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A Short Guide to Developing Interdisciplinary Strategies for Research Groups

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Introduction

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, there is increasing recognition of the advantages of interdisciplinary approaches. The world of policy and practice transcends disciplinary divides; tackling research challenges which address complex problems necessitates a change to traditional discipline-based research strategies. But effective interdisciplinary working does not simply happen. As well as the obvious barriers to communication between different specialisms, interdisciplinary research may encounter institutional barriers – departmental structures, management systems and career pathways that are often based around disciplines. These challenges need to be managed if individual researchers and centres are to build effective and successful programmes of interdisciplinary research.

This short note is intended to provide leaders of interdisciplinary research groups (including centres and programmes) with some preliminary guidance on developing interdisciplinary research strategies. It will touch on issues such as:

- Building a shared research vision and joint sense of identity across disciplines
- Helping individuals develop their expertise and a long-term research strategy
- Accessing resources and sharing the credit across institutional structures
- Rewarding, engaging and balancing the needs of multiple stakeholders (e.g. students, researchers, parent institution(s), external funders, research users)

Leaders of interdisciplinary groups need to consider many other management issues, including the development of collaborative, interdisciplinary research proposals, mentoring early career researchers, and supervising interdisciplinary PhD students. These topics are covered by other notes in this series, listed below.

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Building strategic visions

Different kinds of interdisciplinarity require different approaches and there is no single model for success: this is often simply a case of 'learning by doing'. However, in developing and delivering a shared research vision, a leader of an interdisciplinary unit can enhance the chances of success by considering issues such as:

- Will it be driven by knowledge goals, practical goals, or both?
- How long is the endeavour expected to last?
- How can interdisciplinary encounters be combined to build new knowledge?
- How can all stakeholders involved (at all levels) win?

In broad terms, interdisciplinary research can be geared towards advancing the knowledge base or tackling practical problem solving (these need not always be mutually exclusive). These different approaches will vary in terms of what motivates the researchers undertaking the work and will have different intended outcomes. In the case of complex (e.g. societal) problems, where the goals or outcomes may be more open-ended and involve a broadening of existing knowledge frameworks, there may be greater uncertainty in terms of duration, benefits, inputs and outputs.

When developing an overarching strategy for an interdisciplinary research group or unit within an academic setting, consideration should be given to the temporal dimensions of these two approaches (knowledge or practical goals) in order to maximise the opportunities for advancing knowledge by building synergies between what might otherwise appear to be one-off, problem-focused engagements. If interdisciplinary encounters remain narrowly pragmatic there is a risk that constant shifts in application areas between practical interdisciplinary enquiries will reduce the scope for expertise to accumulate (although the researcher will gain expertise in managing interdisciplinary projects per se). The learning costs will be high if the unit's strategy is based solely on a series of short interdisciplinary projects. It is therefore important to make sure that new knowledge and techniques are acquired in a cumulative manner, allowing individuals and centres to develop and demonstrate their capabilities in order to off-set these learning costs.

Interdisciplinary collaborations fail when there is a lack of understanding of the roles that the contributing disciplines can play. This can lead to unrealistic over-expectations or a trivialised view, for example, of the role of the social sciences within an engineering-led project. The problems of collaboration are amplified where different research cultures have incompatible approaches to research collaboration, funding and management.

To succeed, an interdisciplinary strategy may need to be based less upon the integration of disciplines (which are often rather broad) but rather of sub-disciplines or schools of analysis with their specific analytical strategies and narrative structures. Some disciplines, such as medicine or architecture, are already extremely heterogeneous; some sub-disciplines may represent the more recent coalition of knowledge around a problem area (e.g. transport studies). Significantly, some disciplines may be more open than others to external knowledge contributions: appreciation of the nature and status of the intellectual components being woven together will help solidify a research strategy.

Research leaders need to be clear about their multiple goals and *play a multi-level game* in order to satisfy a number of stakeholders including the sponsor, the parent institution, the research unit's objectives and the personal goals of the researchers involved. Persistent (and well-rehearsed) institutional factors discourage interdisciplinary research, such as a lack of opportunities to publish in high-ranking, refereed journals and discrimination by referees against interdisciplinary proposals and publications.

An individual researcher, or unit, risks being reduced to a service or subordination role[2] where they provide specific, well-defined inputs (e.g. data sets, tools) to another domain without the need for significant interdisciplinary interaction or contribution to advance their own core knowledge. Research active staff may migrate away from such collaborations if they are not seen to benefit their own research.

Researchers embarking upon interdisciplinary trajectories need to consider how their expertise will be sustained and validated. This might be achieved by:

(i)   sustaining links with the original disciplines (in which case consider how to retain links with developing specialised knowledge in the original disciplinary domain and how to ensure these are recognised by the host domain, for example through institutional promotion systems)

(ii)   aligning with an emerging discipline: (in which case consider retaining control/leadership over an emerging interdisciplinary arena and generating/sustaining centrality to an emerging school of analysis by, for example, creating new journals and conferences).

Interdisciplinary researchers 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 but also think strategically about their own personal research and publication strategy.

Questions to consider with involved researchers might include:

- Short term: what do you hope to get from particular project (for sponsors? for your career?)
- Medium-term: how can you build a reputation/publication record (in what outlets? with whom?)
- Long-term: where do you want to make your contribution? (publish within one or across several fields? create new interdisciplinary fields?)

Engaging partners in the strategy

Rhoten[3] has identified the potential for interdisciplinary research centres to become merely mediocre collectives of individuals searching for a common purpose. Obstacles to cohesion may derive from an absence of a shared vision; a lack of focus around an agreed research problem; a lack of networking/community-building processes and systems to develop relationships and trust; or a lack of commitment perhaps due to a reward structure that does not acknowledge individual motivations and expertise or organisational structures which act as barriers to effective management and do not encourage innovation. A research leader's ability to address these challenges will be strengthened by careful attention to the diverse sorts of rewards that may engage all necessary stakeholders.

In order to avoid becoming such a "nexus of loosely connected individuals" (ibid.), interdisciplinary research leaders should consider how best to define and create the unit's identity while at the same time maintaining individuals' intellectual flexibility. They should probably resist the temptation to encompass 'everything' but will need to negotiate multiple identities and roles in order to establish a common purpose.

In seeking to achieve this, it is worth considering that the different stakeholders in the interdisciplinary research unit may be motivated by different rewards which will need to be factored in to the strategy development and sustainability of that unit. Involvement in such a

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[2] Barry, Andrew, Born, Georgina and Weszkalnys, Gisa (2008), "Logics of interdisciplinarity", *Economy and Society*, 37/1:20-49.

[3] Rhoten, D. (2004), "Interdisciplinary Research: Trend or Transition", *Items and Issues*, 5/1-2: 6-12.

'pioneering' research centre may bring individual academics greater recognition and enable them to engage more widely with other researchers and potential research users with consonant interests. But there may be issues to resolve regarding institutional governance structures to ensure that they are not disadvantaged, for example, by promotion criteria.

The unit itself may be able to achieve a greater profile both internally within the parent institution and externally with research funders and research users (academic and non-academic). This can increase credibility with partners, particularly if the unit can achieve a degree of financial independence which will both enhance its intellectual flexibility and improve its chances of long-term influence and impact. Relationships with others – including potential sponsors and research users – may be enhanced if it is possible to support core staff who are independent of project work and therefore more able to undertake relationship building.

The host university and various parent departments will also have a stake and may be more supportive if they can be persuaded that the return on investment may include access to new revenue streams, greater potential for innovative thinking, and wider engagement, which in turn may broaden the host institution's public profile. But tactics for strengthening institutional support can be problematic, for example:

- How feasible are matrix structures where, for example, social scientists within other faculties are encouraged to retain links with social science? Will they be disadvantaged with regard to promotion and quality assessment exercises?
- Does the rhetoric of interdisciplinarity clash with the reality of discipline-based governance structures within higher education institutions?
- Will attempts to link cognate groups paradoxically inhibit interactions between more distal groups (resulting in fewer but bigger 'silos')?

If you get the balance right then interdisciplinary research centres provide opportunities for knowledge-led collaborations which result in a 'win-win' situation: advancing knowledge *and* solving social problems through sustained engagement which in turn develops into new interdisciplinary domains. The benefits can be both intellectually rewarding and financially remunerative.

Discussions with participants at the ARCISS Workshop, *Developing Interdisciplinary Strategies for Research Groups,* 14 September 2009 contributed to the preparation of this note.

Other notes in this series and information about our interdisciplinary capacity- and community-building activities can be downloaded from **www.tinyurl.com/idwiki**

A Short Guide to Developing Interdisciplinary Research Proposals
A Short Guide to Reviewing Interdisciplinary Research Proposals
A Short Guide to Building and Managing Interdisciplinary Research Teams
A Short Guide for Supervisors of Interdisciplinary PhDs
A Short Guide to Troubleshooting Common Interdisciplinary Research Management Challenges
A Short Guide to Designing Interdisciplinary Research for Policy and Practice

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