



Global Health *Viewpoint*

WHY INTERDISCIPLINARITY?

Interdisciplinary collaboration has recently been attracting increasing support as an approach to research. Universities are setting up interdisciplinary institutes and schools. Funding bodies are earmarking increasingly large sums to collaborative research projects. Historically hailed as a paradigm but underfunded, interdisciplinarity finally seems to be hitting the financial big time.

Integrating researchers and their methodologies from distinct disciplines to enrich investigation is at the heart of UCL's new Research Strategy. It argues that the world's most pressing problems,

“requires more than interdisciplinary collaboration ... [but rather] transcending the boundaries between disciplines.” And this is just a start. *“Interdisciplinary research ... will be increasingly important in tackling many of the major global issues of the 21st century.”*

This approach is reflected in UCL's strategy to solving the 'grand challenge' of global health. "Cross-disciplinary action" is the centre-piece of the new UCL Institute for Global Health, whose activities have focused on interdisciplinary collaboration.

Why? What is it about interdisciplinarity that merits such attention? In spite of the enthusiasm for applying this approach, its rationale is little discussed relative to its proposed potential.

For global health, the rationale can be found in the topic's breadth and importance, and in the benefit of introducing novel ways of thinking to standard approaches to health.

Breadth

Improvements in global health require a complex chain of activities. Such a chain crosses the path of myriad subjects. Take the vaccination of an African child against a new disease. This potentially requires scientists to isolate the correct vaccine, entrepreneurs to source the funding for its development, and lawyers to protect its formula. Once the drug is available, an international donor is needed to sponsor its purchase, a bureaucrat to design its distribution, and a local community worker must create the local demand required to spur the government to action. Understanding all of these possible stages requires scientists and

immunologists, lawyers, economists, political scientists, anthropologists, and others.

By bringing together disciplines to study this complex chain, each link is studied using frontier methods by specialists in the appropriate field. Together, these experts provide the most advanced understanding possible of the issue under study. The nature of global health's challenges ties it to numerous disciplines. To approach these challenges rigorously, it is critical we bring together specialists from each of those disciplines.

Bringing disciplines together also allows for a greater common understanding of the topic as a whole. Breaking problems down into their component parts helps us focus on the task at hand and make better progress towards a solution. This was the rationale for the academy's specialization into separate disciplines. However, piecing the problem together again brings out problems of the whole not apparent in the component parts.

Interdisciplinary work can go further. Integration allows us to find new modes of working and seeing the world in the cracks that arise as disciplines diverge. The economist, too worried about a formal model of incentives, missed the importance of social norms in the institutions that governed the behaviour of bureaucrats. Until, that is, the anthropologist pointed this out, and the two set to work on a new field that merged the two disciplines.

Such 'challenge-oriented' approaches will allow us to confront the challenges of global health we may not yet even see.

Even if we don't go as far as defining new fields, bringing subjects together allows for the sharing and dissemination of methodologies unique to particular disciplines. Global health encompasses subjects that do not confront each other in many other areas. Medicine rarely meets political science, and economics only infrequently anthropology. However, each prides itself on the development of tools on which a lot of good minds have been lavished. I was surprised, on meeting a mathematician recently, how little she knew of endogeneity, economics' great contribution to statistics. The concept was critical to her current research project.

Importance

Global health is too important not to be treated as an interdisciplinary subject. Its importance for the quality of our lives and the lives of others requires that no field of knowledge be wasted. Whatever can be contributed to the solving of global health problems should be, for so much is at stake.

Interdisciplinarity also allows for that importance to cross-fertilise other subjects, as climate change has done across the university. Once, climate change was the bastion of environmentalists.

Now, it is at the forefront of debate in economics. For it to be vigorously confronted, the grand challenge of global health must be realised as such by scholars beyond the health community.

Novelty

Bringing unlike minds together confronts us with new ways of thinking, often absent from our own fields. Global health, like so many of the world's 'grand challenges', will require innovative and novel thinking. These challenges persist, after all, since standard frameworks of analysis have not yielded adequate solutions. Interdisciplinary work can drive the required originality in thought by confronting old assumptions and sharing field-specific paradigms.

Economics is a good example of where interdisciplinary thought can yield productive innovation. Over the last decade, three of economics' Nobel Prizes have gone to interdisciplinarians. The one for global health economics is still up for grabs.

No silver bullets

However, I don't believe interdisciplinarity is a silver bullet. The three Nobel Prizes were all given to outstanding economists, who knew economics superbly well. There is no substitute for rigorous thought in one's own field. The

Find out more:

Nissani, M. (1997) 'Ten cheers for interdisciplinarity: The case for interdisciplinary knowledge and research'. *The Social Science Journal*, Volume 34, Number 2, pages 201 – 216.

Wilson, E.O. (2003) 'Consilience'. Time Warner Books: London.

Saunders, N. (2004) 'Reach out and cuddle up to another discipline'. *Times Higher Education*, 2 January 2004.

Cotton, C. (1997) 'Crossing the great divides'. *Times Higher Education*, 10 October 1997.

Lattuca, L.R. (2001) 'Creating Interdisciplinarity: Interdisciplinary Research and Teaching Among College and University Faculty'. Vanderbilt University Press.

clarity of thought in interdisciplinary work will critically rest upon the clarity of thought in those involved.

Interdisciplinary work can also be prohibitively costly. As Nicholas Saunders of UCL, who has written on interdisciplinary work, argues, "it requires hard thinking, difficult choices and doesn't always work." Scholars from distinct disciplines often find there is a 'language barrier' through which misconception and miscommunication can flow. Interdisciplinarians may find it difficult to agree on an integrated methodology and to satisfy their own discipline's demands for accountability and publication.



The challenges may go even deeper than that. Diana Rhoten, of the National Academy of Sciences, writes of “the incompatibility of university incentive and reward structures with interdisciplinary practices”. Her study of interdisciplinary work found only a gradual move towards it because of this weakness.

And the winner is ...

In the context of these costs, do the benefits of interdisciplinarity ever win out? Sometimes, most definitely. From Mandelbrot’s fractals, the discovery of which he puts down to his being able to move “from subject to subject” at the IBM labs, to the analysis of sequenced DNA bases that have required biologists to work closely with mathematicians and computer scientists. In his Nobel lecture, the chemist Alan MacDiarmid stated, “this Nobel Prize has world-wide implications since it shows the ever-increasing importance of interdisciplinary research”.

Experiments continue. I am in the process of setting up a new graduate society, the UCL Interdisciplinary Society for International Development (ISID), partly to see how useful collaboration can be for research in international development.

Based in the Graduate School, the UCL ISID (www.ucl.ac.uk/isid) aims to provide a platform for UCL researchers with an interest in international development to engage with other disciplines from across the university.

The possibilities are endless. If well managed, I believe there is tremendous scope for interdisciplinary research, particularly in broad and important fields such as global health. And with global health we aren’t just working for profit or Nobel prizes, but for something much more important, human wellbeing.

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