CROSSING PATHS:
INTERDISCIPLINARY INSTITUTIONS, CAREERS, EDUCATION AND APPLICATIONS

Executive summary

BRITISH ACADEMY
for the humanities and social sciences

This report looks at the opportunities and barriers to interdisciplinary research (IDR), from the point of view of all research career stages, and institutional levels. It was produced in a context of growing interest in and funding for IDR and looks at how this affects the research and higher education system as a whole.

Any move towards greater emphasis on public funding for IDR will inevitably affect university structures and how researchers forge their career paths, whether that research results in long–term fusing of disciplines or focuses on challenges that become less prominent or evolve over time. It will also have an impact on the structures and infrastructures within which research takes place, from publication routes to research assessment.

This British Academy project examines how the move to greater engagement in IDR affects, and is affected by, these structures. It also considers the support across the higher education and research system for IDR as a source of evidence to help address global social challenges, and a valuable basis for research–informed university teaching.

Interdisciplinarity: A family resemblance concept

We set out with a 'family resemblance' concept of interdisciplinarity, focusing on ways that it is practised, rather than a strict definition. The kinds of IDR we were considering included:

- Individual researchers learning methods from other areas and applying them to issues that arise in their own discipline.
- Exploratory collaborations between disciplines to find areas of common interest – or to identify new approaches to issues within each respective discipline. These might be close neighbours, such as economics and political science, or more removed, such as philosophy and engineering.
- Challenge- or question-focused research that requires the input of a range of disciplines working together – such as research in public health or sustainability.
- Emerging disciplines that bring together approaches from separate areas – such areas emerge often in the sciences (e.g. biomedical engineering as an emerging discipline that was previously collaborative and interdisciplinary). Digital humanities was often mentioned in the research behind this report as being at least en route to becoming such an emerging discipline.
- Individuals or groups of researchers working in areas seen as inherently interdisciplinary because of the range of questions addressed or the range of approaches taken – such as classics or geography.

This report looks at how the move towards IDR affects humanities and social science subjects in particular, though it takes in all disciplines. It takes stock of the different types and modes of IDR and presents a variety of case studies from researchers working across disciplines and research centres bringing together diverse researchers in collaboration.

Findings and recommendations

A central finding of the responses to the call for evidence was a broad and deep support for IDR. The most often cited reasons were its essential role in addressing complex problems and research questions posed by global social challenges, as well as the increased rigour it can bring to one's understanding of one's own discipline.

Yet, when asked what advice one would provide an early–career researcher wanting to start out on an IDR career or undertake an IDR project, it was noticeable that many said that they would advise against such a move – at least until the researcher was well established with a permanent job.

The working group felt that it was important that early career researchers should be confident in taking up opportunities to carry out IDR. However, all researches, at any career stage, should be established in an academic home from which they undertake IDR.

A number of respondents cited the need to be a specialist and an expert in at least one discipline, in order to be an effective collaborator in any project that crosses disciplines. That expertise lies primarily in knowledge of a set of methods or methodologies without which it is difficult for a researcher to make a robust contribution.

We recommend that researchers should aim to to develop an academic home, a secure base from which to carry out IDR. An academic home consists in those critical elements that allow researchers to build a career, including expertise in core methods; a set of publications within a disciplinary area; ability to teach core courses in a discipline; and professional networks forged by attendance at conferences.

The summary of findings and recommendations below highlight what needs to change in the research and higher education sector in order to allow researchers, including those early in their career, to pursue high quality IDR alongside, or as part of, cultivating an academic home. This is not a manifesto for IDR but a discussion of the opportunities and challenges of working across disciplines.

Evaluation

Evaluation is key to many of the barriers to pursuing IDR. Many of the reasons for avoiding interdisciplinary projects relate to the fact that it is harder to publish outputs; such work is perceived to have less value to hiring and promotion panels; and one is less likely to be selected for submission to REF. However, none of these barriers is an essential aspect of IDR and they can be addressed by better and more appropriate evaluation.

Recommendations

- Skilled IDR evaluators and coaching for referees. Evaluating IDR takes experience, and understanding of appropriate frameworks. Interdisciplinary panels which comprise individuals who have carried out interdisciplinary work are needed for assessing IDR – and ideally users of IDR as well as academics.

- Evaluating the whole and not just disciplinary parts of any interdisciplinary output. The quality of interdisciplinary work lies in the way that it brings disciplines together.

- Avoiding quantitative criteria such as citations driving evaluation in assessing the quality of interdisciplinary work, which may be less likely to appear in high–ranking journals. Such criteria do not serve consistently well across disciplines.

- Taking account of the time needed for IDR – which can be longer than needed for disciplinary work if it involves bringing together cross–disciplinary teams.

Developing research careers

Successful researchers must develop an academic home and remain attached to it – through developing methods skills, publications, teaching and professional networks. But an academic home will be different for different areas – more focused in some cases, and more diffuse for subjects such as geography, which often present themselves as 'inherently interdisciplinary'.

Recommendations

- Researchers must be aware of the need to develop an academic home, publish in their core area, develop professional networks and, where appropriate, become professionally accredited but they should be encouraged to engage with those working in different disciplines.

- Research managers overseeing IDR projects must ensure that researchers have the time to cultivate their disciplinary home alongside their interdisciplinary work.

- Craft skills are needed for interdisciplinary working – the ability to connect teams, learn new vocabularies and work across boundaries. Universities should ensure that academic staff receive opportunities for development in best practice in IDR. But not all researchers develop these skills and no one should be pushed into interdisciplinary working artificially.

Leadership

Leadership is critically important to supporting researchers carrying out interdisciplinary work. A strong message of support from the university leadership provides researchers with the security needed to explore collaborative working, and the specific expertise of established academics can help younger researchers or newer teams to develop good projects and secure funding.

Recommendations

- Institutions should clearly convey support for IDR to allow researchers to explore new projects outside their academic home with confidence that this work will be assessed and valued appropriately.

- Experienced researchers should be given, and take, the opportunity to mentor younger researchers and research teams, to help create successful interdisciplinary projects.

Managers and administrators

An obstacle to interdisciplinary work that was conveyed through centre visits and responses to the call for evidence was the challenge of reconciling the disciplinary–based structures for organising research and teaching activities and associated resources, and the cross–cutting structures needed to support IDR and provide interdisciplinary teaching.

Recommendations

- Institutions need to establish strategies for managing income across disciplinary and IDR structures and units. The institutional case studies in the next section of the report offer different examples of this.

- Research managers and managers of IDR units are critical to bringing together teams and supporting researchers working in new areas. Their role and skills should be valued and supported.

- Interdisciplinary units are best constructed so that they clearly reinforce disciplinary–based research goals via support of interdisciplinary engagement. Any target goals for securing grant funding should be set and monitored with care not to disincentivise IDR.

Funding

IDR benefits from flexible funding not tied to specific outputs or questions, allowing time for teams to form. However, much IDR is supported by challenge–based calls. Maintaining balance and understanding the funding needs of interdisciplinary teams is central to supporting IDR.

Recommendations

- Seedcorn funding should be protected. IDR takes extra time and groundwork, meaning there is an important role for Seedcorn funding for bottom–up IDR projects, provided directly by universities.

- Calls for IDR proposals need to give both time for teams to develop their work and a level of flexibility to accommodate projects that may evolve.

- A mixed portfolio of bottom-up and top-down, theme- or challenge-led funding is critical. The Department for Business, Innovation and Skills (BIS) should be responsible for ensuring this balance is maintained.

Teaching

Researchers will need to develop teaching experience and skills relevant to their academic home, but there is a real need to support interdisciplinary teaching based on research. With IDR valuable for addressing practical challenges, there is a potentially growing market for interdisciplinary teaching at all levels.

Recommendations

- Academics should develop teaching experience in both core and interdisciplinary areas.

- Institutions should show support for IDR, research–based teaching and recognise its value in evaluating academic careers.

IDR in public policy

In his 2014–15 annual report[1] the Chief Scientific Adviser emphasises the importance of external advice from the science and research community. Indeed, he acknowledges that the Government Office for Science (GO–Science) has been able to accommodate a reduction in its budget because it can obtain so much support at little or no cost. In parallel, the Cabinet Office open policy agenda[2] relies on increased levels of contribution to policy making from academic and other non–government sources. The REF[3] provides some incentives and rewards for academic institutions to participate in these initiatives, the inclusion of impact case studies in REF 2014 being the major incentive. It remains unclear, however, whether government departments can absorb and deploy more evidence and analysis contributed by these external sources. It is particularly important that government departments be able to use IDR, or bring together diverse sets of evidence, as practical policy challenges will require input from a number of disciplines.

Recommendation

- Government should publish an assessment of the capability of each department to absorb advice and evidence from the science and research community at disciplinary and interdisciplinary levels. The assessment might be led by the Chief Scientific Adviser in collaboration with departmental chief scientific advisers; the Chief Medical Officer; Chief Economist; Chief Statistician; and Chief Veterinary Officer.

End Notes

1. www.gov.uk/government/uploads/system/uploads/attachment_data/file/381905/14-1190a-innovation-managing-risk-report.pdf

2. www.gov.uk/guidance/open–policy–making–toolkit

3. www.ref.ac.uk

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