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Spaces for communication in inter- and transdisciplinary collaboration

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Spaces for communication are the foundation of trust, relationships, and dialogue, underpinning effective inter- and transdisciplinary collaboration.

What did the SSH CENTRE project do?

SSH CENTRE (Social Sciences and Humanities for Climate, Energy aNd Transport Research Excellence) is a Horizon Europe project that focused on generating best practices for incorporating both Social Sciences and Humanities (SSH) and inter- and transdisciplinary research into the European Union's climate, energy, and mobility transition policy. The SSH CENTRE project deliberately created spaces for *epistemic experimentation* – i.e. structured collaborations that bridge different epistemic (knowledge) cultures to co-produce policy-relevant knowledge:

Interdisciplinary Collaborations for EU Policy Recommendations

The SSH CENTRE project facilitated nearly 30 novel collaborations between the SSH and STEM (Science, Technology, Engineering and Mathematics) disciplines, for strengthening European climate, energy, and mobility policy. These resulted in three edited books, whereby each Interdisciplinary Collaboration produced a chapter. For more see SSH CENTRE Interdisciplinary EU Policy Book Collection.

Transdisciplinary Knowledge Brokerage Initiative

The Knowledge Brokerage Initiative for sustainability transitions gathered 30 early- and mid-career SSH researchers working on themes of climate, energy, and mobility. These researchers actively engaged in accelerating the transition process towards a carbon-free society by working with six European cities on sustainability issues and brokering SSH knowledge. The researchers organised workshops and produced a range of reports that provided knowledge to support the cities' transitions. For more see Knowledge Brokerage Reports.

This Briefing Note is one of 10 that present the findings and recommendations from the evaluation of these epistemic experiments. For more, see the Introduction to the Briefing Note collection and the Formative Accompanying Research methodology.

Introduction

Effective communication across disciplinary and stakeholder boundaries is fundamental for successful inter- and transdisciplinary research. This communication has two directions: it occurs between researchers themselves and between researchers and non-academic parties (such as audiences and other non-academic stakeholders in transdisciplinary research). Both directions of communication involve navigating different disciplinary, work, and social cultures. This, on the one hand, entails communication about the research, such as its aims, the terminology and methods used (Briefing Note 6 – BN6), how to interpret the results, and how to involve other stakeholders (BN10). On the other hand, it involves communicating to create a functional environment for inter- and transdisciplinary collaboration. Key

to these is skilful management (BN7), cultivating trust and interpersonal teamwork dynamics, and creating genuine dialogue space. The last point is particularly important, because, as addressed in BN1, SSH fields are frequently perceived as supplemental to STEM disciplines, tokenized, or relegated to a "service role," rather than being integrated as equal partners. All these conditions for communication require sufficient time (BN2) and reflexivity on the side of the researchers (BN9).

In this note, we focus on those aspects of the communication space that are not covered in the other Briefing Notes, that is, the cultivation of interpersonal teamwork dynamics and the creation of genuine dialogue spaces. The literature emphasises the importance of developing trust among researchers, building interpersonal relationships (not only between researchers but also with stakeholders), and the practice of "good listening". The insights from the SSH CENTRE confirm the importance of communication; across both inter- and transdisciplinary experiments, teams reported that trust and relationship building were crucial. Stakeholder engagement varied, with clarification of objectives and communication formats playing an important role. Based on findings from the literature and the SSH CENTRE experiments, the Briefing Note concludes with recommendations on how to support spaces for meaningful communication.

Problem description and literature insights

In inter- and transdisciplinary research, the literature consistently emphasizes that **trust and communication** are deeply intertwined and fundamental to successful collaboration. Trust is often taken for granted and its requirement for continuous negotiation and reassurance is frequently underestimated [1]. Building trust is shaped by previous experiences, institutional histories, and changing personnel, and it takes time – but it is worth investing in, because in the long run, it "can help mitigate or solve communication, time, integration, logistical, and personal relationship barriers to conducting fieldwork" [2 p1018]. Together with openness, mutual respect, and humility, trust builds rapport – across researchers themselves and between researchers and stakeholders.

In the context of fostering the position of SSH disciplines, trust and similar communication values are particularly important because they **allow researchers to challenge existing disciplinary hierarchies and to value diverse knowledge**. In inter- and transdisciplinary research, SSH researchers are often expected to contextualize or translate STEM-driven innovations rather than contribute as an equal partner. For acknowledging the unique contributions of SSH research, funders should explicitly legitimize SSH approaches, enabling researchers to integrate their theoretical perspectives, ways of knowing, and methods from the very beginning of a project [3,4]. This includes recognizing that qualitative research and local knowledge are as legitimate and valuable as quantitative scientific data [5,6].

Spaces for communication are essential for building trust and interpersonal relationships between researchers from different disciplines. Such communication allows all research participants to better understand each other's priorities and perspectives [7]. Importantly, a factor that significantly influences interpersonal relationships is the format of meetings. **Periodic and ideally face-to-face contact** is vital for maintaining trust, satisfaction, and commitment, especially in relationships spanning geographical distances [1,3]. The physical separation of disciplinary departments is among the reasons that contribute to the mistrust between science fields. In-person encounters and platforms for sharing experiences can mitigate emotional tensions, such as feeling of inadequacy or discomfort that can arise when researchers venture beyond their disciplinary comfort zones [8,9]. Additionally, frequent meetings can facilitate the management of expectations.

Spaces for communication are also important for **stakeholder engagement and the creation of research impact**. The traditional "deficit model", which assumes public disengagement is due to a lack of understanding that can be solved by providing more scientific information, is widely critiqued and deemed inadequate [10,11]. Research in science communication has demonstrated that merely disseminating information between experts and the public frequently results in public misunderstanding or non-participation [12]. Instead, Cook and Overpeck [12 p10] propose "relationship building" as a new approach that changes the means and ends of interactions between experts and stakeholders, defined as "a long-term consensual interaction between individuals, conducted respectfully and transparently". Reimagining communication as a bi-directional exchange through the principle of reciprocity fosters equitable conversations across diverse knowledges and socio-cultural perspectives [10].

A prominent approach to fostering reciprocity is through "**good listening**". Good listening is a 'weak method', meaning it provides guidance and structure to collaborations without assuming a predetermined form or specific goals [13]. Generally, the process of listening involves four main components: receiving, processing, interpreting, and responding. The attributes of good listening include presence and curiosity in receiving, intellectual humility and cognitive complexity in processing, empathy and compassion in interpretation, and constructive feedback (including disagreeing) in responding [13]. This practice is important for both teamwork within a research team and transdisciplinary collaboration with other stakeholders (for more on their engagement, see BN10).

Manifestation in the SSH CENTRE

Experiments carried out within the SSH CENTRE confirmed the importance of communication at all mentioned levels: between researchers themselves, between research teams and stakeholders, and regarding both communicating the merit of the research as well as to support the creation of a functional environment for inter- and transdisciplinary collaboration.

Within research teams, trust, openness, and motivation for inter- and transdisciplinary cooperation proved to be crucial. For successful communication, people need to build a certain level of trust in each other.

> *I think there's something to be said about establishing first kind of cohort of people that you already feel that you have*

> *a good understanding with, and that also makes it largely a much more smooth and positive experience. Not to say that you can only work with people that you work well with, but I think that makes it a much more positive environment for everyone, if you are already on the same page and willing to work in interdisciplinary way. That already is the biggest challenge out the door because everyone comes with the same motivation.* (FECR1, Interdisciplinary Collaborations)

Successful communication requires gaining trust to create a positive environment. One of the most important factors for that was the regularity and frequency of the meetings; in-person meetings, even if occasional, were very beneficial. Whereas in the Interdisciplinary Collaborations for EU Policy Recommendations the research teams met in person more often both due to organising writing retreats and due to teams' composition (some were based in the same cities or institutions), there was slightly less such contact in the Transdisciplinary Knowledge Brokerage Initiative. Overall, the teamwork communication across the experiments was considered good, with some occasional communication gaps. The researchers and consortium partners reported that the project was quite demanding and sometimes more time was needed than anticipated, which needed to be well-communicated in advance.

> *I think we had a good team dynamic and all of us were working in good faith. None of us wanted to be the one who was letting the other ones down.* (MECR3, Transdisciplinary Knowledge Brokerage Initiative)

In contrast to communication within teams, the contact with cities in the Transdisciplinary Knowledge Brokerage Initiative was more challenging. The communication with the partner cities took two different forms. The first form was exemplary, with an active contact person, and the cities being proactive and coming up with their own ideas and goals. The second form was passive or even lax, meaning it was difficult to get in touch with the city staff, and it was not clear what the city's goal was regarding the collaboration. Crucial to the level of city involvement was the effort to negotiate ideas of what this transdisciplinary initiative could bring. Meaningful involvement required timely alignment of objectives, supported by clear translation of research concepts and realistic involvement with regard to the workload of the city's contact person. In several cases, municipalities "did not know exactly what they wanted", which prolonged the definition of the scope.

> *First, we were trying to figure out together with them what are the topics they would be interested in, but they didn't really come up with anything because they were saying "We are technicians, you are the social scientist, you should come up with some issues". And we're like "OK, but we need to know, I don't know, what bothers you or something." So, then we tried to come up with something, but we were not sure if it's useful, if it's not useful and the feedback was "Yeah, we are OK with that". I was like "OK, then we are probably gonna do this." And then we did it and then there was the workshop and then we were like "OK, maybe we could have done something different if we knew this."* (FECR4, Transdisciplinary Knowledge Brokerage Initiative)

Another communication factor that influenced the transdisciplinary collaboration was the ability of researchers to translate academic knowledge into language understandable to the municipality. This was not just a matter of simplifying technical terminology, but an overall clarification of researchers' ways of thinking. For instance, in one case a municipality understood the scientists' research questions as criticisms in a way that they became defensive.

> *I think that there is also an (…) aspect to take into consideration because they felt kind of attacked from the researchers (…). Maybe "attacked" is a strong word, but when [the researchers] (…) were asking [the municipality personnel] a question on how that was working and how they were thinking to improve it, they saw this as a criticism, so their approach was to defend their position and not to underline the things that were not working or the challenges to work together on that. So, they were like: "But this is normal in a city like this, but we do this, this, this, this." (…) Maybe the researchers and we were not that able to make them understand it was a normal process.* (ProjectPartner3)

Part of these differences between the academy and the municipalities were different working regimes. As one mentor noted, the project had a rule that only the SSH CENTRE coordinator communicated directly with the cities, as researchers tended to overwhelm city partners with a wide range of questions through many emails, which is undesirable for a situation where cities are engaged in research beyond all their responsibilities.

Regarding the specific role of SSH in communicating with stakeholders, it has emerged that it is possible to utilise the strengths of these disciplines without resorting to a purely instrumental approach, i.e. one that is solely intended to persuade the public. One researcher emphasised the political role of the SSH:

> *What came out of this research (…) is that a lot of people simply do not feel heard at all. It doesn't mean that they want everyone to necessarily agree with them, (…) but (…) they feel like it's such a top-down decision that they are not consulted at all. I think that's also very important part where social science can really play a role to involve citizens, give them the idea that this is also about them and not just about (…) the government somewhere far away.* (FECR2, Interdisciplinary Collaborations)

This reflection underscores a key value of SSH – helping to design communication processes where citizens feel recognised, even if consensus is not reached. Such spaces strengthen legitimacy and ensure that policies are not perceived as distant impositions. They also build trust: people feel heard even without agreement, which keeps dialogue open for the next engagement. As another participant stressed, communication should not be episodic but continuous. SSH disciplines are particularly well-placed to sustain contact with administrations, stakeholders, and citizens over time:

> *Try to keep in touch with the administration, with the different stakeholders (…) is something that is really the aim. It should be the aim of the social science and humanities in mobility. Really interact with the administrations, the people, the citizens.* (FECR5, Transdisciplinary Knowledge Brokerage Initiative)

In other words, striving for equal involvement of SSH does not mean that their role cannot involve stakeholder

engagement; it just must not be reduced to that. One of the strengths of SSH is in curating the ongoing relationships that underpin transdisciplinary collaboration.

Overall, in the evaluative interviews the researchers frequently reflected on the crucial role of communication in inter- and transdisciplinary research. Because it aims to produce a novel knowledge across the gap between disciplines and between academia and non-academic stakeholders, developing knowledge in such collaborations necessitates intensive communication – which in turn requires appropriate support at multiple levels.

Recommendations at individual, project, and systemic levels

Creating protected spaces for communication – within teams and with stakeholders – builds trust and relationships that sustain inter- and transdisciplinary work. The recommendations below specify how to support those spaces across three levels.

Recommendations at the individual/researcher level

- Talk with stakeholders in a relatable, human voice: communicate with empathy and clarity rather than detached jargon, as personal approach can foster trust, inviting others to share their knowledge in return [10].
- Engage with a mindset of mutual respect and openness to plural rationalities: when engaging with local knowledges, recognize the value and legitimacy of, e.g., anecdote, story, or spiritual perspectives of nature [14].
- Adopt good listening as a weak method to guide collaborations without presupposing outcomes, focusing on generating collaborations and dismantling barriers. Cultivate core listening attributes:
  - *Receiving* requires being present, open, curious, and caring.
  - *Processing* requires intellectual humility (recognizing one's cognitive limitations) and cognitive complexity (shifting cognitive frames).
  - *Interpretation* benefits from mindfulness, empathy, and compassion to avoid habituated or disciplinary biases [13].
- Reflect on your own epistemology to make space for other ways of knowing [15]; see BN9 for more on reflexivity.

Recommendations at the project level

- Dedicate time and resources for ongoing, active dialogue between researchers and stakeholders, moving beyond instrumental knowledge transfer; use collaborative methods like participatory filmmaking or focus-group discussions in small, familiar settings to initiate social learning [5,10,16].
- Communicate responsibilities clearly and make roles explicit for all participants, including stakeholders, to prevent feelings of being relegated to a "service role".
- Tolerate a degree of conflict and pluralism: rather than forcing a single lowest common denominator consensus, allow multiple perspectives to be expressed to avoid silencing minority views [15].
- Adopt the good listening framework as a structural element of collaboration: set ground rules that institutionalize good listening (e.g. rotating facilitation roles in meetings, or listening sessions where team members deeply engage with one colleague's perspective at a time) [13].
- Focus on the format of meetings: ensure they are frequent and regular and encourage face-to-face gatherings; dedicate resources for physical meetings (such as writing retreats) in geographically dispersed teams.

Recommendations at the systemic/broader academia and funding level

- Fund the creation of interdisciplinary centres or hubs that host regular meetings and provide sustained interactions to promote understanding, build trust, and develop collaboration outside specific projects [3].
- Support capacity-building programs to equip researchers with the essential knowledge and skills for effective inter- and transdisciplinary communication, such as training scientists in intercultural competencies [14,17].
- Envision broader systemic change where expert institutions become more democratic and participatory: establish an ongoing advisory council of civil society or Indigenous representatives that interface with research groups [10].
- Institutionalize pluralistic, reflexive processes as the norm: evolve beyond one-size-fits-all epistemologies by reflecting on institutional epistemology and recognizing how knowledge practices become stabilised; rotate experts from diverse epistemic backgrounds to shift the institutional knowledge culture over time [15].

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