How Might the (Social Sciences) PhD Play a Role in Addressing Global Challenges?

Lynn McAlpine

Abstract Increasingly, the PhD is perceived as needing change. Yet, a review of efforts at such ‘reform’ suggests limited impact. This realization led me to seek a novel way to rethink the PhD. So, I addressed what to me is particularly challenging—what practice(s) could actually realize a re-visioned PhD. I created a structured thought experiment to tackle a global challenge, the climate crisis, which I did alone and then with others. Being a social scientist, I started with the factors influencing effective response to this crisis, as representative of efforts at social/societal change more broadly. After reflecting on the outcomes of the exercise which proved productive, I argue that if we, as researchers, want to reform the PhD, we would benefit from thinking more broadly about the nature of social science research, in fact, conceive of the PhD and our own work as encompassing solution-oriented inquiry. We would also expand and deepen our interactions with those beyond our own disciplinary colleagues: not just researchers in other disciplines, but those in other labour sectors and civil society—this whether the research/PhD goal is to address the climate crisis, other sustainability issues, or other meaningful goals.

Introduction

Refugee migration, climate change, online data regulation and protection: These are just three of the global challenges facing society today that will impact all our futures. To hope to address such problems, collaboration is needed across labour sec-

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1The Covid-19 pandemic, also a global challenge, was not even a thought in my mind when this was written December 2019.

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tors, civil society and academia to integrate knowledge and expertise in creative ways. Calls for this sort of action can be seen in, for instance, the EU initiative for responsible research in and for society, premised on the need for research to address the well-being of society (van Oudheusden 2014), as well as for us to be more inclusive, responsive, and reflexive researchers. In other words, (inter)national policies are calling for highly skilled knowledge workers, particularly PhD graduates, to be prepared to engage in research to help meet global challenges. What does/might this actually mean as regards the PhD curriculum? What are the drivers and constraints that would make it possible for the PhD to address societal/global challenges? By engaging in a thought experiment focused on this question, my hope is to open up new possibilities for the PhD for those of us who value its potential in the world, and see the need to reconsider its nature. So, this chapter is constructed as follows: after some background, I describe the thought experiment (including background reading) so that you can engage in the thought experiment yourself, then a few examples from those who had the chance to begin the thought experiment, ending with some reflections on the value of a thought experiment, the importance of effective communication in social change, and the nature of social science research.

A Bit About Me

My relatively privileged worldview is situated in a particular time and place. Born in the post-WW II 40s, I am an older white female social scientist from Canada who first worked for 20 years in the public sector, before becoming an academic. In academia, I was initially involved in indigenous teacher education in the Canadian Arctic and sub-Arctic, then academic development with pre-tenure and tenured academics—before focusing on PhD and post-PhD life and career trajectories for the past 15 years. During these 15 years, I have lived and worked in Canada and the UK and done research in these and other countries, particularly Europe, on doctoral and post-PhD experience—and have seen the PhD change dramatically. It is from this set of experiences that the following account emerges.

Lessons from Previous Efforts at Changing the PhD

Increasingly, the PhD is perceived as needing change by a range of stakeholders—academic organizations, labour sectors and governments. Each has made efforts to change different aspects of the PhD from their own perspectives. So, these efforts

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2 The aim of a thought experiment is to address a specific question about a non-imaginary situation within a clearly articulated but imagined scenario.

3 I do not address the history and purpose of the PhD as it is dealt with by Ronald Barnett, Søren Bengtsen, Robyn Barnacle and Denise Cuthbert.
have been largely independent and piecemeal with different foci, for example reduced time to completion, graduates with generic skills training, and interdisciplinary research. There has rarely been talk across stakeholders or sectors in any meaningful way. I am reminded of the blindfolded individuals each touching a part of the same elephant and perceiving a different problem—but not considering how to combine their knowledge and expertise to come to some joint assessment. This lack of joined-up thinking suggests we need greater attention to meaningful communication across stakeholders in order to (a) more clearly focus efforts towards a shared purpose and (b) integrate sufficient breadth of knowledge and expertise to bring about change.

Another lesson is that especially with policies, we see the principle of subsidiarity operating. So institutional or national policies are expected to be actualized at the local level in order to attend to specific structures, individuals, and so on. However, the complexity and diversity of the specific contexts may not have been taken into consideration by those creating the policies. As well, in many cases, these efforts for change are agreed by individuals representing different groups or organizations, for example an academic representing his/her department on a university committee. Yet, such individuals may have limited levers to bring about change in their own work contexts, particularly if there are powerful or many resisters to change. Thus, another constraint may be a lack of sense of personal agency to move forward.

Overall, what is evident is the failure to address the interaction of the structural and individual factors that can impede or facilitate successful social/societal change, which ultimately requires long-term consistent changes in thinking, action, shared practices, and so on. We need to work collectively, while mindful of structural factors, if we are to rethink the nature and purpose of the PhD.

**So I’ve Wondered**

What single purpose might grab our *collective* attention enough to seriously rethink the PhD-for-the-future? This led me to the question: How might the PhD address the global challenges we are facing? And from there to my ‘thought experiment’ which I chose to situate in the social sciences given my background.

**Global/Societal Challenges**

Refugee migration, the climate crisis, online data regulation and protection are just three of the global challenges impacting all our futures. Working towards solutions requires collective action, in fact, collaboration, across labour sectors, civil society, and governments, to use our shared knowledge in creative ways.

In the year 2019, what is increasingly referred to as the climate crisis was constantly in the news. It was impossible to pick up a newspaper, read online headlines
or listen to the news and not read or hear about floods, forest and bush fires, melting permafrost, and so on—as well as varied responses by multiple stakeholders. (See box for some examples.)

London will have Barcelona’s weather by 2050. The lead author of the paper said it was trying to convey concrete examples of what warming might feel like. ‘It is hard to envision how 2°C of warming … might impact daily life.’ (July 10 2019, L. Hook, Financial Times) https://www.ft.com/content/4e27d34e-a2fd-11e9-974c-ad1c6ab5efd1

Roughly a quarter of the 348 million tons of annual plastic production worldwide now goes into packaging … making it the single biggest use of the material ahead of buildings, textiles or transportation. (October 31 2019, L. Aboud, Financial Times) https://www.ft.com/content/27cf9734-afa7-11e9-98fd-4d6c20050229

Globally, public awareness has improved in recent months … even the business community is starting to talk about doing its part. There is growing pressure on central banks to engage with climate change … But talk of eco-friendly policies does not always translate into action. (Nov 6 2019, Editorial Board, Financial Times.) https://www.ft.com/content/e99d9b56-f0d2-11e9-ad1e-4367d8281195

Apocalypse got you down? Searching for a cure for my climate crisis grief … asking people around me didn’t help. I heard that it was too late anyway. November 19 2019, C. Buckley, New York Times International Edition) https://www.nytimes.com/2019/11/15/sunday-review/depression-climate-change.html

A (YouGov) survey of 28 countries … found the US the most skeptical country in the world on anthropomorphic climate change, with 15% believing there was no change or humans were not responsible. Further, those in western countries were more likely than those in eastern countries to believe it would not have a big impact on their lives. As well, less than 50% of individuals in 17 of the countries felt they could do more personally to address climate change. Individuals are placing the major responsibility on international/national governments or business. https://today.yougov.com/topics/science/articles-reports/2019/09/16/global-climate-change-poll (31.12.2019)

In a time of climate crisis, what do rich countries owe to the poor? Climate apartheid, as the UN calls the disparity between the experiences of rich countries and poor ones is … intangible, at least for those who live in the west. Climate apartheid … is a scenario where the wealthy pay to escape overheating, hunger and conflict while the rest of the world is left to suffer. (September 21 2019, E. Renzetti, Globe and Mail) https://www.theglobeandmail.com/opinion/article-what-debt-do-rich-countries-owe-the-ones-thatll-get-shafted-by-the/
Even this small selection of reports highlights the complexity of the issue: dire future predictions of warming and their impact on our lives, the damage we have already done, individuals’ awareness of and belief (or not) in their ability to act effectively, the global north’s responsibility to the south. So how might the PhD do at least some small thing?

**Thought Experiment**

The question for this thought experiment is this: How might the social science\(^4\) PhD play a role in addressing global challenges? Since thought experiments are in the mind, we need to (a) extrapolate from the present situation as we know it, (b) apply that within an imagined scenario to open up possibilities, (c) have a structure to engage meaningfully in completing the task, in order to (d) consider at the end what might be do-able in the present situation. The process I designed involves nine steps (see Appendix 1) and would take 3+ hours in total. However, here I will only deal with the first two and last steps: (a) key ideas about societal change as background; (b) situating the context, the role play; and (c) returning to reality.

**The Thought Experiment: Tools to Design a PhD Programme to Address the Climate Crisis**

**Key Ideas About Societal Change as Background**

Two themes are central to engaging in the thought experiment: one the nature of social/societal change and how research, evidence and knowledge are understood by different stakeholders.

**Conceptualizing Society: The Nature of Social/Societal Change**

We first need to consider the relation between individuals’ experiences and motivations and the nested micro-, meso- and macro-contexts in which they live (McAlpine and Amundsen 2018), that is think systemically even while we can only act locally and individually.

Micro-institutional factors include the local work climate (positive through negative), supervisory/managerial expectations, practices, and support for change. At the

\(^4\)While I focus on the social science PhD, I believe the argument and exercise apply equally across humanities and sciences fields.
meso-level, institutional structural factors include organizational structure and mission which can range from profit to social good. Regarding the latter, the alignment or not between institutional purposes and desired societal change will have a profound impact on investment in such change. Macro-level factors bring in national policies such as strategic funding initiatives which expect bigger, more global research consortia and use of big data; funding council initiatives to re-tool PhD programmes; and funding incentives to hire PhDs. And, finally, there are global policies, such as the UN sustainability goals designed to address global challenges.

Within these nested contexts, individual factors embrace, for instance, individuals’ life goals, desires to align work with their personal values, and the nature and satisfaction they draw from their work and the rest of their lives. In thinking about addressing the climate crisis, it has been argued that for the public, the issue is ‘no more than background noise’ (Rogers and Norgaard 2011). While you may not agree with this statement, it is important to recognize that even if individuals are convinced of the reality of the climate crisis, not all will believe that individual action is worthwhile given the scope of the problem (note earlier YouGov report). They may instead experience helplessness alongside guilt. In other words, intentional change of any kind, even individually, is not necessarily easy or fast since the change builds on, especially for adults, values, beliefs, knowledge and behaviours developed throughout prior life histories alongside a willingness to invest in undertaking change which will create disruptions in one’s life (Tough 1979)—at the same time, navigating the range of drivers and constraints in the nested contexts in which they live and work.

Thus, in conceiving the complexity of the task of addressing the climate crisis in any fashion, one can imagine successive levels of readiness and commitment as regards the nested contexts and those within them: (a) the individual worker/student, (b) the employer/manager/supervisor who has a unit leadership role, (c) the organization’s leadership, (d) regional networks—both cross-organization and cross-sector, (e) national cultures and policies, and (f) transnational policies.

Further, what is also necessary to advance the process is new and shared knowledge/expertise about the science of the climate crisis and the social processes of large-scale change. This calls for expanded networks that cut across disciplinary, organizational and labour sector lines. This combined knowledge may alter beliefs and values and lead to efforts to implement new actions/behaviours—individually, organizationally and beyond. And, if enough of these efforts are congruent and successful, the greater the potential to actually change social and economic structures and create socially and environmentally sustainable societies.

So, to sum up, the possibility of success in addressing societal change (successful interaction and change across nested contexts), emerges from a series of tenuous links, tenuous in that if any one of them does not succeed, other links are at risk. Thus, while addressing climate change requires global action, in fact, any change has to begin with congruent and shared individual efforts—starting by working locally since drivers and constraints will more likely be shared and it will be easier to act collectively locally given that misunderstandings and conflicts are often easier to resolve face-to-face. I return to this theme after the thought experiment.
How Research, Evidence, and Knowledge Are Understood

I hope I have clearly established the challenge of success in any intentional societal change given varied degrees of readiness. In doing so, I raised the need for new and shared knowledge, which brings me to the second theme: how research, evidence (and thus knowledge) are understood across stakeholders. We can see some of this range of views of research in, for instance, citizen science, in research and development units in private sector firms, in programme evaluations in the para-public sector, and in higher-education work with other sectors in what is variously called intervention studies, participatory action research, and action research. These varied views of research are premised on different perspectives as to what constitutes evidence. For instance, (Tseng 2012) reported that individuals influential in school boards/systems accepted social science research as evidence, but also considered as evidence what some researchers might not: personal experiences, the experiences of parent and constituent feedback. I return to this point after the thought experiment since these varied meanings of research and the increasing expectation for researchers to advance the knowledge economy (Hancock et al. 2015) and societal well-being (EU ‘Science with and for society’) raise political issues about power, authority, and values (van Oudheusden 2014).

So for this thought experiment, the goal is to create partnerships, mutually advantageous conjunctions of participants, resources, and efforts from different sectors, to design social science PhD programmes to address the climate crisis. This involves changing our own ways of thinking and seeking out potential collaborators—while recognizing that apathy, dis-belief, insufficient motivation, as well as differences in institutional/sectoral purposes and pressures may be key issues to deal with.

Role Play

After introducing a group of academics, PhD students, and graduates to the themes given earlier, I divided them into small groups of four or five and gave the groups the following role play.

You are the (a) Head of Department, (b) Research Director, and/or (c) PhD program Director in your department. Your Rector/Vice-Rector has announced that the mission of the university is to lead the way in finding ‘solutions’ to the climate crisis. S/he offers resources (HR, funding) for those taking up the challenge – particularly for those in the social sciences. So, you, a social scientist, get together with colleagues to think about what might be done to create a PhD program that addresses climate change comprehensively, e.g., societal need, academic research contribution, PhD graduate employment. Your goal is to design a program in which PhD students engage locally/regionally in research that addresses the climate crisis, contributes to academic research, and graduates are highly skilled solution-oriented and motivated researchers. Don’t let constraints get in the way (addressing the constraints was a later step in the process). You have about 30 minutes to define the possible program focus and partners.

5 Not all knew each other, so they began with brief introductions.
At this point, you might want to try the experiment yourself before reading the examples.

**Examples from Those Who Did This**

I have included two group examples here plus my own.

| #1: This mostly social science group focused on the theme ‘Creating water for the future’. This was a situated, local, real problem since locally there was a geographical lack of water and also a drought. They believed their work, if successful, had the potential to have national impact. Their goal: to find ways to ensure future water for the community using (re)imagination—with those involved climate warriors. The focus of the PhD and related research was local water recycling, essential in the context of local politics where there was no appetite for new dams but the potential to do something around storm water run-off and storage. External partners were: aboriginal groups, farmers’ organizations, news media, banks, municipal councils, civil society, the water company and large local industry that needed water for its processing. Internal partners were a team from science, engineering, education, arts, economics, and agriculture. Strategies to engage others in defining new solutions included: encourage divergent thinking and the imaginary, provoke outside ideas, and create an aesthetic (as well as psychological) emergency—with a kick-back to globalization. |
| #2: This group, mostly educationalists, focused on the theme: ‘Recycled(ing)/not recycled(ing)’. Their focus was developing local eco-friendly play environments for pre-school age children which both modelled the effective use of recycled materials and also educated about recycling. Thus, the outcomes would be education of those using the play area (children and adults), product designs which others could emulate, and publicity about the value of cross-sector collaboration. The local external partners were: individuals normally involved in playground design, local engineering companies, the city councils, the regional parks division, and the national education department. Internal stakeholders included supervisors and students of education, engineering design, communication and marketing. They also proposed that there be external PhD co-supervisors. |
| #3: My own thought experiment suffered from being done by only me but produced these initial thoughts. The theme was ‘Co-creating solutions’. The idea was to draw on the fact that there are many in my department involved in vocational education, workplace learning, and organizational change. The intent was to work with colleagues from the sciences to seek local organizations wanting to address the climate crisis and work cooperatively with them to explore appropriate science-based solutions and create the social science-based change processes for the planned organizational change, both in relation to internal and external practices, for example with clients/customers. The external partners were: municipal/county government, NGOs, research institutes, that is mostly public, para-public organizations. The internal ones: others in the department, master’s and PhD students; colleagues in environmental sciences; Vice-Rector’s office. |
Returning to Reality

When the groups had done these initial steps of the experiment and reported, I asked them to leap to the end of the process—returning to reality. I asked them to consider whether any of the ideas they had generated could be used/useful in their PhD programmes already. They immediately saw some possibilities as did I for my experiment, for instance, including external stakeholders on the programme board to inform us as to the nature of PhD graduates they would be interested in hiring, and exploring co-supervision with external stakeholders—already done by some science PhD programmes. I want to step back now and reflect on what can be learned from undertaking this practice-based thought experiment.

Reflections: Factors Influencing Social/Societal Change

I would argue four points are worth exploring: (a) the role of a thought experiment; (b) disruptors in any organizational social change process; (c) organizational, disciplinary, and individual constraints in designing a new PhD; and (d) the purpose(s) and conduct of social science research.

The Role of a Thought Experiment

A structured thought experiment can help us step out of the everyday—and, in this case, see ways in which change in the PhD could support individual and collective efforts to address the climate crisis. The final step of the experiment, considering what might be done within one’s present programme, also suggests that it is feasible for such experiments to have practical immediate applications, given that thought experiments, though imaginary, are created in response to a real situation.

Further, while PhD programmes need to be globally oriented academically, they can be locally situated—as in the thought experiment, and involve a range of non-traditional stakeholders. Wiek and Kay (2015) describe an undergraduate curriculum doing just that. In what they call solution-oriented sustainability learning,6 students directly contribute to the sustainability-oriented transformations of cities, businesses, or government organizations, while building their proficiency in sustainability problem-solving. The programme goal is for students to develop a range of ways of thinking: systems-thinking, future-thinking, values-thinking, strategic-thinking, interpersonal competence, and integrated problem-solving. If this can be achieved in an undergraduate programme, it suggests interesting possibilities for a PhD programme!

6These types of problems range from climate change to childhood obesity and violent conflicts.
Disruptors in Any Organizational Social Change Process

While the initial steps in a thought experiment about social change open up possibilities, important next steps include exploring the affordances and constraints that any actual change would entail. In other words, subsequent steps in this thought experiment make concrete the fact that undertaking any complex social change requires addressing the interaction among a range of individual and structural factors. In the thought experiment as I set it up, there was institutional support and reward for undertaking change. However, these were rather ideal circumstances.

In fact, intentional change is difficult when trying to achieve systemic organizational change (Sannino and Engeström 2017). Organizational readiness for change, for collective behaviour change, requires a shared psychological state in which members feel committed to implementing the organizational change and confident in their collective abilities to do so (Weiner 2009). Further and often overlooked is the variation in individual’s readiness and ability to change. In other words, individuals will change their patterns of thinking and acting in different ways and to different degrees (Billett 2001). Thus, Weiner (2009) notes organizational readiness to change encompasses members’ perceptions of a (a) shared commitment to implement change and (b) shared belief in their collective capability to do so; but this readiness depends on the individuals’ perceptions of organizational structures and resources (and constraints). In other words, attending to the interaction of structural and individual factors is essential. And, of course, change at the societal level is even more daunting. Yet, ‘ultimately it will be societal processes that drive much of the required change, so it is important to understand them better’ (Fankhauser September 9 2019: https://pcancities.org.uk/news/uk-contribution-social-science-research-climate-change-significant).

Even if there is a shared commitment, other structural constraints might emerge for this or similar kinds of change, for instance:

(a) Any institutional change creates countless small disruptions to institutional systems and there may be inherent pushback against the change.
(b) Change often requires additional investments in time, so what can be put aside?
(c) Any change in formal leadership during the process could lead to loss of momentum, resources and focus.

And, of course, any systemic efforts at societal change multiply the difficulties since this involves interaction within and across organizations and sectors.

But perhaps the two biggest challenges that confront any efforts at change exist within ourselves as (social science) researchers: (a) our ability to effectively communicate across disciplines, institutions, and sectors; and (b) the need to rethink the nature of research—and then to convince others, like university administrators and funding councils. So, it is to these two I turn next.
Designing a Different Type of PhD: Organizational, Disciplinary, and Individual Constraints

Consider the university as a particular microcosm of the organizational challenges of bringing about PhD change. The organizational ‘loose coupling’ of units and notions of subsidiarity in many universities creates challenges in advancing systemic change (Berdahl and Malloy 2019). For instance, they reported that chairs/ heads of departments generally saw the graduate faculty as responsible for PhD professional development and felt constrained in considering any departmental involvement due to lack of knowledge about where PhD graduates work; what non-academic employers want; and what skills PhDs should develop. They also reported a lack of resources and concern that involvement could mean downloading university responsibility. Of course, similar issues are present within other organizations; highly complex problems with required interdependence are more difficult to achieve than simple tasks given the need for effective information sharing (Marlow et al. 2017).

Moving now to disciplinary challenges, I argued earlier that the social sciences are key to addressing the climate crisis (and other societal issues)—yet insufficient on their own since the climate crisis is also intimately tied to the sciences. This poses a challenge since most of us are largely embedded within our disciplinary silos and our perspective on the conduct of research results from our ‘disciplinary’ culture (Gardner 2013).

So, working with colleagues from other social sciences and from science, technology, engineering, mathematics and medicine (STEMM) fields will likely be daunting in that while we may share common cause, we do not share a common language or framework—and differences in paradigms across (and within) those cultures will affect how collaboration is engaged. Notably STEMM fields tend to greater consensus than the social sciences (Watts 2017), so clarifying and naming our own stance(s) and others’ understanding of it is critical to ensuring effective communication across disciplines. And, such differences, if dealt with effectively, can be an asset (Deeks 2004).

So, to achieve the goal of a PhD focused on societal change, in this case, the climate crisis, we need to start by acknowledging the extreme complexity of the task, and that achieving it requires effective information sharing (Marlow et al. 2017), in other words, a deep investment in the micro-processes required for effective communication and decision making. Thankfully, there is some research here to guide us. First, to communicate effectively in mixed groups, we need to first accept that individual differences (Brew et al. 2013) can be potential barriers that however, if fully explored, can become facilitators. So, we need to be attentive to differences in culture/language (Payumo et al. 2019), in epistemology (Lebeau and Papatsiba 2016), and in degree of trust (Leibowitz et al. 2014). And, we need to plan an initial investment of time, some discomfort and reflexivity (Curry et al. 2012) for this to be achieved.
Social Science Research: What Is Its Purpose? Do We Need/Want to Change/Broaden Our Thinking?

So far, I have argued that the social sciences are key to addressing the climate crisis and that we need to engage in effective communication with colleagues from STEMM fields as well as external stakeholders. But, I haven’t yet addressed the knotty issue of ‘research’: its purpose, its uses, its relation to practice, and so on. As academics, we have been rewarded for conducting significant disciplinary research that contributes to our own field, for instance, though research grants, peer-reviewed publications. This Mode 1 perspective on research has increasingly been challenged by societal changes (Gibbons et al. 1994) with greater expectation of demonstrating Mode 2 knowledge claims—while still maintaining Mode 1 forms of academic communication. Mode 2 knowledge has been characterized (Nowotny et al. 2003) as valuing application, flexibility, and responding to external demand (as in the EU call for research in and for society). It is trans-disciplinary, occurs in more diverse sites, produces more varied types of knowledge, and requires a dialogic process to sustain quality since peers cannot be reliably identified given the range of forms of knowledge that may be engaged. Thus, Mode 2 knowledge requires that besides being good researchers, we can act as team leaders, managers, and marketing experts (Melin and Janson 2006).

The sciences have adapted to this shift more than the social sciences and humanities, for instance, through patents, licenses, start-ups, and other kinds of knowledge ‘transfer’. In the social sciences and humanities, the visible focus has been more on, for instance, case impact studies to demonstrate societal engagement. We have yet to substantially explore the ways in which Mode 2 thinking might influence how we approach research. Such exploration need not mean giving up our present focus on basic research, but rather broadening the scope of what is seen as research (Watts 2017). He suggests that by ‘seek[ing] to advance theory specifically in the service of solving real-world problems’ (p.1), we can use this engagement in real problems to improve the coherency of social science given the many collectively incoherent theories to explain one phenomenon. Western (2019) concurs: we can provide meaningful solutions to societal problems while still advancing our scholarly fields. Further, if we focus more extensively on solution-oriented social science, we will increase the reach of the social sciences, and create social science that is exciting, meaningful and transformative.

Gredig and Sommerfeld (2008) also argue for solution-oriented social science and solution-oriented knowledge, suggesting that the traditional view of the relationship between scientific knowledge and its use in society is of a ‘transfer’ of knowledge to practice. They suggest that for scientific knowledge and empirical evidence to really play an effective role in action, we need to focus where processes of generating knowledge for action take shape: to engage in cooperative knowledge-making rather than ‘transfer’ from academy to practice. Tseng (2012) argues the same point: we push out knowledge, a ‘one-way’ street, rather than engage with stakeholders, a ‘two-way’ street, in order to learn their different views of what
constitutes research and research evidence, how to interpret evidence—and perhaps most important the drivers and constraints they view as influencing their use of research.

So, what might we gain by incorporating solution-oriented research into our research repertoire? In the longer term, such efforts might lead to an expanded view of research, greater coherence of social science theories, greater public recognition of our contribution to society, and perhaps access to more funding. In the shorter term, it will influence how we build teams and collaborate, and what methods and tools we use (Western 2019)—and in my view would change how we design PhD programmes, supervise, and teach.

Conclusion

Given the relative lack of success of previous efforts at PhD reform, I chose in this chapter to address how in practice to realize a re-visioned PhD. I asked the question: *Can the PhD play a role in addressing global challenges?* I chose the global challenge of the climate crisis for a structured thought experiment. On the basis of the experiment, I would say the answer to the question is: *Yes, it can.* That needn’t mean that every programme should be focused solely on the climate crisis as there are many other challenges, global through more local, to which we could bring a solution-oriented research approach. More broadly, the thought experiment was useful in opening up my mind, at least, to some key elements that we need to consider in any re-design or new design of today’s PhD. In other words, just as I would argue that addressing the climate crisis requires thinking globally, and acting locally, I would also argue the same is true for other kinds of social change which demand we think and act differently. The question you might is: *Is the effort required worth the outcome?* This is an important question since it speaks to our ability to sustain a purpose and motivation over a lengthy period of time when the constraints may seem overwhelming and the drivers limited. But, *only you can answer it!*

Appendix 1. Structured Thought Experiment

Key Ideas About Societal Change as Background
See earlier text on two themes.

Situating the Context, the Role Play
Your Rector/Vice-Rector has announced that the mission of the university is to lead the way in finding ‘solutions’ to climate crisis. She/he offers resources (HR, funding) for those taking up the challenge—particularly for those in the social sciences. So, you, a social scientist, get together with colleagues to think about what might be done to create a PhD programme that addresses climate change comprehensively,
for example societal need, academic research contribution, PhD graduate employment.

Your role: You are (a) Head of Department, (b) Department Research Director, or (c) PhD Programme Director.

Your task: Design a social science PhD programme in which students engage in research that addresses the climate crisis in some way, contributes to academic research, and graduates are highly skilled solution-oriented researchers and motivated knowledge workers.

Defining the Possible Programme Focus and Partners
You have 5–7 minutes for each step below to address this goal: What would your programme look like?

1. Given your specialization, brainstorm aspects of CC your programme could address (C.1 below).
2. Then, brainstorm a list of potential stakeholders (C.2):
   (a) Internal (across the university—who/what that you might want to pull in)
   (b) Local/regional external (mission related to public good) partners for your initiative, that is create a mutually beneficial conjunction of individuals, resources and efforts
3. In light of 1 and 2, narrow down your focus (C.3) to which aspect(s) of CC you want to focus on.

| Brainstorm: Aspects of CC your program could address | Brainstorm: Internal/external partners | Decide: Which aspect of CC you will focus on |
|-----------------------------------------------------|---------------------------------------|---------------------------------------------|
|                                                      |                                       |                                             |

Imagining a Possible Programme
1. How would you and your partners be involved (C.1)?
2. Brainstorm a list of the kinds of things you could imagine making up the programme (C.2).
3. Ignoring potential constraints, what constellation of these (C.3) would best meet your goal?
| Decide: How will you and your partners be involved? | Brainstorm: Possible elements of the program | Decide: What is the best constellation? |
|------------------------------------------------|--------------------------------------------|----------------------------------------|
|                                                 |                                            |                                        |

Creating a Rough Timeline
1. Map out the timeline for the programme elements in light of the goal: students engage in research that addresses the societal challenges of CC in some way (and contributes to academic research); the goal is that they graduate as highly skilled and motivated non-academic knowledge workers.

| Year 1 | Year 2 | Year 3 | Year 4 |
|--------|--------|--------|--------|
|        |        |        |        |

Establishing ‘Needed’ Resources
1. Now, consider the resources you could draw on, for example Vice-Rector’s leadership and incentives.
2. You might first brainstorm a list and then divide into ‘for sure’ and ‘less sure’ possibilities.

Assessing Constraints
1. Now, consider the constraints.
2. You might want to do a SWOT analysis or a GAP analysis or a combination of the two,
   (a) SWOT: strengths, weaknesses, opportunities, threats
   (b) GAP: current state, future state, gap, to do
Finalizing Your Vision
1. Return to your plan and see if there is anything that needs adjusting in light of the resources and constraints.

Returning to Reality
1. Review all your notes and make a list of the things you could begin to do now.

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