

From activism to science and from science to activism in environmental-health justice conflicts

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Abstract

Knowledge is not static or unique. It can be exchanged between activists, academia and policy circles: from science to activism and from activism to science. Existing scientific knowledge is being used by activists to expose wrongdoings or improve practices and knowledge in environmental and health conflicts. Activists can either adopt scientific knowledge and data in their own argumentations or produce new scientific knowledge either by becoming scientists themselves or in co-operation with experts. Local and scientific knowledge is being combined to challenge government policies and the knowledge produced by corporate actors. Also explored is the figure of the expert-activist; with scientists becoming activists and vice versa, the boundaries between activists and scientists are increasingly blurry.

Introduction

Scientific knowledge has traditionally been seen as supporting hegemonic political forces and actors. Through the invisible role of expertise assumed by scientists and academic institutions, science and technology act as political agents in the relations between the state, big corporations and local groups.

But scientific knowledge doesn't always favour strong corporate actors. It can also be used or constructed by lay people; practitioners, NGOs or local groups to expose wrongdoings or improve practices and knowledge. Lay people become activists that can use existing scientific knowledge for their own purposes, produce new scientific knowledge as well as combine local and scientific knowledge. In order to produce this new knowledge, (traditional) scientists are collaborating with lay people either as consultants or becoming activists themselves.

It's important to acknowledge that all knowledge, including scientific knowledge, is partially socially constructed [Foucault, 1971]. Whilst observation, measurements and testing might provide objective data; the social history, social practices and interests of the researchers and their institutions contribute to how this knowledge is produced, interpreted and disseminated [Barnes, 1977; Jasanoff, 2004; Conde, 2014]. The issue is not whether local or scientific knowledge is more legitimate but to acknowledge that all knowledge is immersed in politics characterised by unequal power relations [Agrawal, 1995]. In this sense, activist-science relations not

only aim at producing new knowledge but through the creation of alliances, they challenge the power structures between lay people (NGOs, community groups, etc.), corporations and the state.

From activism to science

Activists are continuously producing new knowledge that in some cases is adopted by scholarly and political spheres. A good example is the concept of ecological debt. It emerged in the 1990s as a result of difficulties of Southern countries to pay their external financial debt. Activists from Latin American NGOs argued that the overexploitation of the global commons and pollution — especially CO₂ emissions caused by rich nations turned them into debtors. The concept has been adopted and expanded by policy makers at different scales as well as scientists. A more elaborate definition has been proposed by Paredis et al. [2009] whilst Thara Srinivasan et al. [2008] have attempted to quantify the ecological debt from North to South. At the political level this has been articulated specially in climate change discussions; it was initially proposed in the Rio Summit in 1992 and has been increasingly used by heads of government and ministers of poor countries demanding 'reparations' [Martinez-Alier et al., 2010]. Biopiracy is another concept emerging from activism. The activist Pat Mooney coined the term in 1993 to describe the appropriation of the genetic resources of indigenous people without their previous and informed consent. It was later popularised by Vandana Shiva and explored by activists and academic circles. Also widely adopted by academic and political circles is the concept of food sovereignty that was introduced by Via Campesina at the World Food Summit in 1996. They define it as the right of people to a healthy and culturally appropriate food produced with sustainable methods [Martinez-Alier, 2011; Martinez-Alier et al., 2014].

From science to activism

Perhaps more frequently, activists use and expand concepts elaborated in scientific circles. Energy return on energy input (EROI) is an example of scientific knowledge being used by activists [Martinez-Alier, 2011]. EROI was developed in the 70s to criticise modern agricultural use of oil by carefully counting input-output ratios of energy [Pimentel et al., 1973]. Via Campesina made their own calculations of EROI in their fight against agrofuels expansion in Brazil. So have indigenous organisations in Canada contesting the extraction of oil sands due to the huge amount of energy needed to extract each unit of oil. Another example comes from social movements arguing against un-sustainable growth and its deleterious effect on the environment and climate. Drawing into the 'jevon's paradox' or rebound effect argument [Polimeni, 2008], they argue that technology and eco-efficiency proposed by technocratic views of development lead in fact to a decrease in the actual cost of production therefore increasing demand. Contrary to its objective of reducing environmental damage, it can contribute to further environmental burden through increased extraction and production arising from increased demand.

Activism and knowledge production

Knowledge can also be produced by activists either by becoming scientists themselves or in co-operation with scientists

Different forms of scientist-activists have emerged; a well-documented example is AIDS activism. Those engaged in the treatment of AIDS became “activists-experts” in the design, conduct and interpretation of clinical trial of AIDS. They acquired credibility by familiarising themselves with scientific jargon and current scientific understanding, by becoming representatives and giving a voice to those infected with AIDS or HIV and by suggesting alternatives to standardised clinical research [Epstein, 1996]. Similarly, Topçu [2008] proposes the idea of “counter-expertise” to describe how laypeople liaise with scientists becoming experts themselves. In the post-Chernobyl period, activists challenged the knowledge and expertise sustained by state agencies that argued radioactivity hadn’t reached France. With the ambition of developing an external control to the nuclear industry, they developed their own expertise. Crucially for this type of activist-science relations, the activists had high education levels allowing them to acquire scientific skills.

Scientific experts and universities or research centres can also offer their services (at a cost or for free) to communities facing environmental or pollution hazards. Among others in the US, the Environmental Justice Resource Center (EJRC) at Clark Atlanta University has the objective of carrying out research as well as creating a liaison between affected communities, environmental justice groups and universities. Working independently, Robert Moran is an expert hydrogeologist who for the last 20 years has been hiring his services to communities and organisations facing the impacts of mining. He does training as well as providing technical advice and data that the activists can later use.

We are also seeing how activists in environmental justice and ecological distribution conflicts are engaging in knowledge creation to challenge detrimental government policies, health impacts and environmental hazards and pollution.

Corburn [2005], using the term Street Science, describes how four community groups facing pollution hazards in Brooklyn, New York, used local knowledge to engage in environmental health issues. Corburn uses the concept of co-production to describe how local knowledge contests conventional ways of framing problems and employing methods. The term co-production, borrowed from Science and Technology Studies, not only highlights the social construction of knowledge but also introduces the idea that this can be constructed using different types of knowledge, in this case local and scientific, combining diverse discourses and social practices.

Another example is found in the alliances between independent experts and local grassroots organisations in ecological distribution conflicts through a process named ‘Activism Mobilising Science’ [Conde, 2014]. Local organisations in Niger and Namibia are liaising with CRIIRAD, a French nuclear watchdog seeking to challenge the scientific knowledge produced by uranium mining companies. They learn from scientific experts the tools and scientific language they need to protect themselves from the impacts of radioactivity [Conde, 2014]. Crucially these processes are locally driven by activists that have the ability to participate in politics. Epstein identifies a similar trait in the AIDS social movement; it was built

upon and borrowed from the abilities and identity politics of the gay movement that had been active since the 60s [Epstein, 1996].

Risks and benefits

These activist-scientific alliances also entail some risks. The discourses and strategies of grassroots organisations can be co-opted as they engage with bigger NGOs [Bob, 2005] or scientific institutions McCormick [2009] and Conde [2014]. Although this can be a consensual process, it can also lead to internal conflicts in the movement. In highly volatile and violent contexts, scientific experts and knowledge might act as catalysts for violence. Ultimately, these engagements might not be an effective way of challenging highly ingrained unequal power relations; scientific dialogues and negotiations between activists and corporate actors are time and effort consuming, preventing them from undertaking other strategies.

However, the benefits of activist-scientific alliances are several. Through the creation and engagement with scientific knowledge they are gaining visibility and legitimacy, allowing them to engage in politics and becoming new actors with negotiating power. Those engaged in environmental-health justice conflicts can also learn about the impacts of the project or industry and refute manufactured and produced information by corporate actors or the state. Also with the idea of refuting information, activists can support independent research. With this in mind, Corinne Lepage, an MEP, founded the Committee for Independent Research and Information on Genetic Engineering (CRIIGEN). An interdisciplinary group of scientists and activists conducting studies to better understand the risks of GMOs and xenobiotics such as pesticides.

Conclusions

Liaisons between science and activism occur in multiple ways. Some determinant factors include the nature and complexity of the risk, health or hazard of concern, the activists' initial expertise or background education, and access to material and economic resources necessary to produce new knowledge, generally reached through alliances with bigger NGOs or research centres.

This commentary has attempted to describe and classify different types of activistscience liaisons. Lay activists can use existing scientific knowledge (e.g. EROI) or produce new knowledge either in collaboration with scientists (e.g. radiation sampling) or by themselves (e.g. food sovereignty). These activists can also become scientists blending in the counter-expertise framework. It is however noticeable that the boundaries between activists and scientists are increasingly blurry, with scientists becoming activists and vice versa, coalescing in the figure of the scientist-activist. If we acknowledge that all knowledge is partly socially constructed and has political implications, scientists need to consider how their knowledge engages in policy spheres, socio-environmental conflicts or other human-environment interactions. Not only that, scientists need to acknowledge and give legitimacy to local or lay knowledge, transforming scientific knowledge production into more democratic, open and participatory processes [McCormick, 2009; Funtowicz and Ravetz, 1993].

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