Interdisciplinary research in practice: Lessons from “Antibiotics and Activity Spaces” in Thailand and Laos

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Interdisciplinary research is rewarding, but it comes neither automatically nor easily. What are pitfalls of doing interdisciplinary work, and how can we avoid them to maximise our chances of success? This case reviews some lessons of the project “Antibiotics and Activity Spaces” to demonstrate that, though sometimes difficult, collaboration across the disciplines can produce inspiring new insights.

**The project idea**

“Antibiotics and Activity Spaces” was a project running from 2017 to 2018 in which our team studied antibiotic use in rural Thailand and Laos, hoping to inform global health research and policy on antimicrobial-resistant superbugs. Antimicrobial resistance (AMR, also known as drug resistance) is a growing policy priority. As certain types of medicine become less effective the more we use them (in medicine, agriculture, or by leaking them into the environment), drug resistance threatens to become the cause of up to 10 million deaths every year by 2050. Yet nearly all research on AMR derives from the medical and natural sciences, leaving important and policy-relevant aspects of human behaviour and the social role of medicine uncovered. Is it really the case – as is often assumed – that people overconsume antibiotics and other medicine because they are just not aware of the problem of drug resistance? Our contribution to the emerging interdisciplinary work in this field was to understand how people use and make sense of antibiotics in contexts of poverty, marginalisation, and cultural diversity.

The idea of the project was itself the product of interdisciplinary collaboration. In a previous project led by colleagues from health economics and clinical medicine, we explored the effectiveness and the social consequences of new diagnostic tests to help nurses and doctors...
make better antibiotic prescription decisions. The study focused on fever patients in Thailand and Myanmar, and the five-minute finger prick test would indicate to healthcare staff whether the fever was caused by bacteria, and whether it would accordingly be suitable to prescribe or withhold antibiotic treatment. However, as a primarily medical research project, there was much that we could not explore, for instance whether it was indeed common for patients to expect antibiotics to treat a fever, or how people even referred to antibiotics in the local language.

Nor, it seems to me, do they particularly want to. There needs to be a fundamental re-education of the publishing market if progress is to be made in interdisciplinary thinking. I think you need to work with a publisher for whom some markets may not be ‘native’ and who are willing to shake things up a bit by being unconventional. There is a ghastly phrase business people use which sums it up nicely – disruptors. Market disruptors who are prepared to gamble on an innovative style of publishing which shows diversity and inclusivity.

What we did

Responding to the gaps in knowledge and the limitations of our previous research, we assembled a team from a broad range of disciplinary backgrounds:

DEVELOPMENT STUDIES | AGRICULTURAL AND HEALTH ECONOMICS | SOCIOLOGY (NETWORK SCIENCE) | MEDICAL ANTHROPOLOGY | PUBLIC HEALTH & MEDICAL EDUCATION | CLINICAL MEDICINE | MICROBIOLOGY

This disciplinary mix helped us to approach antibiotic use from a distinctively new perspective: our previous DEVELOPMENT STUDIES research did not only help us to identify marginalised and remote communities for our project but also to frame health behaviour in contexts of marginalisation and discrimination theoretically, whereby our colleagues from ECONOMICS contributed methodological guidance as well as ideas on individual decision-making processes, rural livelihoods, and health systems. Through SOCIOLOGICAL methods, we incorporated ideas of social network analysis into our work, and colleagues from MEDICAL ANTHROPOLOGY shared experience on the meaning of medicine across cultures and the contextually embedded patterns of their use. Our colleagues working in CLINICAL MEDICINE and MICROBIOLOGY provided expert advice to help assess what types of antibiotics and forms of medicine use are clinically relevant for this study. Together with the PUBLIC HEALTH perspective, this also involved interpreting behavioural patterns from a health systems perspective and to balance the social scientists’ interpretations and recommendations for health policy. Through the involvement of health researchers and educators, we were also better positioned to address medical audiences and to involve global health trainees in our project as dissertation students and research interns.

We translated our ideas into a project comprising a combination of survey research, interviews, and co-produced public engagement activities. Altogether, we:

- surveyed 5,885 people to understand health behaviour and antibiotic use both on the level of the broader rural population and within specific village social networks,
- interviewed 50 people to inform the questionnaire and interpret the survey data, and
- conducted engagement activities comprising half-day workshops on medicine use for 20-35 participants each in five villages across northern Thailand and southern Laos, an international photo exhibition about tales of traditional healing that we hosted in four cities (approx. 500 visitors), and social and mass media communication (reaching more than 350,000 impressions on Twitter, Facebook, Reddit, and LinkedIn).
Interdisciplinary challenges and responses

The project itself involved 19 collaborators, 2 research officers, 5 interns, 2 dissertation students, 19 field research team members, and 3 collaborating research units – on a shoestring budget. The disciplinary diversity added a further layer of complexity.

One of the biggest challenges of the interdisciplinary collaboration was to align expectations. Collaborators from different disciplines often have specific OBJECTIVES for participating in an interdisciplinary project, which are partly linked to their personal research interests, views about how best to answer a research question (e.g. using a survey or various ways of doing qualitative research), and to the way in which their discipline rewards research output. There is no single way of doing things right, and therefore our solution to manage and harmonise different expectations was to COMPARTMENTALISE people’s involvement depending on their subject areas and main interests. Rather than requiring every collaborator to comment on and monitor every aspect of the project, medical researchers commented on the health systems and medicinal dimensions while social scientists focused on behaviour and the data collection process.

Compartmentalisation helped to focus collaborators’ inputs, but it does not harmonise expectations about the RESEARCH PROCESS, which the medical and social sciences often approach fundamentally differently. Do we assess health behaviour from the perspective of a patient or from the perspective of a physician? Do we need clinical definitions of antibiotics or rather use lay terms? Can and should we specify very clearly up-front what we are going to measure and test, or will we incorporate flexibility into the research design? These are common areas of division between researchers, but also language and methodological concepts like “case,” “in-depth interview,” or “engagement” can remain elusive and ambiguous. Divisions in methodological standards and processes become yet more obvious when seeking ethical clearance in interdisciplinary projects. In our project, we had to decide whether to apply to social science or medical research ethics committees for clearance, which can have significant implications for the design of the research and the interactions between researchers and study participants. One instrument that helped us align our understanding of the research process and tools involved in our study was the RESEARCH PROTOCOL. Although relatively uncommon in the social sciences (and requiring at times counter-intuitive information like “exclusion criteria”), the research protocol enabled us to harmonise the description of the project, ensure mutual understanding, and communicate transparently with both social science and medical research ethics committees.

To ensure continued buy-in of interdisciplinary collaborators, the project also needed to respond to their expectations of a worthy research output. Such outputs tend to be academic PUBLICATIONS, but authorship norms vary substantially across the disciplines. In the social sciences, it is the norm to have very few co-authors – namely those who actually wrote the paper – while other collaborators are being “acknowledged” in a footnote; in the medical sciences, the net is cast wider and collaborators as well as research facilitators and gatekeepers are often included in the list of authors of a publication. Medical researchers gain less from co-authorship than social scientists lose from additional co-authors on a publication, and neither camp is perfect because local research teams or research participants who often contribute the most time to a project often remain invisible. Our publication strategy considered these points and operated MULTIPLE STREAMS. On the one hand, we produced overarching “flagship” publications like a published research protocol and a summary of the main project findings, which gave credit through co-authorship to all collaborators as well as interns and field research team members who had an intellectual stake in the project. On the other hand, we published discipline-specific articles in the social and medical sciences in line with local authorship norms.
What we took away

There is no point sugar-coating the fact that interdisciplinary research is challenging and requires extensive time and resources spent coordinating and translating across disciplinary perspectives, objectives, and norms. These resources are often a real practical constraint, which we experienced in our project as well. And yet, the effort was worthwhile. The diversity of the team did not just help balance specific disciplinary perspectives, but it also enabled fundamentally new and detailed insights into health behaviour that promise to advance both practice and theory in global health. Among others, we debunked the myth that the seemingly inappropriate behaviour of patients is merely a result of poor knowledge – in fact, we observed how people with more education and with the recommended attitudes towards antibiotics continued to overuse antibiotics, or even consumed more than their peers. At the same time, detailed analysis of the role of new technology and social relationships among poor people suggested that our context and living conditions might have much more influence on our health behaviour than health policy and research tend to assume. It is improbable that any such insights would have emerged from a single-discipline study.

To facilitate future research, but also to build interdisciplinary competence among my students in Global Sustainable Development, I have published a short methodological field guide called Interdisciplinary Qualitative Research in Global Development that incorporates many of the experiences and lessons from “Antibiotics and Activity Spaces.”

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