

# 42. The Institutional Challenges of Changing the Academic Landscape

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Disciplines confer many advantages, not least by placing boundaries around bodies of knowledge, which facilitates efficient teaching and provides guidance about adequate concepts and methodologies. Quality can often be more readily tested against disciplinary criteria. Set against this, the changing dynamics of the natural, social and political worlds mean that research funders are increasingly called upon to generate innovative solutions to multidimensional, policy-related problems on a regional, national or global scale. As complex problems of, for example, climate change or healthy ageing become more pressing, the ability of funders to deliver solutions to such challenges increasingly requires integration across disciplines as well as reaching out from academia to the policy, private and third sectors. Interesting and meaningful work happens at these boundaries and in the gaps between disciplines, and Lawrence Cram is undoubtedly right when he states in his commentary that ‘the opportunities and needs for I2S will only intensify in the future’.

In addition to the obvious barriers to communication among different specialties and different stakeholders, I2S can, however, expect to encounter institutional barriers: departmental structures, management systems and career pathways that are most often based on well-established disciplines. These challenges need to be recognised and managed if individual researchers and centres are to build effective and successful I2S programs. The book’s greatest weakness, certainly from a UK perspective, is that this issue is not adequately addressed, and I outline the key issues in this commentary.

In our own work,<sup>2</sup> we draw distinctions between long-term, interdisciplinary involvement for ‘academic’ reasons (for example, to enable a discipline to move into new areas of research) and the shorter-term, situational interest where the primary aim is problem oriented, and discipline-related outputs are less central to project design. We are also increasingly distinguishing between two levels of interdisciplinary integration: ‘first order’ (primarily ontological and epistemological factors) and ‘second order’ (primarily research management aspects). First order relates to the intellectual challenges faced at the start of an interdisciplinary project: how to manage complexity, to set constructive

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1 Catherine Lyall was invited because of her ‘significant contributions to the development of thinking about interdisciplinary research’.

2 For example, Lyall et al. (2011b).

boundaries on the project, what to include and what to exclude, how the main components of the project relate to one another—and to do this without resorting to the given boundaries of the contributing disciplines. These early decisions exemplify the really tough aspects of interdisciplinary research design, analysis and reporting: different research cultures determine different methodologies and underlying ontologies and these early decisions are what form the core of the integrative method. So often, as Gabriele laments, relevant insights about these first-order decisions regarding which disciplines to include languish undocumented in people's heads, dissipating 'creative effort by reinventing methodological wheels' (Chapter 31).

Related to these first-order decisions is the fundamental issue of evaluation. Evaluation plays a critical role in blocking or facilitating integrative applied research. Peer review must be the cornerstone of quality assessment, but discipline-based criteria can be insufficient for evaluation of work that steps beyond disciplines. Current review processes are a serious hindrance for integrative applied research and the lack of agreed indicators of quality may be one reason a question mark often hangs over the academic value of such work. The choice of evaluators, their disciplinary and interdisciplinary backgrounds, and their roles in the evaluation process need careful consideration. The process of finding suitable peers to review interdisciplinary work is a frequently cited challenge for those managing the evaluation process and often a source of deep frustration for researchers. The problem is acute for proposals attempting a novel interdisciplinary project where there may not be a recognised set of peers who are individually qualified to referee it. Moreover, the criteria appropriate to evaluation of academically oriented interdisciplinary research may often be different from problem-focused projects and programs. Improved evaluation protocols are vital to achieving a more stable and consistent role for integrative applied research and for improving its intellectual status in academia. In the United Kingdom, recent research<sup>3</sup> has recommended the establishment of an interdisciplinary reviewers' college, greater shared administrative resources for interdisciplinary investments among the Research Councils, and an 'Interdisciplinary Portal' to coordinate and consolidate access to information about funding, training and other support dedicated to interdisciplinarity and its evaluation.

## Fundamental Tensions

Gabriele acknowledges the persistent institutional factors that can discourage interdisciplinary research—for example, a lack of opportunities to publish

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<sup>3</sup> Lyall et al. (2011a).

in high-ranking, refereed journals and discrimination by referees against interdisciplinary proposals and publications. As a leader of a collaborative centre in Scotland noted:<sup>4</sup> ‘there is a fundamental tension between interdisciplinary institutes or centres and the university internal management system’—which needs to be recognised. Interdisciplinary interactions are clearly transforming the natural sciences and the social scientists who work with them but there can be real challenges in forging synergies across seemingly distant disciplines as well as between those that are more proximate. In particular, the context within which integrative applied research arises can vary across several dimensions and it is important to be aware of institutional constraints that may weigh differentially on team members in different departments or different universities. In contrast with discipline-based departments, interdisciplinary collaborations may run counter to institutional allocations of credit, finances, indirect costs or other resources.

## Maintaining Integrity

In countries, such as the United Kingdom, where there is a governmental drive to increase knowledge exchange and the impact of research on both policy and practice, including commercial development, there is an increasing desire to engage potential users and other stakeholders in research projects. Including stakeholders in the research project is often regarded as conducive to interdisciplinary research for its own sake but also, significantly, in terms of promoting research uptake. Such stakeholders may include policy makers, local authorities, industry, professional groups (for example, educators, health professionals), civil society groups or citizens more generally. A key challenge may be how to maintain impartiality and avoid becoming completely immersed in stakeholder concerns. Where the research is intimately linked with stakeholder issues this may lead to conflicts (such as confidentiality issues) or impatience on the part of the research partner to achieve results. Involving potential research users in the evaluation of integrative applied research (either at the proposal stage or in the assessment of outputs) may also pose difficulties if those non-academic colleagues do not fully understand research goals, norms and methods.

A focus on stakeholder engagement may bring political pressures that challenge independent researchers’ neutral competence and may fuel the arguments of those who see interdisciplinary research as irrevocably consigned to a short-term, problem-solving mode<sup>5</sup> or those who believe that ‘problem-based knowledge is insufficiently abstract to survive in competition with problem-

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<sup>4</sup> Meagher and Lyall (2005a, p. 20).

<sup>5</sup> Petts et al. (2006).

portable knowledge'.<sup>6</sup> Some regret that the 'persistent linking of the concepts of interdisciplinarity and "real world problems" has associated an interdisciplinary approach with instrumental, or applied research', and warn that uncritical advocacy of interdisciplinarity can oversimplify the different traditions and contributions made by different disciplines.<sup>7</sup>

Problem-focused research is thus sometimes seen as undermining academic research, taking its evolution in a direction with which many academics are uncomfortable. Pursuit of multifaceted problems beyond the scope of any one discipline is often seen by discipline-based researchers as at best irrelevant and at worst threatening, so that the barriers to integrative applied research are correspondingly greater. Alternatively, a research unit (or individual researcher) risks being reduced to a service role where staff provide specific, well-defined inputs (for example, data sets, tools) to another domain without the need for significant interdisciplinary interaction or contribution to advance their own core knowledge. Active researchers may migrate away from such collaborations if they are not seen to benefit their own research and careers.

## The Role of Funders

We know that funding is a major driver for behaviour change among researchers, so national and international research funders could be key advocates for I2S. But, while it is evident that the relationship between disciplines is strongly influenced by national funding agencies, lack of organisational memory in these bodies can be an issue when the staff involved in championing cross-council or cross-disciplinary initiatives move on to new areas. Our experience as evaluators shows that there is a need to minimise the learning curve at the start of projects and programs,<sup>8</sup> and Gabriele rightly points to the importance of organisational learning and lesson sharing. In the United Kingdom as elsewhere, Research Councils have developed effective systems to run research programs within their core areas but may require additional assistance to capture occasional 'idiosyncratic' experiences—such as running interdisciplinary initiatives. Moreover, at either a funding-body level or the level of an institution, such initiatives can be vulnerable and regarded as dispensable when money is tight. Gabriele commends the benefits of relatively untied funding but this seems less likely in times of austerity here in the United Kingdom and the pessimist in me fears retrenchment to the hierarchy of disciplines.

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6 Abbott (2001, p. 135).

7 Petts et al. (2006).

8 Lyall et al. (2011a).

## Career Pathways

Integrative applied researchers will need to plan their personal development more carefully than colleagues with more conservative career paths. They may consequently need better mentoring so that they both respond to sponsors' requirements and think strategically about their own personal research and publication strategy. Gabriele points to the dangers of such researchers being marginalised within the academic mainstream: finding an appropriate scholarly community to counter the potential feeling of intellectual homelessness can be one of the keys to success. Significantly, in the early stages of establishing I2S as a discipline, there is a clear risk that young researchers will struggle at the start of their academic career. In a study we conducted of an interdisciplinary capacity-building scheme for the United Kingdom,<sup>9</sup> one professor was highly complimentary about the calibre of interdisciplinary PhD students produced by the scheme. Yet, when asked if he, personally, would hire someone with that background, he acknowledged that he would have to give priority to individuals seen to be able to teach introductory courses in his department's 'home' discipline. So young researchers will continue to straddle domains until they become established integrative applied researchers; the feedback we got from supervisors in that same study was that, although they felt comfortable in their interdisciplinarity now that they had achieved a certain status, their advice to early career researchers was not to pursue an interdisciplinary path until they had achieved tenure. As an aside, Gabriele notes that current education relevant to complex real-world problems is idiosyncratic. This is something that we recognise and have tried to address with our Interdisciplinary Masterclasses in the United Kingdom,<sup>10</sup> but this workshop-based, advanced training that we have developed at various levels, from PhD student to research leaders, is a drop in the ocean. I2S needs to be underpinned by sustained, systematic training throughout the researcher's life.

A key risk, especially but not exclusively for someone starting out in their career, may be lack of institutional advancement. The institutions of academia have long been geared towards disciplines and mono-disciplinary work, whether these institutions take the form of departments, faculties, universities, professional societies or journals. As I2S scholars, we know the disadvantages of promotion or selection criteria that are oriented towards evaluation of worth as measured by contribution to a single discipline. In preceding commentaries, Deborah O'Connell and colleagues have highlighted the challenges of publishing and Alison Ritter has drawn attention to the use of inappropriate metrics. A survey by the National Academies<sup>11</sup> captured this sort of risk across multiple

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<sup>9</sup> Meagher and Lyall (2005b).

<sup>10</sup> See Lyall and Meagher (2012).

<sup>11</sup> National Academies (2005, pp. 264–5).

US universities: promotion criteria were the highest ranked impediment to interdisciplinary research, as ranked both by individuals and by university provosts.

Although Gabriele does discuss some of these organisational barriers, I think—with the fervour of the true evangelist—she does tend to downplay the importance of academic reward structures. But these may change over time. In the United Kingdom, the new national Research Excellence Framework (REF) introduces for the first time an explicit element to assess the ‘impact’ arising from excellent research, alongside the ‘outputs’ and ‘environment’ elements.<sup>12</sup> The assessment of impact will be based on expert review of case studies submitted by universities; these case studies may include any social, economic or cultural impact or benefit beyond academia that has taken place during the assessment period, which was underpinned by excellent research produced by the submitting institution within a given time frame. Although these proposals initially caused considerable alarm among certain sectors of the UK academy, this approach may yet prove beneficial to those academics who pursue a less traditional form of scholarship—one more oriented towards I2S.

Universities are already beginning to employ individuals who can act at the interface between researchers and non-academic stakeholders; however, these emerging roles are not unproblematic in a research setting. The ambiguous, hybrid and often temporary nature of such university positions can be challenging for the post-holders who perform these ‘blended’ functions, occupying as they do a liminal space between academics and administrators.<sup>13</sup> As the Shergold quotation opening Chapter 17 emphasises, the policy world is rarely a comfortable home for the disciplinary purist.

## Conclusion

Developing a new discipline is a major undertaking and not without risks. In offering her ‘Big Science’ manifesto for I2S, Gabriele’s approach is fittingly ambitious but perhaps also overly optimistic, especially when institutional barriers are taken into account.

Disciplines exist because, in the past at least, they made knowledge manageable. They also bestow considerable benefits in terms of peer recognition, access to resources, clear training pathways and professional kudos. Some interdisciplinary fields have reached the point where they are recognised as disciplines in their own right with a shared epistemological base and associated esteem measures,

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<sup>12</sup> REF2014 website: <<http://www.hefce.ac.uk/research/ref/>> (accessed 16 February 2012).

<sup>13</sup> Knight and Lightowler (2010); Whitchurch (2009).

resulting in stable systemic communities within which researchers concentrate their experience into a particular world view. So, in developing the new ‘discipline’ of I2S, how do we retain the freshness and spontaneity—how do we accrue the reputational advantages of a discipline without the potential disadvantages of ossification?

Also, we cannot underestimate the politics of disciplines or the power of vested interests. Case studies are clearly crucial to build evidence of success but so is political lobbying—of our peers, of our university leaders and of our funders. How best can we sell the concept in order to change the academic landscape so that we achieve Gabriele’s ‘virtuous cycle between funding, capacity and demonstrated success’ (Chapter 31)? Individuals will inevitably be conflicted between being disciplinary specialists and I2S scholars; how can we best help them to manage these multiple identities within the existing constraints of our academic institutions? Perhaps if I was in a philanthropic mood and had \$1 million to spend, I would focus on these issues of recognition, reward and evaluation, and, specifically, I would launch a new international journal of I2S to help establish proof-of-concept and build academic credibility.

Gabriele’s very clear, structured approach to setting out her argument may be misinterpreted by critics as an oversimplified, linear, normative approach. Breaking down the steps in order to manage the whole is a key tenet of integrative applied research and Gabriele emphasises that this is an iterative process, not one that is prescriptive but one that recognises and supports multiple approaches. Gabriele is a pioneer, offering us some stepping stones to help us start a worldwide discussion about research that takes place at the boundaries of our current experience.

From my own experience, I see myself as someone endeavouring to sustain an innovative, ‘blended’ form of scholarship combining world-class research and consultancy with research development, knowledge exchange and capacity building. This embodies the dynamic relationship between theory, practice and impact increasingly demanded of an academic but it does sometimes feel that I don’t have a proper intellectual home. Perhaps, in future, I2S can provide one.

Contributed October 2011

## References

- Abbott, A. (2001). *Chaos of Disciplines*. Chicago and London: University of Chicago Press.

- Knight, C. and Lightowler, C. (2010). 'Reflections of "knowledge exchange professionals" in the social sciences: emerging opportunities and challenges for university-based brokers'. *Evidence and Policy*, 6 (4): 543–56.
- Lyall, C. and Meagher, L. (2012). 'A masterclass in interdisciplinarity: research into practice in training the next generation of interdisciplinary researchers'. *Futures*, 44 (6): 608–17.
- Lyall, C., Bruce, A., Marsden, W. and Meagher, L. (2011a). *Identifying key success factors in the quest for interdisciplinary knowledge*. Report to Natural Environment Research Council.
- Lyall, C., Bruce, A., Tait, J. and Meagher, L. (2011b). *Interdisciplinary Research Journeys. Practical strategies for capturing creativity*. London: Bloomsbury Academic.
- Meagher, L. and Lyall, C. (2005a). *Evaluation of the ESRC/NERC Interdisciplinary Research Studentship Scheme*. Report to Economic and Social Research Council.
- Meagher, L. and Lyall, C. (2005b). *Phase Two Evaluation of Research Development Grant*. Report to Scottish Higher Education Funding Council.
- National Academies. (2005). *Facilitating Interdisciplinary Research*. National Academy of Sciences, National Academy of Engineering, and Institute of Medicine. Washington, DC: National Academy Press.
- Petts, J., Owens, S. and Bulkeley, H. (2006). 'Crossing boundaries: interdisciplinarity in the context of urban environments'. *Geoforum*, 39 (2): 593–601.
- Whitchurch, C. (2009). 'The rise of the blended professional in higher education: a comparison between the United Kingdom, Australia and the United States'. *Higher Education*, 58 (3): 407–18.

## Brief Biography

Dr Catherine Lyall was until recently Deputy Director of Innogen, an interdisciplinary research centre studying innovation in the life sciences and the social impact of innovation on global health, agri-food, the environment and the economy. She is now Deputy Director of the Genomics Policy and Research Forum, a sister initiative at the University of Edinburgh which works to widen the reception of social science research beyond existing audiences, and build capacity amongst social scientists for public and policy engagement. She is an

experienced science policy researcher and evaluator of knowledge exchange and interdisciplinary research activities who has acted as a consultant to a number of public bodies in Scotland, the United Kingdom and Europe. Her personal research program seeks to advance an understanding of problems of science and technology policy formation and strategic decision making by adopting interdisciplinary and practitioner-based perspectives. She is also Associate Dean Research Careers for the university's College of Humanities and Social Science.

This text is taken from *Disciplining Interdisciplinarity: Integration and Implementation Sciences for Researching Complex Real-World Problems*, by Gabriele Bammer, published 2013 by ANU E Press, The Australian National University, Canberra, Australia.