# TRANSDISCIPLINARY URBAN RESEARCH
## INSIGHTS AND EXPERIENCES

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## Introduction

Sustainability has been an influential concept to interpret and inform urban development for several decades. The idea of designing, building, and operating cities to be economically prosperous, environmentally resilient, and socially equitable is a persuasive and comprehensive way for a wide range of researchers, policymakers, politicians, and residents to steer urban development towards more desirable futures. However, translating the concept of sustainability into real world actions has proven to be elusive. In the last two decades, proponents of sustainable urban development have embraced the notion of transdisciplinarity as a bridge between theory and action. Transdisciplinary urban researchers recognise the value of collaboration between academic and non-academic stakeholders to co-create knowledge that is scientifically rigorous as well as socially relevant (Jahn et al. 2012, Fam et al. 2017). In essence, transdisciplinary research holds the potential to bridge the gap between knowledge generation and practical application, unlocking new pathways for sustainable urban development.

Collaboration in transdisciplinary urban research involves the integration of diverse perspectives and the development of innovative solutions to address the complexities of real-world urban contexts. Engaging with stakeholders from governmental organisations, private sector companies, non-profit organisations, and community groups can produce a more holistic understanding of urban challenges and facilitate the co-creation of solutions that are tailored to the unique needs and priorities of different communities. Through the shared ownership of problems, solutions, and processes of integrating and disseminating knowledge, transdisciplinary research can achieve sustainable urban development goals and realise cities that are resilient, inclusive, and thriving for generations to come (Lang et al. 2012, Lawrence et al. 2022).

Historically, researchers have developed knowledge within their academic disciplines and then transferred this knowledge to society. However, this long-standing model is facing challenges, particularly with the advent of the World Wide Web and the spread of disinformation, which has eroded trust in expert knowledge. Transdisciplinary research offers a way for researchers to reinforce their trustworthiness and the value of their work to society (Karvonen and Brand 2022). In addition, the contemporary 'knowledge economy' positions innovation as a critical driver of economic growth and international competitiveness. Consequently, universities are repositioning themselves as catalysts of economic development and industry problem-solving while prioritising research areas that offer tangible returns on investment to address budget deficits in higher education funding. They form 'triple helix partnerships' involving universities, industry stakeholders, and government bodies (Russell et al. 2008) as well as 'quadruple helix partnerships' that also include civil society.

The aim of this report is to provide insights on the expertise, knowledge, and experiences of conducting transdisciplinary urban research. To gather insights, we developed a set of questions based on a review of transdisciplinary research publications from 2010 to 2023 in the disciplines of Architecture, Planning, Geography, Urban Studies, and Sustainability Science. We used these questions as a guide to conduct semi-structured interviews with ten urban researchers at Lund University in 2023 and 2024. These in-person interviews lasted for 60 to 90 minutes. We then conducted a thematic analysis of the interview transcripts to identify common points of agreement and disagreement. In the following sections, we summarise three dominant themes that emerged from the analysis of the findings: 1) developing and framing projects, 2) mutual learning and knowledge integration, and 3) reflexivity and societal impact.

## Developing and Framing Projects

A central purpose of transdisciplinary research is to address the complexities of real-life issues by drawing upon multiple insights and experiences to define both problems and solutions (Hemström et al. 2021). Conducting research that is academically robust as well as socially relevant requires the deliberate integration of knowledges from academia and practice (Jahn et al. 2012, Lang et al. 2012, Hoffmann et al. 2017, Lawrence et al. 2022). Transdisciplinary research emphasises that universities need to be accountable to society and thus, academic researchers need to engage directly with real-life problems. Ensuring that knowledge production is not only scientifically robust but also practically relevant has the potential to produce knowledge that can directly benefit society. This also provides opportunities for more inclusive and participatory approaches to knowledge production, with a multitude of voices and perspectives driving research activities (Nowotny 2003, Wiek et al. 2014).

The framing of project objectives and questions in transdisciplinary research should be designed to address social and scientific issues to ensure that the outcomes are relevant to all project partners and have the potential to produce positive societal impacts. The initial work of collectively framing goals is intended to promote shared ownership among the participants, both for the research process and its outcomes (Talwar et al. 2011, Lang et al. 2012, Thompson et al. 2017, Hemström et al. 2021).

The interviewees described two approaches to establish and frame transdisciplinary research projects. In one approach, academics take the lead to ensure that the project objectives align with academic standards and funding requirements. An interdisciplinary team of academics drives the funding application process and solicits occasional feedback from non-academic partners. This approach is often

employed for conventional research projects that have predefined criteria and deadlines. A second approach is led by non-academic partners who develop the research project with support from academics. Many of these projects leverage the pre-existing relationships of team members who have developed a productive approach of working together and a common understanding on relevant issues. One respondent summarised this second approach, stating 'I think that when you have done that work beforehand, when you actually hand in the application, you are already on a good foundation and then you get the money and then you can continue.'

A key driver for both approaches to transdisciplinary research is financing. Project partners typically organise a team to respond to a specific funding call and then devise research questions to inform the application writing process. Some of the interviewees described how they recruit individuals from their professional networks based on previous engagements. Others felt that working with the same partners on multiple projects was detrimental to knowledge production and argued that it is important to identify new partners for collaboration. This suggests that there are benefits and drawbacks of relying on established relationships as well as developing new relationships when assembling a project team.

A key aspect of successful collaboration involves working with individuals who share common interests and objectives. One respondent stressed the personal aspects of recruiting project partners, noting that:

> Working together with people that you actually know a bit more and not just think: 'this person seems cool, let's apply for money'. It might turn out to be really hard to work with them. It's very personal; you never know beforehand.

Transdisciplinary project partners need to be genuinely interested in the collaborative process and the subject matter rather than being coerced or feel obliged to participate. The respondents discussed how they use their professional networks to develop a project team that is trustworthy and committed. They also emphasised that there is a need to facilitate interpersonal connections by meeting in less formal settings. This helps to build a solid foundation of trust and mutual understanding, which is crucial for effective collaboration.

Some of the interviewees also stressed the need to balance academic and non-academic team members to ensure that the perspectives of all parties are adequately represented (Norris et al. 2016). One interviewee noted the challenges of producing academic outputs in a team that was more focused on societal impacts and democratic engagement. Another researcher had similar experiences but acknowledged that the specific project was intended to emphasise societal outputs. This highlights the importance of developing shared expectations at the start of the project to ensure that the composition of the project team is appropriate for the intended outputs.

When partnering with non-academic actors, it is important to align the wide range of interests and experiences that influence the research process in distinctive ways. Academics often adopt a critical perspective to weigh the positive and negative aspects of an issue while NGOs and trade associations often have a strongly normative framing of issues and adopt an advocacy role. They participate in research activities to validate, legitimise, or empower their agendas (Hansson and Polk 2018, Fritz et al. 2019). Several of the respondents suggested that this is neither an advantage nor disadvantage and can be a helpful way to recruit potential collaborators to a new project. On the other hand, private sector actors

sometimes see project outputs as proprietary and confidential, and this has the potential to conflict with their abilities to share knowledge widely to benefit all stakeholders. Project partners can also have very different assumptions about timeframes and economic structures and these can result in conflicts. In all cases, it is important to be transparent about these issues and to manage expectations to produce effective modes of collaboration.

## Mutual Learning and Knowledge Integration

Once the project team is assembled and the aims and project objectives are established, it is important to consider how the team members can learn from one another and integrate their knowledge and experiences. Mutual learning supports joint problem-solving while enhancing the exchange and integration of diverse forms of academic and non-academic knowledge (Jahn et al. 2012, Brandt et al. 2013, Brink et al. 2018). The notion of integration refers to 'the cognitive operation that establishes a novel, hitherto non-existent connection between distinct entities of a given context' (Jahn et al. 2012: 3). Transdisciplinary research is sometimes referred to as 'integration research' and 'integration science' to emphasise the capacity to forge new and meaningful links between previously separate areas of knowledge (Russell et al. 2008, Jahn et al. 2012).

The interviewees described two approaches to mutual learning and knowledge integration. The first approach is a 'two-track process' where academic and non-academic partners work in parallel and come together at strategic times through the project. There is a clear separation between the two processes of research that are designed for different types of knowledge production. In effect, the academic research and non-academic research processes run in parallel. The second approach is an integrated process that engages all team members in most or all activities. This approach tends to be more time consuming because it involves significant coordination and a common understanding among all project partners. Many of the respondents advocated for this second approach because they felt that continuous engagement is the main advantage of transdisciplinary research and is necessary to produce novel outcomes. However, both approaches are valid and choosing one or the other depends upon the expectations of the team members as well as the goals of the project.

One respondent noted that it is important to consider who needs to be involved in each project activity. In some cases, all partners need to be equally represented in an activity while in other cases, only a select number of partners need to be included. Including everyone in all decisions is not always necessary and can result in project delays and frustration. A respondent noted that 'because we wanted to do a mixed method evaluation that is more quantitative, it made it hard to always be interdisciplinary and transdisciplinary.' This suggests the need to balance inclusion and efficiency by carefully orchestrating the contributions of the project partners (Jahn et al. 2012, Lang et al. 2012).

This shuttling back and forth between disciplines, sectors, and project activities is sometimes facilitated by a broker or intermediary. Several respondents described themselves as brokers who work to identify common ground between academics and practitioners by adapting the language of different partners and aligning the partners' backgrounds and experiences to a specific situation. While some respondents suggested that any project partner could serve as an intermediary, others argued that non-academic partners are best positioned to serve in this role due to their practical orientation and experience of

engaging with diverse groups. In all cases, the respondents suggested that transdisciplinary projects tend to be more successful when one team member is responsible for actively holding the team together.

Several respondents also emphasised the importance of the physical space for project activities (Polk 2014, Hansson and Polk 2018). Hosting project meetings in conducive environments has the potential to promote open communication and foster a sense of equality among participants. This can involve the rotation of meeting locations at the offices of different partners or by using external meeting spaces to create a neutral environment of inclusivity and equality while removing distractions of the everyday work environment. For example, a museum or a park might serve as a project meeting space that takes the partners out of their comfort zone and catalyses creative thinking.

The importance of intermediaries and physical meeting spaces also raises issues of power and its influence on transdisciplinary research processes. Some respondents noted that funding can produce unequal power dynamics, particularly when academic partners receive external funds and ask non-academic partners to provide in-kind funding. Ensuring that finances are equitably distributed among the project partners can help to address these power differentials and signal that everyone's input is valuable. The respondents also noted the power implications of language, particularly in international projects where communicating in English is the norm. Academics and practitioners use a multitude of specialised terms and even seemingly standard terms such as 'project' or 'research' can take on different meanings depending on a project partner's background and experience. Some project teams address this by developing a common language to cut across sectoral boundaries. For example, one respondent participated in team discussions to define ambiguous terms to ensure that there was mutual understanding by all parties. And at times, there are issues that cannot be discussed due to social or political sensitivities. This is particularly relevant with public sector partners who have an explicit duty to protect the public good and cannot become embroiled in contentious political debates. In such cases, the project teams are compelled to adapt their language or avoid particular topics altogether to ensure that team members do not suffer negative consequences.

Several respondents also noted a common challenge related to the turnover of individuals due to new job opportunities, retirement, illness, and so on. Constant turnover of team members undermines efforts to create and sustain a collaborative working approach. To address this, one respondent suggested that at least two individuals need to be engaged from each organisation to ensure continuity if one person leaves the project. On the other hand, bringing in new participants after a project has started can spur valuable moments for reflection and opportunities for the team to reassess their goals and strategies while also introducing new perspectives into the project.

Furthermore, it is important to debunk a common assumption that non-academics are not interested in academic knowledge production and see these activities as irrelevant or impractical. Several respondents were surprised by the significant engagement and interest of non-academics in debating about and contributing to academic knowledge while identifying ways to adapt these ideas to their everyday practices. As one respondent noted:

> For me, it was a lesson learned that you shouldn't underestimate your non-academic partners. Because it's quite common and I hear that sometimes - that you think that no one is reading, no one is interested.

This suggests that transdisciplinary research projects provide productive spaces to deliberate on ideas and experiences where all partners can contribute and benefit.

## Reflexivity and Societal Impact

Closely related to the concept of mutual learning is the notion of reflexivity (Jahn et al. 2012). Reflexivity involves the deliberate questioning of an individual's implicit assumptions about their own knowledge and how this connects to other knowledges (Schön 2017). When working in project teams, reflexivity involves back-and-forth processes to co-produce knowledge while also critically reflecting upon these co-production activities and their outcomes. These activities can produce lessons learned that extend beyond the project and influence how individual approaches their other job responsibilities (Hemström et al. 2021). Reflexivity allows for the continuous evaluation of project activities while emphasising the production of relevant outputs.

The respondents identified multiple opportunities for shared reflection and broader realignment of the project through formal activities such as meetings, presentations, and workshops as well as informal activities such as providing peer feedback on texts. Some respondents noted that that it is beneficial to develop deliberate reflexive activities to perform periodically throughout the project. For example, one respondent described a piloting approach to develop practice-oriented tools and guidelines when the team considered the actual application of the tool and how this could be useful to target audiences. The project team had a strong sense of ownership of the tools and guidelines and worked to increase the effectiveness of their application (Brink et al. 2018). Another respondent argued that non-academic partners do not always feel responsible for pushing the project forward and noted, 'we haven't given them that responsibility and maybe we should, maybe that would make them more engaged.' This is especially evident in the dissemination of project outputs that are often overshadowed by collaborative interactions.

A primary objective of transdisciplinary research is to create actionable outcomes to maximise societal impacts while contributing to academic knowledge production (Hemström et al. 2021). To address this, project teams can share responsibilities to disseminate project findings to multiple audiences. For example, one respondent described a project where the non-academic partners were tasked with summarising the project findings and identifying direct routes to adapt them into policy recommendations.

## Conclusions

Transdisciplinary research is emerging as a common approach to address confounding societal issues and it has the potential to generate new forms of integrative knowledge that draw upon a wide range of academic and non-academic experiences. In this report, we summarised some of the insights of ten researchers at Lund University who have experience working in transdisciplinary teams. The respondents described how they collaborate with non-academic partners to develop and frame projects, how they interact and engage with one another, and how they attempt to develop and apply reflexivity and learning in these interactions. Their experiences about the practicalities of transdisciplinary research highlight a range of opportunities and challenges as well as strategies that can be employed to transcend sectoral boundaries and reinvent conventional research norms and structures. Ideally, transdisciplinary projects are

facilitated by supportive environments where all project partners are encouraged to engage in meaningful ways. The ultimate aim of transdisciplinary research is to create more robust approaches to knowledge creation and application.

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