

“Digitalization and Disciplinarity: What Does "Open Science" Mean for Social Science?”

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A particular sense of the historical moment

- the breakdown of disciplinary barriers.
- the internationalization of scholarship, especially beyond the north-south divide.
- A political consideration: the need for a kind of democratization through the inclusion of previously unheard voices
- An epistemic consideration: the idea that social science work was grounded in presuppositions which needed to be challenged because they reflected the standpoint of the west and the north.

A Response to Internal Politics

The only organizational solutions on the table in *Open the Social Sciences* were within the academy itself: to create new programs, which would aspire to being new disciplines, or to promote interdisciplinary relations—for example by requiring joint appointments for newly hired faculty.

Pressures were “political,” for example for ethnic studies programs and redress.

Some more radical Solutions

- A rearrangement of the basic divisions within the academy, including the division between the sciences, the social sciences, and the humanities
- Change the way in which Ph.D. programs were organized and the way academic appointments themselves were organized, notably by the suggestion that every initial appointment be a joint appointment.

Open Science

- A somewhat amorphous movement which responds to some similar concerns:
- Post-disciplinary structures oriented to problem solving
- Creating new relations with the public and social movements
- Making science accessible and useful through open access.

Some Ambitious Aims

- By making datasets available, publishing in open access journals, and by bringing stakeholders into decision-processes, it is hoped that some of the sources of antagonism to science, such as the longstanding issue of the brutality of animal research, can be diminished.
- More generally, the interest is in legitimating not only science as a cognitive authority, but the demands of scientists for money.

Strategy and Values

- More openness, especially to stakeholders, is a strategy. But the strategy also has a normative doctrine supporting it.
- : “the EC views the principles of accessible knowledge and shared data as key components in their efforts to maximize the impact of publicly-funded research, and to promote innovation and economic growth.”
- Foster initiative to ensure compliance <https://www.fosteropenscience.eu>

RRI- the Bigger Doctrine

- Responsible Research and Innovation (RRI) implies that societal actors (researchers, citizens, policy makers, business, third sector organisations, etc.) work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society.
- In practice, RRI is implemented as a package that includes multi-actor and [public engagement in research and innovation](#), enabling easier access to scientific results, the take up of gender and ethics in the research and innovation content and process, and formal and informal science education.

<http://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation>

What's Different from Social Science

- Its science, so there is a lot of money at stake.
- It involves stakeholders, so there is more power to force compliance and to pay for it.
- Much of it is Mode II problem-oriented science with beneficiaries, stake-holders, social movement activists, and public interest.
- Social science participates, but doesn't lead.
- But the Science model wags the Dog.

The Five “Schools” of Open Science

- (1) The *infrastructure school*, which is concerning technological research infrastructure like platforms or tools for scientists,
- (2) the *public school*, which is concerned with the accessibility of knowledge creation for the general public, e.g. by participating in the scientific process,
- (3) the *measurement school*, which is focused on alternative impact measurements for scientific contributions,
- (4) the *democratic school* which is aiming to make knowledge equally accessible for both scientists and non-professionals and
- (5) the *pragmatic school*, which emphasizes the efficiency of collaborative research.
- Fecher and Friesike (2013)

Some Examples

- The IPCC (*Intergovernmental Panel on Climate Change*) and *Future Earth*.
- Both part of the “sustainability” movement, an umbrella with many organizations under it, with goals now enshrined in a UN document. The document includes political as well as climate policy goals as part of the concept of sustainability. The political goals include gender equality and the reduction of inequality between nations among many others. These are presented in a digital “knowledge platform,” with the usual language of “stakeholders,” which include such categories as indigenous peoples.
(<https://sustainabledevelopment.un.org/?menu=1300>)

Public Sociology

- Michael Burawoy's presentation of the concept of Public Sociology (2005) went in the direction of Open Science, but with significant differences.
- His suggestions were not organizational. They did not challenge the disciplinary structures. Instead, he promoted a category of existing disciplinary activity, namely support through sociological research of social movements.
- This was radical in a different way than *Open the Social Sciences*: it challenged the line between partisanship and scholarship by legitimating a type of scholarship and public expression, namely valid sociological scholarship in support of and in collusion with a cause.

The Web and Open Access

- By 1996, the year of publication, free peer reviewed digital journals were appearing (Open Access Directory [OAD] [http://oad.simmons.edu/oadwiki/Timeline before 2000](http://oad.simmons.edu/oadwiki/Timeline%20before%202000)).
- The Open Access movement itself makes sense only in connection with the web, which is the first way in which something close to universal access to documents and data could be provided.
- This is of course only part of the Open Science movement. But the implications of open access, both in the formal sense of documents freed legally from at least some copyright restrictions and the informal sense of documents available at no cost, are profound.

The Old International System

- In general the number of scholars known outside their country was small, and the other signs of status, such as the details of the hierarchy of universities, are also unknown beyond a few top universities.
- This meant that international exchange was mediated by the pyramidal structures of the national disciplines themselves. And the topics that were the basis of exchange reflected this hierarchy.
- *Open the Social Sciences* assumed this system, and sought to open it to new voices and new topics.

The New “System”

- Larger networks include academia.edu, researchgate, and depositories like SSRN. Highly international, heavy use from Africa and Middle East.
- The Digital Commons Data is revealing. <http://network.bepress.com/social-and-behavioral-sciences/sociology/other-sociology/>. This small network shows the location of users who download papers, as well as numbers of downloads. This site includes papers on all sorts of topics, including undergraduate student theses as well as theses from other levels, as well as ordinary professional papers. The topics are typically far removed from the heights of the disciplinary status system.

Local to Local Contact

- Old system was Locals and cosmopolitans, with Cosmopolitans mediating
New system allows exchange on papers which are very often “local” in their content, dealing with such questions as “why do homeless people resist public housing” in some city, are from all over the world.
- Not from high level academic institutions.
- So these are communications from people on the same level, unmediated by any sort of academic elite. Yet even minor papers generate hundreds of downloads.

Part of a Vision

- To some extent this is connected to a programmatic sense of the broader significance and broadening of OA. As one paper based on an African meeting puts it, after describing a vision in which OA can be extended and made more useful, “This broader vision of OA challenges the conventional hierarchy of basic research over applied research, proposing that OA can provide a communicative continuum between scholar-to-scholar discourse, teaching and learning needs, and the mobilization of research for development.” (Grey et al. 2013)
- Direct scholar to scholar or scholar to user communication, involving non-academic users in novel ways, is part of this vision. It rejects the trickle-down model of influence from pure to applied, from the academic center in Europe and the US to the periphery, and also the system of journals on which it depended.

The Problem of Metrics Again

- One of the obstacles to expanded open access is the methods of evaluation to which they are subject: citations, for example, measure success within the old model.
- Scholar to scholar and scholar to people uses are flatter, do not generate the same hierarchy and therefore the same concentration of citations, and therefore do not count as “success.”
- Big data allows other metrics, but they will not eliminate the problem.

Wicked Problems

- A useful way to think about this comes from a classic paper by Herbert Simon on what he called ill-structured problems.
- These were problems which required the solution of multiple problems at once, but in which the “solution” to each of the sub-problems was possible only within a solution space that was different from the solution space of the other problems, such that a single optimal solution, or any genuine “solution,” was impossible. Simon gives the example of an architect designing a house according to the demands of solving the many design problems that arise in house-building, the desires of the buyer, aesthetics, and so forth.

Sub-optimal Solutions

- In this case it is simply not possible to solve one problem without affecting the possible solutions to the other problems, and at the same time transforming the “problem” to be solved into one that the method for solving the initial problem cannot “solve.” The architect must simply choose to accept some suboptimal “solutions,” or make compromises.
- Because of the ill-defined character of the general problem of the design issue made up of multiple problems taken together, there can be no single optimal solution for the house as a whole.
- Disciplines can solve the problems in problem spaces they can define. They “work,” but on their own terms.

Would Organizational Innovation Work?

- The organizational innovations of open science, such as Future Earth, are typically addressed to “wicked problems.”
- They both require suboptimal solutions. But they involve multiple perspectives, stakeholders, “indigenous” points of view as well as technical solutions and analysis, and multiple disciplines.
- It is an open question whether these organizational innovations can be extended to wicked social problems, such as terrorism and homelessness, that are primarily social and economic and lack a strong technical scientific component.

The Alternative

- The model that social scientists have preferred is that of the public intellectual, which was extended from the celebrity level by Michael Burawoy to “public sociology.”
- The sociologist, in this model, has a specific role: as a supporter of the movement, but one who offers expert opinion to the larger public in policy debates. This preserves a notion of objectivity, in the sense that the expert interventions are only going to be persuasive to the unconvinced if they are “objective” in the terms of the unconvinced. Quantitative evidence, for example, is useful for these purposes.

The Conditions

- Public sociology is a strategy that is meaningful only in the global north, with its strong states and liberal democratic systems of public debate.
- It is directed at changing policy with social movement support.
- The weak states of the global south have difficulty executing policies, and often in debating them.

Vs. Stakeholder Model

- For them, the strategy of organizations like Future Earth makes sense: they attempt to bring technical expertise and practical organizational support to attempts to provide solutions that can recruit stakeholders and adapt to local knowledge and values.
- These organizations can also provide, in the global north, practical solutions that involve users and stakeholders (and the public) in similar ways.
- They can strive to be uncontentious, even if they do not achieve this fully, and they have means of including different voices as a matter of organizational design and necessity: for these projects, failure to provide for and listen to stakeholders means failure of the project itself.

A Better “Open”

- The solutions and experiences of a given community will almost certainly not generalize in the sense appropriate to a disciplinary journal.
- But these local experiences may be learned from by social scientists who are themselves addressing local problems, who can draw their own analogical lessons from the experience of others. Prior to digitalization and open access publishing sites, this was simply not possible, and it was also not possible for users in Africa and Bangladesh to instantly access them, or access them at all. This is now happening.
- The next step, which is already being taken, by the same digital means, is for the experiences of the developing world to be presented to the global north, not merely as an alternative perspective on disciplinary issues, but as an equal participant in an exchange of knowledge.

The Effects

- The dominance of English as an international scholarly language is an obstacle to this sharing, but this cuts both ways: it enables sharing to a wider community than ever before.
- Whether in the end these new forms of sharing will erode the traditional disciplinary hierarchies in their national academic systems is an open question. They already have provided a path around them.