

## Moving interdisciplinary research forward: Top down organising force needed to help classify diverse practices.

*What does “interdisciplinarity” actually mean? **Gabriele Bammer** argues lumping interdisciplinary work together may be prohibiting an effective evaluation of how this kind of research is faring. A much more intuitive approach is needed to distinguishing between aspects of diverse research practices. Furthermore, developing effective professional organisations is also a key task for moving interdisciplinary research forward.*



In a recent special issue of the journal *Nature* on interdisciplinarity ([17 September 2015, p313-315](#)), Rick Rylance criticised “arcane debates about whether research is inter-, multi-, trans-, cross- or post-disciplinary”, opining “I find this faintly theological hair-splitting unhelpful.” Does he have a point? Rylance was discussing these distinctions in the context of research funding, especially relating to effective funding and evaluation of... well, what are we talking about and what are we going to call it? That’s the nub of the problem. For now, let’s stick with the term used by Rylance, namely “interdisciplinarity”.

Rylance also introduced a current project of the [Global Research Council](#), which is comprised of the heads of science and engineering funding agencies from around the world. The Global Research Council has selected interdisciplinarity as one of its two annual themes for an in-depth report, debate and statement between now and mid-2016. The Council is responding to national and international discussion about 1) the value and quality of interdisciplinary versus disciplinary research and 2) the perception of many interdisciplinary researchers that they are poorly treated in the research system. As Rylance points out, there is a dearth of data to test these claims. A major contributor to the lack of data is poor definition of what “interdisciplinarity” means.

One problem is that interdisciplinarity has become a catch-all term, used loosely by a wide range of researchers to cover an array of very different research practices. For example, interdisciplinary research ranges from a single practitioner of fine art borrowing ideas from medicine to think in new ways about a particular creative undertaking; to a team of ecologists, hydrologists, soil scientists, economists and sociologists working together with policy makers and citizens on a problem such as the sustainability of cities under global environmental change; to multiple research projects in the new inter-discipline of quantum biology which combines insights from molecular biology and quantum physics.

"...interdisciplinarity has now become a catch-all term, used loosely by a wide range of researchers to cover an array of very different research practices."

– Gabriele Bammer

It seems self-evident that lumping these different practices together prohibits an effective evaluation of how interdisciplinary research is faring. Like Rick Rylance, I do not think that trying to differentiate practices into multi-, inter-, trans- and the like, is the way forward. As well as the fact that most researchers use the terms sloppily, the precise definitions are contested. At this stage at least, much more intuitive ways are needed to distinguish different kinds of interdisciplinarity.

Rylance suggested a starting point in his article, writing "But there are areas in which discrimination is important. One is the difference between 'near-neighbour' or 'distant' disciplines." This relates to one of the classification criteria I suggested in [a report to the Australian Council of Learned Academies](#):

- Are the disciplines encompassed few or many, and are they closely aligned or disparate?

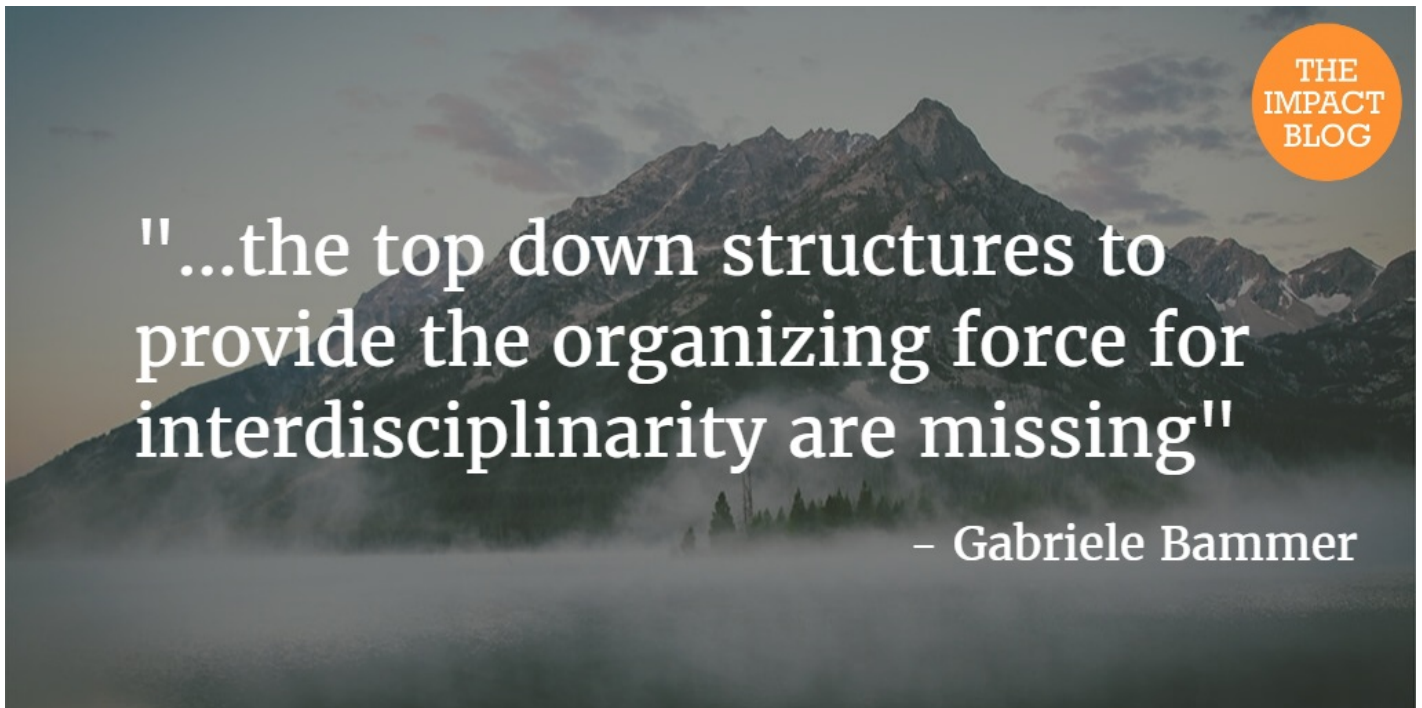
Others are:

- Is the interdisciplinary research undertaken by an individual or a team?
- Is the problem tackled straightforward or 'wicked'?
- Does the research involve or eschew engagement with policy and practice end-users?
- Are all disciplinary and end-user contributions equal?
- Is the integration a loose coupling or transcendence or somewhere in between?

To be effective, criteria need to be easy for the researchers to understand and use when describing their research. They should categorise all the major bodies of interdisciplinary research. They must also be significant. An easy test of significance is asking whether a peer-reviewer experienced in one category can effectively assess research in another. For example, can someone who has only ever undertaken interdisciplinary research which does not engage end-users effectively assess research that plans to work with policy makers or business?

How can valid and useful categories be developed? Examples from existing disciplines can provide lessons. Chemistry, for example, is divided into analytical, inorganic, organic, physical, theoretical and computational, macromolecular and materials, medicinal and biomolecular, and 'other' in the Australian Field of Research codes. These criteria reflect convergence of bottom-up and top-down activities. Research practices provide the essential foundations. Professional associations and other influential organisations work from the top to develop agreed ways

of organizing the practices. And the classification is solidified through research funding arrangements.



In comparison, interdisciplinarity has only just reached first base. There is a foundation of diverse research practices, but the top down structures to provide the organizing force for interdisciplinarity are missing. Existing professional associations are small, attracting only a tiny proportion of interdisciplinary practitioners. Consequently, they currently have neither the power nor the intellectual heft to effectively organize or lobby for interdisciplinarity. Developing effective professional organisations is a key task for interdisciplinary researchers. It is also essential that the Global Research Council recognizes this vacuum and, despite it, finds ways to significantly move thinking on interdisciplinarity forward. If it catalyses research to develop an effective parsimonious classification system, that would be a valuable foundational step.

*This piece originally appeared on the [Integration and Implementation Insights](#) blog as “Distinguishing between multi-, inter- and trans-disciplinarity – ‘theological’ hair-splitting or essential categorisation” and is reposted with the author’s permission.*

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### **About the Author**

**Gabriele Bammer** is developing the new discipline of *Integration and Implementation Sciences (I2S)* to improve research strengths for tackling complex real-world problems through synthesis of disciplinary and stakeholder knowledge, understanding and managing diverse unknowns and providing integrated research support for policy and practice change (see [i2s.anu.edu.au](http://i2s.anu.edu.au) and [I2Insights.org](http://I2Insights.org)). She is a professor in the [Research School of Population Health](#) at [The Australian National University \(ANU\)](#) and an ANU Public Policy Fellow. She co-convenes (with Michael Smithson) an edX Massive Open Online Course (MOOC) on ‘Ignorance!’. Her books include [Disciplining Interdisciplinarity: Integration and Implementation Sciences for Researching Complex Real-World Problems](#) (author, 2013), [Change! Combining analytic approaches with street wisdom](#) (editor, 2015), [Research Integration Using Dialogue Methods](#) (co-author, 2009), and [Uncertainty and Risk: Multidisciplinary Perspectives](#) (co-editor, 2008).

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