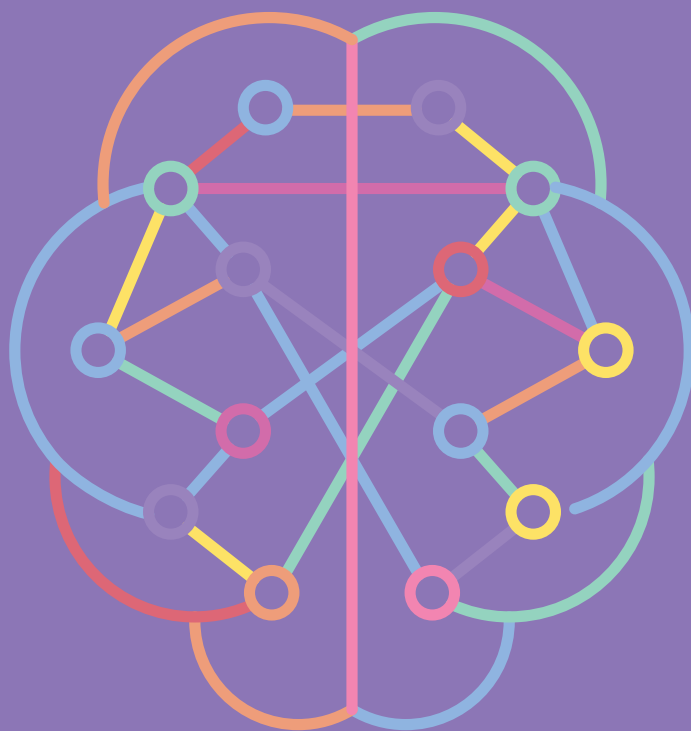




ITD Alliance

Global Alliance for
Inter- and Transdisciplinarity



THE INTER- AND TRANSDISCIPLINARY (ITD) PHD SUPERVISION GUIDE

by ITD Alliance Early Career
Researchers (ECR) Working
Group

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Layout

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FEEDBACK

We warmly invite both doctoral researchers and supervisors to share your feedback on this guide. Please send your responses to the following questions to the authors (BinBin J. Pearce, b.j.pearce-1@tudelft.nl) after you have made use of the guide. This guide is a continuous work in progress, and your input will be invaluable in helping us refine and improve it for future users.

1. Has this guide helped you in your ITD research journey? If at all, how?

2. What questions has this guide possibly missed that would have been important to address?

3. Our main recommendations for the authors of the Guide are:

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WHY AN ITD PHD SUPERVISION GUIDE?

Carrying out interdisciplinary and transdisciplinary (ITD) research is essential for addressing complex, real-world problems, yet doctoral researchers pursuing these approaches face unique supervisory challenges.

Interdisciplinarity refers to research that integrates concepts, theories, and methods from two or more disciplines to create more comprehensive insights or solutions that could not be achieved within a single disciplinary frame (Klein, 2010). Transdisciplinarity, additionally, transcends academic boundaries by combining scientific knowledge with the experiential and value-based knowledge of non-academic actors, such as policymakers, practitioners, or communities (Pohl & Hirsch Hadorn, 2007). Both approaches share a commitment to integration and synthesis, but they differ in scope: interdisciplinary research bridges disciplines within academia, whereas transdisciplinary research connects academic and societal domains.

These challenges often stem from differences in epistemological assumptions, conflicting methodological preferences, and fragmented institutional structures. Supervisors from different disciplinary backgrounds may hold divergent views on research quality and doctoral guidance, leading to inconsistent expectations and unclear communication (Vanstone et al., 2013). Without structured guidance, both doctoral researchers and their supervisors struggle to manage these tensions, underscoring the need for dedicated support frameworks.

Interdisciplinary research requires PhD researchers to integrate distinct disciplinary languages and conceptual frameworks, often leading to communication barriers and cognitive obstacles that hinder research progress. Transdisciplinary research, on the other hand, extends beyond academia, requiring doctoral researchers to balance scholarly rigor with stakeholder expectations and needs, further complicating supervision. It should be noted that interdisciplinary approaches (ITD) can either be applied across various topics and disciplines or constitute a research topic in their own right.

WHY AN ITD PHD SUPERVISION GUIDE?

In a co-supervision model involving committees composed of members from diverse disciplinary backgrounds, specific challenges also tend to arise. While the doctoral researcher may benefit from diverse perspectives, this setting can also introduce power imbalances and diffuse responsibility, potentially leaving doctoral researchers caught between conflicting priorities (Kálmán et al., 2022). In the absence of clear supervisory frameworks, early-career researchers may find themselves in a “liminal” space, facing heightened uncertainty about their professional identity (Djinlev et al., 2023). The pressure to deliver societally relevant outcomes can also weaken the coherence of academic supervision. Scholars have emphasized the need for improved supervision models through enhanced training, clearly defined co-supervision protocols, and greater institutional flexibility (Rana et al., 2025). Yet institutional policies often fail to accommodate these complexities, reinforcing the necessity of experience-based guidance in interdisciplinary and transdisciplinary (ITD) research contexts.

Recognizing these challenges, we aim to integrate our experiences and scholarly discussions on ITD supervision, including its challenges, best practices, and key insights, into this guide to create a structured, experience-based resource that supports doctoral researchers and their supervisors in navigating these complex research landscapes. These questions were developed during multiple work sessions by the creators of this guide, which include both current and former doctoral researchers at various stages of their doctoral journey, as well as a supervisor. We also included extensive feedback from postdoctoral researchers and other doctoral researchers in two feedback sessions held by the ITD Alliance Early Career Researchers (ECR) Working Group. The final version of the guide will also incorporate feedback from many others following a test run of the draft you have in front of you. The insights have been cross-checked and aligned with the topics outlined in the [ITD Alliance ECR Handbook](#), as well as existing resources on interdisciplinary supervision ([Lyall, Meagher, & Tait, 2008](#)).

WHY AN ITD PHD SUPERVISION GUIDE?

The organization of this guide was also inspired by the “toolbox for philosophical dialogue” for interdisciplinary collaboration (Eigenbrode et. al, 2007). The guiding questions in the section “Guiding Questions for Various PhD Phases” cover the following five topics:

EPISTEMOLOGY

The nature, limits and origins of knowledge in the context of ITD research¹

INSTITUTIONAL SUPPORT AND EXPECTATIONS

The contextual circumstances in which an ITD PhD takes place, and the extent to which the PhD team can overcome barriers and/or make use of existing resources²

COMPLEXITY MANAGEMENT

Managing collaborations outside the university and managing the uncertainties and ambiguities that are central to ITD PhD projects

CAREER ORIENTATION AND PROFESSIONAL IDENTITY

Career development prospects of ECRs and the process of finding suitable intellectual/publishing communities that would support an ITD career³

DISSEMINATION PATHWAYS

How to consider and realize the impact of the work that results from an ITD PhD

¹ This structuring of epistemology is inspired by the philosopher’s toolbox by Eigenbrode et. al (2007), *Philosopher’s Toolbox*

² Baptista and Klein (2022)

³ Djinlev et al. (2023); Bridl et al. (2013)

HOW TO USE THIS GUIDE

Conversations about ways of thinking and working can be challenging, especially between doctoral researchers and supervisors. The questions in this guide are meant to make such dialogue easier and more constructive.

01.

USE GUIDING QUESTIONS FOR DISCUSSION AND REFLECTION



The questions in this guide are intended to support joint reflection between the doctoral researcher and the supervisory team. Some may be better suited for group discussion, others for individual reflection. While we label them as “discussion” and “reflection” questions for ease of use, they are interchangeable depending on your specific context.

Discussion questions aim to foster mutual understanding of roles, expectations, and processes in an ITD PhD. These are organized into five thematic clusters (see page 5). Reflection questions help supervisors and supervisees develop self-awareness of their perspectives on ITD research.

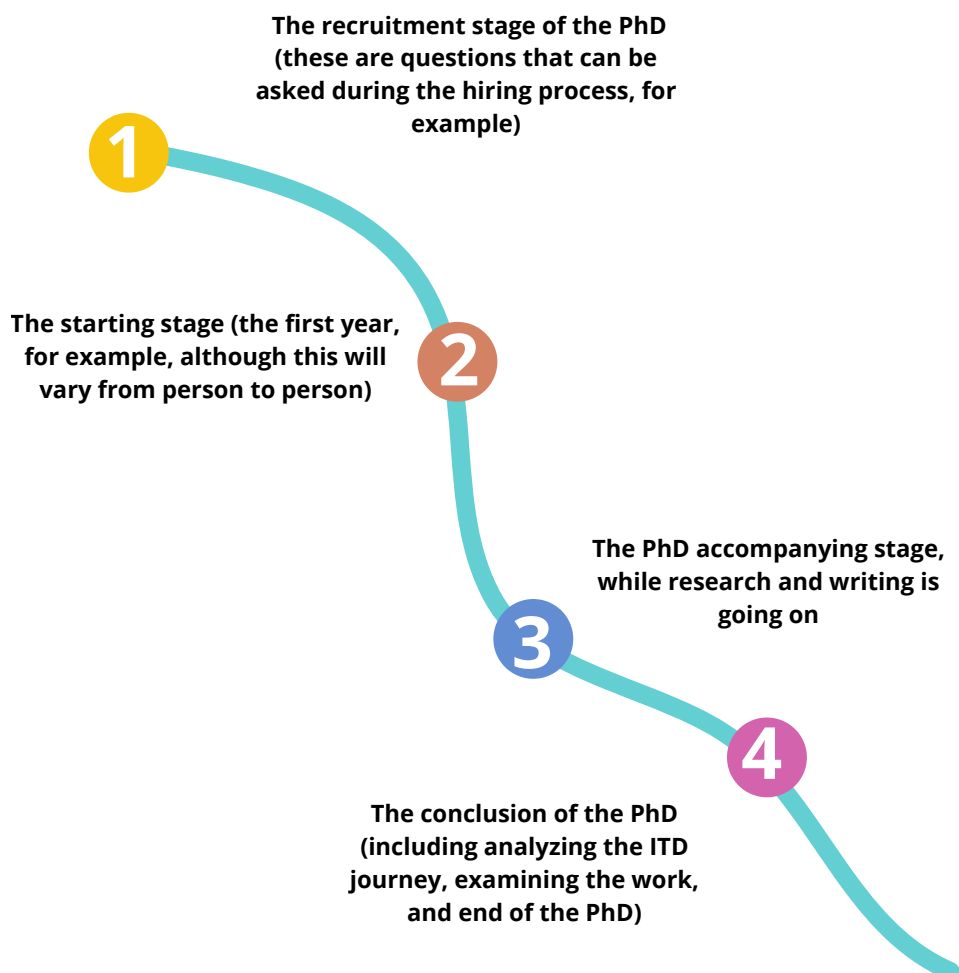
In the section “Guiding Questions for Various Phases of the PhD”, you’ll find space to take notes during discussions or reflections. We encourage you to have a copy ready and use the note areas in whatever way works best for you—whether that’s jotting down thoughts, making lists, doodling, sketching, or mapping out ideas. This is your space to think, explore, and express.

HOW TO USE THIS GUIDE

02.

FOLLOW QUESTIONS FOR VARIOUS PHASES OF YOUR PHD JOURNEY

The guide can be used to support all the stages of a PhD journey. For this purpose the guiding questions are clustered into four main phases:



This guide provides the language to ask those questions, which are not always obvious or easy to ask. As doctoral researchers and supervisors, we may be in different life stages and realities, which can make us unaware that the assumptions we take for granted, what feels like the 'water we swim in', may not be shared by others. Engaging in these conversations can serve as a mirror, helping you reflect on the kind of supervisory relationship you have - and the one you wish to build. We encourage you to develop your own questions that reflect your unique PhD journey or supervisory experience.

HOW TO USE THIS GUIDE



03.

USE THE ITD PASSPORT AS A STARTING POINT

The “ITD Passport” is designed to help clarify the context in which your PhD takes place. After the doctoral researcher and supervisor(s) individually fill out the ITD Passport they can come together in a meeting to discuss them and establish a timeline to formulate their answers for the following sections of the ITD Guide.

Welcome ITD doctoral researcher! Fill out your ITD Passport to get started:

My PhD program (name, academic department, country, etc.)	The time I can allocate for my PhD (considering my life stage)
The relation of my PhD program to ITD research (inexistent, few/some/many previous works rooted in ITD have been developed/my program is focused on ITD research)	My favourite ways to learn
My location (if it differs from your institute, it may be important to mention this)	My expectations when I finish my ITD PhD
My first language is the same as the one expected for my PhD thesis (If not, specify how you plan to manage this difference)	The main challenges in conducting this ITD PhD (institutional, academic, team, personal or other)
My prior experience in ITD research (inexistent, basic, regular, consistent, highly developed)	Key skills I rely on to face the uncertainties/fears of pursuing an ITD PhD/institutional support for these situations
My current life stage is characterised by (age, family, job, etc.)	Something about myself relevant to this journey

HOW TO USE THIS GUIDE



03.

USE THE ITD PASSPORT AS A STARTING POINT

Welcome ITD PhD supervisor! Fill out your ITD Passport to get started:

My PhD degree (name, academic department, country, etc.)

The relation of my degree to ITD research (inexistent, some/many previous works on ITD have been developed/my academic output is focused on ITD research)

My location (if different from the doctoral researcher's, it may be important to mention this)

My prior experience in ITD research (inexistent, basic, regular, consistent, highly developed)

My current life stage is characterised by (age, family, job, etc.)

The time I can allocate for supervising this PhD

My favorite ways to dialogue with doctoral researchers

My expectations in supervising this ITD PhD

The main challenges in supervising this ITD PhD (institutional, academic, team, personal or other)

My main uncertainties/fears in supervising this ITD PhD

My main skills to overcome my uncertainties/fears and challenges in supervising this ITD PhD

Something about myself relevant to this supervisory journey

GUIDING QUESTIONS FOR VARIOUS PHD PHASES

Let's open up the conversation together!
In the following sections, we present you
with the guiding questions, including
discussion and reflection questions.

1 PHD RECRUITMENT/HIRING PHASE (DISCUSSION)



1 CAREER ORIENTATION AND PROFESSIONAL IDENTITY

What motivates you to pursue ITD research?



2 COMPLEXITY MANAGEMENT

Have you worked across different disciplines or engaged with non-academic stakeholders before? If so, what were the achievements and challenges?// For the supervisor: What experience have you had supervising ITD PhDs?



3 EPISTEMOLOGY

What experience have you had integrating multiple theoretical and methodological approaches? What are your convictions for the achievements of this integration? What are your doubts (e.g. about your own ability or the feasibility of the endeavor to do this well)?



4 CAREER ORIENTATION AND PROFESSIONAL IDENTITY; DISSEMINATION PATHWAYS

What are your personal goals with ITD research? Which dissemination pathways align with these goals?



1 **PHD RECRUITMENT/HIRING PHASE (REFLECTION)**



ADDITIONAL REFLECTION QUESTIONS FOR THE DOCTORAL RESEARCHER:

- What role do I see myself playing in facilitating ITD collaborations or stakeholder engagement? Why?
- What are my doubts about possibly undertaking ITD research? Where do these doubts come from?
- How do I know this position is suited for me? How does it align with my motivations?

ADDITIONAL REFLECTION QUESTIONS FOR SUPERVISORS

- How do I feel about my experience in supervising ITD research? Do I have all the resources I need? If not, what additional help might I need?
- How do I assess the progress and success of an interdisciplinary or transdisciplinary PhD, given that traditional disciplinary metrics may not fully apply?
- What are my expectations of the doctoral researcher regarding their ability to bridge disciplinary gaps and work independently?

2 PHD STARTING PHASE (DISCUSSION)



1 EPISTEMOLOGY

What disciplines, methods, and stakeholders might be involved in your research? How would you decide this?

*The response to this question will change throughout the PhD process. Feel free to ask this question repeatedly throughout the PhD.

2 EPISTEMOLOGY; COMPLEXITY MANAGEMENT

What role will each member of the supervisory team play in the development of your PhD, in terms of different areas of expertise? Who else, outside of your supervisory team, do you want to seek support from?

3 EPISTEMOLOGY; COMPLEXITY MANAGEMENT

What strategies will you use to balance academic rigor (i.e., ethical requirements, data validity, etc.) with practical or societal relevance?

2 PHD STARTING PHASE (DISCUSSION)

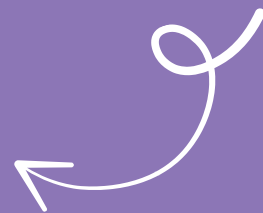


4 **COMPLEXITY MANAGEMENT**

How do you plan to manage time effectively, considering the additional complexities of ITD work?

5 **INSTITUTIONAL SUPPORT AND EXPECTATIONS; CAREER ORIENTATION**

How do you define success in an ITD PhD?



2 PHD STARTING PHASE (REFLECTION)



ADDITIONAL REFLECTION QUESTIONS FOR THE DOCTORAL RESEARCHER:

- What are the disciplines and methodologies that I am interested in, and the ones I am already trained in?
- Which areas of focus can we already identify (and how might they affect our publication strategy going forward)?
- What strategies will I use to build and maintain relationships with stakeholders throughout my research?
- How do I learn and work most effectively, and how can I ask my supervisory team to best work with me?

ADDITIONAL REFLECTION QUESTIONS FOR SUPERVISORS

- How will I identify and address potential knowledge gaps in disciplines outside my primary expertise?
- How will I establish clear communication and role expectations from the start?
- What mechanisms should be in place to ensure consistent and structured supervision?
- How can I help doctoral researchers develop a coherent research identity within an ITD framework?
- What resources can I provide doctoral researchers to support their competence development for the ITD research?
- How will I support the doctoral researcher in navigating disciplinary tensions or conflicting methodologies?
- What steps will I take to help the doctoral researcher build a strong network across disciplines and with stakeholders?
- How will I ensure that ITD aspects of the research are recognized and valued in the doctoral researcher's final PhD assessment?
- How do I plan to monitor and adjust supervision strategies to ensure the doctoral researcher stays on track?

3 PHD ACCOMPANYING PHASE (DISCUSSION)



1 EPISTEMOLOGY

How are you managing the integration of different disciplinary or stakeholder perspectives in your research? How are you maintaining coherence in your research despite the diverse inputs and perspectives? What challenges have arisen? How have you approached these challenges?

2 COMPLEXITY MANAGEMENT

What challenges have emerged in communication with your supervisors or collaborators? What strategies have been tried and what has been the result so far?

3 EPISTEMOLOGY; COMPLEXITY MANAGEMENT

How are you ensuring that your research remains academically rigorous while also being accessible and relevant to non-academic stakeholders?

3 PHD ACCOMPANYING PHASE (DISCUSSION)



4 INSTITUTIONAL SUPPORT AND EXPECTATIONS

Does the doctoral researcher feel adequately supported by the supervisors and institution? If not, what changes would help?



5 CAREER EXPECTATIONS AND PROFESSIONAL IDENTITY

What additional support/training will facilitate your ITD research? How can you attain it?

3 PHD ACCOMPANYING PHASE (REFLECTION)



ADDITIONAL REFLECTION QUESTIONS FOR THE DOCTORAL RESEARCHER:

- How has my research question or methodology evolved due to ITD insights?
- How am I able to balance the theoretical and applied aspects of my work?
- What adjustments have I made to my workflow to manage the additional complexity of ITD research?
- How am I ensuring that my research remains academically rigorous while also being accessible and relevant to non-academic stakeholders?
- What strategies am I using to stay motivated and manage potential challenges?

ADDITIONAL REFLECTION QUESTIONS FOR SUPERVISORS

- How will I guide the doctoral researcher in selecting suitable publication outlets (disciplinary vs. interdisciplinary journals, policy briefs, etc.)?
- Is the doctoral researcher finding opportunities to publish or present their work in ways that reflect its ITD nature?
- How will I support the doctoral researcher in identifying and applying for additional training or funding opportunities relevant to ITD research?
- How has the doctoral researcher's work evolved, and does it align with the initial objectives? Has this alignment/misalignment been discussed with the doctoral researcher and the supervisory team?
- Are there any emerging conflicts between disciplines or stakeholders, and how can they be addressed?
- What feedback mechanisms have been effective in guiding the doctoral researcher's progress? Which ones have not?
- How can I better support the doctoral researcher in managing the tensions between disciplinary depth and interdisciplinary breadth?
- Are there gaps in the doctoral researcher's ITD skill set that we should help address?
- How can I enhance the doctoral researcher's visibility and professional network within and beyond academia?
- What steps can I take to facilitate the doctoral researcher's engagement with stakeholders in a meaningful and sustained way?
- Am I adapting our supervision approach to meet the evolving needs of the doctoral researcher's ITD work?
- What lessons am I learning from this supervision process that could inform future ITD PhDs?
- How can assessment criteria be adapted to fairly evaluate ITD PhD research?

4 PHD CONCLUDING PHASE



ANALYZING THE ITD PHD JOURNEY

At the end of each academic year or another relevant milestone agreed upon between the doctoral researcher and the supervisor, it would be an opportunity to reflect on how the process has been going. Some examples may be the following questions:

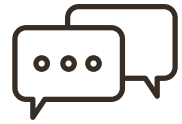
- What has changed between each stage of the PhD journey that affects how the doctoral researcher and supervisor(s) should work together?
- What processes are working well? What can be improved?
- What are the surprising insights that we have gained so far about the PhD journey?
- What needs to be changed going forward?

EVALUATING THE ITD PHD JOURNEY

Building on the earlier answers, the supervisor(s) and doctoral researcher may consider the following questions during an evaluative period of the PhD:

- Is the doctoral researcher fully aware of the evaluation process?
- Are there gaps in the skill set of the supervisory team for guiding the doctoral researcher, and how can we address them?
- Are there potential challenges in the evaluation process posed by conducting ITD doctoral research? How can these challenges be addressed?
- How are examiners chosen to evaluate an ITD doctoral researcher?
- How will the doctoral researcher be evaluated by the examinations?
- Has the assessment criteria been adapted to fairly evaluate the ITD PhD research?

4 PHD CONCLUDING PHASE



END OF THE ITD PHD (DISCUSSION)

1 EPISTEMOLOGY

How has your understanding of ITD research evolved during your PhD?

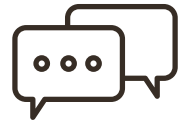
2 EPISTEMOLOGY; DISSEMINATION PATHWAYS

How do you assess the real-world relevance and impact of your research?

3 EPISTEMOLOGY; DISSEMINATION PATHWAYS

How did the interdisciplinary or transdisciplinary aspects of the research shape the final outcomes of this PhD? What insights can be shared with stakeholders to help improve future research?

4 PHD CONCLUDING PHASE



END OF THE ITD PHD (DISCUSSION)

4 **DISSEMINATION PATHWAYS; CAREER EXPECTATIONS AND PROFESSIONAL IDENTITY**

How can the impact of this PhD research extend beyond academia into broader societal contributions?

5 **INSTITUTIONAL SUPPORT AND EXPECTATIONS**

What recommendations would you give to institutions to better support ITD PhD researchers?

6 **COMPLEXITY MANAGEMENT**

What were the most effective strategies for fostering collaboration between academic and non-academic stakeholders?

4 PHD CONCLUDING PHASE

END OF THE ITD PHD (REFLECTION)



ADDITIONAL REFLECTION QUESTIONS FOR THE DOCTORAL RESEARCHER:

- How has my understanding of ITD research evolved during my PhD?
- What strategies helped me to manage the complexities of supervision and collaboration?
- What lessons from my PhD journey can inform future ITD doctoral researchers?
- What skills have I developed during my PhD that I find most valuable for my future career?
- How would I approach an ITD research project differently if I were to start again?

ADDITIONAL REFLECTION QUESTIONS FOR SUPERVISORS

- What were the most significant challenges in supervising this ITD PhD, and how were they addressed?
- How can future ITD PhD supervision be improved based on this experience?
- How am I supporting my doctoral researcher in transitioning to a new/relevant career after the PhD?
- What are the main suggestions I will offer to other ITD PhD supervisors?
- How did the supervisory team navigate disciplinary tensions or methodological differences?
- How do I see the future of ITD research in my field, and how can the PhD training be better aligned with these trends?

At the end of this guide, we invite you to pause and reflect on your own journey and experiences. The following prompts are designed to guide your reflection on both your PhD journey and the use of this guide.

We also warmly welcome you to share your feedback for this guide. You will find instructions for doing so on page 2.

CONCLUDING REFLECTION

How has my perspective on ITD research changed since starting the PhD journey?

What are the main lessons learned from using this guide?

A key takeaway for what makes a good ITD PhD supervisory relationship is:

SUGGESTED READINGS

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RELATED FIELDS (SELF-REFLECTION METHODOLOGY)

- Boll, T. (2024). Meet “Me” in the Field(-Notes): The selves and self-relations of autoethnography. *Qualitative Inquiry*, 30(8–9), 674–683. <https://doi.org/10.1177/10778004231196921>
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SUGGESTED READINGS (WITH ANNOTATIONS)

NEW DIRECTIONS (GLOBAL SOUTH PERSPECTIVES, EXTRA-ACADEMIC PERSPECTIVES)

- Chilisa, B. (2017). Decolonising transdisciplinary research approaches: An African perspective for enhancing knowledge integration in sustainability science. *Sustainability Science*, 12(5), 813–827. <https://doi.org/10.1007/s11625-017-0461-1>
- Chilisa, B. (2019). *Indigenous research methodologies* (2nd ed.). SAGE Publications, Inc.

Chilisa provides a comprehensive guide to conducting research that respects and incorporates Indigenous worldviews and methods, challenging Western-centric approaches while advocating for the integration of Indigenous African perspectives into transdisciplinary research. She critiques traditional research paradigms, emphasizing the importance of decolonizing methodologies to foster culturally sensitive, inclusive, and effective knowledge integration in addressing sustainability challenges.

- Epstein, M. (2012). *The transformative humanities: A manifesto* (I. E. Klyukanov, Ed.). Bloomsbury Academic. <https://library.oapen.org/handle/20.500.12657/92193>

Epstein discusses the potential of the humanities to transform society by integrating diverse cultural perspectives. He advocates for a transdisciplinary approach that goes beyond traditional academic boundaries, incorporating insights from various knowledge systems to address complex societal issues.

- Langton, M., A. Corn and S. Curkpatrick (2024). *Indigenous Knowledge: Australian Perspectives*, Melbourne University Publishing.

This collection explores how Indigenous knowledge, developed over millennia, can address contemporary challenges such as environmental management and health issues. The editors highlight the relevance of Indigenous knowledge systems in solving critical problems and advocate for their integration into modern practices.

- Reason, P., & Bradbury, H. (Eds.). (2015). *The SAGE handbook of action research: Participative inquiry and practice* (3rd ed.). SAGE Publications. <https://us.sagepub.com/en-us/nam/the-sage-handbook-of-action-research/book242797>

This approach involves researchers collaborating with community members to address issues pertinent to the community. It emphasizes the co-creation of knowledge, ensuring that research is grounded in the experiences and needs of non-academic stakeholders. Participatory Action Research has been instrumental in empowering marginalized communities and democratizing the research process.

- Smith, L. T. (2022). *Decolonizing methodologies: Research and indigenous peoples* (3rd ed.). Zed Books Ltd; University of Otago Press.

This seminal work critiques traditional Western research paradigms and advocates for research approaches that respect and incorporate Indigenous perspectives. Smith emphasizes the need to decolonize research methodologies to empower Indigenous communities and validate their ways of knowing.

- Wright, A. L., Gabel, C., Ballantyne, M., Jack, S. M., & Wahoush, O. (2019). Using Two-Eyed Seeing in Research With Indigenous People: An Integrative Review. *International Journal of Qualitative Methods*, 18. <https://doi.org/10.1177/1609406919869695>

The concept of Two-Eyed Seeing encourages viewing the world through both Indigenous and Western lenses. This approach promotes the integration of diverse knowledge systems, facilitating more holistic and inclusive research outcomes:



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