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# Bridging different ways of knowing in climate change adaptation requires solution-oriented cross-cultural dialogue

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The current practices by which knowledge is deployed to inform action on climate change adaptation still privilege a narrow selection of ways of knowing, mainly based on quantification, prediction, certainty and control. We argue that including a wider range of knowledges such as indigenous-, local-, craft-, know-how, tacit-, counter-, gender-dependent-, and experience-based-knowledge, will inform climate solutions better. We explore ways to foster a pluralistic and fair dialogue between diverging ways of knowing in solution-oriented transdisciplinary climate adaptation research. We challenge the assumption that different ways of knowing can and need to be "translated," "weaved," "integrated" or "synthesized" to arrive at solutions for climate change adaptation. Such synthesis can often not be done without implying some form of hierarchy between ways of knowing and often reproduces colonial and other power asymmetries while it unduly limits the range of solutions considered. We explore and champion cross-cultural dialogue as an alternative approach to bring incommensurable ways of knowing into dialogical interaction, based on fairness and equality. Instead of aiming at using the end-result of a synthesis across diverging knowledge systems as the primary basis for informing solutions, cross-cultural dialogue starts from the notion that all ways of knowing can be actionable on its own. It seeks to co-create robust solutions that make sense under all relevant ways of knowing considered in a dialogue. We highlight many challenges and pitfalls related to cross-cultural dialogue and stress that participants in transdisciplinary research need to be aware of these.

## KEYWORDS

dialogue, ways of knowing, transdisciplinarity, cross-cultural dialogue, outsidership, knowledge equity, epistemic pluralism

## 1 Introduction

Greater transdisciplinary engagement between academic and non-academic knowledge holders is needed to develop inclusive actionable knowledge (Argyris, 2009) and solutions for responding and adapting to rapid environmental changes (Kaiser and Gluckman, 2023; Boon et al., 2019). However, the current practices by which society deploys knowledge to inform action on pressing issues such as climate change, still

privilege a narrow selection of ways of knowing. Other useful ways of knowing are—often implicitly—silenced, marginalized, ignored or dismissed (van der Sluijs, 2024).

We argue that including a wider range of ways of knowing will inform climate adaptation decisions better. It broadens the problem-scoping phase which helps avoid addressing the “wrong” problem (see also Dunn, 2001). In line with Kaiser and Gluckman (2023) we understand transdisciplinary research (TDR) as an approach that enables science and other knowledge systems to interact constructively to address collaboratively-framed problems. Other knowledge systems can include indigenous-, local-, craft-, know-how, tacit-, counter-, gender-dependent-, and experience-based-knowledge. This perspective explores ways to foster a pluralistic and fair dialogue between indigenous-, local-, and academic ways of knowing in solution-oriented transdisciplinary climate adaptation research.

Current practices of mobilizing knowledge for informing action privilege traditions of scientific reasoning that are based on quantification, prediction, certainty and control (Guimarães Pereira and Funtowicz, 2015; Stahl and Cimorelli, 2020; Saltelli and Di Fiore, 2023; van der Sluijs, 2024). For instance, studies on the Intergovernmental Panel on Climate Change (IPCC) highlight a geographical bias favoring experts from the global north, a gender bias in favor of men, a disciplinary bias in favor of the natural sciences over the social sciences and humanities, and a cosmological bias favoring western science over indigenous knowledges (Chakraborty and Sherpa, 2021; see also Beck and Mahony, 2018; Mahony, 2014; Vardy et al., 2017; Borie et al., 2021).

Faced with conditions of complexity, uncertainty and competing tenable knowledge claims, the actionable knowledge base must be pluralized and diversified to include the widest possible range of high quality, potentially actionable knowledges and sources of relevant wisdom (see also Funtowicz and Ravetz, 1993; Waltner-Toews et al., 2020). Broadening the knowledge base for informing decision-making is also needed to dismantle unhelpful hierarchies of knowledge, seeing certain academic disciplines as inherently superior rather than complementary (Hulme et al., 2020). Recognizing epistemic pluralism does not mean “anything goes,” it means greater humility and reflexivity regarding presently dominant ways of knowing (UNESCO, 2022). But how can a wider range of ways of knowing be included in practice and what if different knowledge holders have irreconcilable ways of knowing?

Engagement practices with other knowledge systems, cosmologies and perspectives in TDR and sustainability science are diverse. Most practices assume that the different ways of knowing must be integrated, synthesized, or weaved so that evidence-based solutions can be developed for the sustainability challenges addressed. For instance, Rist and Dahdouh-Guebas (2006) stress the importance of integrating indigenous and scientific knowledge in natural resource management. Tengö et al. (2017) propose to weave and bridge different knowledge systems in scientific assessments by engaging a plurality of knowledge holders in the process of mobilizing, translating, negotiating, synthesizing and applying knowledges stemming from different knowledge systems. Bohensky and Maru (2011) reviewed a decade of international literature on integration of

indigenous knowledge and science with a focus on research on socio-ecological resilience. Based on their review, they argue for new frames for integration, greater cognizance of the social contexts of integration, expanded modes of knowledge evaluation, and involvement of inter-cultural “knowledge bridgers.” Goldman et al. (2017) reviewed amongst others co-production of knowledge for climate adaptation using the lenses of critical political ecology and STS. They criticize the proliferation of depoliticized instrumental co-productions and argue for a pluralization of epistemologies, ontologies and ethics in knowledge co-production. Orlove et al. (2023) argue that “partnership across diverse knowledge systems can be a path to transformative change only if those systems are respected in their entirety, as indivisible cultural wholes of knowledge, practices, values, and worldviews.”

In this perspective, we challenge the assumption that different ways of knowing can and need to be “translated,” “weaved,” “integrated” or “synthesized” to arrive at solutions for climate change adaptation. Such synthesis can often not be done without implying some form of hierarchy between ways of knowing. These hierarchies will often reproduce colonial and other power asymmetries between the various knowledge holders involved, privileging some ways of knowing while marginalizing or silencing other ways of knowing (see also Cann et al., 2024; Chakraborty and Sherpa, 2021; Eriksen et al., 2021) and subsequently limiting the option space and favoring particular types of solutions (such as “technofixes”).

Below, we explore an alternative approach based on bringing incommensurable ways of knowing into dialogical interaction based on fairness and equality (Roos, 2024b). Instead of aiming at using the end-result of a comprehensive knowledge synthesis across diverging ways of knowing as the primary basis for informing solutions, the dialogical interaction approach that we explore and propose in this perspective starts from the notion that all relevant knowledge, not only that from mainstream western science, can be actionable on its own. Cross-cultural dialogue across ways of knowing seeks to co-create solutions that make sense under all relevant ways of knowing considered in a dialogue (robust solutions).

Inspired by Hulme et al. (2020)’s argument that we need to break down inappropriate knowledge hierarchies, we build in this perspective on selected literature and theorists from the Humanities and show that literature and concepts other than what is already well-known in the climate adaptation field can bring new and relevant ideas. We mainly base our theoretical arguments on the work by the Russian literary scholar and cultural philosopher Bakhtin. Bakhtin is well known and widely used in many Humanities disciplines and for instance in the field of education (including classroom research) (Barwell, 2016; Madhu, 2024). Only a few studies in the fields that focus on climate change have used Bakhtin so far, for example: Arnold et al. (2012) used Bakhtin’s dialogic theory to overcome differences between individuals involved in adaptive management, while Lipset (2017) and Krauß (2020) used Bakhtin’s concept of chronotope in their narrative analysis. Krauß (2020) further argues that the increasing participation of disciplines from the Humanities represents a “cultural turn” in climate risk governance.

## 2 Cross-cultural dialogue

Dialogue is a commonly known concept used in different spheres and societies worldwide. The term dialogue was initially linked to the morality of conversation (Zene, 2001) and has expanded to include listening, communicating, exchanging opinions and ideas, negotiating, and/or trying to reach an agreement or consensus. We often encounter it in politics, media, education and everyday discourse. It originates from ancient Greek and is composed of *dia* and *lógos*. *Lógos* can be understood as approximating reason, meaning or simply language and words (Dallmayr, 2009). *Dia* means “to move through’ or ‘to move between” (Dallmayr, 2009: p. 30). It implies creation of meaning in interaction with others (Dallmayr, 2009).

The meaning and characteristics of dialogue mentioned above suggest that the term is used as a positively charged concept. This is evident in political discourse where different parties are invited to engage in dialogue to achieve, for example, stability, peace or agreement. The concept’s opposite—monolog means that only one voice has the privileged right to speak and express its thoughts, ideas and opinions. Dallmayr (2009) illustrates monolog based on a political context: “monolog corresponds to a policy of unilateralism or to a situation where a hegemonic or imperial power reduces all other agents to irrelevance and silence.”

A monological approach can also be seen in the development of various scientific disciplines and “the rise of nominalism and scientific empiricism” (Dallmayr, 2009: p. 31, 32). This development implies prioritizing certain knowledge, methods and ways of knowing. This creates challenges for the non-prioritized disciplines to be able to contribute their—possibly also actionable—ways of knowing and enter into an equal dialogue.

Cross-Cultural Dialogue and related concepts such as Dialogue of Knowledge (Val et al., 2024) and Cross-Disciplinary Communication (Wilcox et al., 2008; Looney et al., 2014) are already well known in various research fields and are recommended and further developed by researchers working with people from other cultures (including other disciplines). In this perspective, we contribute to this school of thought by further developing the concept of cross-cultural dialogue, which we link to Bakhtin’s concepts of dialogue, culture and outsidership.

The rationale for dialogue highlighted by these research fields is that it can help partners from different cultures to work together in a mutually respectful and safe environment (especially for indigenous peoples) where partners can learn from each other (Wilcox et al., 2008; UNESCO, 2022; Pohl, 2023) and where indigenous methods and theories (in addition to Western ones) can be included in research projects (Drouin-Gagné, 2014). Further, dialogue can help correct and limit power asymmetries in research projects (Dallmayr, 2009). Looney et al. (2014) write about cross-disciplinary dialogue which can contribute to developing the understanding that there are different research views among different disciplines that collaborate in a joint project and help to identify possible conflicts and common grounds.

The concept that is closest to our concept of cross-cultural dialogue is Dialogue of Knowledge (DoK) which “refers to the interaction between different ways of knowledge emerging in

specific social, economic, and cultural contexts” (Val et al., 2024: p. 178).

DoK is based on an understanding that different ways of knowing and different types of knowledge can contribute to developing new knowledge and new solutions to social and environmental challenges in a constructive and respectful dialogue with each other (Val et al., 2024: p. 178). This requires that actors with different worldviews, cultures and historical practices recognize such diversity as productive and enriching for a collaboration that can lead to recombination and the development of new alternatives based on different types of knowledge and ways of knowing (Val et al., 2024: p. 180).

## 3 Discussion

Even though dialogue can be seen as a constructive and positive concept that can contribute to fruitful collaboration in the development of new knowledge and new solutions for various societal challenges, it is important not to forget that this concept is not necessarily neutral. It can camouflage hidden agendas, and it can also bring to the fore various challenges that lead some participants to perceive dialogue as counterproductive. These challenges are not necessarily obvious to those participating in a dialogue.

Political dialogues between Europe and other countries or indigenous groups are examples where dialogue is often hegemonizing and aims to get the other party to agree with Europe’s proposals or pre-determined solutions. In such dialogue, the views, solutions and proposals of one side are presented as the best if not the only possible ones or the only rational ones. Dialogue is then instrumentally used as lubricant for implementing predetermined solutions [compare to Arnstein’s (1969) concept of tokenism in citizen participation]. In research projects, it is also difficult to achieve an equal dialogue both because there is a general understanding that “science knows best” and because some researchers use collaborative projects to obtain funding or for other reasons, for example, if a project is only collaborative because the funder required involvement of local people in the call, not because the researchers themselves wanted that (O’Connor, 1999; Roos, 2024a).

Equality between participants in dialogical interactions can also be threatened by such asymmetrical relationships as who has leadership in the project, who is financially responsible and, not least, the participants’ cultural, educational and disciplinary backgrounds. Similar thoughts can also be found in Pohl (2023). In collaborative projects, the fact that non-scientists often see scientists as authorities when it comes to knowledge, can lead to a teacher—student relationship where non-academics can look up to scientists, agree with everything they suggest and view statements from scientists as unquestionable truths, leading to less trust in their own—possibly more valid (e.g., Fjelland, 2016)—ways of knowing.

According to Pohl (2023), another threat to equal dialogue can be the choice of communication language, which in today’s world is often English. This leads to asymmetry, misunderstandings of concepts and difficulties in expressing their ideas, suggestions and objections.

Another pitfall is judging the other person's perception of reality based on one's own understanding and seeing differences between partners (cultural, linguistic, mindset, etc.) as a sign of weakness (Pohl, 2023).

To highlight the relevance of the above challenges and pitfalls when dialogic interactions are established, we explore the relationship between dialogue, culture and language.

### 3.1 The relationship between dialog, culture and language

The term culture has a broad application and many different definitions. Here, we will only discuss the understanding of this term relevant to cross-cultural dialogue in TDR. First and foremost, culture is made possible through human interaction (Bakhtin, 1986) and "can be understood as an inherited system of meaning which conveys identity and orientation in life" (Pohl, 2023: p. 103).

Each individual, each group of individuals and a particular society is distinguished from others by a common or collective set of values, thought patterns and behaviors. Russian philosopher Vladimir Bibler (1991) who studied the work of Bakhtin writes that "culture is where there are two (at least) cultures, and that self-consciousness of culture is a form of its existence on the border with another culture" [translated from Russian by first author] (Bibler, 1991, p. 95). By this it is meant that an individual acquires his or her characteristics and gains understanding of the world around him or her only in encounters with others (Bakhtin is referring here to both people and written texts) who tell or state that something is right or wrong, who attribute certain good or bad characteristics to this individual, etc. According to Bakhtin (1984), a dialogical encounter with other cultures will lead to an inner conflict in this individual because this encounter will bring out other values, understandings of the world, etc.

At the same time, it is important to mention that the various cultures are dynamic; they change over time, not least through interaction with other cultures (Pohl, 2023). However, inertia makes cultural changes slow. Each culture will exhibit resistance if someone or something tries to impose rapid change (Pohl, 2023; Singh, 2021). An example of this inertia can be seen in the cultures of different universities, where despite changes in plans and strategies, academics teach/lecture in their disciplines as they always have (Singh, 2021). Based on the comprehensive study by Findlater et al. (2021), Daly (2021) highlights the "deep-seated structural challenges" to transforming scientific cultures: "To remake the cultures, norms, practices and institutions that have thus far prevented more transformative change in the field of climate services, it will be important to further democratize knowledge making by creating more transparent, inclusive and justice-based institutions that fully recognize and incorporate a diversity of knowledges and values" (Daly, 2021: p. 721).

Cultural diversity opens up many different understandings of the world around us, of challenges related to environmental change, for example, and of how these can be solved. These differences can create the need to overcome them. In the same way as (Pohl, 2023: p.106), we see this as one of the pitfalls because differences and contradictions provide fertile ground for development, for new

knowledge composed of different knowledge and different ways of knowing.

Further, cultures are inseparably linked to language and language use. This concerns not only individual words, but even more how language is put into play in our practices. Language is dynamic and changes in tandem with culture and through various internal and external mechanisms and needs. Since language is culturally conditioned, we often use the same words differently (including the word dialogue). This requires participants in TDR to use simple concepts and not fall into the trap of thinking that English is an international language that most people know and is therefore neutral. Wierzbicka (2006) shows in her book *English: Meaning and Culture*, that English, like other languages, reflects the experiences, practices, history and ways of thinking of its bearers.

Achieving equal and fair dialogue is indeed difficult. There are many challenges and pitfalls that participants in TDR must be aware of and prepared to deal with. A cross-cultural dialogue, despite the positivity of the word, will always be characterized by differences and diversity of—often conflicting and sometimes irreconcilable—ways of knowing, perspectives, worldviews, and understandings.

Earlier, we also mentioned that the situational differences between participants in TDR concern the financial responsibility for the project, the background (education, profession, etc.) of the participants and not least their status. These differences should not necessarily create challenges and conflicts for an equal dialogue that aims to find robust solutions or develop new knowledge as long as all partners are aware of each other's roles, responsibilities and use these to achieve a good collaboration.

In this context, an equal dialogue can be seen as a working method and the differences must be understood as necessary components to achieve a common goal. Participants in TDR have and should have different expertise, different knowledge, and different ways of accessing this knowledge. Differences between participants in a dialogue can provide fertile ground for new ideas, expanded understanding within one's own culture and better understanding of oneself. This happens when our worldviews are contrasted with those of others. Bakhtin (1986) called this process *outsideness* (p. 7).

### 3.2 Dialogue as enrichment

A dialogic encounter will lead partners from different disciplines and cultures to discover many similarities in their thinking while also discovering differences and conflicting understandings. This discovery can give us a different perspective on the issues we are working on and not least on ourselves. Dialogue can help us understand that other ways of knowing can be just as important and rewarding for solving certain challenges as our own, and so dialogue can help us gain a more critical view of ourselves and help us look at others without prejudice and preconceptions. According to Bakhtin (1984, p. 110) truth (to be understood as a broad concept) does not exist in the head of a particular individual, it is made possible through a dialogical encounter between people, groups of people, written texts, etc. This means that from the time we are like children entering open-mindedly into a dialogical

interaction with other “voices” and through this interaction and further in a dialogical encounter with ourselves we acquire new knowledge about the world around us. Cross-cultural dialogue provides an arena where different voices and different worldviews meet and by playing on each other’s suggestions and ideas, new understandings, solutions and knowledge are created that would not have been possible to achieve through a dialogical interaction with, for example, partners from the same discipline, because we would lack provoking differences in thinking.

The concept of outsidership allows us to see a clear distinction between ourselves and others, to see differences and diversity in thinking and understanding without trying to force our ways of knowing and our truths on those we interact with. Outsidership can help participants in TDR broaden their horizons of understanding, learn new things and critically evaluate their prejudices.

To succeed in a cross-cultural dialogue, it is also important that we are open to changing or discarding our ingrained views or theories, methods, etc. that we initially planned to use in a research project. Outsidership often leads to some response and in some contexts struggle between our understanding of something specific and the understanding of the other (Bakhtin, 1986, p. 142). Rejecting an understanding we had previously or enriching it with those held by others can be demanding, especially if we have a higher level of education or an established position. This is why a successful and productive dialogue presupposes fundamental equality of the partners.

An example that illustrates the relevance of our argument in favor of dialogic approaches that seek to maintain the integrity of the different ways of knowing considered in a dialogue can be found in the paper “Diálogo de saberes in La Vía Campesina: food sovereignty and agroecology” (Martínez-Torres and Rosset, 2014). The authors describe how La Vía Campesina (LVC) fostered a pluralistic dialog among different knowledges and ways of knowing (in Latin American and Spanish literature known as the concept of “diálogo de saberes”). This dialogue catalyzed the spread of agroecology and food sovereignty amongst peasant families world-wide. LVC is a transnational grass-roots collective that joins the voices of peasant and family farmers, indigenous people, landless peasants, farm workers, rural women and rural youth and that through all grass-roots movements involved represents some 200 million families worldwide (Martínez-Torres and Rosset, 2014). It has functioned as a cross-cultural space of encounter where different ways of knowing fruitfully could interact. According to Martínez-Torres and Rosset, this dialog resulted in “the acceleration of recent shift toward the promotion of agroecology as an alternative to the so-called Green Revolution in many contemporary rural social movements that once argued for increased industrial farming inputs and machinery for their members” (p. 980). Agroecology is indeed an example of what we mean by robust solutions. It constitutes an agricultural practice that is a sustainable alternative for the presently dominant monocultures and is informed by local and indigenous knowledges and by academic scientific knowledge, but in contrast to the dominant way of bridging knowledge and action, it does not integrate these ways of knowing through some hierarchy or formalized knowledge synthesis prior to informing the practice.

As a final note, linguistic differences between the partners can create several dilemmas. To understand each other, a common language must be chosen for communication. The use of English will create obstacles for some of the partners to convey their ideas and suggestions clearly, and if an interpreter is used, statements may be filtered and lose their original meaning and cultural embeddedness (Roos, 2024a).

If there is a large difference in language and culture between the participating partners (for example, researchers from European countries and indigenous peoples from Asian countries), one of the solutions may be to include a researcher with an indigenous background who either has a Western education or is fluent in one of the European languages. From Bakhtin’s point of view, but also from the experience of the first author of this perspective, a good knowledge of several cultures and languages contributes to a deeper understanding of them. This enables comparing specific cultures and, through outsidership or reflecting on the relationship “I”—“the other,” come to see and appreciate differences between ways of thinking, ways of gaining knowledge, etc.

## 4 Summing up

Overall, we champion a turn to fostering cross-cultural dialogue in solution-oriented TDR. We contrast this to the currently dominant practices of engagement with other knowledge holders that are based on the assumption that the different ways of knowing can and must be integrated, synthesized, or weaved in order to arrive at solutions. We challenge this assumption and propose an alternative that presupposes fundamental equality of the partners and their ways of knowing. Instead of basing solutions on the end-result of a comprehensive knowledge synthesis across diverging ways of knowing, cross-cultural dialogue is primarily geared at co-creating solutions that make sense under all relevant ways of knowing considered in a dialogue. As this does not necessarily require integration of the diverging ways of knowing, it opens up the possibility that incommensurable and irreconcilable ways of knowing can equally contribute to informing solutions. This process can be helped by Bakhtin’s concept of outsidership which allows participants in a cross-cultural dialogue to see a clear distinction between themselves and others, to open-up for and appreciate differences and diversity in thinking and understanding, without trying to force one’s own way of knowing and one’s own truths on those one interacts with. This requires that participants in TDR with different worldviews, cultures and historical practices recognize such diversity as productive and enriching. Further, we have shown many challenges and pitfalls related to cross-cultural dialogue. It is of key importance that participants are aware of these and that the process of interaction is attentive to power asymmetries.

## Data availability statement

The original contributions presented in the study are included in the article/supplementary material, further inquiries can be directed to the corresponding author.

## Author contributions

RR: Conceptualization, Investigation, Methodology, Validation, Writing – original draft, Writing – review & editing. JS: Funding acquisition, Investigation, Project administration, Validation, Writing – review & editing.

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## Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

The handling editor JG is currently organizing a Research Topic with the author RR.

## Generative AI statement

The author(s) declare that no Gen AI was used in the creation of this manuscript.

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