Collaboration between climatologists and climate social scientists in addressing the climate crisis

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"After some thinking, Kingfisher reckons that only by uniting the power of the entire village could they chase Snake away."

—In "The Virtue of Sacrifice"; *The Kingfisher Story Collection* (2022)

[SCIENCE COMMUNICATION]

Cultural values and beliefs shape people's values in the fight against the climate crisis

According to social scientists, people's beliefs about climate change are more strongly influenced by cultural values than concrete evidence. But how could disheartening climate news help shape their socio-cultural values and beliefs? Some explanations follow.

Cultural Values and Beliefs. People's worldviews significantly impact their perception of climate change. In a study of the Cultural Cognition Project, participants split into two groups: individualists (who accept new technology, authority, and free enterprise) and communitarians (who are apprehensive of authority or commerce). When presented with the same set of facts, these groups polarize based on potential benefits and harms. Individuals are more open-minded if the benefits align with their existing views. For instance, an individualist may reject global warming if the solution involves regulating industrial pollution but accept it if the solution is nuclear power.

The Messenger Effect. People are more likely to accept facts when they come from sources with similar worldviews. If data aligns with their values, perceived threats decrease. To combat "protective cognition," scientists should present information in forms agreeable to culturally diverse groups and structure debates to avoid polarization.

It is not difficult to appreciate the reality that understanding cultural values and effective communication can help address climate change beliefs and foster positive action. However, overcoming deeply rooted beliefs remains a challenge.

Prospects of a possible collaboration

Logically, the conundrum emphasizes collaboration between natural and social scientists to enhance our collective capacity to address the climate crisis. Climatologists and climate social scientists can collaborate by enforcing the following.

1) Interdisciplinary research: By working together, climatologists (natural scientists) and climate social scientists can combine their expertise. Natural scientists provide data on climate change, while social scientists analyze human behavior, policy, and societal responses.

Improving the understanding of human behavior: Climate social scientists study how people perceive and respond to climate change. They explore cultural values, beliefs, and barriers to action. Collaborating with climatologists helps translate scientific findings into actionable strategies.

Illustration. Collaboration between climatologists and social scientists. Generated by Imagine AI (https://www.imagine.art/)

2) Developing effective communication: Social scientists can help climatologists communicate their research effectively. By understanding public perceptions and tailoring messages, they bridge the gap between scientific knowledge and public understanding.

3) Proactive engagement in policy and advocacy: Collaboration enables joint efforts in policy development and advocacy. Social scientists inform policy decisions by considering social, economic, and political factors alongside scientific evidence.

4) Education and outreach: Working together, they can design educational programs, engage communities, and promote sustainable practices. Social scientists contribute insights on behavior change and community engagement.

Fostering collaboration between natural and social scientists is crucial for a holistic approach to climate change mitigation and adaptation.

The role of information processing from views of socio-cultural theories

Effectively processing climate evidence information and social science insights could provide valuable insights for climatologists by bridging natural and social sciences.

Information processing mechanisms are present across all levels of the natural world, from ecological down to cellular and molecular levels, as articulated by mindsponge theory. Thus, for climatologists, understanding these mechanisms can enhance their comprehension of climate data, models, and feedback loops. By recognizing how humans express these patterns in cognition, beliefs, and behavior, climatologists can better communicate findings and engage with diverse audiences.

It is necessary to understand that information processing can hardly avoid subjective evaluation of information. The process entails evaluating information based on perceived costs and benefits, with the Earth, environment, and humanity in mind. For climatologists, this highlights the importance of considering not only objective data but also how information is subjectively judged.

For social scientists, by understanding how people perceive climate-related information, they can tailor messages to increase acceptance and action. The productivity of this exercise can be enhanced substantially with the assistance of BMF analytics, which is designed to study psychological and social phenomena. The tools can be applied to assess public responses, policy effectiveness, and risk communication, leveraging the power of a quantitative approach to understanding information value and decision-making in climate-

related contexts.

Finally, such collaboration offers a holistic perspective on information processing, emphasizing both objective data and subjective judgments to enhance climate communication, policy formulation, and adaptation strategies.

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