

Climate Change Literacy: Why Climate Storytelling Needs More than Facts and Feelings

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The importance of storytelling in climate science and communication is widely recognised. It is time for humanities and educational research to follow up on this.

Recent debates on climate catastrophe and global environmental change (GEC) increasingly acknowledge the social dimensions of ecological catastrophes. As has become clear over the last decade, environmental crises are also crises of ideas, meanings and values, and therefore require socio-cultural research to understand and mitigate them alongside scientific and technological innovations, and to revise research protocols to better account for the “human dimension of GEC”.¹

Already in 2011, Mike Hulme advocated the “rich cultural knowledge of social studies”², and David Matless, in 2016, demanded that the humanities and social sciences “add meaning to climate change”, mentioning “climate change stories” in

particular.³ This focus on the power of storytelling is echoed in claims by climate scientists like Hans Joachim Schellnhuber that stories are needed to better communicate the threats of climate change and bring about behavioural change, as well as in climate change communication research. Researchers such as Susanne C. Moser and Maxwell T. Boykoff have argued that experts in climate communication should meet “people where they are” and engage in “creative (climate) communication”⁴. It is increasingly clear that humanities research, especially in literary studies and pedagogy, deserves a more prominent seat at the table of GEC research and should bring its expertise to bear on questions of climate change communication and education.

¹ Castree, N. et al., *Nature Clim. Change* 4, 763 (2014). doi: 10.1038/NCLIMATE2339.

² Hulme, M. *Nature Clim. Change* 1, 177 (2011).

³ Matless, *Nature Clim. Change* 6, 118 (2016).

⁴ Boykoff, M. T. *Creative (Climate) Communications: Productive Pathways for Science, Policy and Society* (Cambridge Univ. Press, 2019).



climate change literacy

In addition to a wealth of studies on the cultural and imaginative dimensions of climate and environmental change⁵, more recent empirical work on the effect and impact of stories has underlined the complex relation between storytelling, values and attitudes, and behaviours⁶, thus adding to psychological findings on the fraught cause-and-effect assumptions concerning knowledge and action^{7,8}. In particular, cognitive literary studies, alongside cognitive psychology, provides valuable insights into the intellectual and affective processing of stories in both 'hot' and 'cold' forms of cognition, that is, less conscious and more emotional and aesthetically minded ways of reading alongside more cognitive and analytical modes of reading as found in literary interpretation. These findings ought to be integrated in humanities and social-science research on the role and potential of climate change fiction.

This integration has been the aim of a joint research project in Austria and Germany. It set out to combine a range of findings in literary and educational studies to provide a better grasp of the potential of storytelling in climate communication and education. Integral to the project was the

insight into the relative unpredictability of effects of reading stories that suggests a different, and more comprehensive, take on the question of meaningful storytelling and literary reading. This is particularly relevant when it comes to sustainable conceptual and behavioural change in the context of climate and literary fiction. While its potential for changing perspectives and attitudes is well established⁹, education research has accumulated ample evidence that if literary fiction is to aid the understanding of complex social interactions and emergent socioecological transformations, it requires high degrees of literacy in readers¹⁰. Only then can the potentials of literature be fully integrated into readerly cognitive and affective responses. This, in turn, might eventually, and by way of influencing readerly perceptions and attitudes, impact on individual behaviour.

Our research team has developed a model of such collaboration that advances our understanding of climate change literacy and has in an iterative process of research reviews identified two key misconceptions in this context: First, that the communication of facts in literary fiction leads to meaningful scientific literacy and that this in turn results in behavioural change. We suggest the name of the 'cognitive fallacy' for this assumption. Secondly, it is often assumed that emotional manipulation – by way of

⁵ An overview is presented in Johns-Putra, A., *WIREs Clim Change* (2016). doi: 10.1002/wcc.385.

⁶ Schneider-Mayerson, M., Weik von Mossner, A., Malecki, W.P., Hakemulder, F. *Empirical Ecocriticism: Environmental Narratives for Social Change* (Univ. of Minnesota Press, 2023).

⁷ Kollmuss, A., Agyeman, J. (2002). *Env. Education Research* 8.3 (2002), doi: 10.1080/13504620220145401.

⁸ Chapman, D. A., Lickel, B., Markowitz, E. M. *Nature Clim. Change* 7.12 (2017). doi: 10.1038/s41558-017-0021-9.

⁹ Myren-Svelstad, P. E. *Humanities* 9.4 (2020). doi: 10.3390/h9040141.

¹⁰ Kidd, D. C., Castano, E. *Science* 342, 6156. doi: 10.1126/science.1239918.

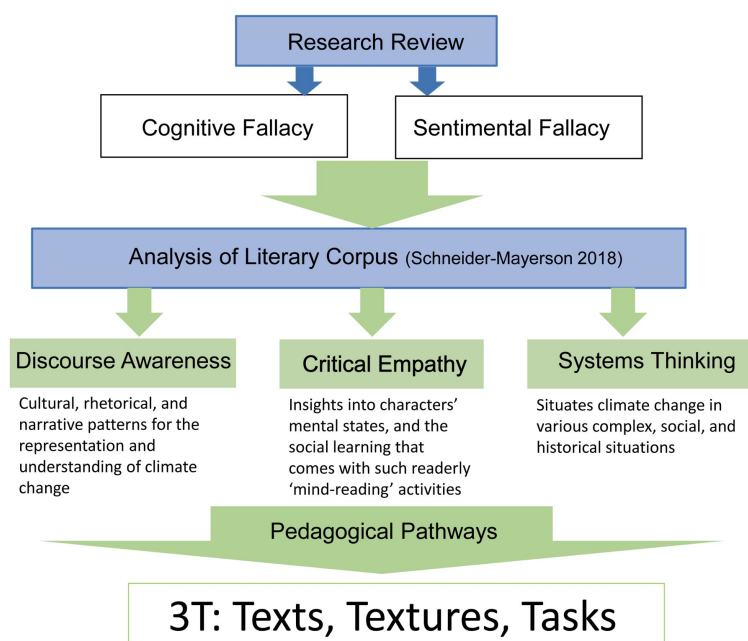


Figure 1: Fallacies and Pedagogical Pathways with the 3T-Approach

forthright readerly identification with role models or of emotionally challenging scenarios of catastrophe and doom – is needed to both render stories effective and to provide what an allegedly anaemic scientific discourse fails to do. For this assumption, we suggest the name of the ‘sentimental fallacy’¹¹.

Tackling these fallacies and developing alternative models of engaging literary reading and comprehension requires qualitative research. It would focus on how literary fiction (1) strategically employs ambiguities and aesthetic strategies to not so much make, but complicate, points about climate; and (2) embeds climate concerns in larger and complex socio-ecological dynamics. This assumption is supported by the second step in our research project that analysed a corpus of successful or popular climate change fiction¹² in order to identify patterns and narrative strategies by way of humanities methods of close-reading and narratological analysis. These have in turn informed educational modelling practices of literacy and aesthetic learning so that in

our final analysis, we have been able to present pathways for circumventing the two fallacies through engaged reading and professional literacy instruction (see fig. 1). We believe that the understanding of the singularities of literature¹³ articulated there must be recognised by humanities and humanities-leaning social-scientific research on GEC and climate change communication. In future, it should be complemented by robust empirical work on readerly reception and the interpretive and educational implications for educational settings that are devoted to increasing climate change literacy through storytelling.

We suggest to focus on the following aspects, none of which are exclusive to climate fiction but exercise a specific potential in this context, and which should be backed up and complemented by rigorous empirical research in disciplines adjacent to literary studies and pedagogy:

- Reading literary fiction engenders a complex form of discourse awareness, thus for instance underlining the role of cultural, rhetorical and narrative patterns in representing and understanding climate change. Empirical findings on language awareness in first- and second-language acquisition may for

¹¹ For a detailed account and comprehensive overview of research positions, see Hoydis, J., Bartosch, R. Gurr, J.M. *Climate Change Literacy* (Cambridge Univ. Press, 2023).

¹² Schneider-Mayerson, M. *Env. Humanities* 10.2 (2018). doi: 10.1215/22011919-7156848.

¹³ Attridge, D. *The Singularity of Literature* (Routledge, 2017).

instance be an interdisciplinary point of reference.

- Reading literary fiction moreover seems to require and thus also bring about a form of 'critical empathy' that goes beyond mere identification or rejection through complex character constellations, insights into characters' mental states, and the social learning that comes with such readerly 'mind-reading' activities¹⁴.
- The fact that literary fiction always situates climate change in various, and variously complex, social and historical situations is not to be seen as a flaw or distraction but as a unique potential to meaningfully complicate the understanding of (the cultural meanings of) climate change and, in Mike Hulme's suggestive phrasing, lead to a "thickening [of] understanding"¹⁵.

Our findings suggest that researchers in the humanities, education, and the humanities-leaning social sciences need to bring their research to bear on the interdisciplinary endeavour of GEC research more confidently. We encourage multimethod collaboration, especially between theoretical and applied disciplines as well as across the divide of the humanities and sciences, on storytelling and literary fiction. This will enable research to account better for the singularity of creative and fictional literature and the importance of including literary fiction in a lived reality of meaning, value, and purpose.



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<https://doi.org/10.1017/9781009342032>.

¹⁴ Zunshine, L. *Why We Read Fiction: Theory of Mind and the Novel* (Ohio State Univ. Press, 2006).

¹⁵ Hulme, M. *Climate Change* (Routledge, 2021).

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