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HAZARDS FORUM

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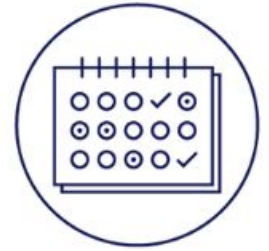
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hazardsforum.org



Formed in: 1989



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What makes for effective interdisciplinarity?

Hazards 35 - 4 November 2025

What is Interdisciplinarity?

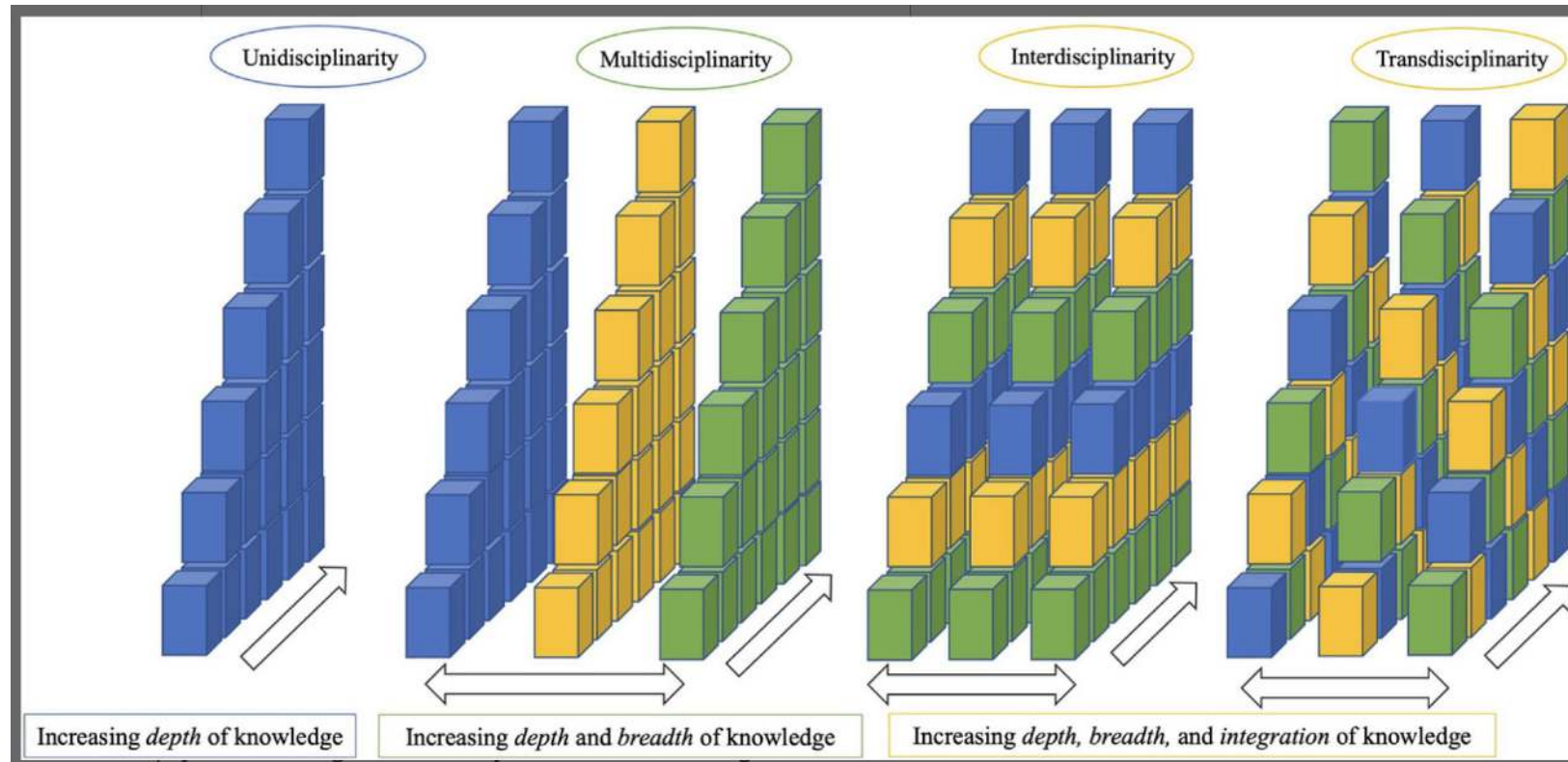


Figure from Peek and Guikema, "Interdisciplinary Theory, Methods, and Approaches for Hazards and Disaster Research" 2021.

“... Integrates information, data, methods, tools, concepts, and/or theories from two or more disciplines focused on a complex question, problem, topic, or theme.” *from US National Research Council, 2014*



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Expert Comment: Is an interdisciplinary research approach key to tackling global challenges?

EXPERT OPINION HUMANITIES

Professor Christine Gerrard, Director of The Oxford Research Centre in the Humanities (TORCH) and Professor of eighteenth-century literature and culture, explores interdisciplinary research as a 'magic bullet' to tackle major global challenges such as the climate crisis, democratic stability and global health inequity.

● INTERDISCIPLINARITY

The magic of collective intelligence is the key to unlocking interdisciplinarity.



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The great interdisciplinarity illusion – and what to do about it

All too often, modules that claim to be interdisciplinary are really multidisciplinary. Here's how universities must change that

interdisciplinary learning and research

University leadership

Europe

Feature article



Simon Scott
University of Birmingham

6 Oct 2025



UNDRR

United Nations Office for
Disaster Risk Reduction

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Case study

Date of publication 10 October 2024

Using interdisciplinarity to foster a risk prevention culture: Tomorrow's cities in Ecuador

United Nations Office for Disaster Risk Reduction (UNDRR)

Interdisciplinarity and Hazards



“We need interdisciplinarity to keep society safe.”

- Early 21st century, becoming more formalized over last 10 years
- Aligned to Complexity and Systems focus on global challenges
- Research on theory, methods, applications, and reflective case studies.
- Generates novel questions, approaches, interpretations
- Innovates at the intersections of fields
- Provides rigorous, useful new insights
- Leads people to think about a topic differently

Panel: Case Studies of Interdisciplinary Practice

Chair: Marc McBride, Office for Nuclear Regulation

Richard Roff, Costain

Richard Taylor, University of Manchester

An interdisciplinary tale?

A brief history of attempts to learn across boundaries

Introduction – Richard Roff



Group Process Safety Director, Costain



Chair of UK PSM competence programme board

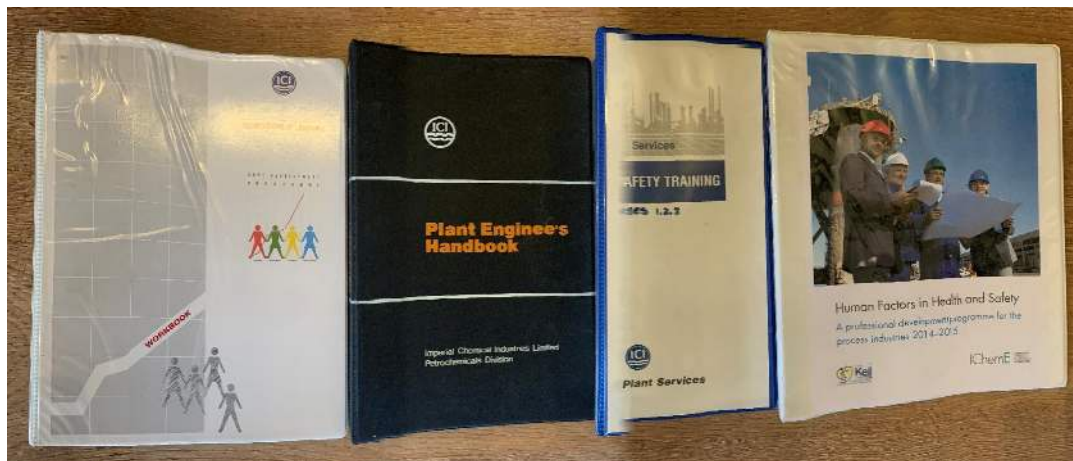


Chair of engineered systems interest group, Hazards Forum

Chartered Mechanical Engineer, Professional Process Safety Engineer

- Chemical and materials manufacture, steelmaking, construction
- ICI, DuPont, Croda, Tata Steel, Costain

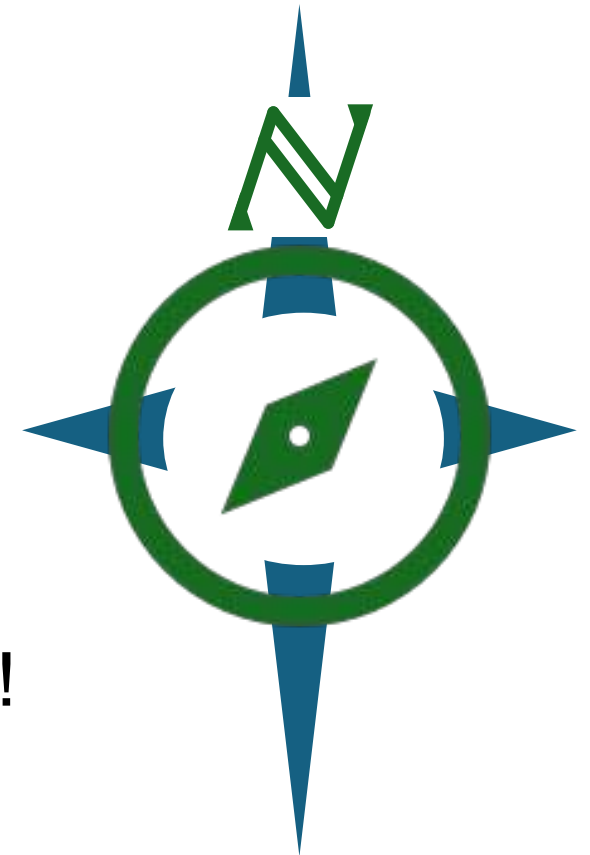
Interdisciplinary exchange



The impacts on me



- Recognising different perspectives in different activities
- Realising there are similar issues to be managed
- Seeing that history and organisational culture affects approaches
- Stealing good ideas (and applying some of them)!



Some perceived challenges for interdisciplinary learning...

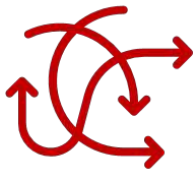
- Time?



- S.E.P?



- Too difficult?



- Expensive?



- Corporate memory loss?



- Low probability of success?



- Wide-scale change required?



An ongoing challenge?

Trevor Kletz:

“Organisations have no memory, only people remember”

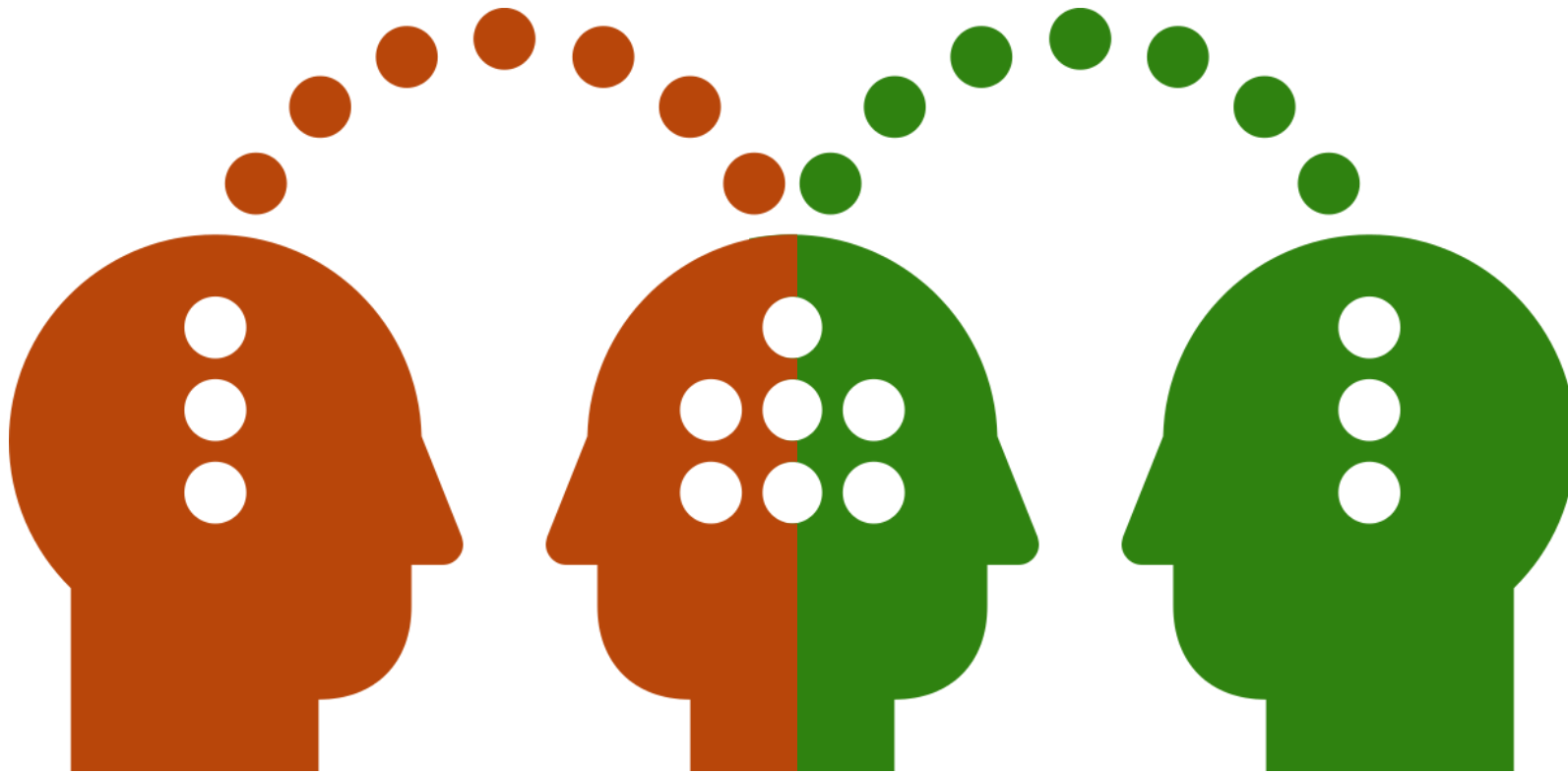
Richard Roff:

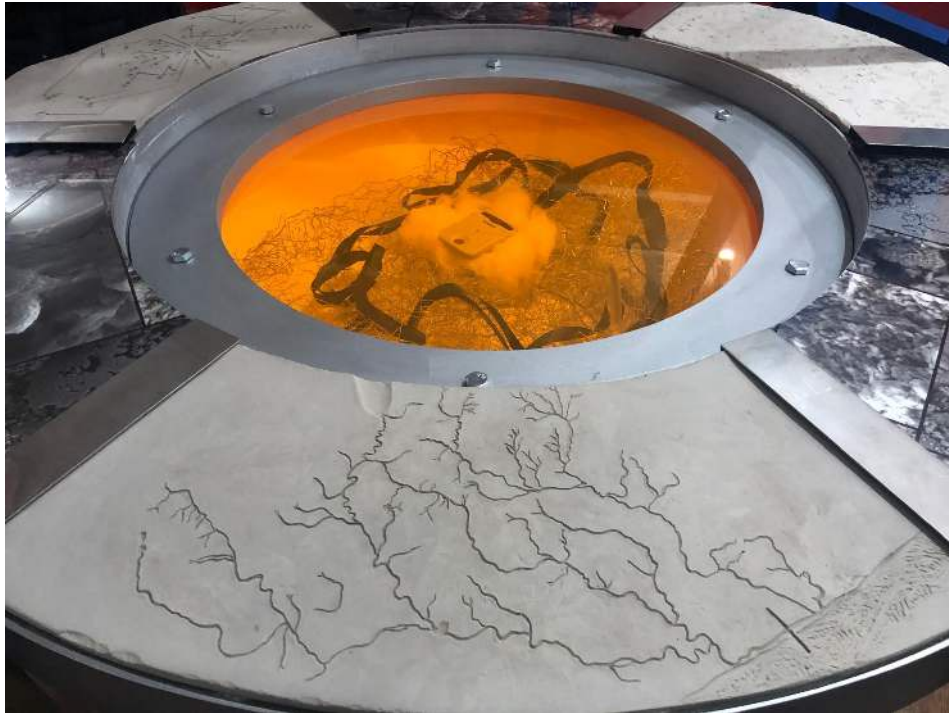
And even then...

Can those people ***apply*** what they remember?

Do those people ***apply*** what they remember?

Have I looked widely enough?





Activity:

Defining Interdisciplinary Competence

What must we KNOW? (knowledge)

What must we be able to DO? (skills)

How should we BE? (mindsets,
attitudes)

Discuss what you see on the padlet with those around you.

What, if anything, surprises you?

What do you see that you had not thought of?

What helps people develop these competencies?

Barriers to Interdisciplinarity

Peek and Guikema (2021) identify:

- “Meso-level”: organisations and institutions lacking structures, systems, and incentives
- “Macro-level”: lack of funding, deeply-ingrained cultural and historical differences among disciplines
- Micro-level (Sarah’s term): our own ways of seeing, knowing, doing, and our attitudes about those of others.

Time for Reflection

Results from Live Session Poll

Peek and Guikema (2021) depict disciplines and disciplinary domains involved in hazards and disaster research. Click on the area that best represents YOUR discipline, or the domain in which you feel most comfortable working.



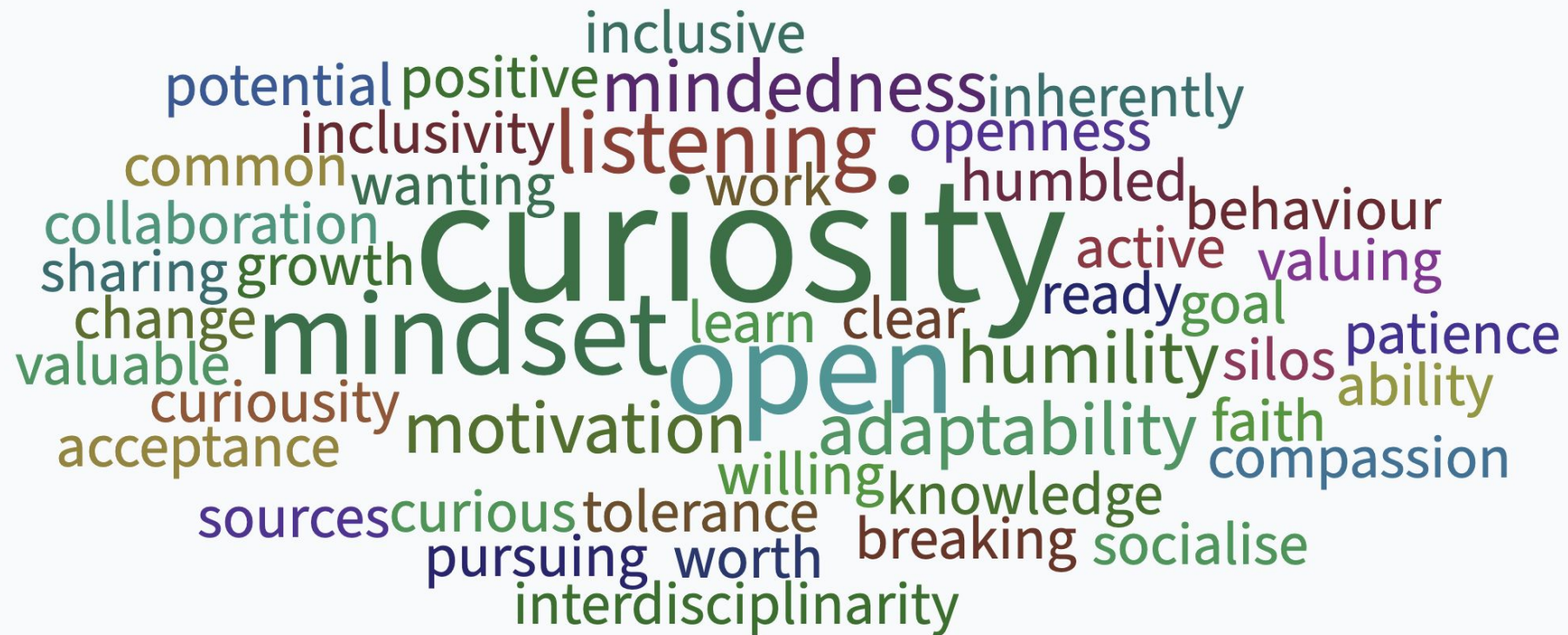
Results from Live Session Poll

Now click on the area that you believe is most valuable for you / your field to become more closely connected with.



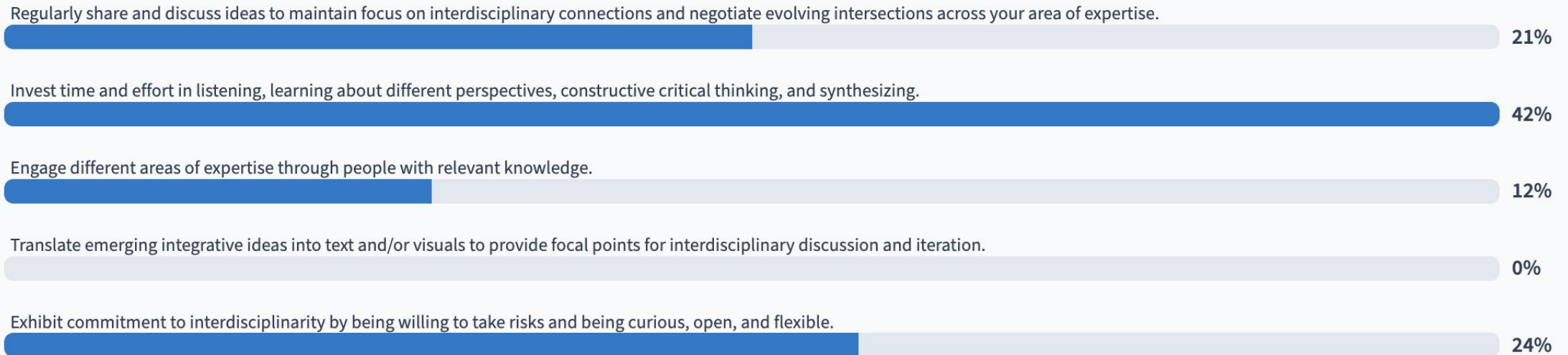
Results from Live Session Poll

What knowledge, skill, or mindset is most important in adopting an interdisciplinary approach?



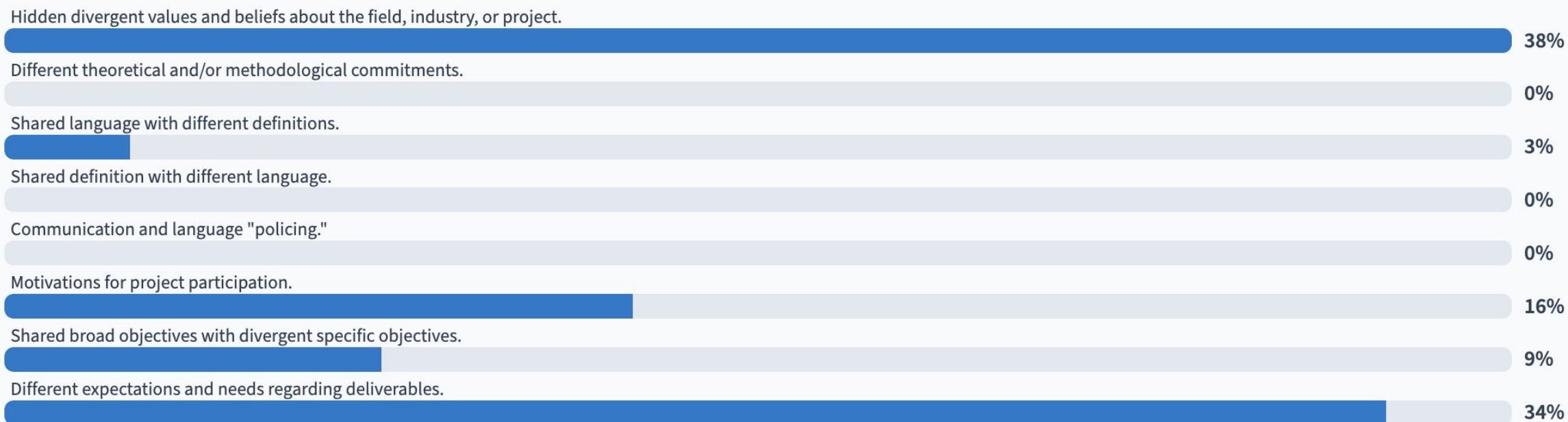
Results from Live Session Poll

Morss, Lazrus, and Demuth (2018) identify key practices for creating and sustaining interdisciplinary integration across fields. Which do you feel would be MOST valuable to your practice??



Results from Live Session Poll

Hardy (2018) identifies common challenges in interdisciplinary working. Which one do you think is most difficult to overcome?



Resources and Networks

- Toolkit for Interdisciplinary Learning and Teaching via Edinburgh Futures Institute: <https://blogs.ed.ac.uk/tilt/>
- The Beam Nuclear and Social Research Network, The University of Manchester Dalton Nuclear Institute: <https://www.sites.se.manchester.ac.uk/thebeam/>
- Words into Action Guidelines: The Science-Policy-Society ecosystem for disaster risk reduction, United Nations Office for Disaster Risk Reduction: <https://www.undrr.org/publication/words-action-guidelines-science-policy-society-ecosystem-disaster-risk-reduction>

Thank You

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