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CHAPTER 17

LEARNING IN PUBLIC POLICY

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1. INTRODUCTION

We do little that we have not learned. As we learn to breathe, to eat, to walk and talk, learning seems essential to living. But what, in fact, is learning? The irony is that the importance and ubiquity of what we might think of as learning in turn makes it difficult to define. What does it mean to learn, and how do we do it?

Our commonsense assumptions about learning are those we have from school. It seems to have something to do with teaching, with lessons, with doing well or badly. And then, on reflection, we seem to learn as much by informal as by formal processes: we learn from experience (which is sometimes gained by experiment), and from others, including our parents and peers. Often, the two are mutually reinforcing: we learn from others' experience, and it is our parents and peers who help us make sense of our own.

These processes have their corollaries in public policy, both as a practical activity and a field of study. Policy makers compare current problems to previous ones, networking with others both in their own and in other jurisdictions. By the same token, we might think of the collective process of agenda setting as one in which a polity learns as much as decides what it wants, and implementation as the process by which agencies and employees learn how to deliver it.

* This chapter is a product of some of the processes it describes. I have been lucky to be included in a community of scholars working in this and related fields, and am particularly grateful to the editors of this volume and to Elizabeth Bomberg for comments on a preliminary draft. The errors and omissions which remain testify only to my own failure to learn.

Something similar is true of those reading and writing about politics and public policy. We think in ways that previous work has made available, and draw where we can on related fields. In substantive terms, too, we deploy history and comparison in developing explanations of what governments and others do and the effects it has. More fundamentally, perhaps, learning is not only the what and the how of public policy but also its why. Public policy is an applied science, and learning is much of its rationale. Policy has always been explored and explained with a sense that doing so might be useful, that it might provide lessons for government.

How government learns became an explicit subject of study in the 1960s, in what was felt across countries to be a period of extensive social and political, economic, and technological change. The interest in learning was the result of two sometimes complementary and sometimes seemingly contradictory impulses. One was a sense of uncertainty about what government should do. Few of the prevailing assumptions about public administration and the environment in which it operated felt secure or were expected to hold. Writing at the end of the decade, Donald Schön argued that “The task which the loss of the stable state makes imperative, for the person, for our institutions, for society as a whole, is to learn about learning” (Schön 1973, 28).

The other prompt to think seriously about learning was a recognition of similarity in problems, policies, and programs across countries. Government had grown in the 1960s: most advanced industrial countries now had large-scale welfare programs, for example, and were beginning to face problems in their financing and management. While uncertainty suggested governments needed to learn, similarity indicated that they seemed to be doing so. But how, and why, and to what effect?

In turn, this sense of instability and the learning it necessitates has since been intensified by an awareness of global change—change which has prompted, arguably, more similarity and more uncertainty. Increased interdependence between countries has made for greater degrees of both competition and collaboration. Global trends appear to create unprecedented opportunities for learning as well as a pressing need to take them. Learning has quickened to the extent that living has.

The purpose of this chapter is to take stock of different ways of thinking about learning in public policy. In doing so, it immediately faces a problem, which is that—insofar as learning is both essential and ubiquitous—the relevant literature is voluminous, eclectic, and multidisciplinary.¹ While the chapter necessarily concentrates on studies of and for policy, it is worth noting at the outset how much of that work has drawn (and might still draw) on research in educational theory, social psychology, organizational sociology, and the sociology of organizations, among other fields. That said, the chapter preserves a distinction between learning and the concept of policy transfer, which has more recently become established in the vocabulary of public policy.²

¹ Wayne Parsons, in his encyclopedic treatment of the field, suggests that thinking of government as learning or information processing is “perhaps the most diverse of all analytical frameworks” (Parsons 1995, 35).

² Transfer remains a broader concept than learning in that it is designed to include “forced” processes such as colonization and the sorts of constraints imposed by conditionality, for example. For an

The chapter begins with the sense of similarity and the literature on convergence and diffusion between countries. This is important for making a distinction between learning and other processes of development. I then turn to Hecló's landmark study of political learning, or what he describes as "collective puzzling," discussing the way his work has been taken up in accounts of the role of ideas in policy making as it unfolds over time. It outlines a third and very different literature about learning as part of the ordinary business or practice of policy making. Tensions within each body of research are as important as differences between them.

On this basis, it becomes possible to distinguish different models or ways of thinking about learning, described as mechanistic and organic in turn. The chapter abstracts from what has gone before, what appear to be some of the elements of a theory of learning. The intention is not to posit any theory as such, but to highlight the essential issues which any account of learning must address. I conclude with reflections on the role of comparison in the process of learning across space and time. The underlying argument of the whole is that it is the way we think about learning which determines how well we do it.

2. CONVERGENCE, DIFFUSION, AND LEARNING

In general terms, convergence refers to a pattern of increasing similarity in economic, social, and political organization between countries, essentially driven by the process of industrialization and its consequences. What was at issue in the early historical literature was whether public policy was simply a functional byproduct of those changes, or whether more specific explanations were required to take account of actors and interests, ideas and institutions.³ To the extent that it may be attributed to structural factors, the implications of convergence theory are determinist: convergence does not in itself require attention to be paid to political actors or agents, or to contact or communication between them. To the extent that it can account for emergent similarity without such contact or communication, its significance here is as a counterfactual.

Classically, the idea of diffusion refers to a pattern of successive or sequential adoption of a practice, policy, or program either across countries or across subnational jurisdictions such as states and municipalities (Eyestone 1977). Like convergence,

introductory framework, see Bennett 1991 as well as Dolowitz and Marsh 1996, 2000; for a critique, see James and Lodge 2003.

³ Convergence was a strong feature of an early phase of comparative welfare state research, including Rimlinger 1973, Wilensky 1975, and Flora and Heidenheimer 1981. For an introductory account of this literature, see Williamson and Fleming 1977; for more recent and stimulating discussion of social policy, see Visser and Hemerijck 2000.

this sequence may be explained in two ways, either because countries C and D reached a requisite level of development sometime after countries A and B, or because C and D borrowed or learned from A and B—or, as seems likely, something of both. In different versions, convergence in public policy may or may not be taken as expressing underlying changes in economic, social, and political structure (Bennett 1991), while a distinct body of work on the American states pointed to the importance of interaction between policy elites in different jurisdictions (Walker 1969; Gray 1973; Collier and Messick 1975).

Meanwhile, a sociological tradition of diffusion research has been primarily interested in the take-up of information and ideas, practices and technologies among individuals, and principally among networks of peers. Its essential elements remain those identified in Ryan and Gross's early study of the use of hybrid seed-corn among Iowa framers in the 1940s (Ryan and Gross 1943; Rogers 1962, 2003). Drawing together a range of empirical work in rural sociology, medical sociology, anthropology, communication studies, marketing, and geography, Rogers defines diffusion as the process by which "(1) an *innovation* (2) is *communicated* through certain *channels* (3) *over time* (4) among the members of a *social system*" (Rogers 2003, 11; emphasis in original). The typical pattern of diffusion, in which a few adopt an innovation in its early stages, the bulk of a population follows, and some lag behind, is known as the "S-curve."

Rogers is important for attending to communication between practitioners, though his understanding of the nature and process of communication is contested. In essence, this concept of diffusion (which, here, is equivalent to learning) assumes a relationship between someone who knows, and someone who doesn't. Individual A, who knows about a new artefact or technology, or procedure—or policy—communicates it to B; if it is communicated more or less successfully, then learning can be said to have taken place.⁴ For present purposes, this might be better described as a theory of teaching rather than learning.

It is this which Donald Schön criticizes as the "centre-periphery model" (Schön 1973).⁵ For it assumes that "The innovation to be diffused exists, fully realized in its essentials, prior to its diffusion," and that "Diffusion is the movement of an innovation out to its ultimate users" (1973, 77). This makes for the further assumption that "Directed diffusion is a centrally managed process of dissemination, training, and provision of resources and incentives" (1973, 77). However, systemic resistance to change ("dynamic conservatism") implies that diffusion is "more nearly a battle than a communication" (1973, 90) and as such subject to various forms of failure. Part of the problem is that the introduction of a new product or procedure according to the centre-periphery model assumes relative stability in other aspects of a social (and/or

⁴ "The essence of the diffusion process is the human interaction in which one person communicates a new idea to a new person" (Schön 1973, 90).

⁵ Schön is best known for work on learning in organizations (Argyris and Schön 1978) and in individual professional practice (Schön 1983). Work on the state, which preceded it (Schön 1973), seems somewhat forgotten.

technological, economic, and political) system. But Schön is interested in learning and change under conditions of instability, uncertainty, and complexity.

He presents a historical case study of the emergence of the granite industry in New England, in which each significant development represented “a complex reconfiguration of related systems” (1973, 100). This leads, in turn, to the formulation of an alternative model of diffusion:

[F]or innovations . . . which precipitate system wide changes, the process of diffusion is a battle for broad and complex transformation. And within such a process, the assumptions underlying the classical diffusion model do not hold: The innovation process does not by any means entirely antedate the diffusion process; it evolves significantly within that process. The process does not look like the fanning out of innovation from a single source. Many sources of related and reinforcing innovations are likely to be involved. And the process does not consist primarily in centrally managed dissemination of information. (1973, 101)

As he goes on to explain in respect of network forms of organization (his examples are business systems and social movements): “It [diffusion] has no clearly established centre . . . Neither is there a stable, centrally established message . . . the system of the movement cannot be described as the diffusion of the established message from a centre to a periphery” (1973, 105–6).

This is a long way from more positivist constructions to be found elsewhere. For Eyestone, for example, “A state’s propensity to adopt a policy probably depends on three factors: some intrinsic properties of the policy, a state’s politics, and emulative (interaction) effects. Of these, only the policy itself can be assumed to be invariant over time” (Eyestone 1977, 442). For Schön, not only is the policy not invariant, it is virtually invented in the process of diffusion.⁶

Schön then develops a discussion of “government as a learning system,” exploring the ways in which new ideas come to prominence, gain acceptance, and come to be implemented. He notes that the new idea is often fluid, mutable, changing itself and its environment as it moves. Ideas move in the form of metaphors, as in the concept of community advocacy, for example, which carries a legal idea into the civil, public, political domain. Governments invariably struggle with implementation because they hold a centre–periphery model of diffusion or learning, which rests in turn on a theory of the stable state. Underlying their thought and action is a rational experimental model of knowledge and its use, which assumes that knowledge derived

⁶ This sense of the object of interest being in a continual process of invention or construction features strongly in the sociology of science and technology, and specifically in studies led by “Actor network theory” (ANT) or what is also known as the “sociology of translation” (for an accessible introduction, see Law 1997). Bruno Latour (1996) contrasts translation with diffusion, arguing that “the initial idea barely counts” (Latour 1996, 119). From this, several things follow: the object (a technology, or perhaps a program or policy) has no autonomous power of its own; there is nothing intrinsically necessary or inevitable about it; it is not driven, promulgated, marketed, or championed by an “inventor.” It moves only if it interests groups of actors (only if it “interests interests”); the means by which it does that is referred to as translation. The object translates interests into new terms, and new interests remake the object: there is “no transportation without transformation.” Only at the end of the process of transfer (and not at the beginning, as the diffusion model would have it) is the object realized: “(I)nterpretations of the project cannot be separated from the project itself” (Latour 1996, 172).

from experiment can and should be applied to the next comparable instance. But “the loss of the stable state means that it won’t be the same next time” (Schön 1973, 188).

3. PUBLIC POLICY AS COLLECTIVE PUZZLING

Heclo picks up the historians’ interest in learning in his account of the development of social policy in Britain and Sweden. Drawing on different elements of the convergence literature, he describes socioeconomic developments as well as political factors such as elections, parties, and interest groups, arguing that the problem is not to choose between variables, but to work out how they fit together. In doing so, he establishes analytic themes which structure much of the rest of this discussion.

Heclo formulates what now stands as the original construct of political learning: “Politics finds its sources not only in power but also in uncertainty—men collectively wondering what to do . . . Governments not only ‘power’ . . . they also puzzle. Policy making is a form of collective puzzlement on society’s behalf; it entails both deciding and knowing . . . Much political interaction has constituted a process of social learning expressed through policy” (Heclo 1974, 305–6). And if forced to choose between the various factors he has considered, Heclo says that it is civil servants who were crucial to the development of policy in both Britain and Sweden. This is partly to do with the permanence of their position in the political process: it is civil servants’ influence, almost by definition, which is the most consistent factor in policy making. But they also have particular functions: “To officials has fallen the task of gathering, coding, storing and interpreting policy experience” (Heclo 1974, 303).⁷

What we know about learning refers for the most part to individuals, while our understanding of how groups learn remains, as Heclo puts it, “fragmentary.” This is a significant weakness, because while social learning is created “only by individuals,” “alone and in interaction these individuals acquire and produce changed patterns of collective action” (Heclo 1974, 306). These interactions, and through them the process of learning, are inescapably complex (Heclo refers to a “cobweb of interaction”; 1974, 307, 316). “A better image for social learning than the individual is a maze where the outlet is shifting and the walls are being constantly repatterned; where the subject is not one individual but a group bound together; where this group disagrees not only on how to get out but on whether getting out constitutes a satisfactory solution; where, finally, there is not one but a large number of such

⁷ Heclo’s claim is endorsed by Bennett’s more recent work in the very different field of data protection: “(C)onvergence is primarily a result of this constant communication among members of a policy community from nations sharing the same technological problems and the same concerns for privacy . . . Policy convergence is at least as attributable to the actions and preferences of an international policy community of public, or quasi public, officials, as it is to anything else” (Bennett 1992, 151, 225).

groups which keep getting in each other's way. Such is the setting for social learning" (Heclo 1974, 308).

Nevertheless, learning is not random. It is shaped by three things: by individuals, by organizations and the relationships between them, and by the impact of previous policy. Heclo notes that some of the principal agents of change are often in some sense marginal to the organizations, administrations, or communities in which they work, "talented amateurs... rather than established professionals and experts" (Heclo 1974, 309). Crucially, they are networked across countries; what they think and know comes from being informed about and paying attention to what goes on elsewhere (1974, 310–11).

Heclo relates organizational interrelationships to the "internal set" of stimulus–response theory. The way an organism, organization, or system responds to an external stimulus is determined in part by the way it is configured internally. Here, this refers to ways of thinking as well as prominent organizational actors and the relationships between them. Interestingly, the internal set seems to be as much a way of accounting for resistance to change, or non-learning, as it is for learning itself.

Perhaps the principal condition both of and for current decisions is previous policy. Policy makers rarely find themselves in uncharted territory. They are much more often confronted by the legacy of previous decisions and the problems they have addressed, solved, and sometimes reproduced. They must take into account the constraints set by apparently unrelated decisions in connected fields. A key feature of Heclo's learning theory is not only the way in which initial perceptions and dispositions shape a specific response to a stimulus, but the way in which this response is reinforced by the effects it produces. "What one learns depends on what one does... In both its self-instruction and self-delusions, the cobweb of socioeconomic conditions, policy middlemen, and political institutions reverberates to the consequences of previous policy in a vast, unpremeditated design of social learning" (Heclo 1974, 316). Seen like this, public policy making is a continuous process of iteration and reiteration.

3.1 The Advocacy Coalition Framework

In developing his advocacy coalition framework, one of the more prominent new theories of the policy process to emerge in the 1980s and 1990s, Sabatier set out to formalize some of Heclo's precepts.⁸ The concept of the advocacy coalition serves to aggregate large numbers of actors and organizations at different levels of government into manageable units of analysis. Particular features of the framework are the way it takes account of the impact of technical information on decision making, its attention to the evolution of policy over time in a given domain, and its conception of public policies and programs as belief systems (Sabatier and Jenkins-Smith 1999).

⁸ See Sabatier 1987, 1988; Sabatier and Jenkins Smith 1993, 1999.

In many respects, then, it casts the theory of public policy making as a theory of learning.

A belief system is organized in three tiers: what Sabatier terms a “deep core” of normative belief or ideology which can be expected to hold across domains; a “policy core” of more specific commitments within a domain; and then non-essential or secondary matters of detail. What holds a coalition together is agreement over a policy core, and the only way this core can change is as an effect of some external and fundamental shock. Within a domain, however, learning takes place between coalitions as a result of differences in their belief systems. The likelihood of learning is inversely related to the level of commitment to a belief, such that secondary aspects of a policy or program are more likely to be revised or amended in the light of new evidence than elements of the policy core. The process of learning is facilitated by the existence of a professional forum in which members of different coalitions may exchange views and interpretations of both problems and solutions.

Frank Fischer (2003) presents a social constructionist critique of the advocacy coalition framework, drawing on Maarten Hajer’s work on discourse coalitions (Hajer 1995). His argument is that belief systems are not pre-existing and empirically verifiable in the way Sabatier and colleagues might claim, but are instead better understood as narratives or storylines. A common interpretation of a problem and appropriate solutions to it is not the basis for membership of a coalition, but something which its various members produce together, through their communications and interactions. Indeed, a common storyline is likely to be more powerful and effective the more it is susceptible to a variety of interpretations.

3.2 Social Learning

Peter Hall’s influential treatment of what he calls “social learning” is based on a study of economic policy making in Britain in the 1970s and 1980s (Hall 1993).⁹ He is interested in the “interpretative framework” of policy, meaning the common understanding of its goals and instruments as well as the nature of the problems to which policy is addressed. Drawing on Kuhn (1962), he refers to this as a “paradigm,” and the question he asks is why it changes or shifts, that is, how and why a policy community learns to think differently. For what is at issue in Hecló’s largely technocratic model of policy learning is the idea of the relative autonomy of the state from societal pressure. Is “learning” really confined to a ministerial and administrative elite?

⁹ Hall’s work has inspired and influenced a small literature on macroeconomic policy learning in the UK, as James and Lodge (2003) point out.

Hall's argument is that the shift from Keynesianism to monetarism was not made on rational or scientific grounds alone. Since there was certainty about neither approach, policy change was necessarily experimental. Hall describes what he terms first-, second-, and third-order change: the first applies to policy settings (adjusting tax rates, for example); the second to the instruments of policy making (such as the use of cash limits, or targets for M_3); and the third to the underlying assumptions and ultimate goals of policy itself (growth rather than employment). While first- and second-order change represent "normal" policy making (like Kuhn's "normal science"), third-order change constitutes a paradigm shift.

What is important about third-order change is not just its scale but the way it occurs, and it is this that is understood as "social learning." For Hall, the "collectivity" which "puzzles" is much broader than that suggested by Heclo (1974).¹⁰ The significance of the "social" epithet is that third-order change in economic policy making was widely debated and socially embedded. Decisions about policy instruments and the way they should be set were indeed a largely technocratic affair, a process conducted in Whitehall. But once the Treasury began to lose its authority, "The ensuing struggle to replace one policy paradigm with another was a societywide affair, mediated by the press, deeply imbricated with electoral competition, and fought in the public arena . . . Only some kinds of learning seem to take place inside the state itself. The process of learning associated with important third order changes in policy can be a much broader affair subject to powerful influences from society and the political arena" (1993, 287–8).

What is also important in Hall's framework is the way in which a paradigm serves to make sense of the world, to identify certain phenomena as problematic, and to suggest certain courses of action in response to them. He cites Anderson to the effect that "the deliberation of public policy takes place within a realm of discourse . . . policies are made within some system of ideas and standards which is comprehensible and plausible to the actors involved," commenting that "Like a *Gestalt*, this framework is embedded in the very terminology through which policy makers communicate about their work, and it is influential precisely because so much of it is taken for granted and unamenable to scrutiny as a whole" (1993, 279).¹¹

¹⁰ In truth, much of this is prefigured in Heclo, whose contention is that it is the administrative elite which constitutes only what he calls the "institutional" agent of learning. For this to have political impact, new ideas must be taken up by some "popularly organized group" (Heclo 1974, 319).

¹¹ A previous study (Hall 1989) was concerned with the introduction and establishment of Keynesian economic thinking across countries. "When an evocative set of ideas are introduced into the political arena, they do not simply rest on top of the factors already there. Rather, they can alter the composition of other elements in the political sphere, like a catalyst or binding agent that allows existing ingredients to combine in new ways . . . Keynesian ideas did not simply reflect group interests or material conditions: they had the power to change the perceptions a group had of its own interests, and they made possible new courses of action that changed the material world itself" (Hall 1989, 367, 369).

4. LEARNING IN PRACTICE

Other writers on learning in public policy have sought to work closer to the ground, to think about policy making from within.¹² Writing as much for as about learning, for example, Richard Rose (1991, 1993, 2000, 2005) thinks of it in terms of “lesson-drawing” and is both rigorous and prescriptive about what it should mean. Lesson drawing is not about reasoning from first principles, or about the way in which “big ideas” take hold of a polity. It is instead “both a normative and a practical activity” (Rose 1993, 11). A lesson is “an action-oriented conclusion about a programme or programmes in operation elsewhere” (1991, 7).

Furthermore, “A lesson is not a disjointed set of ideas about what to do. It requires a cause-and-effect model showing how a program designed on the basis of experience elsewhere can achieve a desired goal if adopted in the advocate’s own jurisdiction” (1993, 13). “The process of lesson-drawing starts with scanning programmes in effect elsewhere, and ends with the prospective evaluation of what would happen if a programme in effect elsewhere were transferred here in future” (1991, 3). Policy makers are likely to begin by searching for information near at hand; some “subjective identification” with counterparts elsewhere is likely to be significant (1991, 14). The next stage of the process consists in modeling or abstracting from extant programs in order to appreciate their essential components: in order to serve as material for transfer, foreign experience must be abstracted from the context in which it is embedded. Then, a program may be simply *copied* from one elsewhere or *emulated*, which means adjusting it in some way to new domestic circumstance. Combining elements of more than one program in more than one other place amounts to *hybridization* or *synthesis*, while drawing on experience elsewhere as intellectual stimulus for what amounts to a new program is described as *inspiration* (Rose 1991, 21–2).

Rose acknowledges that learning from others is inevitably shaped by other factors such as political power, expert opinion, and the values of policy makers (Rose 1993). Yet however contingent the political process, it is in his account separate and separable from policy substance. Lessons are prior to the learning of them, and the assumption is that they are or should be logical, rational, and real. This leaves the sense that learning can only be properly done in rare and straitened circumstances. In practice, in normal conditions of uncertain knowledge and unstable preferences, most learning inevitably appears as some impoverished approximation to an ideal.

But these are precisely the conditions that others take as their starting point. For there is a key distinction to be made between knowing that and knowing how (Brown

¹² The classic practical injunction on learning from history is Neustadt and May’s *Thinking in Time* (1986). For a practical resource on learning from abroad, see the UK government’s policy hub at [www.policyhub.gov.uk/bpmaking/icpm_toolkit/beyond the horizon ICPM home.asp](http://www.policyhub.gov.uk/bpmaking/icpm_toolkit/beyond_the_horizon_ICPM_home.asp), accessed 10 Sept. 2004.

and Duguid 2000).¹³ To know *that* depends on the accumulation and assimilation of information; knowing *how* comes through practice. Simply, we learn by doing as much as by reading, thinking, or being told. What this implies is what Scott describes as an epistemological *metis* (Scott 1998, ch. 9), local, vernacular, practical. It has something in common with Lindblom and Cohen's (1979) "ordinary" knowledge. Yet we know surprisingly little about what bureaucrats and administrators do when they are doing their job, let alone about the ways they think and learn. We necessarily have recourse to theory and to other studies of workplace learning. These suggest two things: first that learning in practice is ad hoc, in the sense of being context or problem specific, and second that it is collaborative.¹⁴

It is ad hoc, not least because policy makers and administrators are continually confronted by problems and policies that appear to be new and different from those they have known before. And this newness presents not only in agenda-setting and decision-making stages of the policy process, but in implementation, too. We might think of implementation as a process of learning rather than carrying out instructions (Pressman and Wildavsky 1984; Schofield 2004): in the process of implementation, administrators and professionals alike discover not only how to put policy into practice but what a policy really means or entails. Their learning is reactive but ingenious.¹⁵

4.1 Communities of Practice

Improvisation of this kind is ordinarily collaborative (Brown and Duguid 2000, 103 ff.). Collaboration and improvisation in turn are carried on by telling stories, by exchanging ideas, suggestions, theories, by developing a common sense of the nature and origins of as well as possible solutions to a problem. In public policy as much as anywhere else, solving problems is an embedded, social process as much as a

¹³ The distinction is Ryle's (1949, ch. 2). In their study of government learning, Etheredge and Short (1983) similarly distinguish between intelligence and effectiveness.

¹⁴ Wagenaar and Cook review ideas about practice in public policy: "Practice . . . is an important and distinct dimension of politics, with its own logic (pragmatic, purposeful), its own standards of knowing (interpretative, holistic, more know how than know that), its own orientation towards the world (interactive, moral, emotional), and its own image of society (as a constellation of interdependent communities)" (Wagenaar and Cook 2003, 141). "Situated learning" is a theory of knowledge acquisition which emphasizes learning in context and through interaction and collaboration: on workplace learning, see Lave and Wenger 1991, Wenger 1998, Brown and Duguid 2000; and for an interesting discussion of global change in similar terms, Tenkasi and Mohrman 1999. On the productive efficiency of learning by doing, see Arrow 1962.

¹⁵ Policy makers and administrators have much in common with Lévi Strauss's *bricoleur* (Lévi Strauss 1966, 16–22). The *bricoleur*, in contrast to the scientist or engineer, picks up objects (tools and materials or, here, policies, programs, and instruments) as he goes, keeping them until he recognizes an opportunity to use them. The way they are used and the effects they have are in part determined by the way they have been used before, but they rarely work in the same way twice. Not only are the properties of the policy object uncovered in use, but the opportunity to use them is itself invariably made to fit.