

Reimagining the PhD:

Transdisciplinary Collaborative PhDs on Global Challenges

Transdisciplinary research may be defined here as a critical, reflexive, and collaborative approach to addressing complex real world problems that transcends the scope and norms of a single field, integrating diverse types of knowledge and usually inclusive of academic and non-academic actors and stakeholders.¹ Such an approach is increasingly seen as necessary for addressing the world's 'wicked problems' that are by definition complex and poorly defined or understood. Tomorrow's scholars, both inside and outside the academy, need to have a breadth and depth of understanding, an ability to see and respond to multiple perspectives, the capacity to adapt to different ways of thinking and environments, and the ability to effectively collaborate and communicate with diverse partners and audiences. Opportunities to develop these capacities are not available in many PhD journeys, nor are students' abilities in this area meaningfully assessed. For this reason, G+PS seeks to support efforts to work out models for the development and management of transdisciplinary, collaborative doctoral programs of study across fields, disciplines, departments and faculties.

Concept:

- In such a program, students working with different supervisors, from different disciplines, aim to understand and address an aspect of a single, complex, real world problem with the intent to create a collaborative dissertation core. Other parts of the dissertation would be sole- or multi-authored, with at least some elements in all dissertations solely authored (as appropriate for a discipline).
- This could be framed as a training program (with a cohort), or could be more flexible; it could include master's students and postdocs.
- A focus on building transdisciplinary competencies would be important, involving both disciplinary depth and interdisciplinary breadth.

Potential problems, barriers

- Research projects don't always work out as anticipated. There may be key people who leave, or disagreements or other problems may arise that make the work unfeasible. Some students may find that they are no longer a fit for the project, and there may be a need to attract other individuals to the project.
- Research of this sort will likely take longer, and may therefore increase time to completion.
- Coursework beyond what is currently/conventionally available may be necessary.
- Research funding may not necessarily be aligned among faculty members involved.

Potential solutions

- The 'program' may be quite loosely defined, leaving room for alterations as the projects evolve.
- Students' projects must be 'salvageable' as individual work or with fewer collaborators.
- Funding model should enable appropriate oversight of the program and the development of targeted coursework or other learning opportunities.

Theoretical example: Child malnutrition in the developing world

- There are many factors leading to malnutrition, including long-term diarrhea, altered gut microbiomes, limited food access, historical power structures, nutrient limitations in available food, low literacy, lack of clean water, and limited knowledge regarding diet and hygiene.
- Students involved in the Challenge are from Asian Studies, Political Science, Microbiology and Immunology, Land and Food Systems, Population and Public Health, Education, GRSJ (Gender, Race and Social Justice), Civil Engineering, ISGP (with a supervisor from SCARP), Sauder, and IRES.
- Students are recruited by involved faculty to address the common issue. In their first year or two, the students (with supervisors) identify key research questions and decide how to approach these collaboratively. The team develops as a whole, and sub-groups devise common as well as individual research programs to address the multiple facets of this problem.

¹ Holzer et al. (2018). *Ecological Indicators* 85:808