

Introduction to the Toolbox Dialogue Initiative

Spotlights: Let's Talk

Berlin University Alliance

June 11, 2026

Toolbox Dialogue Initiative Center

<http://tdi.msu.edu/>



Michael O'Rourke

- Executive Director, TDI Center, Michigan State University
- Professor of Philosophy, Faculty in AgBioResearch and ESPP
- Team science, communication, crossdisciplinary theory and practice

Who We Are

TDI is a facilitation and research group based at Michigan State University

We facilitate collaborative capacity with partners around the world and investigate the practice of collaborative, crossdisciplinary research

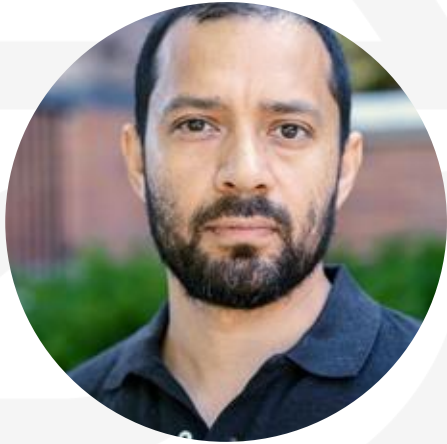


Who We Are

TDI Past to Present

- An idea that emerged from graduate students in an NSF Integrative Graduate Education and Research Traineeship (IGERT) project at the University of Idaho in 2005
- Moved to MSU in 2012; funded by NSF, NASA, and others
- A diverse community of researchers from a consortium of universities in the US
- TDI Center established in June 2021

TDI Center Leadership



Edgar Cardenas



Marisa A. Rinkus



Chet McLeskey



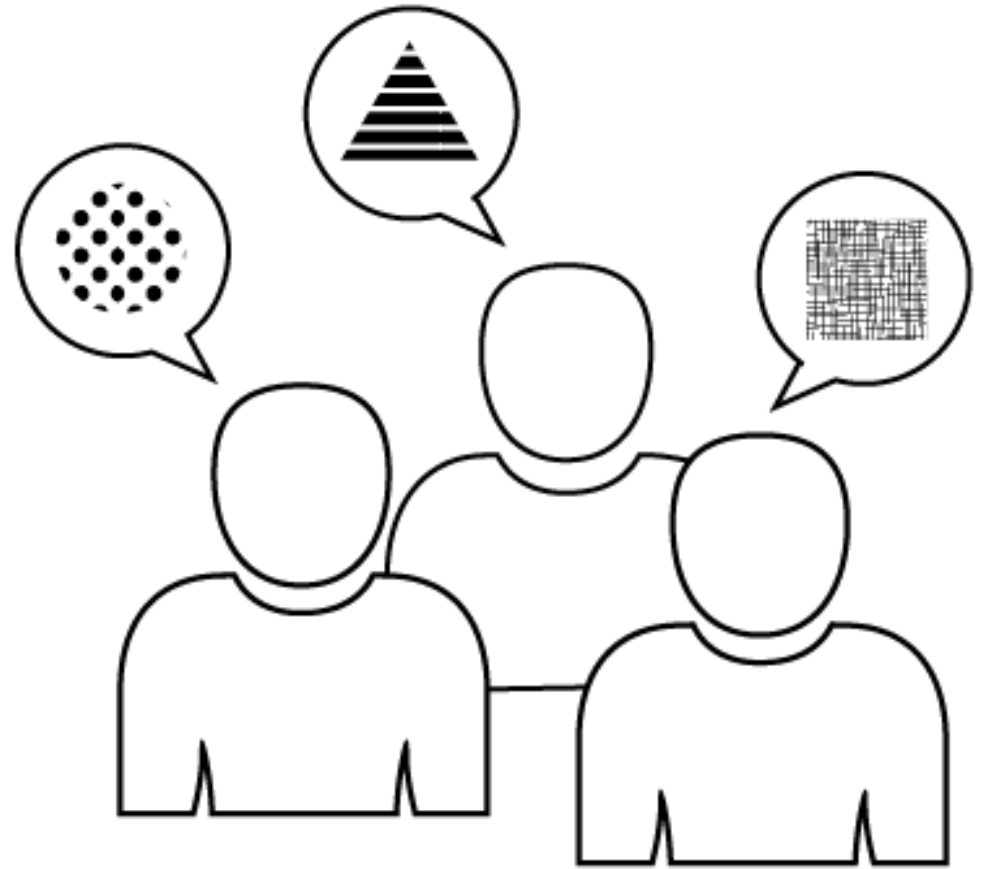
Beth Mugavero



Michael O'Rourke

Our Focal Challenge

Collaborators from different disciplines and professions struggle to communicate because they are trained to understand problems differently



The Root of the Challenge

The Problem of Unacknowledged Differences:

You are different from one another, but you don't necessarily know how, and we tend to assume we're more alike than we are

Our Mission

IF

unacknowledged differences in
language, belief and value compromise
crossdisciplinary research and practice

THEN

acknowledging differences and
coordinating them can enhance mutual
understanding, communication, and
collaborative capacity

What We Do

The Toolbox Dialogue Initiative (TDI) enhances communication and collaboration through dialogue-based workshops and related activities*

* Hubbs, G., O'Rourke, M., Orzack, S. H. (Eds.). (2020). *The Toolbox Dialogue Initiative: The Power of Cross-Disciplinary Practice*. Boca Raton, FL: CRC Press.

The Toolbox Dialogue Method

Toolbox dialogue workshops have two parts:

1

Structured dialogue reveals attitudes, belief, and values

2

Co-creation activities leverage what is learned in dialogue

Toolbox Instrument

Prompts get at unacknowledged research commitments

- Sorted into thematic modules
- Modules include: Methodology, Values & Objectivity, Data Sharing, Collaboration dynamics
- Prompts suggest topics for discussion

Interdisciplinarity in the Academy					
Core Question: What characteristics differentiate interdisciplinarity from disciplinarity?					
1: Differences in conceptual frameworks impede useful knowledge integration in interdisciplinary research.					
Disagree				Agree	
1	2	3	4	5	Don't Know
2: An interdisciplinary project cannot be successful unless project members fully understand all of its parts.					
Disagree				Agree	
1	2	3	4	5	Don't Know
3: One cannot be a successful interdisciplinarian unless they are a disciplinary expert.					
Disagree				Agree	
1	2	3	4	5	Don't Know
4: Every university student should receive an interdisciplinary education.					
Disagree				Agree	
1	2	3	4	5	Don't Know
5: Interdisciplinary work is inevitably more superficial than disciplinary work.					
Disagree				Agree	
1	2	3	4	5	Don't Know
6: An activity (e.g., learning, research) can be interdisciplinary without being integrative.					
Disagree				Agree	
1	2	3	4	5	Don't Know
7: Some disciplines are better suited for interdisciplinary activity than others.					
Disagree				Agree	
1	2	3	4	5	Don't Know

Toolbox Instrument

An example exchange

- Our workshops have focused on building capacity in inter- and transdisciplinary groups
- This exchange is from an ecologist and an economist in an interdisciplinary group
- The prompt: *Scientific research must be hypothesis driven.*

(27) **P01:** [On] intuition and predispositions? (Session 2, Ecology)

P02: Yeah, that's how I build my hypothesis. (Session 2, Economics)

P01: But that's not quantitative.

P02: But then I develop a hypothesis and I test a hypothesis and it's done [using] quantitative methods.

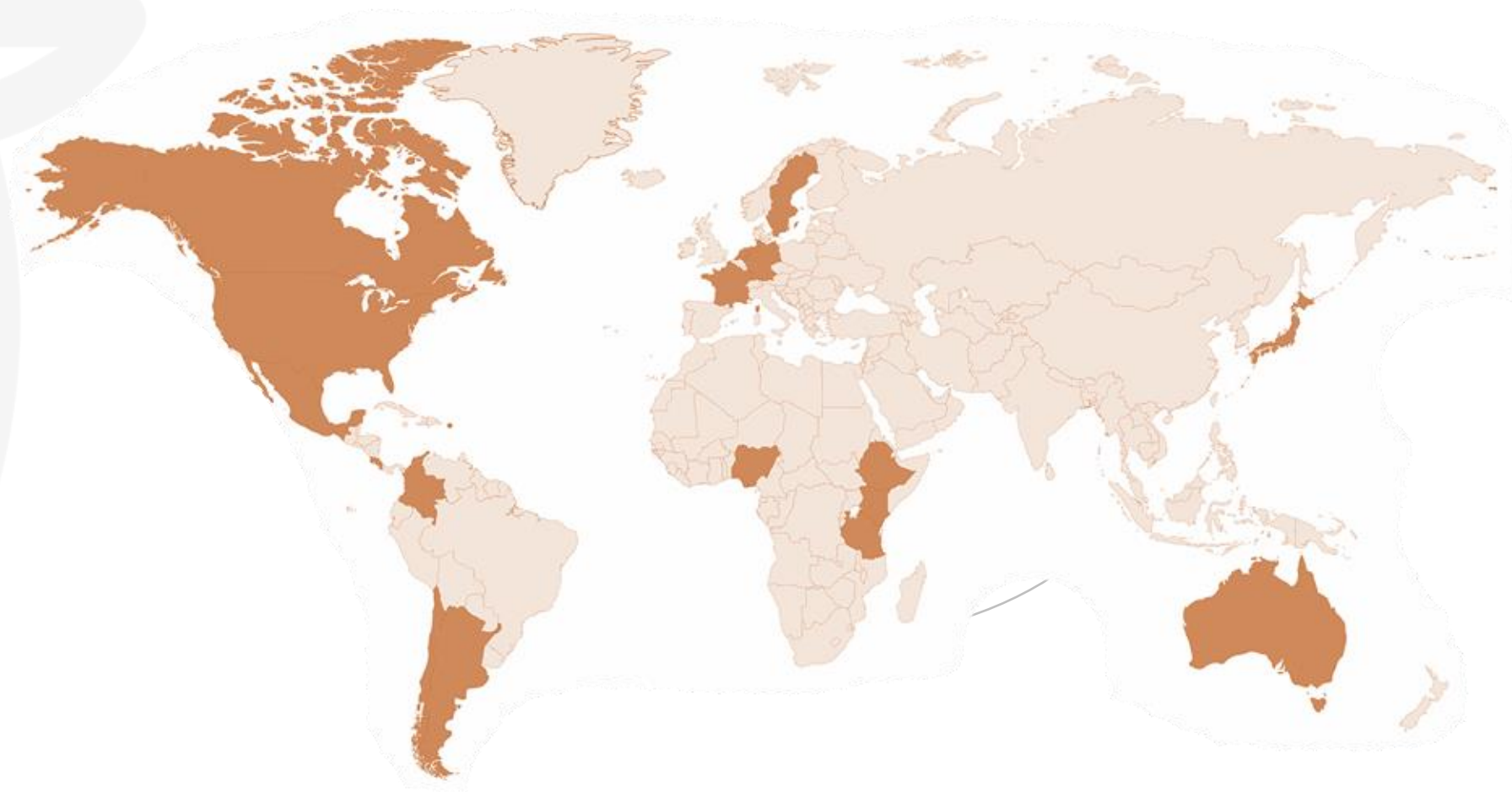
P01: But that [i.e., exploratory work involving intuition] is not research, that's just freeing stuff . . . boiling down to a hypothesis.

TDI Process: Facilitation



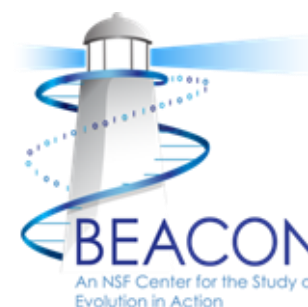
Workshop Experience

600+
workshops

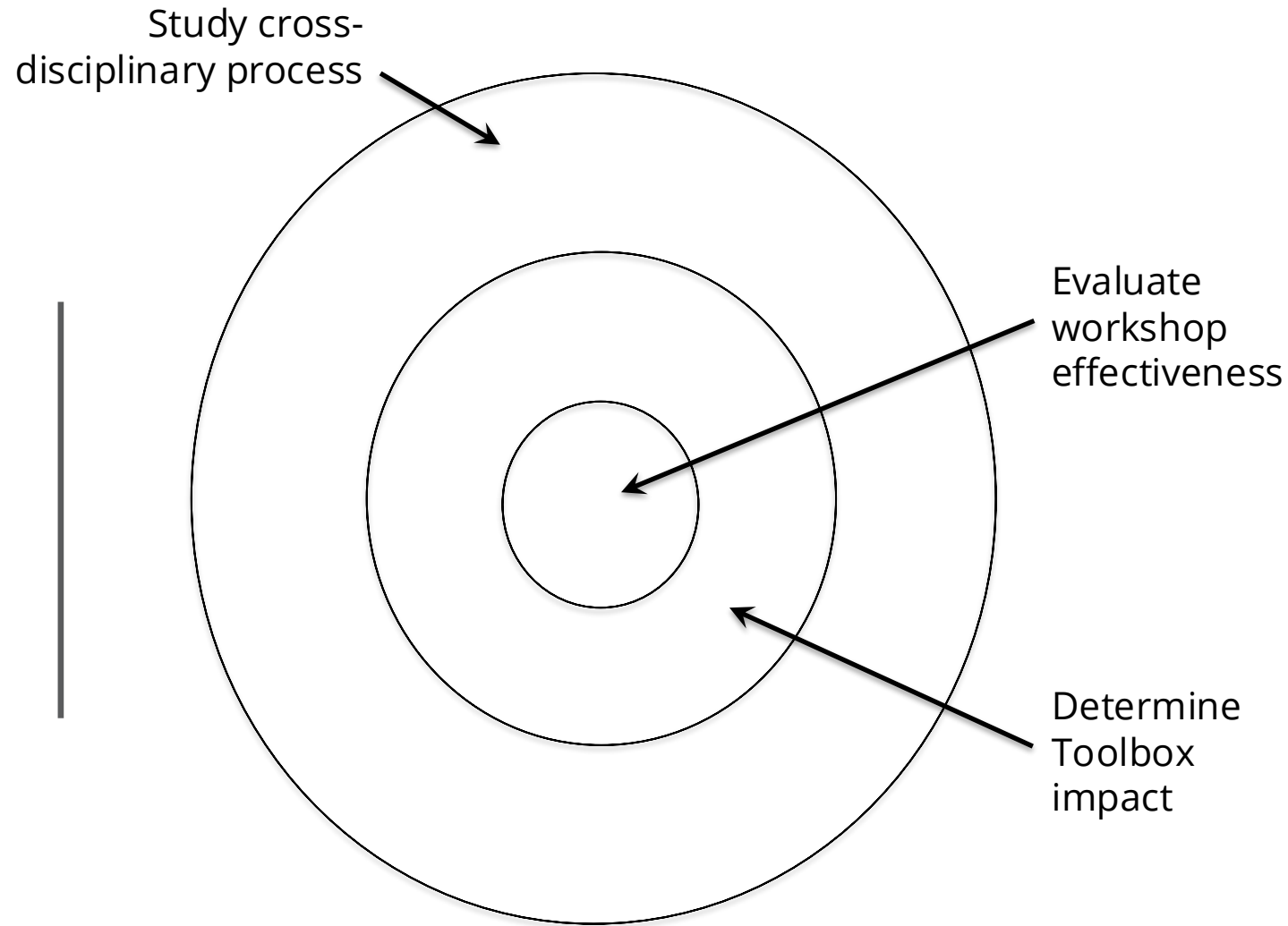


Workshop Experience

Many
partners



TDI Process: Research



Evidence of Impact

TBM

PRACTICE TOOLS

How to talk to strangers: facilitating knowledge sharing within translational health teams with the Toolbox dialogue method

Lynn M. Schnapp, MD,¹ Liela Rotschy, MA,² Troy E. Hall, PhD,³ Stephen Crowley, PhD,⁴ Michael O'Rourke, PhD⁵

¹Division of Pulmonary and Critical Care, University of Washington, Box 356200, 800 Republican Street, Seattle, WA 98195, USA.
²Department of Linguistics, The Ohio State University, 222 1712 Neil Avenue, Columbus, OH 43210, USA.
³Translational Social Sciences, University of Idaho, PO Box 447185, Moscow, ID 83844-1185, USA.
⁴Department of Philosophy, College of Arts and Sciences, Baylor State University, 1902 University Drive, Waco, TX 76798-1902, USA.
⁵Department of Philosophy, Michigan State University, 301 Farm Lane, Room 503, East Lansing, MI 48824-1032, USA.
Correspondence to: M O'Rourke (m.oro@msu.edu)

doi:10.1002/9781118340305.ch2

Abstract
Translational behavioral medicine involves experts from different disciplines and professions interacting to solve complex problems. Coordinating this expertise can be frustrated by the partially tacit nature of expertise and by the various ways in which it manifests in different communities. We describe a method—the Toolbox dialogue method—for addressing these challenges by means of a structured dialogue among team members concerning their respective approaches to complex problems. The Toolbox dialogue method consists of a philosophically grounded questionnaire—the “Toolbox”—deployed in workshops by collaborators from different disciplines and professions. The Health Science Toolbox was modified from an extensively utilized questionnaire designed for Science-Technology-Engineering-Mathematics (STEM) research and has been piloted with translational medicine teams. Eighty-five percent of participants in STEM workshops indicated a positive impact on awareness of the knowledge, opinions, or scientific approach of teammates. In the Health Science Toolbox, 35 % of questionnaire responses changed substantially from pre- to post-workshop, demonstrating impact of the workshops. The Toolbox dialogue method is a relatively brief workshop encounter that can have a positive impact on mutual understanding within translational medicine teams.

KEYWORDS

Toolbox dialogue method, Science of team science, Philosophy, Teamwork, Interdisciplinary collaboration

BACKGROUND

Addressing complex issues in translational medicine increasingly involves formation of cross-disciplinary teams. For example, development of strategies for avoiding ovarian cancer may span cell/molecular-based research, epidemiology, and community implementation science. However, effective cross-disciplinary research confronts institutional, infrastructural, logistical, interpersonal, and conceptual challenges [1, 3, 5, 9, 10]. Often, *unspoken* challenges arise from differing and tacit classificatory schemes and value systems used by collaborators to approach research [6, 11].

Implications
Practice: Structured philosophical dialogue about fundamental assumptions concerning collaborative research and practice in translational behavioral medicine can facilitate negotiation of key conceptual challenges.

Policy: Methods for improving aspects of team science such as collective understanding should be made available to collaborative projects in the translational health sciences.

Research: The method described in this article supports the identification and analysis of a team's collaborative dynamic.

If left unspoken, such differences can manifest as misunderstanding, disagreement, and ultimately, failure to achieve project objectives. We have developed the Toolbox method to identify and articulate these differences through structured dialogue about knowledge-generating aspects of research and practice [2]. A substantial body of research suggests that facilitated, constructive, open dialogue within teams can lead to positive outcomes [8, 13]. We provide evidence that the Toolbox approach has a positive impact on mutual understanding within collaborative research teams.

THE TOOLBOX DIALOGUE METHOD

The Toolbox method comprises three elements: first, the questionnaire, or “Toolbox”, provides the initial topics that structure dialogue about research and practice; second, the *workshop* centers on the team's dialogue; and third, the *analysis* yields insights based on data collected from the participating team.

Questionnaire

The original Toolbox questionnaire, designed for collaborative teams in Science-Technology-Engineering-Mathematics (STEM) research [2], consists of six

page 1 of 11



The Toolbox Dialogue Initiative

The Power of Cross-Disciplinary Practice

Edited by
Graham Hubbs
Michael O'Rourke
Steven Hecht Orzack

CRC Press
Taylor & Francis Group

COMMUNICATION & COLLABORATION

TOOLBOX
DIALOGUE INITIATIVE™

The Toolbox Dialogue Initiative (TDI) workshop is an interactive, dialogue-based group experience. Workshops are intended for cross-disciplinary teams and those seeking to form new collaborations to address complex research topics. A recent survey highlights how former participants feel about communication and collaboration.

WHAT HAVE PAST PARTICIPANTS SAID AFTER A WORKSHOP?

 I am more convinced that research is about mutual understanding...

 I have more confidence to talk about research and collaborate with researchers in fields outside of [my own].

 This has helped me understand and communicate with researchers on collaborative projects.

 I have since developed an interest in collaborative problem formulation.

WANT TO LEARN MORE?

tdi.msu.edu

 All information derived from the 2017 Evaluation Report on the MSU Toolbox Dialogue Initiative. Kalamazoo, MI: WMR.

GROWTH DURING... THE DIALOGUE SESSION

Our conversation was an open exchange of thoughts and ideas

Strongly Agree	Agree
38%	51%

The prompts were effective conversation starters

Strongly Agree	Agree
34%	56%

It helped build a sense of community among my group

Strongly Agree	Agree
18%	57%

It improved my attitude toward team communication

Strongly Agree	Agree
15%	51%

It helped to enhance collaboration among my group members

Strongly Agree	Agree
13%	51%

THE CO-CREATIVE ACTIVITY

Improved collaboration in my group

Strongly Agree	Agree
32%	32%

Improved communication in my group

Strongly Agree	Agree
30%	43%

AND AFTER THE TOOLBOX

I now feel more capable of collaborating with individuals from different fields

Strongly Agree	Agree
15%	62%

I am better able to identify the research worldviews that are expressed by other people

Strongly Agree	Agree
14%	61%

I now have a better idea about how to communicate with individuals from different fields or disciplines

Strongly Agree	Agree
9%	61%

THANK YOU!

toolbox@msu.edu

Toolbox Dialogue Initiative | <http://tdi.msu.edu/>