MEETING THE CHALLENGES
Interdisciplinary research for global development

E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

dsa Development Studies Association

DSA-ESRC Workshop series 2018-19

The One Health and Zoonoses Lens: how can interdisciplinary development science meet global challenges?

Convened by Melissa Leach and Linda Waldman
Institute of Development Studies, Sussex – 15 October 2018

Summary Report, Sarah C. White, 26 February 2019

Introduction

This report presents some key insights into the achievements and challenges of interdisciplinary research for global development, focusing on zoonoses and One Health research. One Health recognises the interconnection of living creatures and the ecosystems they inhabit, and the interrelationships between human, animal and ecological health. It advances a cross-sectoral approach to address issues such as food safety and zoonoses - diseases which can spread between animals and humans.

The workshop involved 23 zoonoses and One Health researchers, including five from institutions in the global south, many of whom had been involved in the Zoonoses and Emerging Livestock Systems (ZELS) research programme (see Appendix A) or the Dynamic Drivers of Disease in Africa Consortium (DDDAC, www.driversofdisease.org)

The morning began with two keynotes, from IDS Director Professor Melissa Leach and IDS Director of Teaching and Learning Dr Linda Waldman. A mapping exercise followed, as participants noted down the projects they had worked on and the disciplines involved, and located these on a world map. Group discussion then identified four achievements and obstacles of interdisciplinary research. These were:
- Leadership and the position of the social sciences
- Cross-pollination: methods, and integration v. triangulation
- Interdisciplinarity and disciplinary excellence
- Interpersonal relationships in interdisciplinary research

These issues were further discussed through a 'world café' exercise. In the afternoon participants worked in groups to identify an SDG goal they would like to address and a (real or imaginary) project to do this. They then mapped out the pathway through which the target might be achieved. The afternoon closed with general reflections on learning from the day.

1. **What do we learn from the ZELS programme for inter-disciplinary research for global development more generally?**

Mobilising an interdisciplinary agenda

To advance One Health more strongly, much could be learnt from the way Climate Change has become a global agenda. Strengths of climate change are: an immediate headline agenda, with a label that tells a story; an association with particular facts/targets, e.g. 1.5% warming; a global institutional home (the IPCC). These have helped achieve the more constant presence of climate change as an issue. By comparison, there is heightened awareness of zoonoses in crises, such as major pandemics, but they are hidden at other times

Building in support for Post-Graduate Researchers

The ZELS Associated Studentships PhD programme was a great success. The students spent equal time in the UK and a country in the global South, with a supervisor in each location. All agreed this magnified the students' learning. More information at: https://www.gla.ac.uk/researchinstitutes/bahcm/zels-as/

Marks of success of the programme

The great success has been in bringing people together. 10 years ago it would have been hard to identify a social scientist working on zoonoses. Now there are numbers of papers with social and natural scientists together and they are looking forward to doing more work together including building communities of practice. It is also important to network and think through links of science to policy. Building this takes time. A sandpit of 4 hours won't lead to an interdisciplinary research proposal. Ideally you need research funding that lasts more than 3-4 years.

2. **What do we learn about the contribution of development studies to inter-disciplinary research?**

Five Ps of Development Studies Research

There were 5 characteristics that participants identified as the contribution of development studies research.
- First came a focus on *People and Poverty* (inequality), going beyond technical dimensions of the prevalence and spread of disease to ask '*who* gets sick and *why*?'
- This leads into *Place*, and the importance of the specifics of local knowledge and practice. For example, research into Lassa fever in Sierra Leone under DDDAC found particular vulnerability amongst women in the dry season. The dry season was the prime time for work in their gardens, primarily undertaken by women, and that was when and where the rodent that carried the disease was most common.
- Third is a broader orientation to *Participatory approaches to knowledge production*, rather than just the application of 'expert' knowledge from outside

- The fourth 'P' is an orientation towards *Policy*, rather than science for its own sake. Here, however, there were some contradictions. While development studies researchers see understanding the policy process as their thing, participants broadly agreed that natural scientists have easier access to policy-makers than do social scientists. However, bringing impact on the SDGs into the process of project planning made participants shift their perspective: they said it 'made them see themselves not so much as a health specialist, but as a development researcher'. Participants also thought a focus on the SDGs or on tangible outcomes (which they identified as 'the development lens') might help bring together interdisciplinary teams and make these more acceptable to funders.
- Finally comes *Political economy*, and questioning the framing of problems and solutions. In some cases this is quite crude, for example Lassa fever in Sierra Leone became a priority because it posed a threat to the US military. Policies emphasising the 'health risks' of animal diseases such as T.B. may mask more fundamental economic interests. Another aspect is that questions of security were said still to haunt the national psyche in the US post 9/11, and this national psyche was seen to drive funding decisions.

3. What do we learn about doing interdisciplinary research in practice?

Resisting integration

Funding calls seem to come with increasing pressure to assert a common narrative but it takes time to generate an effective common conceptual framework.

Perhaps a surprising theme was the need to question integration as the objective, because of its danger of reducing all the complexity to the lowest common denominator. This might be a particular danger or anxiety for social science, where the expertise may be less clearly defined. Rather than integration, it might be more fruitful to recognise the distinctive contribution of each approach (e.g. the pattern-based models of environmental science, the maths-based models of epidemiology, and the participatory focus of development studies). These could then be triangulated through deliberative conversation.

It is also important to discuss the limits of modelling and explore forms of non-linear modelling, including systems dynamics modelling, which reflect systems' complexity. A model needs to be viewed as an heuristic device, something to help us make sense of what we see, rather than as an absolute truth, or an end in itself.

Ways of organising interdisciplinary projects

Different ways of organising projects were discussed. These include:

- Separate Work Packages, split by disciplinary methods;
- Work Packages on cross-cutting themes applying a variety of social science and natural science methods

- A modeller takes all the information and produces a big 'model' at the end, synthesising all data

Sequencing

Problems can occur if some forms of data generation rely on the completion of others – which can take a very long time, for example good quality qualitative social science data - and one segment of research can end up holding up other segments. However, careful phasing can be built into projects that allow for ways in which for example, microbiological data is collected, to change through the project as a result of social science data – but not be contingent on it.

Language difficulties

Everyday terms in one discipline may be unknown in another – e.g. microbiome is a key term in genomics, but not necessarily understood outside. People from within the discipline can think you are stupid if you don't know such a term – and you can feel yourself to be stupid too. This can be a real difficulty for academics trained to hide their ignorance. On the other hand, an outsider can pose the basic questions which challenge taken for granted assumptions, and force researchers to look at established knowledge in a new way.

Interacting on equal terms

It is important to be able to interact on equal terms: 'not like taking your cat to the vet'. The starting point is both sides acknowledging what they don't know about what others do.   But it can't end there. To push the boundaries together you need to come to some real understanding of each other's disciplines. And be prepared to compromise on one's own (disciplinary) purity.

The question of time was also raised repeatedly. Research across differences, national and disciplinary, which are both associated with power, requires more time to ensure that there is not just reproduction of existing biases, silos and patterns of working.

Interdisciplinary teams need to discuss from the outset how they will manage the different expectations of authorship, outputs etc across disciplines.

The importance of personal dynamics and relationships

Knowing one another at an individual level can be very important for overcoming prejudices and getting to understand how different individuals and institutions think and the constraints they work within.
Teleconferencing may reproduce differences of age, culture etc as it gives no chance to develop personal relationships to overcome these. It is important actually to meet face to face.

Interaction needs to go beyond the formal to the personal. What does it feel like? To be a vet who has to tell a farming family their cattle herd must be slaughtered? To be a social

scientist and be asked by a policy maker what they should do, and feel you do not have an immediate answer?

Much interdisciplinary research emerges out of informal networks based on peoples' interpersonal relationships, but it should not be dependent on these. Are there ways to formalise processes for this?

Leadership

Funders like a single Principal Investigator as the person responsible for the money, which often mitigates against equal social science/natural science leadership.

Hierarchies of knowledge mean that natural scientists typically lead large consortia, and academics often play into this in the belief that projects led by a natural scientist are more likely to be successful with funders.

The BBRSC representative present confirmed this: 90% their funding goes to teams with natural science leads. This may reflect the fact that policy makers want quick win technical fixes rather than more challenging, or theoretically engaged, research.

4. What is – and should be – the role of social science in interdisciplinary research?

The legitimacy of social science

Social scientists can struggle to gain legitimacy in interdisciplinary projects. It can be a challenge to articulate what the social sciences are or can do. They can be seen as just common sense, not a specific form of expertise that requires specialist training.

Such views do not just come from other scientists, but reflect the way social scientists can themselves feel. Participants shared anxieties they have experienced – what do you do if you are asked 'what should we do?' and you don't know? What are you able to say as an anthropologist? Or an economist? Do natural scientists also have this sense of the limitations of their knowledge? This is hard for academics to acknowledge, when their careers are invested in being the ones who know, and may be part of the reason that interdisciplinary work can be so uncomfortable, as it brings your up face to face with the limits of your knowledge.

It was also acknowledged that working with other social scientists, including one's own discipline, may be at least as challenging as working with those from other disciplines! Those from other disciplines may find it easier to accept you as 'expert'.

More critically, social scientists are often seen as 'complexifying', making problems rather than solving them. It is important for social scientists to be able to say more than 'it's more complicated!' They need to be seen as providing solutions.

Social science of *or* for…..?

There is a major tension that structures the engagement of social scientists in interdisciplinary projects. This can be summed up as whether we have a social science *for* or *of* One Health and zoonoses.

Social science *for*…..
means that social scientists are brought in to fill in the gaps left by the natural sciences - the 'people' bits – behaviour and culture.
This is positive in demonstrating that social science can contribute practical value added, but it is negative in allotting social science a secondary, supportive role, to the primary lead of natural science.

Being embedded e.g. with a medical team can also muzzle social scientists from voicing some criticisms. For example social scientists got high recognition in the Ebola response, but some also felt constrained to say some critical things– e.g. re the interests of big pharma.

Social science *of*…..
means questioning the way both problems and solutions are framed and providing alternative frames. It involves drawing in more theoretical, rather than exclusively empirical perspectives. How can we move to a more *transformative* social science agenda?

In One Health and zoonoses, a crucial contribution has been to open up discourse about power relations. There has also been critical questioning of the ways in which One Health debates are being shaped.

Natural science was also seen to have lost its theory, and being increasingly driven by technology. And there are commercial interests behind the technical domination. We need to begin by asking how will we *use* the information, and why, rather than just doing the science first and then asking why afterwards.

It was someone from a natural science background who framed the need for a shift most strongly:

> 'This is science and the system: people need to change their behaviour. We need to turn this around. Put people at the centre and get the science to fit. But often there is the sense instead that we need to get on with it and the social scientists are in the way. But it is the role of social science to question: what are the actual needs of society?
>
> 'The structure is responding to need, and the need is ultimately economic. We need to ask "do we need a new bridge?" rather than "how can we get people to accept a new bridge?" '

So, for example, preparedness tends to be seen as stockpiling vaccine, but it should be seen as about people and their relations to each other.

The value added of social science – examples

Examples of the value added of social science knowledge included:

- Knowing that street level bureaucrats – meat inspectors in Tanzania for example – attempt to approximate policy goals despite limited resources through relational, informal practices (because they lack adequate resources to rely on formal remits and regulations) can inform better, more context appropriate intervention/policy

    If you do away with the informal, you could jeopardize some communities from accessing some resources altogether: meat, animal medicines, anti-biotics etc…

- With vaccines you need the technical cold chain but without careful economic consideration and TRUST, the technical may very well not work (and not reduce inequality)

- Research from Tanzania on gender and livestock has found that women face unique disease risks as they are the ones doing milking and often spend many hours with sick livestock. Meanwhile, men tend to control resources, and be landowners (if there is land to 'own').

5. **What are the implications of academic structures for inter-disciplinary research – and vice versa?**

    It is critical that senior management are committed to inter-disciplinary research.

    It is also important for interdisciplinary modes of working to be instilled early in academic careers. Would it be useful to have 1-2 week workshops for students of different disciplines to come together to discuss key global issues?

    Publication

    The general feeling was that there are still obstacles to publishing interdisciplinary research.
    Descriptive papers are harder to publish – it is much easier if you are testing something.
    Disciplinary purists still dominate, and professional incentives in academia push researchers towards disciplinary purity.

    However, there are some signs that things are changing

    - Rise of topical journals
    - Article based metrics
    - Will this tip the balance?

Might the emphasis on impact result in higher priority for interdisciplinary research?

Early Career Researchers

These incentives are felt more strongly for early career researchers. They want to be accepted in their institutions, and gain respect amongst others in their field.

ECRs need high impact publications in their own fields. The prize is to be able to demonstrate excellence so that, though working in an interdisciplinary manner, the research is still able to be the best in own discipline.

Is there too much risk for early career researchers to get involved in interdisciplinary research?

One possible solution might be for more senior researchers to recognise this, and accommodate for it, taking the lead on interdisciplinary research but incorporating and make space for younger researchers involved in to demonstrate excellence in their respective fields.

Funding structures

Funders often put out quite specific calls which made it impossible to get research on One Health. ESRC never sent anyone to ZELS conference.

Panels on research councils still tend to be biased to natural sciences. For instance in many calls, ESRC has a relatively small budget so others have more control over review panels etc. This structural bias is being challenged, for instance in schemes such as the Global Challenges Research Fund and the growing appreciation for genuinely interdisciplinary research in UKRI. However even when the importance of social science is appreciated it is often seen in an instrumental way. There is still domination of hypothesis driven approaches.

Who has the personpower to put large proposals together?

6. Impact

Interdisciplinary research was seen as critical to achieve impact, and more emphasis on impact should result in interdisciplinary research being given higher priority. Some also talked about this in a broader way:

> 'Most projects don't measure legacy. Leaving a legacy for the planet requires a lot more than research.'

Research outcomes would generate knowledge of the practical experience of the burden of zoonotic diseases, in both quantitative and qualitative terms. Impact would involve that knowledge being applied to reduce the burden of disease.

Considering impact took the conversation beyond issues of interaction across academic disciplines. How are the researchers engaging with other stakeholders? How aware are we of others, such as activists, already working in that space? How do we work most effectively with them?

This raised the bigger picture of how we view our activity: how do we need to reframe the issues to address engagement and effective communication?

Capacity building

Effective impact requires capacity building amongst local actors and policy makers. Some examples are:

- Building a policy environment that breaches silos.
- Farmer field schools are opportunities for farmers to communicate and share knowledge among themselves, framing them as partners too, and agents for their own good health and wellbeing, and hopefully responsible production/consumption
- Capacity training for policy makers and ground level staff such as vets, health workers and those who work in labs etc… also works towards partnership .. and the other goals we chose

Reflecting on this broader framing of impact leads into some hard questions for researchers: Are we really prepared for the time and effort required really to seek to make change happen?

Appendix A: The Zoonoses and Emerging Livestock Systems (ZELS) programme.

This was a joint research initiative of the Department for International Development (DFID) and the Biotechnology and Biological Sciences Research Council (BBSRC); the Economic and Social Research Council (ESRC) ; the Medical Research Council (MRC); the Natural Environment Research Council (NERC) and the Defence Science and Technology Laboratory (DSTL). 'In 2012 we awarded research grants with a total funding of £18.5M, with a further £1.5M for Studentships funding. In all 11 projects are funded in 11 developing countries involving 19 UK research institutions and more than 30 overseas institutions.' https://bbsrc.ukri.org/research/international/engagement/global-challenges/zels/