



Structured Dialogue to Uncover Research Assumptions: A Toolbox Workshop

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Outline



- **The Workshop Plan**
- **What's the Problem?**
- **The Leading Idea**
- **The Toolbox Project**
- **Workshop Nuts and Bolts**

Today's Toolbox Exercise

- Toolbox introduction – 30 minutes
- Fill out Confirmation and Values modules – 10 minutes
- Group dialogue – 30 minutes
- Debrief – 20 minutes

Interdisciplinary Activity (IDA) Is Important

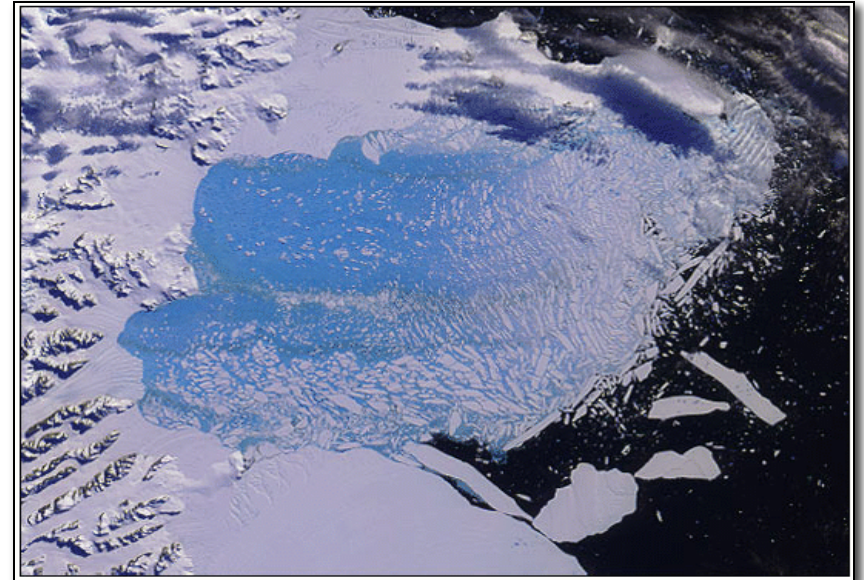
- Complex problems—sustainability, hunger, climate change, etc.—require complex responses (Bruce et al. 2004)
- This theme is sounded by NAS 2004, who tell us, “Interdisciplinary thinking is rapidly becoming an integral feature of research as a result of four powerful ‘drivers’:

What's the Problem?



The inherent complexity
of nature and society

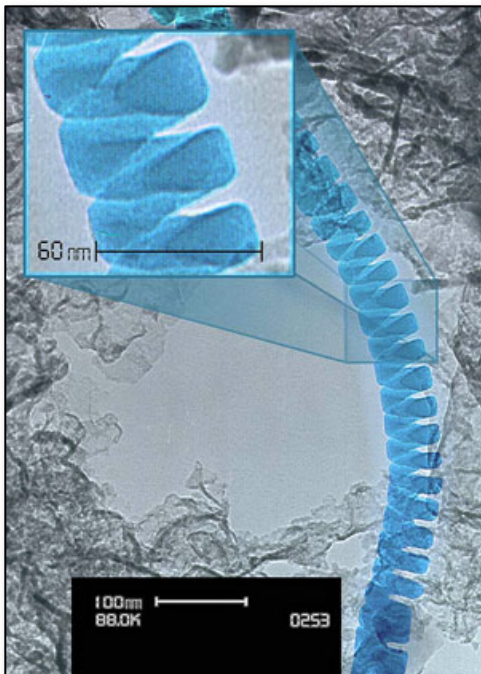
The desire to explore
problems and questions
that are not confined to
a single discipline



What's the Problem?



The need to solve societal problems



The power of new technologies.”

– *Facilitating Interdisciplinary Research*, NAS, p. 40

IDA Requires

- Mastery of multiple literatures (Hagoel and Kalekin-Fishman 2002)
- Ability to identify an integrative research problem (Repko 2011)
- Ability to synthesize different methods (Morse 2013)
- Integration of results to the appropriate degree (Eigenbrode et al. 2007)

When IDA Is Collaborative

- Strangers from foreign lands ...
 - Disciplines as cultures (Boix Mansilla 2010)
 - These are cultures socially and epistemically
- ... must learn to speak in one voice
 - They need to speak as one to those who they support and who support them
 - They need to speak as one in grant proposals and publications
 - IDA as multidimensional localization (Crowley et al. 2010)

The Manifold Challenges of IDA

- Lack of conducive institutional culture (Klein 2010)
- The academic reward system (NAS 2004)
- Wide distribution of collaborators (Olson et al. 2008)
- Lack of training opportunities (Rosa and Machlis 2002)
- Disciplinary chauvinism (Giri 2002)
- Turfism (Morse et al. 2007)
- Group dynamics (Jakobsen et al. 2004)

The Communication Challenge

- “[W]hat disciplinary training serves to do is to create a community ... of persons who can understand what is said” (Turner 2000, 52)
- “At the heart of interdisciplinarity is communication—the conversations, connections, and combinations that bring new insights to virtually every kind of scientist and engineer” (NAS 2004, 19)

Analyzing the Communication Challenge

- Return to the idea that IDA brings together different *knowledge cultures*
 - These generate understanding by isolating aspects of interest and then examining them using various methods
 - Members of knowledge cultures share assumptions about how one should investigate the topics of interest
- These cultures produce different languages, thoughts, actions – i.e., research worldviews
- IDA is multicultural integration in which much can be “lost in translation”

Responding to the Communication Challenge

- The Toolbox Project focuses on understanding and improving communication about research content within cross-disciplinary research
- This focus applies within teams of collaborators, as well as within groups of non-collaborators
- The Goal: Enhance communication and increase collaborative capacity by reducing the amount “lost in translation”

Better Science through Philosophy

– Leading Idea:

Enhanced understanding → Enhanced communication

- One can enhance understanding by using *philosophy* to frame reflection on research assumptions
 - *Content:* Philosophy systematically reveals these assumptions
 - *Methods:* Philosophy provides abstract common ground for dialogue about these assumptions

Collaborative Learning Objectives

- The Toolbox approach is a type of *dialogue method*: structured approaches that use dialogue to facilitate knowledge synthesis and improve decision-making (McDonald et al. 2009)
- The focus of the Toolbox is on *collaborative learning*
- The learning objectives are:
 - Habit identification
 - Habit sharing
 - Habit coordination

Evidence of Impact

<i>Key themes from open-ended responses to post-workshop evaluations</i>	<i>Percent</i>
Workshop had a positive impact on awareness of the knowledge, opinions, or scientific approach of teammates	84.9
Overall assessment was entirely positive	82.6
Statements about impact on professional development were entirely positive	77.4
Workshop helped participant become more aware of dimensions of cross-disciplinary research, including challenges associated with working across disciplines and awareness of other disciplinary perspectives	43.9
Workshop helped participant become more aware of dimensions of science or scientific research	41.7
Workshop had (or could have) a positive impact on research communication	33.1
Workshop had a positive impact on the social aspects of team-building	18.7
Made at least one skeptical or negative comment about some aspect of the Toolbox workshop	8.6

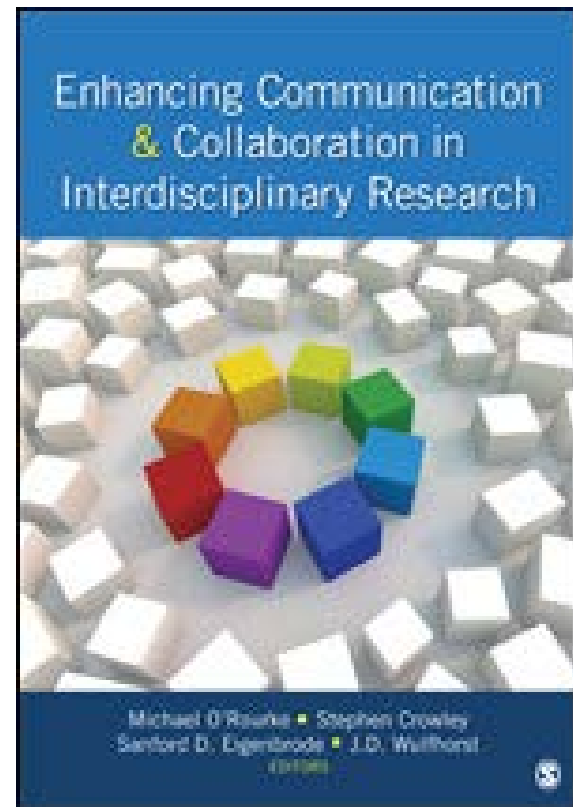
Table 1. STEM workshop participant assessments (n=139) of the impact of the Toolbox workshop (from Schnapp et al. (2012) How to talk to strangers: Facilitating knowledge sharing within translational health teams with the Toolbox dialogue method. *Translational Behavioral Medicine*, 2(4): 469-479.)

A History

- Motivated by graduate students in a team-based Integrative Graduate Education and Research Traineeship (IGERT) project at U. Idaho (UI)
- 2005 seminar, “Philosophical Issues in Interdisciplinary Research”, co-taught by Eigenbrode and O’Rourke
- Led to Eigenbrode et al. (2007)
- Funded by the UI and NSF (SES-0823058, 2008)

A History

- Developed further in partnerships with climate science and health science initiatives
- Over 100 workshops on 3 continents, multiple publications and presentations, and an international conference that issued in this recently published volume:



How Can The Toolbox Help You?

- Today is not about enhancing your capacity to collaborate with your group, since these are *ad hoc*
- Instead, the goal is to introduce you to this particular dialogue method
 - You will have the opportunity to experience the type of dialogue it fosters
 - You will have a chance to react to the experience in a debrief conversation

IRB Approval

- The Toolbox Project is a research project with human subjects
- It has IRB approval from Michigan State University and collaborating institutions
- We will not collect data today – the goal is to introduce you to the approach

Toolbox Instrument

- A structured set of philosophical prompts meant to represent the epistemological and metaphysical dimensions of science
 - 6 modules altogether, each with a *core question* that announces the theme and *probing statements* that develop it
 - There is a space for answers to the questions and Likert scales associated with each statement
 - Please concentrate on the Confirmation and Values modules

Toolbox Workshop

- The *Toolbox workshop* focuses on dialogue about the instrument
 - No structured order for working through the Toolbox
 - Participants are encouraged to follow their interests and insights around the instrument—the dialogue is lightly facilitated
 - We don't define or delimit terms—extremity, vagueness, and ambiguity are there for you to negotiate in dialogue
 - Adopt a single perspective in filling it out (or keep track!)
- It typically ends with a second instrument and a debrief – today only the debrief

And Now...

- Please divide up into groups of about 10-12 or so
- Fill out the Confirmation and Values modules
- Once everyone is ready, begin discussing those modules
 - Appoint a facilitator—someone willing to move the group along if the dialogue lags
 - Start anywhere you wish
 - Be responsible as a group for keeping the dialogue going
 - I'll make the rounds if you have any questions
- We'll reconvene in 40 minutes to discuss the experience

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Acknowledgments



- NSF SES (#0823058) and the University of Idaho for funding
- Co-PIs Stephen Crowley (Boise State), Sanford Eigenbrode (UI), J.D. Wulfhorst (UI), Shannon Donovan (UAA)
- Other research collaborators: Nilsa Bosque-Pérez (UI), Troy Hall (UI), Graham Hubbs (UI), David Stone (Northern Illinois), Lynn Schnapp (UW), Christopher Williams (UI)
- Students and Postdocs: Chad Gonnerman, Chris Looney, Liela Rotschy
- Partners: UI Resilience IGERT (NSF), BEACON (NSF), ITHS (NIH), REACCH (USDA), Northwest Climate Science Center (USGS), GLEON (NSF), SCRiM (NSF)
- Members of other participating projects and teams—approximately 820 participants in 109 workshops
- Project advisors: Julie Thompson-Klein (Wayne State University), Frank Davis (UC Santa Barbara), Paul Griffiths (University of Sydney)