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Positionality and reflexivity in inter- and transdisciplinary collaboration

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Effective inter- and transdisciplinary collaboration depends on reflexive practices that enable the recognition of diverse knowledges and countering power imbalances.

Introduction

In inter- and transdisciplinary research, it is crucial for researchers to reflect on their positionality and engage in reflexive practices. This involves understanding the researcher's individual social and disciplinary background as well as their role in the research project, both within the scientific team and within the organisations with which they are involved. This Briefing Note (BN) begins by exploring positionality and reflexivity in inter- and transdisciplinary collaboration in literature, showing how addressing complex societal problems through integration of diverse forms of knowledge requires recognizing positionality and valuing reflexivity as a way to identify and counter power imbalances. The manifestation of reflexivity and positionality in SSH CENTRE experiments highlights the value of reflexive practices in inter- and transdisciplinary work but points out that these require deliberate project design and supportive

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.

mechanisms. The note thus concludes with recommendations on how reflexivity can be supported systematically, not improvised.

Problem description and literature insights

Positionality is the **recognition of one's own place and power in the research process**. It refers to the values and biases of the researcher that stem from their upbringing, experiences, access to resources, institutional background, and the social and economic power structures that shape them [1,2]. Reflexivity is then an **inward-looking and ongoing practice in which researchers revisit their position, power, and assumptions actively during the research process**. It requires self-inquiry and a willingness to analyse their underlying assumptions, their relationship to social power structures, and the way they shape their own actions and outreach [2,3].

Reflexivity helps to **identify and counter power imbalances**, whether these are between disciplines or between academic researchers and non-academic stakeholders [2,4,5]. If the objective of inter- and transdisciplinary research is to address complex societal problems through integration of diverse forms of knowledge [6,7], then it requires engagement with different scientists, stakeholders, and civic society in ways that value their diverse knowledges [1]. Collaborative research, and the way such diverse knowledge is seen and heard, is inevitably affected by power dynamics [2].

Positionality and reflexivity are terms that originally come from social science fields like anthropology and sociology. Anthropology in particular, with its focus on non-Western cultures, has raised the issue of the hierarchy of different knowledge systems and the need to reflect on the researcher's position as a tool for creating data. We can divide reflexive practices into subjective reflexivity and epistemological reflexivity. **Subjective reflexivity** assumes that the researcher is necessarily part of the research process and, as such, shapes it – whether through the choice of topic, research subjects, and relationships with them, or through their personality and positionality. Reflecting on researcher's positionality serves to identify biases that can lead to moral judgments and unqualified assumptions when interpreting data [2]. **Epistemological reflexivity** then encompasses the scientific tools used in research, from methodological decisions (such as sample design, data creation and analysis) to theoretical background and interpretation [8].

Despite the frequent use of the terms positionality and reflexivity in inter- and transdisciplinary literature, there is a lack of clarity in how reflexivity should be operationalised [9]. A common misconception is the assumption that the need for reflexivity can be dealt with at the beginning of the research or in one reflexive paragraph and then no longer needs to be addressed. However, reflexivity is not about mere acknowledgement of the researcher's position, as if it defines a fixed perspective from which the research is based. Similarly, it should not focus just on researcher's personal experiences and emotions, as this approach risks becoming self-centred [10]. Reflexivity is not just an internal thought process, but a form of thinking coupled with action, enabling new ways of acting [3]. Reflexivity is therefore **an ongoing practice that encompasses the research planning phase, data creation, data processing, and the writing up of results**. In research, we are conditioned by limitations and possibilities that need to be reflected upon in themselves; however, we also make a number of decisions between alternatives for which we bear epistemic and ethical responsibility [10].

One aspect of research that is influenced by scientists' ability to reflect is, from the very beginning of the project, **the management of expectations**. Stakeholder involvement is regarded as an integral part of transdisciplinary research, yet in many cases the underlying objectives that precipitate such involvement remain abstruse. This absence of clarity is considered as a cause of dissatisfaction among researchers and stakeholders. Therefore, reflexivity is an important aspect for the management of expectations – it enables clarification of which objectives motivate stakeholder engagement [11].

Manifestation in the SSH CENTRE

This section presents four main moments where reflexivity has proven to be important in inter- and transdisciplinary collaboration. First, the SSH CENTRE transdisciplinary experiments with municipalities demonstrated the importance of positionality, especially regarding the differences between academic and stakeholder environments and the differences between Eastern and Western Europe. Secondly, reflexivity was evident in the researchers' reflections on their role, which, especially in the Knowledge Brokerage Initiative, prompted adjusting and negotiating the purpose and fit of the research. The third moment of reflection was the interdisciplinary cooperation between SSH and STEM disciplines, where researchers' awareness of the differences in perspectives and the importance they placed on this diversity supported integration. The fourth reflection concerns the role of SSH as bringing ethical considerations into the collaboration.

The municipalities engaged in the Knowledge Brokerage Initiative operated in a significantly different mode than the academics in this collaboration. The ability of researchers to reflect on their own position, communication methods, and differing expectations of research were important for successful cooperation. Municipalities generally had very limited space reserved for consultations on the ongoing initiative and usually did not have a clear assignment for researchers. This created a certain amount of frustration, as the researchers were eager to contribute usefully through their research, but the objective of some municipalities for the research remained unclear for a long time – or only became apparent at a later stage when the research was already moving in a different direction. This required researchers to have the reflexive ability to constantly consider their own role, methods of communication, and expectations, i.e., to flexibly adapt the intensity and form of their involvement to the needs of the municipalities without compromising the scientific quality of their work.

In most cases, the researchers demonstrated a high degree of reflexivity. When working with municipalities, scientists emphasized the need to adapt their thinking and approach to the specific local context, especially since the transferability of solutions from other contexts was limited. This was particularly evident when comparing between participants

from Eastern and Western Europe, whose situations differed significantly.

> *In the workshops, we had a couple of representatives from [Western European country] come which was really helpful, because they had gone through these processes before and so they knew. But the context was just so wildly different that even what the [Western European city 1] or the [Western European city 2] people were suggesting, like that wasn't an issue in [Eastern European city 1] or it wasn't even in the realm of the thing. So, it was interesting to have the information, but it was, yeah, not applicable really, which is where we need to be creative and find how it is.* (FECR6, Transdisciplinary Knowledge Brokerage Initiative)

The researchers also became aware that the solutions and proposals they initially favoured might be impractical, for example because they exceeded the local scale of a specific city, or because the abstract approach of some social sciences focuses on a high degree of generalization and works with a level of analysis that is distant from the specific needs of the city.

> *So, for example, we were quite [excited] about the idea of making a list of recommendations about inclusivity and certain steps you can take to promote inclusivity in energy communities. But then, going through that process – I think, maybe, it's about reflexivity – (…) you think actually a lot of these things aren't municipality specific, or there's not a clear way [of] how they would do them (…) [so it] would be very hard to actually say "we did this thing" or "we achieved this outcome". So, one thing I learned is that it's a continually reflexive process of a lot of discussion back and forth.* (MECR2, Transdisciplinary Knowledge Brokerage Initiative)

In this instance, reflexivity involves continually reassessing the purpose, fit, and process of the knowledge brokering work while it is happening, rather than assuming the initial plan will be sufficient. The following quote illustrates that researchers' reflexivity also lies in recognizing the tension between academic generalization and practical applicability for local actors.

> *As social science researchers in particular, we tend to focus at a relatively high level of aggregation intellectually. We're generalizing between situations and making statements about things that are vague enough to be applied to multiple different contexts, which means that we tend to pretty quickly jump up a level of analysis. And I worry that this means that the proposals and solutions that we are initially going to gravitate towards are going to be impractical. Either because the city scale, even a large city like [Western European city 3], is not the appropriate scale at which to attempt something like this, or because it's a very upstream attempt to change the preconditions of a problem that is being expressed in a very concrete and immediate way.* (MECR3, Transdisciplinary Knowledge Brokerage Initiative)

Reflecting on one's own role is also related to the position in which researchers find themselves when approaching stakeholders such as municipalities. Transdisciplinary collaboration is mediated by social ties. For example, the entry point (a specific contact person) is pivotal because it shapes access and perceptions gained.

> *You really need to understand where in an organization you are positioned. You are coming in from the outside and you have a contact point. And that contact point has other relationships, both hierarchical and informal. And the usefulness of your work and the way it will be used are a social and political process.* (MECR3, Transdisciplinary Knowledge Brokerage Initiative)

A very positive aspect of the reflections of researchers in the Interdisciplinary Collaborations was the appreciation of the role of SSH in addressing complex societal issues, for example in questions about the role of technology in climate change mitigation. In the second wave of interviews after the collaboration, many STEM researchers reflected on a change in their perception of SSH disciplines, moving from an initial scepticism about its ability to *prove*, as is done in engineering or mathematical sciences, to recognizing its value in *understanding* amidst the inherent complexity of social phenomena.[1]

> *My opinion of the social science quite very shifted during the collaboration because (…) [SSH] people try to develop some very specific concept, but does that have the possibility to prove the ideas? (…) Because when you work with people, when you work with human behaviour, it's not possible to prove human behaviour, so we need to try to understand, to test, to define a complexity (…). The human behaviour, organisation of human, it's a really complex system, so it's not possible to describe it only by a mathematical formula. Yeah, it's very difficult.* (MEXP1, Interdisciplinary Collaborations)

The role of SSH is also to raise ethical questions. For example, according to one researcher, SSH enables a deeper inquiry into the "why" behind actions to uncover underlying values and ensure that solutions do not inadvertently harm people – a perspective that STEM fields might not be equipped to fully consider. Similarly, researchers noticed that humanities and arts tend to be involved in a very limited way and reflected upon their value:

> *It became more clear to me that it's not only the (…) social sciences that I should integrate in the process or even in my team, in the research that I do, but also the humanities and even art. I realised that if we really want to have effective answers to give to the politicians and even to the general public, we need to take this on board, you know, this perspective. And this project made that more clear to me.* (FEXP3, Transdisciplinary Knowledge Brokerage Initiative)

Taken together, the findings highlight the value of reflexive practices in inter- and transdisciplinary work – be it calibrating proposals to local contexts, navigating organisational entry points, or broadening epistemic communities.

1 See BN1 for an example of the difference between the explanatory (*erklärende*) and understanding (*verstehende*) approaches and how they are manifested in the SSH CENTRE project.

Recommendations at individual, project, and systemic levels

Collaboration succeeds when reflexivity is structured, not improvised. It requires researchers themselves to deliberately embody reflexive practices. However, positionality and reflexivity cannot only be an initiative of passionate researchers. They require deliberate project design and supportive mechanisms. This section converts the literature insights and empirical findings into concrete recommendations.

Recommendations at the individual/researcher level

- Practice *epistemological* reflexivity to understand how your methods, values, and assumptions influence the research [3,12].
- Employ *subjective* reflexivity and engage in personal, introspective, and emotional work to confront your biases and positionality, especially concerning systemic power imbalances [2].
- Engage in continuous reflection on your professional identity and worldview, being able to articulate it and, when necessary, step back from it [3,12].
- Acknowledge the existence of disciplinary blind spots and implicit biases (including your own) and encourage reflexive practices to address them.
- Instead of insisting on a discipline's value, highlight when researchers' disciplinary expertise is visibly contributing to inter- and transdisciplinary collaboration.

Recommendations at the project level

- Build reflexivity into every stage of the research process: use collective reflection and discussion to address tensions, challenges, and aspirations throughout the project lifecycle [2,12].
- Design teams to intentionally include humanities and arts roles (e.g., historians, ethicists, designers, artists) to enhance policy relevance, public resonance, and the translation of complex findings.
- Use participatory reflexivity methods (e.g., citizens' juries, consensus panels, scenario planning) into project design to co-define solutions [9].
- Recognize that researchers and stakeholders from marginalised perspectives often take on roles (such as mentorship, translation, and safeguarding) essential for ethical and relevant research, and these contributions must be valued beyond typical academic metrics [2].

Recommendations at the systemic/broader academia and funding level

- Train scientists to make them aware of their personal and discipline's positionality; meet them "on home turf" (such as science conferences) with accessible, non-threatening formats (using images and humour) to open dialogue about assumptions and roles [3].
- Educate researchers during early university studies on the subject of worldviews & research paradigms and how they may impact inter- and transdisciplinary research; thread reflexivity (politics of field, institutions, self) through curricula and professional training [3].
- Shift evaluation from quantity to quality using PES-grounded (Public Engagement with Science) indicators (e.g., learning intentions, feedback loops) and portfolio-based peer review (external PES references, participant feedback, evidence of dialogic impact). See Haywood and Besley [13] and Salmon, Priestley, and Goven [3] for more on PES.
- Acknowledge and accommodate the time, skills, and resources required for collaborative, reflexive practice in funding schemes [14].

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