These depend on the speaker's character, the second on putting the audience into a specific frame of mind, the third on the proof, or apparent proof, provided by words of the speech itself. These are sometimes referred to as *logos*, *pathos* and *ethos*, collectively referred here as persuasion strategy or persuasive appeals. On the other hand, framing is referred to the process by which people develop a particular conceptualisation of an issue<sup>13</sup>. It involves selection and salience. To frame is to select some aspect of a perceived reality and make them more salient in a communicating text in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and treatment recommendation for the item described<sup>14</sup>. Among the social scientists, there is no generally accepted definition of what a frame means. Therefore, a clear understanding of frames and how they influence public opinion must be understood<sup>15</sup>. This study therefore conceptualised framing from an Aristotelian enthymeme perspective, where arguments are framed from two or more premises and a valid conclusion. The premises provide complete support for the conclusion, hence valid arguments. It is within these theoretical understanding that the study attempts to explored framing and persuasion, and how they impact the quest for sustainable development which is rooted in the assumption that growth of the economic sub-system is limited by the fixed size of the host ecosystem, by its dependence on the ecosystem as a source of low-entropy inputs and as a sink for high-entropy wastes, and by the complex sub-system (the throughput) grows relative to the total ecosystem conditions<sup>16</sup>. Thus, sustainable development is a dynamic process of change in which the exploitation of resources, the direction of investment, the

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<sup>11</sup> Jonathan. Barnes. The Complete Works of Aristotle: The Revised Oxford Translation. Princeton, NJ: Princeton University Press. 1984, 34.

<sup>12</sup> James, Dillard and Michael Pfau. The Persuasion Handbook: Developments in Theory and Practice. Thousand Oaks, CA: Sage Publications, 2002, 36.

<sup>13</sup> Chong, Dennis. and James Druckman. Framing Theory. Annual Review of Political Science, 10. 2007, 103. DOI:10.1146/annurevpolisci.// (accessed August 29, 2023).

<sup>14</sup> Entman, Robert. Framing: Towards Clarification of a Fractured Paradigm. Journal of Communication, Washington DC; George Washington University 43(4), 1993, 54.

<sup>15</sup> Ibid 55.

<sup>16</sup>Herman, E. Daly. Beyond Growth: The Economics of Sustainable Development. Boston, Massachusetts; Beacon Press. 1995, 33.

orientation of technological development, and institutional change are made consistent with future as well as present need<sup>17</sup>. These assumptions formed the conceptual framework upon which this paper is situated.

## METHOD

Content analysis which is a method of analysis of written, verbal or visual communication messages is the adopted research method of this study. It provides a systematic and objective way of describing and quantifying a phenomenon<sup>18</sup>. Accordingly, a competitive policy debate has been selected as a data source for analysis. The text from the debate transcript is the database which is downloaded from <http://www.opendebate.com>. The debate used a set of topics- Is Electric vehicles good for the planet? Ten different arguments were identified and coded as units of analysis They coded arguments are then analysed in a descriptive way of content analysis, where arguments are dissected into major and minor premises to simplify fallacy detection and choice of persuasion strategy.

These are complemented by four techniques of identifying fallacies developed by Vaidya and Erickson<sup>19</sup>. The first technique looks at whether the passage contains a controversial claim. Second, it examines whether any central claims rely on expertise. Third, look at whether the set of options are assumed to be exhaustive? Fourth, whether any words appear to be used in different ways. The rationale for employing these techniques is to accommodate and understand how the diversity of ideas and ideologies, cultures and traditions, and geopolitical and economic forces shape climate argumentation and sustainable development. The results are then reported in the result section, followed by interpretation and discussion.

## RESULTS AND DISCUSSION

This study analyses ten (10) climate arguments, covering thirteen (13) claims, warrants and sub-warrants. Out of these claims, fourteen warrants were made as inferences to the claims on the role of electric vehicles in reducing carbon emissions during the rebuttal or mutual question cycles as summarises in the table below;

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<sup>17</sup>Rogers Peter P., Kazi F. Jalal and John A. Boyd. An Introduction to Sustainable Development. Camden; Earthscan-Glen Educational Foundation, Inc. 2008. 417.

<sup>18</sup> Klaus, Krippendorff. Content Analysis: An Introduction to Its Methodology. SAGE Publications, Inc. 2019. DOI: <https://doi.org/10.4135/9781071878781> (accessed August 28, 2023).

<sup>19</sup> Anand Vaidya and Andrew Erickson. 2010. Logic & Critical Reasoning; Conceptual Foundations and Techniques of Evaluation. Dubuque; Kendall Hunt Publishing.

**Table 1: Distribution of claims and warrants in the debate**

S/N	Debate cycle	Claim(s)	Warrant(s)	Sub-warrant(s)
1	Opening	1	-	-
2	Affirmative & Negative	2	4	1
3	Rebuttal/mutual question	8	13	12
4	Closing	2	1	1
5	<b>Total</b>	<b>13</b>	<b>18</b>	<b>14</b>

Most of the arguments reflect the basic structure of premises, warrant and conclusion; they meet the ideal framing based on the study's theoretical framework. The central arguments and claims ranges from the role of electric vehicles in reducing carbon emissions to quantification of carbon reduction through electric vehicles, to the paradox of comparison between electric vehicles and internal combustion vehicles. The warrant is that if cars are electric, most emissions from the sector will significantly be reduced if not completely eliminated. Nevertheless, the number of non-electric (i.e., petroleum-burning) vehicles is projected to grow and reach a total of 1.72 billion by the year 2040, and this will contribute much more to greenhouse gas emissions than electric vehicles can mitigate.<sup>20</sup> Furthermore, electric vehicles are not without environmental costs. Its battery, among other accessories, came from processes with a substantial environmental footprint. Additionally, manifesting electric vehicle accessories requires electricity, much of which will, in the future, be produced by burning fossil fuels. Both sides attempted to address the critical question: How do electric vehicle help the planet? They all focused on the degree of carbon emission reduction and attempted to justify their claims using a supposedly persuasive argument. The table below summarises the persuasive appeals in the arguments.

<sup>20</sup> Daniel, Headrick. Climate Change; Debate and Reality. *International Review of Environmental History*, 5;1. Canberra, Australia: The Australian National University Press. 2019, 12.

Table 2: spread of persuasion appeal in the debate

S/N	Argument(s)	<i>Logos</i>	<i>Pathos</i>	<i>Ethos</i>
1	AF/AF/001	▶		▶
2	NE/NE/001	▶		▶
3	AF/MQ/001	▶	▶	▶
4	AF/MQ/002		▶	
5	NE/MQ/001	▶		
6	AF/MQ/003	▶		▶
7	AF/MQ/004	▶	▶	▶
8	NE/MQ/002	▶		▶
9	AF/MQ/005	▶	▶	▶
10	NE/MQ/003	▶	▶	▶

From the table, persuasion strategies were used on twenty-two (22) occasions. These involve fearful framing (*pathos*) occurring five times. Framing within this category were around urgency to avert climate disaster. There are also moral, ethical and political framing (*ethos*) occurring on eight occasions. Arguments falling into this category were usually framed around the knowledge and credibility of the arguers. Additionally, there are arguments with rational framing around scientific evidence and fact (*logos*) occurring on nine occasions. This particular framing category portrays sustainable consumption behaviour as an environmental and economic investment which has future potential to drive green growth. Thus, arguers, in this context, portray sustainable development as an investment in future economic gains and a response to loss and damage caused by climate disasters. These represents 43%, 4%, and 17% spreads for *logos*, *pathos* and *ethos*, respectively, as persuasive tools for driving understanding of sustainable investment, production and consumption. They also convey the negative impact of unsustainable or unforeseen practices in the sustainable development value chain, citing the environmental footprints in the supply chain for the assumed sustainable products. This addressed the question on how logical arguments serves as persuasion tools to drive sustainable consumption behavior. This means that persuasion strategy has the power to entrench the culture of sustainable consumption and behavior.

To dissect the result further, most of the arguments are framed around facts, primarily inform by statistical inference to support various claims. They are framed with logical but controversial patterns, which reflect the nature of argumentation in climate change debates. Scientific evidence, statistical facts and logical reasoning were used to persuade the audience, thereby qualifying *logos* as the dominant persuasion strategy. This means that climate change debates are driven by scientific evidence and facts rather than appeal to emotion, fear and anger. This, however, could be a contextual pattern as climate activists in the mainstream climate change campaign uses fear of extinction and climate disasters as a persuasion strategy.

They are usually motivated by a moral responsibility to defend the planet against unsustainable production and consumption.

Moreover, the result shows traces of controversies and tensions from the mainstream economic discourse into the emerging climate arguments. This dominates the frontiers of framing in the analysed arguments thereby influencing the pattern of the arguments. This likely suggests that the rhetoric, misinformation and the deliberate undermining of science which contributed to misperceptions of the scientific consensus, uncertainty, disregarded risk, and urgency emanated from this tension creep. Initially, these are tensions and controversies around environmentalists and economists' views, geopolitical relevance and economics rivalry, scientific verifiability and economic pragmatism. Undeniably, this addressed the central research question on what evidence is there that rhetoric and misperception distort logical reasoning and use of persuasive arguments in climate argumentation.

Finally, the results found a discordant relationship between fallacious arguments and persuasion strategy. The implication of this on the quality of persuasion is considerable. This is because fallacious arguments in the debate are found to be feeble in terms of persuasion power. The reasoning error tends to impair arguments' strength and narrowed the chances of persuading the targeted audience. Four different fallacies were identified in the process of analysis, which are summarised in the table below;

S/N	Fallacy	No. of Occurrence(s)
1	Red Herring	2
2	Relativist	1
3	Causation	1
4	Circular	2
	<b>Total</b>	<b>6</b>

**Table 3:** Occurrence of fallacies in the arguments

Red herring and circular fallacies are the most common types of fallacies committed in the in the arguments analysed. They were found to be committed twice during the rebuttal and mutual questions cycle. The prevalence of these fallacies and their relationship with the persuasion strategies within the arguments necessitate use of an adaptive framing, which specifically trades between persuasion strategy and fallacy-free argument framing to strengthen the quality of persuasion in such situations. This can correct reasoning error, perfect the art persuasion and drive the quest for sustainable development.

The result therefore indicates the reflective patterns of persuasion in the climate change argumentation, which calls for further inquiry into the anatomy of climate arguments. It also demonstrated that a logically framed argument rooted in a sound persuasive strategy can stimulate behavioural change and communication strategies for sustainable development. This means that persuasive climate argumentation could strengthen the quest for sustainable development by framing strategies for behavioral change where people are persuasively influenced to adopt sustainable consumption. This touches on other paths that reduces carbon footprints from technical, socio-economic and behavioural perspectives. Sound



persuasive arguments could also be used as policy-building blocks in formulating and implementing climate adaptation and mitigation policies. This could strengthen the sustainable development process in many ways; ensuring clarity of carbon reduction and pricing mission, providing executable carbon emission reduction strategies for corporate and public entities, communicable behavioral change strategies and demystifying perceptions to support sustainable development among others. These are but a few ways where sound and persuasive arguments could be used to save the planet and promote sustainable livelihood.

## CONCLUSION

This study brought additional perspectives to understanding framing, persuasion and the quest for sustainable development. First, it found *logos* to be the dominant persuasion strategy in climate argumentation. This is not unsurprising given the volume of scientific and statistical facts and evidence on climate change. It is therefore, regarded as the current culture of persuasion for climate debates until proven otherwise by further research. Second, the study addressed question of how logical arguments serve as persuasion tools in driving sustainable consumption behaviour. Impliedly, persuasive arguments are found to be strategic levers for communicating climate science and evidence. This happens where arguments are framed logically, and conclusions derive from valid premises. In such situations, the arguments entrench a culture of persuasion in framing and, in so doing, expand the influence of persuasion into the emerging field of climate debate and sustainable development. Third, the study has identified a discordant relationship between fallacious arguments and persuasion strategies. Most of the fallacious arguments identified are weak when it comes to persuasive power. This is not unconnected with prevalence of fallacies which likely limit framing of sound persuasive arguments in such situations. Finally, the study demonstrated that there is an evidence that controversies in the mainstream socio-economic and environmental ecosystem affect the framing of persuasive arguments in climate debates. This confirmed the popular view in argumentation science that arguments should be framed to persuade the audience on the validity of propositions, logical and psychological engagement of audience by influencing them and messaging their egos with good character and moral standing.

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