

# 6

## Experimentation

### *The Politics of Innovation and Learning in Polycentric Governance*

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#### 6.1 Introduction

Polycentric thinking seeks to develop a more holistic picture of governance (see Chapter 1). Polycentric governance theory acknowledges that, in addition to nation states, other initiatives contribute to the shaping of collective orders. They involve local governments, businesses, civil society organisations and social movements. A core proposition identified in Chapter 1 is that an experimental search for governance arrangements within diverse local settings will lead to effective solutions, performing better than states or some kind of monocentric, globally oriented system of governance. This reflects awareness of complexity and limits of central control, which require ‘reflexive governance’ (Voß and Kemp, 2006).

An interesting paradox, however, is that while polycentric thinking acknowledges the complexity of ecological and social systems, it says little about the complexity of social processes that are involved in devising, carrying out and evaluating experiments. This leads to a highly reductionist conception of governing. Of course, experiments help involved actors to learn about what is actually being tested and they contribute to problem resolution in that way. But how are decisions taken on *what to test* and *how*? What role do politics and power play here and how do they affect the experiments? Do actors experience different effects from the outcomes of experiments with new forms of collective order, or already from the process of undertaking them? To what extent are their various concerns and aspirations addressed by experimental processes, and how are they negotiated with each other? If we consider that all experimentation is deeply embedded in institutional, cultural and material settings and asymmetric power relations, we quickly realise that just by leaving institutional development up to decentralised trials, we may not promote universally best solutions, but in fact

help already powerful actors to assert their visions of collective order against others (cf. Voß and Bornemann, 2011).

Our first aim in this chapter is to increase awareness of the fragility of expectations that are linked with this conceptual weakness in polycentric governance thought. We point to the idealistic assumptions about experimentation that the current discourse of polycentric governance hinges on. Following from this, our second goal is to offer a systematic account of where and how politics play out in the course of doing experiments, and to draw attention to the fact that in real-world contexts, experiments are likely to be shaped by asymmetric power relations. Our third goal is to caution against the uptake of polycentric and experimental governance concepts for orientating or legitimating governance interventions, unless a more realistic understanding of the practices of experimentation is taken as a starting point.

Before we start, let us introduce two key terms that we refine as we move along. Experimentation refers to the *deliberate production of experiences for finding out what works*.<sup>1</sup> Politics is understood as the *making of collectively binding decisions* selecting from a diversity of deliberately judgments some to be realised.<sup>2</sup> Broadly defined, the politics of experimentation thus occur whenever, throughout a process of creating novelty and making experiences, diversity is transformed into unity. Most obviously, this happens when controversies over findings are fought out in public, but it also occurs more inconspicuously when decisions are made about what needs to be known, which hypotheses are to be tested and which observations are to be made. Often, no one cares to contest such decisions as they are thought to be just epistemically, but not politically relevant.

## 6.2 Experimentation in Polycentric Governance

A closer look at the polycentric governance literature reveals that, even if it has developed into a much broader evolutionary philosophy of governance, it still carries forward some of the ontological assumptions from institutional economics (Ostrom, Gardner and Walker, 1994; Ostrom, 2011; Cole and McGinnis, 2014; Thiel, 2016). Polycentric governance theory emphasises decentralisation, local embedding and responsiveness to specific contextual conditions, along with the potential to mobilise entrepreneurial initiatives, also against incumbent powers and rigid institutions. The underlying imaginary is a constantly evolving institutional landscape (see Chapter 1). As such, the concept immediately attracts attention as a preferable alternative to the cumbersome business of coordinating state action on global problems like climate change through international diplomacy (Ostrom, 2010; Cole, 2015; Dorsch and Flachsland, 2017). The concept offers hope in times when ‘big politics’ appears to fail. Yet the expectation is not only that self-

organisation will step in to fill gaps that are left open by state government and international institutions. The current discourse also raises the expectation that it would be actually preferable to actively withdraw state oversight to leave more space for self-organised institution building, because this would produce forms of governance that are better adapted to a diversity of socio-ecological contexts, and would thus be more effective and legitimate.

All this hinges on particular assumptions about experimentation that are imported from the functionalist evolutionary theory of institutional economics that originally inspired the articulation of the concept. First, there is the assumption that new institutions are freely created (in effect, randomly generated variations). And second, that selection works on the basis of feedback and adjustment within particular contexts (leading to a survival only of the fittest, best-adapted institutions that generate maximum utility for those who adopt them). Only if these assumptions about the inner workings of experiments are correct can we assume that experiments deliver trial-and-error learning that eventually results in governance that works well for all. When these assumptions are incorrect, however, the result would be quite a different scenario. Curtailing the regulatory monopoly of the state and liberalising the market for experimental institution building may, in this scenario, fail to bring about a world of governance bubbling with creativity and responsively adapting to the needs of the people, and instead lead to the emergence of a private oligarchy that can work more or less undisturbed by constitutional rules, public accountability and democratic control – which would have applied under a more monocentric or state-led system of governing.

Let us take a closer look at experimentation in polycentric governance. It generally appears as a central proposition in the discourse (Ostrom, 2010; Cole, 2015: 115; Dorsch and Flachsland, 2017; see also Chapter 1). There is overlap with partly connected discourses of experimentalist governance (Sabel and Zeitlin, 2012; De Búrca, Keohane and Sabel, 2014) and experimentation for sustainability and decarbonisation (Kemp, Rip and Schot, 2001; Hoffmann, 2011; Sengers, Wiczorek and Raven, 2016), or more specific discourses on urban experiments (Bulkeley and Castán Broto, 2013; Bulkeley, Edwards and Fuller, 2014; see more generally Ansell and Bartenberger, 2016). Despite its centrality, however, the concept of experimentation is weakly developed in polycentric governance theory. Experiments are primarily understood as idealised methods, or are understood through the lens of *expected effects* (producing a variety of new and robust innovations), but not so much through the lens of the *social processes* in which they are done and from which actual effects could emerge.

We can discern two strands of philosophical thought in the literature on experiments in governance: a *positivist-utilitarian* strand and a *pragmatist-*

*interpretivist* strand. In both strands, experiments are understood to generate solutions to perceived problems by trying out what happens when visions are put into practice. A fundamental difference is, however, that the former sees experiments as a process of *adapting to reality*, and the latter sees them as a process of *making reality*. Let us elaborate. The positivist-utilitarian framework assumes that the subjective and the objective world are ontologically separate. The generation of theoretical hypotheses is a matter of human ingenuity while the senses, if methodically controlled, can provide neutral data of an independently existing, objective world. The key task of experiments, then, is to provide empirical observations for selecting theoretical hypotheses about institutional designs and their effects (Campbell, 1969; Stoker and John, 2009; Abbott and Snidal, 2016). Within the pragmatist-interpretivist framework, however, the world is understood to be essentially in flux. Subject and object are both part of this process. Within it, human imagination and the material world constitute each other, mediated by motoric and perceptual capabilities, in active human interventions and the experiencing of consequences. Experimenting thus is a way of deliberately changing the world. It enables learning, not about a pre-existing reality, but about the possibilities of knowing and doing reality differently. It is never neutral, but always geared towards specific concerns, and irreversibly transforming the world (Dewey, 1986; Evans, 2000; Ansell, 2016).

While epistemologically these two strands of experimental philosophy are fundamentally different, neither of them provides fine-grained discussions, or illuminating empirical analyses, of experimental processes in governance. In both strands, there is little concern for social interactions and the nitty-gritty of actually doing experiments. As a result, they both neglect the *politics of experimentation*. Positivists see experimentation as a way to bypass the political resolution of conflicts because ‘nature’ becomes instituted as a neutral arbiter. Decisions are handed over to the ‘jury of experience’, which becomes objectified through methods of science (Norton, 2005: 79). Pragmatists, in contrast, do not assume neutrality, but unanimity or at least equality in the process of collectively conducting experiments (Wilkinson, 2012). They assume that social interactions unfold under conditions of freedom and symmetrical relations – as explicated, for example, through Habermas’ (1981) model of communicative action or Lindblom’s (1965) model of mutual adjustment. If politics is mentioned, it is restricted to something that exists outside of experiments: to how experimenters struggle with incumbent interests and ideologies or how different experiments compete for space (Misiko, 2009; Hoffmann, 2011; Bulkeley *et al.*, 2014; Evans, Karvonen and Raven, 2016).

The possibility that experimentation may be *captured by dominant interests* and used for them to realise their own particular visions of collective order is ignored in

current discourses of polycentric and experimental governance, either because it is assumed that objective conditions will determine the course of experiments or that power is absent or symmetrically distributed among those involved in and affected by experiments. That is the case despite empirical case studies suggesting that experimentation in governance is imbued with conflicting interests and asymmetric power relations.

A prominent example is the case of ‘transition management’, which is heralded as an approach for experimentally searching for pathways of sustainable system transformations in energy, agriculture, mobility and so on (Kemp and Rotmans, 2009; Voß, 2014). Experience with transition management in the Netherlands has shown that the process of defining experimental agendas and evaluating results can be easily captured by incumbent networks of administration officials and big companies for pursuing innovation strategies especially geared towards the growth and competitiveness of particular branches and firms (Kern and Smith, 2008; Heiskanen *et al.*, 2009; Kern and Howlett, 2009; Meadowcroft, 2009). This demonstrates the relevance of considering politics and asymmetric power relations, if experiments are not to undermine democracy and allow powerful actors to assert their interests (Hendriks, 2008, 2009; Voß, Smith and Grin, 2009; Voß and Bornemann, 2011; Pel, 2016). Because we seek to address this deficit in the conception of polycentric governance, we now move to discuss where the politics of experimentation can be found more specifically.

### **6.3 The Politics of Experimentation: Configuring Experimental Infrastructure**

The practice of experimental inquiry has been a focus in science and technology studies. This led to the insight that experimentation is a social process, with decision-making deeply embedded in historically grown cultural and institutional patterns with asymmetric relations and established power positions. A key finding of so-called laboratory studies is that experimentation not only takes place within a societal context that affects what comes to be known, but also within specifically configured material settings that are deliberately shaped according to particular research interests and theoretical constructions of the phenomena that are tested (Knorr-Cetina, 1995). Massive laboratory complexes are a case in point, but this also applies in less visible configurations as when sight is focused through a telescope or field studies are conducted by systematic surveying and the drawing of probes (Latour, 1999). The general point is that, in practice, experimentation occurs in socio-material settings that are preconfigured according to some theoretical model of what it is that is to be tested, and that they, to a greater or lesser degree, provide for seclusion from the wider world (Callon, Lascoumes and Barthe,

2009). This is one of the key conditions of success for modern science: by reducing, simplifying and purifying a complex macrocosm of ‘reality out there’, already before any experiences are made, it makes specific phenomena experimentally demonstrable and knowable that would otherwise always be overwhelmed by the complexity of actual interactions and continuous change. In effect, experimentation fabricates the realities that it comes to know, rather than discovering them in nature (Knorr-Cetina, 1981; Hacking, 1992; Rheinberger, 2005). This includes the careful composition of a collective of trained and professionally disciplined experimenters to cultivate convergent ways of thinking, intervening and sensing (Fleck, 1994).

Experimentation thus appears as a particular mode of collective ordering, working through three steps (see Figure 6.1): (1) the selective *reduction* of reality ‘in the wild’ by building simplified local realities; (2) the experimental *construction* of local realities for the creation and controlled reproduction of theorisable phenomena in a confined setting; and (3) the *expansion* of experimentally created orders, by claiming that theories and data describing these phenomena represent universal properties of nature and by developing technology to replicate them elsewhere.

In these three steps, the world becomes creatively transformed. At least with the final step of expanding experimentally configured orders, they also come to be binding on others who were not involved in making them. Against this background, scientific experimentation is claimed to work as ‘politics by other means’ (Latour, 1983) or as a form of ‘ontological politics’ (Mol, 1998).

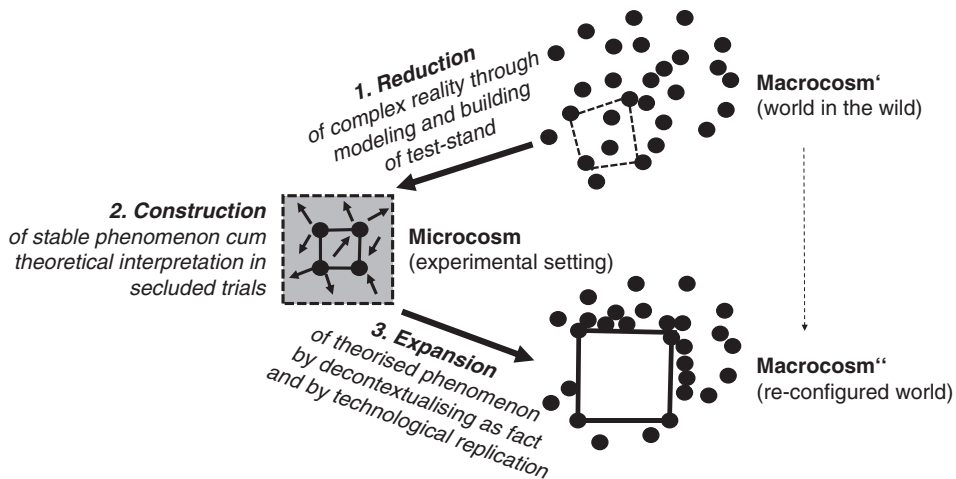


Figure 6.1 Experimentation as ‘secluded research’. Source: Callon *et al.* (2009)

An illustrative example from the world of climate governance is the way in which the Kyoto Protocol's Clean Development Mechanism (CDM) was given shape through experiments that were set up for testing how emission reduction commitments under the United Nations Framework Convention on Climate Change (UNFCCC) could be fulfilled through international cooperation. A reconstruction of the process shows how experimentation in pilot projects not only produced special expertise, exemplary working arrangements, and more generally applicable methods but also contributed to realise a particular version of international cooperation. This version was very much geared towards the interests of private investors, as it allowed the trading of carbon emission offsets (Schroth, 2016). When the concept of 'joint implementation' of national reduction commitments was introduced in the late 1980s by the Netherlands and further developed by Norway and the United States, it was highly controversial (Paterson, 1996; Trexler and Kosloff, 1998). Concerns over international justice, asymmetrical power relations between the North and South (see Chapter 18), capacity-building and technology transfer, efficiency and reduced costs for fossil-fuel intensive industries, as well as the mobilisation of private capital and the making of new markets, suggested different directions for developing the proposal and different criteria for evaluating what works. From early on, however, advocates like Norway, the Netherlands and the World Bank started with experiments to test and demonstrate how international cooperation could work. In the late 1980s, they started with small-scale experiments to generate emission offsets by electric companies investing in reforestation projects in Guatemala. In the early 1990s, projects with energy efficiency investments in Mexico were undertaken. From 1993, experimentation with joint implementation proliferated through a dedicated programme set up by the US government (Jepma, 1995). In 1995, the UNFCCC officially endorsed a pilot phase, then called 'Activities Implemented Jointly'. The insights and technical designs that were brought forward in these experiments turned out to reflect concerns about the mobilisation of private capital and establishing a new market more than any other of the concerns originally raised and politically debated under the UNFCCC. With the social momentum, evidence and the technical solutions that were generated, a decade of experimenting had created a new reality. With the 2001 Marrakech Accords, experimentally constructed arrangements for a CDM were finally adopted as a flexible mechanism for implementing international commitments under the Kyoto Protocol.

Next, we take a closer look at what is at stake in each of the three dimensions of reduction, construction and expansion and where asymmetric power relations can shape the experimental process.

### **6.3.1 Reduction: Modelling the World and Building a Test-Stand**

A first point at which decisions are taken is that a research problem is identified and a basic analytical framework is deployed, which is then translated into the design and installation of a ‘test-stand’. This is a specifically prepared observational setting, ‘a simpler, more manipulable reality’ that replaces the unselected and overwhelmingly complex world as it actually unfolds ‘in the wild’ (Callon *et al.*, 2009: 50). Many foundational decisions are thus taken before the actual experimenting starts. During the subsequent process, however, these arrangements move into the background, working as a hidden experimental infrastructure that is taken for granted as ‘trials on nature’ proceed. The presumptions and considerations that led into decisions on this initial set-up, or reflections on what was excluded from the outset and could therefore not be observed, tend to be forgotten when results are publicly presented (Latour, 1987).

An example from the CDM case is that particular forms of economics and engineering expertise had been assembled with a focus on testing methods to verify emission reductions per invested dollar, by measuring emissions of several greenhouse gases, calculating baseline scenarios and allocating portions of declared reductions between host and investor. Specific projects and sites were selected against the background of this framing and agreements with involved actors were negotiated in this orientation (Schroth, 2016: 82–107). While these methodological decisions were presented as technical issues, they presupposed a decision for cost-efficiency and the mobilisation of private capital as primary purposes of joint implementation – an issue that in the wider public and in the UNFCCC was still controversially discussed.

### **6.3.2 Construction: Creating Ordered Phenomena in Seclusion**

The actual carrying out of trials starts within a reality that has already been selectively reduced. It then takes place through an iterative process of refining theoretical propositions, designing interventions, making observations and fine-tuning the material setup for the next round of experiments. This involves decisions to specify the experimental agenda in dealing with situational contingencies and to arbitrate between various possible ways to make sense of what happened. Even if attempts are made to objectify criteria, it involves ‘interpretive flexibility’, which is to be overcome by social means like status, threat, rhetoric or negotiation (Gilbert and Mulkay, 1982; Collins, 1983). Making decisions within the research collective thus is a form of micropolitics that helps to arrive at shared results and create a new way of collectively knowing and doing reality among selected actors and within a confined local setting (Callon *et al.*, 2009: 52).



In the case of the CDM, crucial design issues and conclusions on the outcomes of experiments were resolved among experts involved in the pilot projects, coming from non-governmental organisations, the Organisation for Economic Co-operation and Development, the World Bank, research institutes, companies and agencies (Schroth, 2016: 108–129). They translated the issue of shared global responsibility for climate change into an issue of measuring emission effects of investments, thus bypassing political processing of diverse concerns and instead pursuing a particular concern as an epistemic and technical matter of testing facts. Working out ways to make joint implementation work was thus removed from the political forum of the UNFCCC and shielded from broader public scrutiny. The selected group of experts eventually came to the conclusion that ‘in the absence of credits, investments in [joint implementation] projects will not reach the level necessary to fully realise the potential of this concept’ (Dixon, 1998: 3) – a technical answer to many politically fraught questions related to crediting, the involvement of private investors and even the overall purpose of international cooperation projects in the first place.

### **6.3.3 Expansion: Generalising Local Achievements**

Finally, politics occurs in the generalisation of experimental findings. Initially, findings are only locally true. The challenge is to turn what a few people have learned within a particularly configured experimental space into a collectively shared fact. This requires a disconnection from specific interpreters and circumstances. Descriptions must be formulated in abstract, decontextualised ways. In order to reproduce findings and use interventions that have been tested in the confines of the experimental setting, the experimental infrastructure needs to be turned into a ‘technology’, a transportable package with a reliable function. In effect, it also requires that other sites within the macrocosm are reconfigured after the model of the experimentally arranged microcosm: ‘For the world to behave as in the research laboratory, . . . we simply have to transform the world so that at every strategic point a “replica” of the laboratory, the site where we can control the phenomena studied, is placed’ (Callon *et al.*, 2009: 65). To achieve this, the experimental collective needs to recruit broader support, mobilise collective action and build legitimacy in interaction with powerful stakeholders and broader publics.

In the example of the CDM, this challenge is clearly visible in bringing results from experiments back into the UNFCCC (Schroth, 2016: 130–148). Crucial for this was the generation of support by raising economic interests in replicating experimentally configured solutions. The World Bank played a key role here. It adopted procedures and methods, as had been developed in pilot

projects under the US joint implementation programme, and adopted them in the guidelines for a new fund for private investors, the Prototype Carbon Fund. A larger constituency of firms and governments was thus enrolled for installing a new wave of projects after the concept of joint implementation as developed in the pilot projects, and thus for replicating that experimentally configured reality elsewhere. This generated momentum, which eventually led to a shift in international negotiations under the UNFCCC as resistance against a private offset market from the alliance of G77 and China crumbled (van der Gaast, 2015). Finally, after the pilot phase of Activities Implemented Jointly, it was stated as a matter of fact that it ‘has demonstrated that, for the Kyoto project-based flexibility mechanisms to work effectively, the private sector will need to be engaged through appropriate incentives’ (UNFCCC, 1999: 6).

Since decisions taken within the experimental collective only really start to affect others when experimental creations are expanded, the process of mobilising acceptance and support for replication is a key moment in the politics of experimentation. This is where the micropolitics of experimentation turn into macropolitics. In polycentric theory, this is usually rather unproblematically referred to as diffusion and ‘upscaling’. In the following section, we take a closer look at two specific mechanisms and at how they work together.

## 6.4 The ‘Scaling Up’ of Experimental Results

### 6.4.1 *Generating Epistemic Authority: Performing the ‘Representation of Nature’*

A first way in which locally generated truths can expand is by gaining acceptance for the claim that they are indeed of wider validity and importance. To this end, results are formulated in abstract and general terms, as decontextualised accounts that can circulate, while linkages with the actual experiment are maintained as chains of reference. By erasing particular concerns, interactional dynamics and situational contingencies that shaped this particular process, the experimental findings are turned into neutral representations of universally given conditions of nature. As such, they appear relevant even for those who were not themselves involved in the creative production of these findings, neither taking constitutive decisions nor actually making experiences (Gilbert and Mulkay, 1982; Shapin, 1984; Latour, 1987). If the claim to represent nature becomes accepted by a wider audience, local experimental findings are vested with epistemic authority. ‘Applying’ them for a reconfiguration of collective orders elsewhere thus shifts from being a matter of trusting that decisions among experimenters also reflect

one's own values and measures of relevance into a matter of rationally coping with factual requirements.

In the process of innovating governance instruments like emissions trading (Voß, 2007a; Simons, Lis and Lippert, 2014), transition management (Voß, 2014) or methods of public participation (Voß and Amelung, 2016), it has been shown how the translation of findings from experiments into authoritative epistemic claims led to the establishment of facts about their functioning among a growing constituency. This is an achievement that is not necessary nor irreversible. The expert literature plays a key role here, as it establishes facts about the functionality of a general model of governance across a series of experiments (Simons, 2015, 2016).

#### ***6.4.2 Generating Political Authority: Mobilising 'Instrument Constituencies'***

A second way of expanding experimentally shaped orders is by generating collective will and agency for developing experimental findings into a general instrument for solving problems of governance. In addition to generating epistemic authority, as described earlier, collective action can also be mobilised by attracting wants and desires of actors from beyond the original experimental collective. Additional actors may become enrolled for the aesthetic attraction of a world modelled after the experiment or for the expectation that it solve their own problems or otherwise benefit them, if practical efforts were undertaken to reproduce the experimental order beyond the confined setting of first trials (Akrich, Callon and Latour, 2002). Supporters may, for example, be recruited by raising expectations of increased demand for products and services, or of institutional authority and expert positions in fields like public administration, business, civic activism, science etc. (Voß and Simons, 2014: 739). Apart from mobilising a wider array of actors, there is the challenge of orchestrating an enlarged constituency with more diverse attachments and expectations. This involves the articulation of 'representative claims' (Saward, 2006) on a collective will and interest in developing the experimental configuration into an instrument. When they are adopted by constituency members, this 'produces temporarily associated wills' (Latour, 2013: 133) and generates political authority to be used for legitimately articulating collective action strategies and norms.

A dedicated effort to enrol a wider set of actors for the expansion of early experiments with emissions trading can be seen in 'Project 88' (Voß, 2007b; Simons, 2015). It was initiated by committed members of an experimental collective that emerged around the first trials with emissions trading at the US Environmental Protection Agency (EPA) in the 1970s. The project brought together spokespersons from industry and the environmental movement, from different states and from the US Republican and Democratic parties. Through

a series of workshops and negotiations, it eventually produced a policy proposal supported by a widespread and influential constituency (Project 88, 1988). This in turn was taken up by the incoming president, and the constituency was mandated with the task to install the US Acid Rain Program as the then-largest emissions trading programme. Though the Acid Rain Program was not concerned with greenhouse gas emissions, it became a crucial stepping stone for inserting emissions trading into climate policy and expanding the constituency transnationally, such as founding the International Emissions Trading Association in 1999.

#### ***6.4.3 Co-producing Epistemic and Political Authority: ‘Realising Governance’***

So far, we have highlighted various points at which politics occurs in the experimental process. Studies which follow particular models of governance along their historical pathways of development also show, however, that they become articulated over a series of different experiments (Muniesa and Callon, 2007; Callon, 2009). Along the innovation journey of such models, one can find experiments that are geared specifically towards epistemic or political authority generation, as described earlier, and discern a ping-pong pattern in which they play together (Voß, 2014, 2016). Epistemically oriented experiments gradually produce harder facts on the basis of more sophisticated models that process more data and generate increasing evidence for arguing necessities and possibilities of collective action. They are carried out by experts in the laboratory or otherwise highly controlled circumstances, and are concentrated on fact-making in support of the functionality of governance models. Politically oriented experiments are associated to them. They gradually assemble broader and more powerful coalitions for installing larger real-world cases and for funding further research efforts to draw empirical data and provide evaluations. In these experiments, the focus is on testing claims about collective interests for policy-making and reconfiguring practices out in the field. Like pistons in a reciprocating engine, both types of experiments can so work together for the ‘realisation’ of new forms of governance, both in knowing and in doing (Voß, 2014).

Here again, emissions trading provides an instructive case. From the early 1970s until 2000, economic models and experiments ‘in silico’ have been developed in close interplay with policy coalitions and experiments ‘in vivo’ (Voß, 2007a; Simons, 2015). While designs and evidence of their effects were simulated in computer models, these results were taken up, for implementation, first in a tentative trial at EPA and later for the Acid Rain Program as a large-scale policy experiment. Both policy processes fed model-based experiments with data and

mobilised public support for this kind of research. Epistemic and political authority in support of emissions trading were thus co-produced over a series of interconnected lab and field experiments (Voß, 2016).

## 6.5 Conclusions

We have shown that the experimental process involves several decision moments. Every decision has the effect of including and excluding, and of granting more central positions to some actors rather than others. It would be an illusion, or a tactical masking, to presume that experimenting could somehow delegate all those decisions to nature or objectify them through method.

Since there is an inescapable social component in all experimenting, we may expect established power relations to shape experimental agendas and outcomes. Studies of the actual conduct of experiments in governance testify to this point. Without any further provisions, a greater role for experimentation in the shaping of collective orders, as polycentric governance theory proposes, would allow a few already powerful actors to realise their particular visions of governance at the expense of others who do not get to test theirs. At the same time as it would provide spaces for unregulated power play, it would make politics less visible, because decisions about collective order would be displaced from political arenas to more or less closed projects in which selected experts and stakeholders negotiate the future in apparently technical terms. The neglect of politics in polycentric and experimental governance theory contributes to this.

What are we to make of this? A first point would be to be attentive to problem frames and deeper ontological presuppositions that are inscribed in experimental infrastructures. We need to have a closer look at the processes in which decisions are taken in this respect. To develop our understanding of experimentation, more detailed empirical studies are needed of how governance experiments are actually done and how politics and power play out at the micro level of social interactions within certain experimental projects. Which alternative problems, research questions, experimental designs, measurement options and interpretations of results are articulated, which ones are suppressed and how are some asserted against others? Following up on these questions would require an interpretive and practice-oriented research approach that allows for empirically tracing the negotiation of problem frames and ontological assumptions while experimental infrastructures are socially and materially configured.

A second point would be to build on such studies for explicating the politics of doing governance experiments and to start thinking about a constitution. So far, experimental politics, because of their existence in the shadow of critical analysis and public attention, allow the fittest to survive. For civilising the 'Wild West' of

experimental politics, they would need to be turned into a public issue so that a wider discussion is opened about how they should be done and how overarching rules could be established (Thiel, 2016; see also Chapter 1).

Finally, what is at stake here are future world orders that are collectively to be cherished or endured by ‘the people’. This brings democracy back in. The most crucial problems of polycentric governance as currently debated and advocated are that it ignores issues of legitimacy and justice by implicitly assuming some kind of pluralistic equilibrium (see Chapters 18 and 19). Yet, as polycentric governance ‘escapes the control of nation states’ (see Chapter 1), it simultaneously escapes the constitutionalisation of politics that has been fought over for centuries. Once upon a time, only princes and bishops experimented with governance. Polycentric governance, as it stands, would just evade democratic principles and open the field for new princes and bishops to emerge, perhaps in the shape of self-appointed sustainability stewards, experts, corporations and charities. Thus a major challenge is to make sure that experimental politics receive public scrutiny and to give it a solid democratic constitution.

### Notes

1. We here refer to John Dewey’s pragmatist conception of experimentation as inquiry (1986). As such, it is not limited to science or the production of theoretical knowledge, nor to specific settings and methods like laboratories or randomised controlled trials.
2. The usual reference for this formulation is Easton (1957), but we do not adopt a system-functional framework and rather take the effect ‘collectively binding’ as an occasion to empirically look out for the processes that constitute it. Here we deliberately look beyond legislation and include the cultural establishment of rationalities, values, facts and material arrangements, if respecting and adopting them is required for participating in a collective practice.

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