



UNIVERSITY OF  
CALGARY

# FINAL REPORT ***TRANSDISCIPLINARY*** **SCHOLARSHIP**

**Jim Ellis**

**Petra Dolata**

**Görkem Aydemir-Kundakci**



**UNIVERSITY OF  
CALGARY**

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# AT A GLANCE

## **TRANSDISCIPLINARY SCHOLARSHIP: A DEFINITION**

Transdisciplinary scholarship is directed towards a complex issue or problem, most often one with a social dimension. Because of the complexity of the issue or problem, it is best addressed by teams of researchers from multiple disciplines, usually representing at least two of the three major Tri-Council research areas (humanities and social sciences, natural sciences and engineering, health and medical sciences). To address the social dimension of the question, transdisciplinary research incorporates knowledges through theoretical or creative approaches to societal issues, and ideally by including societal actors who are implicated in the issue or problem in question.

External actors can and should be involved in both the identification and definition of the issue or problem as well as in discussions of how to conduct transdisciplinary scholarship in a collaborative, ongoing, and iterative way. Most importantly, they should be consulted to identify the desired outcomes or solutions. Transdisciplinary research requires trust and acceptance of potential failure.

Transdisciplinary scholarship sees all knowledge as equal and is framed as a mutual learning process. As a consequence, initial discussions in transdisciplinary scholarship will often require an exploration of the differences between the multiple forms of knowledge in play. By respecting all knowledges there are opportunities for decolonization, Indigenization, Equity Diversity, Inclusion and Accessibility (EDIA).

This kind of negotiation will inevitably lead to a longer research timeline, as research teams establish common vocabularies as well as understand the differences between vocabularies, approaches and methods in different disciplines and across different sectors.

Transdisciplinary scholarship will produce both traditional forms of academic knowledge as well as outcomes with direct societal impact such as public policy or new technologies.

Different actors will have different stakes in the research and different expectations about outcomes, including ownership of research products and data (for example First Nations principles of ownership, control, access and possession OCAP®).

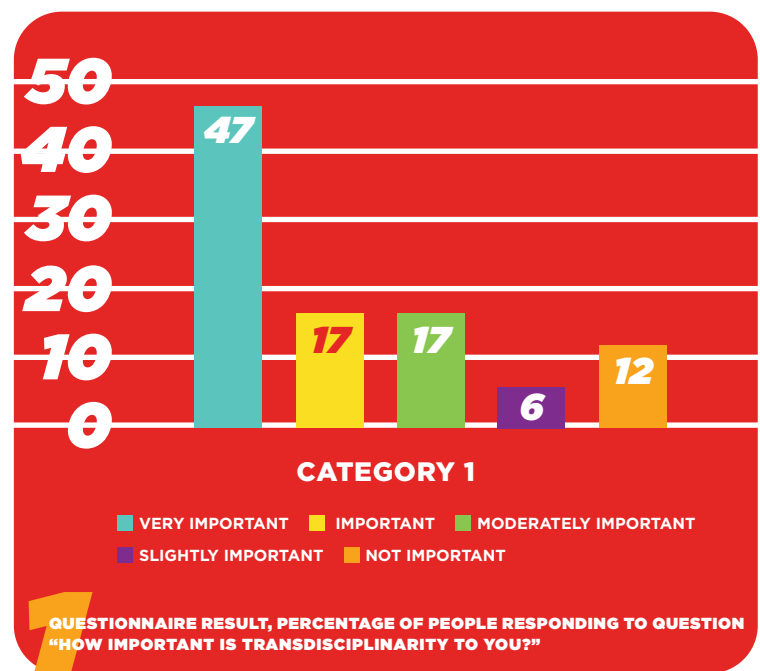


# INTRODUCTION

In its current strategic plan *Ahead of Tomorrow (2023-2030)*, which came into effect in July 2023, the University of Calgary committed to “expanding transdisciplinary scholarship.” While some UCalgary scholars were already involved in transdisciplinary scholarship, a systematic and institutionalized approach by the university necessitated a higher-level description of the concept of transdisciplinarity. Thus, the Calgary Institute for the Humanities (CIH) in the Faculty of Arts was tasked with providing a definition for transdisciplinary scholarship as well as identifying best practices and challenges. Between April and December 2023, CIH Director Jim Ellis (Department of English) and CIH Scholar in Residence Petra Dolata (Department of History) together with UCalgary Transdisciplinary Postdoctoral Associate Gökem Aydemir Kundakci (Department of Anthropology and Archaeology) carried out environmental scans and literature reviews, designed questionnaires for the UCalgary community, and held interviews and meetings with colleagues and community partners to arrive at a definition of transdisciplinarity and suggest how the University of Calgary could best support faculty, students, and staff who wish to engage in transdisciplinary scholarship.

The Calgary Institute for the Humanities is in a unique position to have led this endeavour. Founded in 1976, it is the oldest humanities institute in Canada. For almost fifty years, it has encouraged inter- and transdisciplinary conversations between scholars and with communities on societal issues and more generally what it means to be human in today’s world as we face a multitude of complex challenges. Through its annual programming the CIH supports working groups which are dedicated to inter- and transdisciplinary research. Since 1981 the CIH has organized an annual *Community Seminar* which brings together Calgary community members and UCalgary scholars to discuss topics as wide ranging as the Insect Apocalypse, Mythologies of Outer Space, the End of Expertise, the Cultural Politics of DNA, Living with Plants, Water in the West and City of Animals.

As the world faces complex challenges which need urgent engagement including climate change, transdisciplinary scholarship has become increasingly important. Funding agencies all over the globe encourage and earmark funding for projects which address these major challenges through transdisciplinary scholarship. For example, the Canadian Tri-Council supports transdisciplinary scholarship through their New Frontiers in Research Fund (NFRF), the Canada





We were unable to interview all the people we wished to but are grateful to those who gave us their time and expertise. Key findings from these meetings are integrated into our definition and explication of transdisciplinary scholarship and inform our discussion of its challenges.

Over the course of this research, we attended various events supported by the Transdisciplinary Connector Grants to continue to gain insight into transdisciplinary scholarship currently happening at the University of Calgary. On Nov. 28, 2023, we presented the results of our research and a proposed draft definition of transdisciplinary scholarship to the University community and received feedback. On Dec 7, 2023, we hosted a webinar with Prof. Dr. Martina Shafer, Scientific Director of the Centre for Technology and Society in Berlin, on assessing the societal impact of transdisciplinary scholarship.

# TRANSDISCIPLINARY SCHOLARSHIP!

## DEFINITION AND EXPLICATION

Transdisciplinary scholarship is directed towards a complex issue or problem, most often one with a social dimension. Because of the complexity of the issue or problem, it is best addressed by teams of researchers from multiple disciplines, usually representing at least two of the three major Tri-Council research areas (humanities and social sciences, natural sciences and engineering, health and medical sciences). To address the social dimension of the question, transdisciplinary scholarship incorporates knowledges through theoretical or creative approaches to societal issues, and ideally societal actors who are implicated in the issue or problem in question.

**1** Transdisciplinary scholarship is directed towards a complex issue or problem, most often one with a social dimension.

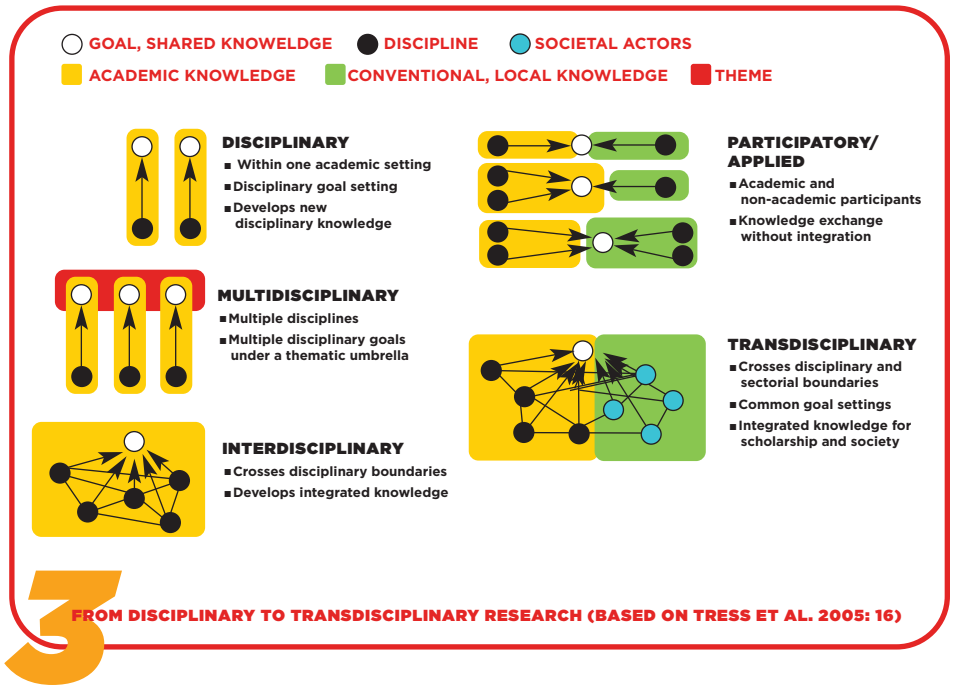
By “**complex issue or problem**” we are referring to what is often identified as a wicked problem or grand challenge. There is a large scholarly literature, starting in the 1970s, on defining wicked problems. One representative definition argues that: “a wicked problem is a complex issue that defies complete definition, for which there can be no final solution, since any resolution generates further issues, and where solutions are not true or false or good or bad, but the best that can be done at the time. Wicked problems are not morally wicked, but diabolical in that they resist the usual attempts to

### WHAT WE HEARD IN OUR SURVEY AND INTERVIEWS

Transdisciplinarity “considers the human aspect of problems,” it is typically “more ambitious, high-risk research with a social impact.” Part of the reward is “seeing what you have published implemented, to inspire a change or shift; measuring that shift as a success, such as the societal perception of climate change, or a policy, or changing the educational system.” Transdisciplinary scholarship produces “research artefacts with societal value that don’t check the usual boxes.”



solve them” (Brown et al 2010). Transdisciplinary scholarship is “**directed towards**” a problem, because there may or may not be solutions, as the above definition of wicked problem suggests. Research outcomes do not necessarily have to be tangible: they could also be a new way of thinking about a problem, and the outcomes take multiple forms. The ways that



transdisciplinary scholarship is “**directed**” might take different forms: critically engaging, creatively engaging, problem solving, producing public policy, producing technology, and influencing public opinion are some of the different aims and directions of transdisciplinary scholarship. However, the problem or challenge of transdisciplinary research is “**most often one with a social dimension.**” The social dimension is usually in fact what makes it a wicked problem: the problem is not solveable but only addressable because it is embedded in social situations, with many different actors and many different variables. The social dimension is central in many discussions of transdisciplinarity, and what distinguishes it from multidisciplinary and interdisciplinarity (see Figure 3): these can remain within the confines of institutional knowledge, whereas transdisciplinarity is typically understood to be engaging with partners outside the university, to solve complex societal problems. This is “**most often**” the case, but there is also a stream of transdisciplinary knowledge identified as the “unity of knowledge” approach (see key readings section below), which aims more at the transcending of disciplinary barriers, and which need not engage with a grand challenge or wicked problem.

**2 Because of the complexity of the issue or problem, it is best addressed by teams of researchers from multiple disciplines, usually representing at least two of the three major Tri-Council research areas (humanities and social sciences, natural sciences and engineering, health and medical sciences).**

Transdisciplinary scholarship is usually performed by “**teams of researchers from multiple disciplines**” who bring to the table many different knowledges. These researchers typically start from a position of disciplinary grounding and engage in multidisciplinary and interdisciplinary conversation.

It can be helpful and indeed necessary to conceptually differentiate between these multidisciplinary, interdisciplinary, and transdisciplinary approaches, in practice, they are complementary and often overlap.

As one scholar writes: “multidisciplinarity, interdisciplinarity and transdisciplinarity are better treated as complementary rather than being mutually exclusive. It is important to stress this complementarity because without specialized disciplinary studies there would be no in-depth knowledge and data” (Lawrence, in *Tackling Wicked Problems*, 21; 2010). Here is an unspoken but crucial issue, implied in the mention of “**multiple disciplines**”: transdisciplinary scholarship does not displace or supplant disciplinary engagement: most often it depends upon it. It may be that through the transdisciplinary engagement disciplinary boundaries are blurred or transcended, and new disciplines may even emerge (as with biomedical engineering, for example) but typically we start from the in-depth knowledge and data that disciplines both offer and produce.

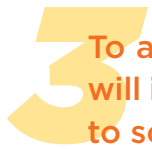
### WHAT WE HEARD IN OUR SURVEY AND INTERVIEWS

This is something that almost all of those with deep experience with transdisciplinary work said, in one way or another: the starting point is a recognition of “the value of ... humility”; which allows for the “the integration of the very best of the specialization that we have in each of our disciplines.” Transdisciplinary scholarship involves “multiple players, fields and points of view, from the very beginning.”

TDR is typically performed by “**teams of researchers.**” The question can be posed as to whether an individual can be transdisciplinary or pursue transdisciplinary scholarship on their own, along with a related question, as to where transdis-

ciplinarity as such resides: is it in the project or in the approach? Generally speaking, in practical terms it usually means a group, with members of that group bringing deep disciplinary knowledge but also a humility about the limitations of their disciplinary approach, and a willingness to listen, and to be taught. This requires a recognition of the equality of different knowledges from the beginning; seeing all knowledges as complementary; a desire to transcend or ignore hierarchies of disciplines; and to accept all kinds of knowledges as equal.

In the Canadian university context, teams will include researchers “**usually representing at least two of the three major tri-council areas.**” This is necessitated by the scope of the kinds of approaches that are necessitated by dealing with wicked problems. The breadth of disciplinary knowledges signalled here is what one of our interviewees calls “difficult” transdisciplinarity: when the team crosses major disciplinary divides. Collaboration between cognate disciplines tends to be less challenging in terms of establishing an understanding of a problem, negotiating a common vocabulary, and so on: the further apart the disciplines are, the more negotiation and conversation is required.



To address the social dimension of the question, transdisciplinary scholarship will incorporate outside knowledges through theoretical or creative approaches to societal issues and ideally societal actors who are implicated in the issue or problem in question.

Here we recognize one of the key defining traits of transdisciplinary scholarship, moving from the multiple disciplines inside the university, and outwards to **incorporate outside knowledges**. This is in line with the University of Calgary’s commitment to the communities it serves, and the acknowledgement that valuable knowledge exists outside the university, whether in Indigenous communities, immigrant communities, equity deserving communities and further.

In the make-up of its research team, transdisciplinary scholarship will include outside knowledge and **ideally societal actors**, who are implicated in the issue being addressed. This is, for many transdisciplinary researchers, the real defining characteristic of transdisciplinary scholarship, and what sets it apart from multidisciplinary and interdisciplinary work: the involvement of social actors in the research partnership and the research process. There is a recognition that valuable knowledge exists outside the university, at local, regional, national and global levels, and this knowledge is best accessed

through the inclusion of outside actors. These outside actors are individuals, communities and organizations who are implicated in the issue or problem in question, and who thus have practical knowledge about the problem and a direct stake in the solution. The research is not studying them, it is involving them in the search for solutions, and especially in the

identification of the problem: what is the research actually trying to address? What are the best means of addressing it, and what are the desired outcomes for the various parties involved, who likely have different investments in the problem, different ways of understanding the problem, and different desired outcomes? As stated above, complex issues often reside in societal contexts: that’s what makes them wicked problems.

Transdisciplinary scholarship might not always go outside the university, particularly when employing **theoretical or creative approaches**: it may, instead, incorporate understandings of the social world that are produced by different academic disciplines, often those that are directed towards studying society: social sciences, social work, education, the fine arts and the human-

### WHAT WE HEARD IN OUR SURVEY AND INTERVIEWS

There is a recognition that valuable knowledge exists outside the university, at local, regional, national and global levels, and this knowledge is best accessed through the inclusion of outside actors. Our interviewees talked about the value of the “integration of ‘internal’ and ‘external’ forms of knowing,” and the recognition that “engaging practitioners early in the project improves the societal impacts of research.” By including societal actors, TDR is “drawing on a community of knowledge that transcends a particular area ... solving societal problems with society.” The early inclusion of social actors ensures that TDR is “solving the right problem through co-development with end-users.”

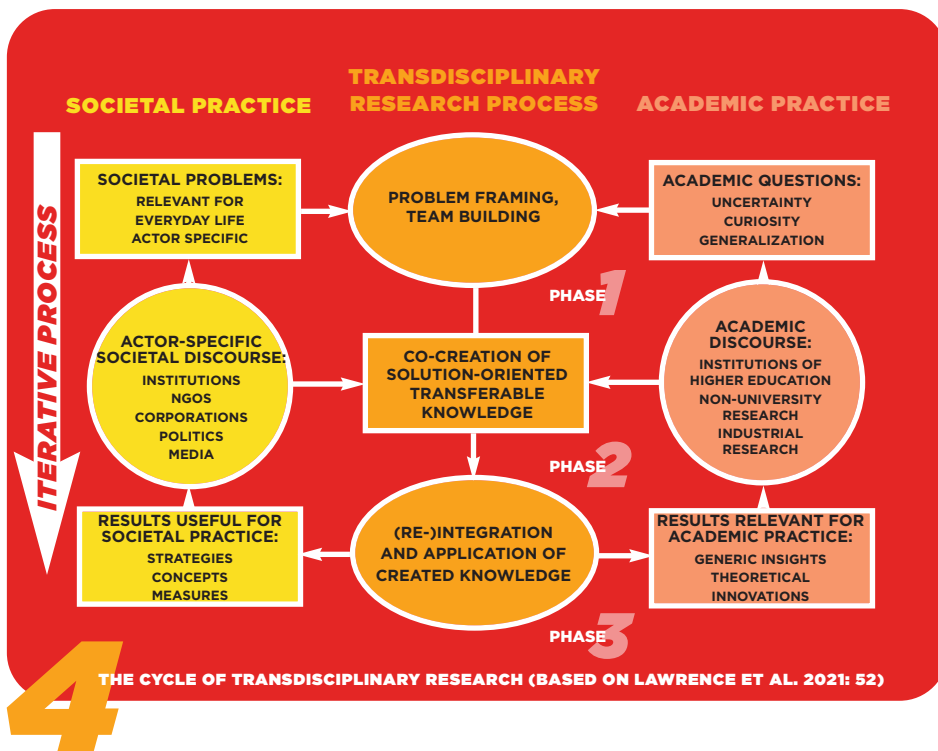
ities. Finally, implied in our interest in the social dimension of the problem, is the fact that we are thinking about the common good; we might think here about *Energy for the Common Good*; the university's current strategy for energy transition. This is again, a very commonly identified characteristic of transdisciplinary scholarship research: that it is working for the common good.

## TRANSDISCIPLINARITY AS A PROCESS

As can be gleaned from these definitions of transdisciplinarity, transdisciplinary scholarship introduces a paradigm shift in research practice with fundamental impacts on research processes. In the following, we outline how some of the defining characteristics of transdisciplinarity translate into carrying out transdisciplinary scholarship.

First of all, involvement of external actors in the identification and definition of an issue, as well as in discussions about transdisciplinary research methodologies, is crucial for a robust and inclusive research process. In

transdisciplinary scholarship, which integrates diverse disciplines to address complex problems, external actors bring varied perspectives, expertise, and their particular experiences. Their involvement ensures a comprehensive and nuanced understanding of the issue at hand. Transdisciplinary scholarship ensures that all stories are heard and encourages encounters which lead to deeper entanglement. It goes beyond the things you know and the



thinking you know. It thus also requires humility and openness to new practices and knowledges. Not relying on what one has learned already and stepping outside one's comfort zone will be a frequent experience when carrying out transdisciplinary research.

Including external actors should promote collaboration in an ongoing and iterative way from the beginning. By fostering a collective approach in this way, the research can benefit from a broader range of insights and different forms of knowledge in an equal way, potentially uncovering novel solutions that might be overlooked in a more siloed approach. It is also important to note that societal actors should play a pivotal role in not only shaping the research agenda but also in identifying desired outcomes or solutions that resonate with their particular needs, concerns, and expectations.

And in achieving this, trust is a cornerstone of transdisciplinary scholarship, as it involves navigating the uncertainties and challenges inherent in collaborative endeavors. Trust that is gained through long-term commitment and relationship enables all research actors to share their knowledge transparently, engaging in open dialogue. Moreover, in this long-term collaboration process, the acceptance of potential failure should be integral to transdisciplinary scholarship, as it acknowledges that experimentation and exploration in a collaborative research process may not always yield immediate success. Embracing this reality would enable an environment where lessons from failures contribute to the refinement and improvement of research strategies, ultimately enhancing the effectiveness of transdisciplinary approaches through process knowledge.

Transdisciplinary scholarship rests on the principle that all forms of knowledge are considered equal, emphasizing a mutual learning process. In this approach, the recognition of diverse forms of knowledge becomes central to the research endeavor. Consequently, initial discussions within transdisciplinary research often entail a thorough exploration of the variations among the multiple forms of knowledge at play.

Respecting all types of knowledge creates opportunities for challenging colonial structures that have historically marginalized certain forms of knowledge. It also seeks to incorporate Indigenous knowledge and Indigenous ways of being in the world into research practices and knowledge production. Inclusion of different forms of knowledge, of course, also helps to ensure that the process is inclusive, equitable and accessible, fostering a more just and comprehensive approach.

However, this commitment to recognizing and incorporating diverse knowledges inevitably extends the research timeline. The collaborative nature of transdisciplinary scholarship requires research teams to engage in extensive negotiations to establish common ground, understand differences in vocabularies and discourses, and to appreciate the distinct approaches and methods that are employed across various disciplines and societal sectors.

The process of negotiating and reconciling diverse perspectives contributes to the development of shared vocabularies and understandings. While this negotiation process may introduce complexities and challenges, it is fundamental to the effectiveness of transdisciplinary scholarship, ensuring that all team members can meaningfully contribute to the research objectives and research process.

Transdisciplinary scholarship aims to generate not only conventional academic knowledge but also outcomes that directly influence society, ranging from the development of public policies to the creation of new technologies. By bridging the gap between academic knowledge, practical knowledge, and everyday experience, this approach aims to have a transformative impact on communities and social structures, even though it does not have to be an immediate, tangible one. It may also lead to the transformation of each other's practices and knowledges or initiate fundamental attitudinal shifts.

It is important to keep in mind that the diverse outcomes of transdisciplinary scholarship are grounded in varied interests and expectations among different actors involved. Various actors, such as researchers, policymakers, industry and community representatives, may have distinct stakes in the research process, driven by their roles, responsibilities, and life conditions. Accordingly, they may hold different expectations regarding the outcomes of the research, including the ownership of research products and data. Ethics and practices around ownership and control of products and data are extremely important in transdisciplinary scholarship.

The dual nature of transdisciplinary scholarship outcomes, encompassing both academic and non-academic knowledge, requires careful navigation of diverse actor interests and expectations. Effective communication, collaboration, and ethical considerations are vital to ensure that the benefits of the research are shared equitably among actors, fostering a responsible and inclusive approach to research process and knowledge production.

## CHALLENGES

**As the above outline of the transdisciplinary research process has already indicated, there exist a number of challenges that researchers and collaborators have to address to ensure that transdisciplinary scholarship can provide meaningful insights and equitable answers and solutions to societal issues. The following discussion of these challenges is based on our literature review, the questionnaire and, most importantly, our in-depth interviews with colleagues and community partners.**

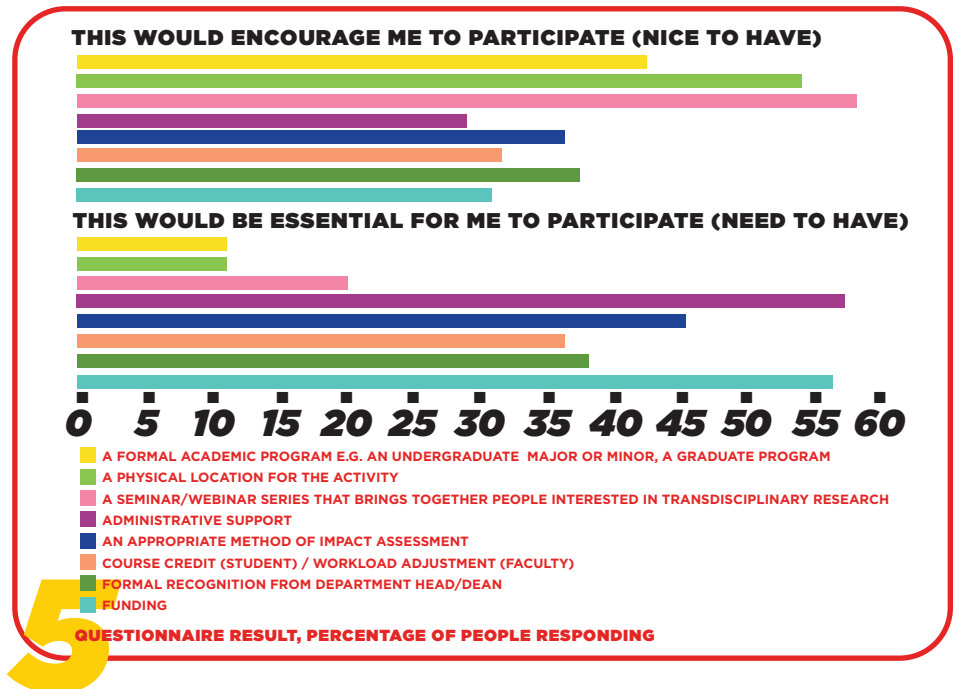
### ***TDR and UCalgary RESEARCHERS***

The first set of challenges that were articulated by colleagues, both in interviews as well as in the questionnaire, are related to the individual UCalgary researchers and their positions within the existing structure of faculties and disciplines at the University of Calgary. Existing and perceived inequities across faculties in terms of budgets, dedicated administrative support, work, teaching and service loads impact transdisciplinary scholarship which is to transcend disciplines. What individual researchers can bring to the table may differ considerably and could potentially create a structural impediment for some colleagues to join transdisciplinary research teams as they are unable to do so on equal terms. Beyond different funding scenarios within SSHRC, NSERC and CIHR, with the former often maxing out at much lower amounts than the latter two, there is also a feeling that there exist hierarchies between disciplines which will hinder true collaboration.

Almost all respondents and interviewees agreed that transdisciplinary scholarship necessitates greater time commitments. As described above in detail, it is a very complex approach, and the research process is often long-term and iterative. Establishing and sustaining connections, both across different disciplinary cultures and languages and with community partners, while integral to transdisciplinary scholarship and highly rewarding, can be extremely time-consuming. Finding collaborators on campus was named as another possible impediment to creating transdiscipli-



nary research teams, especially if timelines for funding applications are short. While this is already addressed at UCalgary through databases listing researchers and their transdisciplinary research expertise, we have also encountered different levels of available capacity to join newly emerging transdisciplinary scholarship teams. This may be addressed through a tiered system of transdisciplinary researchers, where those who currently do not have additional research capacity but relevant knowledge and expertise in transdisciplinary scholarship, could be listed in a different category and provide support, for example, with regards to funding applications, even though they will not be part of the official transdisciplinary research team. With regards to transdisciplinary scholarship on campus, we repeatedly heard calls for a dedicated physical meeting space to formally pursue transdisciplinary research but also to informally create a transdisciplinary scholarship community, members of which meet regularly face-to-face and discuss their research outside and beyond organized research teams and agendas. This more informal kind of brainstorming may be supported through dedicated funding that is not tied to a transdisciplinary research project but to bringing interested researchers together. It was also suggested to empower individual transdisciplinary scholarship champions to bring people to the table and talk.



Another area which colleagues were concerned about, revolved around questions of recognition and publications. Despite efforts to improve the ways in which researchers and the outputs of scholarly research are evaluated through the San Francisco Declaration on Research Assessment (*DORA*), concerns still exist around questions of research metrics and discipline-based standards for tenure and promotion. Transcending disciplinary siloes through transdisciplinary scholarship necessitates that researchers publish beyond disciplinary scholarly outlets, which may impact tenure and promotion files. Where and how researchers publish is an important consideration for transdisciplinary scholarship as they aim to reach a wider audience and co-author transdisciplinary contributions. For some disciplines, for example, co-authorship may not be the norm. Faculties need to take this into account as they make decisions on tenure and promotion requirements. More generally, funding and awards ecosystems need to reflect transdisciplinary research. Current awards categories which mirror the Tri-Council funding structure are insufficient.

Related to the issue of recognition is also the question of ownership of grants. How can a truly transdisciplinary team effort, which brings all researchers and knowledge holders together on equal terms, be reflected when there is one designated Principal Investigator to whose faculty the funding will go and potentially impact the availability of other Tri-Council funding (for example, in apportioning CRC positions)? Who will provide the dedicated administrative support to facilitate TDR research?

## ***TDR and COMMUNITY***

The second set of challenges we encountered was related to the specifics of integrating societal practice. Here, different stakes, expectations and understandings that exist in academia and communities were identified as potential areas of concern. Community and academics may have different ideas about what constitutes research. They may want very different things out of research and their partnership. As one respondent cautioned, transdisciplinary scholarship is not paid consulting.

When embarking on new transdisciplinary research projects, initial challenges were seen in initiating and negotiating community engagement and involvement. Since transdisciplinary scholarship aims to support research with, and not of, community and tries to avoid extractive research processes, it will be paramount to include all knowledges and ways of knowing, especially outside academia, in the research endeavour from the beginning. This is often achieved through bringing in community actors and knowledge holders. However, it is not always clear whom and how to approach these actors. More importantly, how can community resources be acknowledged or remunerated and how can community partners become more visible in the research process? Most importantly, academic researchers need to acknowledge that they are just as much learners in that partnership as they are teachers. They need to learn how to step back and give space to community partners. Transdisciplinary scholarship is about learning together, and acknowledging that communities also have wisdom, answers and the capability to analyse. Thus, language around community partners needs to change to indicate this more active role. Societal actors and communities are more than knowledge beneficiaries, mobilizers or users. They are knowledge creators and active participants.

Another valid question to ask is where should transdisciplinary research teams meet? It is crucial to create a welcoming and safe space for collaborative transdisciplinary scholarship which allows community members to meet academic researchers on their own terms. This may also mean that transdisciplinary research teams meet in very different spaces and locations than they are used to, possibly away from campus, thus contributing to additional time commitments. Community team members may be constrained by different time scales that impact their involvement as well as expectations of transdisciplinary scholarship outcomes. Even amongst academic researchers on campus we observed varying research rhythms which may not always align with schedules of peers on campus or community members. This is a significant challenge for the transdisciplinary research process which strives to be consistent, iterative and sustainable.

In order to ensure that societal actors become equal members of the transdisciplinary research team, a project governance structure that truly reflects the transdisciplinary research partnership needs to be created. This also means that dedicated legal support is needed, for example to help create Memorandum of Understandings (MOUs), while increased institutional bureaucracy needs to be avoided so as to ensure continued community participation. Through *Knowledge Engagement* UCalgary has a dedicated approach which can provide support, but it may be worthwhile expanding based on transdisciplinary scholarship principles of community engagement. There are processes in place to ensure that UCalgary researchers observe the standards of research ethics and address potential biases as they engage with communities. However, as more transdisciplinary research teams emerge and more researchers are pursuing transdisciplinary scholarship, who are usually not engaging with societal actors, it may be important to focus even more on a campus-wide support system which provides guidelines and ensures that research protocols are in place, research ethics observed, and biases addressed. When setting up community-partnered transdisciplinary research teams, relevant and useful formats of research outputs should also be determined. If the research is considered a service to the community, wider public or society, then the question needs to be asked, what do societal partners need and what is useful to them in terms of outcomes. Finally, there needs to be a frank and open discussion on the intellectual ownership of research products, including data, patents, documents, stories etc. As the First Nations principles of ownership, control, access, and possession (OCAP®) reminds us, the principle of academic freedom and openly accessible research outcomes may not always align with principles of Indigenous data sovereignty or the wishes of the community partners.

## ***TDR and the NEXT GENERATION***

In our many conversations, we were often cautioned to particularly consider the impact of transdisciplinary scholarship on the next generation of researchers, whether graduate students, post-doctoral associates or early career and emerging researchers. They have to build relations for their future career and research and produce scholarly outputs within a limited time period. As they prepare for tenure and the highly competitive academic job market, they are particularly vulnerable to the time risks involved in transdisciplinary research. Not only does transdisciplinary scholarship often mean longer and more complicated timelines, but there is a higher possibility of delay, change and even failure in transdisciplinary research as it focuses on big questions and complex wicked problems. Graduate students with transdisciplinary degrees may not always find recognition of their transdisciplinary scholarship credentials as they do not fit into disciplinary PhD programs or positions. More generally, transdisciplinary graduate programs will need to find ways to operationalize co-supervision across faculties and beyond campus, change the scholarship ecosystem to build in awards for transdisciplinary research and find new ways of mentorship that reflect transdisciplinary scholarship principles.

# KEY READINGS AND RESOURCES

**Transdisciplinary scholarship has become, since its emergence in 1970**, an established field with a vast and varied scholarship, including overviews of the field and literature reviews. There is no common account of the emergence of transdisciplinary research as a concept and no common definition. It emerged in a number of different contexts, and this necessarily means a number of different definitions. What can be said is that the term was first used in the early 1970s, when it was most associated with urban planning, development and sustainability studies. The use of the term has exploded in the last 30 years or so.

Transdisciplinarity is first discussed at a seminar on interdisciplinarity at the University of Nice, in a presentation by Jean Piaget. Publications by Piaget and Ernest Jantsch soon followed which elaborated on the concept. At this point, transdisciplinarity is concerned with transcending the divisions between the multiplying and increasingly siloed academic disciplines, what would be identified as a “unity of knowledge” approach to transdisciplinarity. Following the First World Conference of Transdisciplinarity (1994), physicist Basarab Nicolescu produced a “Manifesto of Transdisciplinarity” which has a clear orientation towards the public good, but nonetheless is focussed on “transdisciplinarity as a theoretical unity of all of our knowledge” (Lawrence et al. 46), while not downplaying the importance of disciplinary research.

The other major development in transdisciplinary scholarship, the emergence of what is often labelled the “social engagement” stream, is associated with the United Nations Earth Summit in Rio de Janeiro in 1992. This conference has been identified “as the turning point of awareness about a need for action in the academic and scientific communities” (Bernstein); the World Conference on Sustainable Development in Johannesburg (2002) would be similarly influential on the popularization of transdisciplinary research. Both conferences were crucial for a shift in thinking about development issues, and the necessity to involve local actors in identifying problems and exploring solutions; “integrating the local population into the research process in an active way” (Hirsch Hadorn et al, 26) and promoting mutual learning between scientists and local actors. This integration of local actors and non-academic knowledge will become a defining characteristic of the social engagement stream of transdisciplinary scholarship, most often associated with environmental and development issues.

Many discussions of transdisciplinary scholarship offer contrasts with disciplinary, multi-disciplinary, interdisciplinary, and applied research. While this is useful, practitioners observe that the approaches often overlap. Generally speaking, multi-disciplinary research involves academics from different disciplines working on a mutual project, but largely in isolation from each other, and with no attempt to create a conversation between disciplines. Interdisciplinary research seeks from the beginning to integrate multiple disciplinary approaches in the investigation of a

problem or question. Transdisciplinary research is distinguished from these in drawing on knowledges outside traditional academic disciplines, and involving them throughout the research project and from the beginning in the identification of the problem and the desired solution. While applied research, like transdisciplinary scholarship, is directed towards a real-world problem, it does not typically involve real-world actors in the process.

The real-world problems addressed by transdisciplinary scholarship, particularly in the social engagement stream, are often intractable issues with multiple dimensions: what Ritter and Weber (1971) identified as “wicked problems.” A robust literature has developed around wicked problems, which are related to grand challenges and “super-wicked” problems (Levin et al 2012). Some of the defining features of wicked problems are that they cannot be fully solved, but rather only addressed; they are best addressed through a variety of disciplinary approaches; they have a societal dimension; and there is an urgency to them.

## SUSTAINABLE DEVELOPMENT GOALS



Discussions of the process of transdisciplinary research note that the process is collaborative and iterative. Collaborators must agree on the nature of the problem, the desired outcomes, as well as the roles of collaborators and the agreed-upon process: various researchers have identified the differing kinds of knowledges involved in the process, such as transformation knowledge, target knowledge and systems knowledge (Lawrence et al, 2022). Ideally, transdisciplinary scholarship results in a variety of outcomes as well, including practical solutions, policy papers, academic knowledge and reflections on the TD research process itself.

## Key READINGS

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## **Web RESOURCES**

### **Network for TRANSDISCIPLINARY RESEARCH**

Hosted by the Swiss of Arts and Sciences this platform contains TDR toolboxes and literature and facilitates networking across disciplines. It features definitions of TDR along with discussions of research processes, approaches, and evaluation. It also contains details of the bi-annual International Transdisciplinary Conference (ITD).

### **GLOBAL ALLIANCE for Inter- and Transdisciplinarity (ITD Alliance)**

The ITD Alliance serves as hub for networks, associations, institutions and individuals and facilitates capacity-building for collaborative research. It links to a wide range of resources.

### **The BELMONT Forum**

An international partnership focussed on environmental change research, funding "natural scientists, social scientists and stakeholders to conduct transdisciplinary research." Their website hosts calls for Collaborative Research Actions and has a large resource library documenting many TD projects.

### **UTRECHT University**

A longstanding leader in TDR, Utrecht's website has many resources for understanding and undertaking TDR projects, including an informative introduction to "What is Transdisciplinary Research?"

### **TU BERLIN – Center Technology and Society**

An institution "established to enable research beyond disciplinary boundaries." Their website documents their six areas of focus and their research into TD methods, including research into evaluating the social impact of TDR.

### **BRIDGING BARRIERS at the University of Texas**

This program focusses on campus-wide grand challenges, including "Planet Texas 2025"; "Good Systems"; and "Whole Communities – Whole Health." This site offers a good example of innovative visualization of projects.

# THANK YOU

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## INTERVIEWEES

- Dr. Gabriela Alonso Yáñez (Werklund School of Education, Curriculum and Learning)
- Dr. Lindsay Amundsen-Mayer (Faculty of Arts, Department of Anthropology and Archaeology)
- Dr. Bruce Barton (Faculty of Arts, School of Creative and Performing Arts)
- Dr. Karen Benzies (Faculty of Nursing)
- Dr. Gwendolyn Blue (Faculty of Arts, Department of Geography)
- Dr. Marjan Jose Eggermont (Schulich School of Engineering, Department of Mechanical and Manufacturing Engineering)
- Dr. Nils Forkert (Cumming School of Medicine & Schulich School of Engineering, Department of Electrical and Software Engineering)
- Dr. Ronald Peter Glasberg (Faculty of Arts, Department of Communication, Media and Film)
- Dr. Michael S. Kallos (Schulich School of Engineering, Department of Biomedical Engineering)
- Dr. Lina Kattan (Schulich School of Engineering, Department of Civil Engineering)
- Dr. Yrjo Koskinen (Haskayne School of Business, Finance)
- Dr. Jean-René Leblanc (Faculty of Arts, Department of Art and Art History)
- Dr. Aoife Mac Namara (Faculty of Arts)
- Dr. Sabrina Perić (Faculty of Arts, Department of Anthropology and Archaeology)
- Houston Peschl, MBA (Haskayne School of Business, Entrepreneurship and Innovation)
- Dr. Yvonne Pratt Poitras (Werklund School of Education, Adult Learning)
- Dr. Elizabeth Rohlman (Faculty of Arts, Department of Classics and Religion)
- Dr. Tinu Ruparell (Faculty of Arts, Department of Classics and Religion)
- Dr. Tricia Stadnyk (Faculty of Arts, Department of Geography)
- Diana Sherlock (independent curator and writer)
- Héctor Turra (PhD student, Werklund School of Education)



