

## **Policy, theory and research**

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This essay addresses some issues that can arise in the making, analysis and improvement of public policy, illustrated by my own work on higher education policy in a number of countries. It draws on the work of the philosopher Karl Popper, whose thinking has been central to my own work, and which I believe is still under-rated, particularly in relation to the social sciences and policy making.

Policy is nearly always about change - about changing things so that they improve, or to diminish hardship, or to maintain a status quo that would otherwise alter. Although it is not often characterised in this way, change is also integral to academic work, particularly to research. Research is a way of finding out things that were not previously known. Even if you did not intend to change anything by so doing, research tells us something new or different, and changes will often, sooner or (perhaps much) later, ensue. Teaching, too, though not discussed here, is (or at least it ought to be) about change - to equip people with knowledge, skills and capacities they do not yet have. Because policy is one of the most important ways of achieving change, this article focusses on research into and about policy.

### **The nature of policy**

My colleagues and I at the Centre for Institutional Studies at the University of East London interpret this view of policy (as concerned with change) in terms of

a problem-based epistemology, derived from the work of Popper (1960, 1966a,b, 1976). We construe policy as an attempt to solve problems - of a particular kind, which we refer to as practical problems, or as 'how to?' questions. These are similar in conceptual terms to those of the engineer in the physical world - 'to achieve a transformation from one state of affairs to another' (Krick (1969)). In education, for example, policy is concerned with such questions as: how best to educate students of different abilities; how can higher education be made accessible to a wide range of students? how can we sustain a form of higher education (for example in polytechnics) different from the traditional? We distinguish these kinds of questions from 'what is the case' or 'why?' questions (as identified in Swann and Pratt (1999, 2003), which are the predominant concern of social and physical sciences and which, generally, are concerned with 'pure' theory and produce 'propositional' knowledge (Eraut 1994), such as the psychology of learning, seeking to add to our understanding of the world. Those undertaking such research add to knowledge 'for its own sake'. They may not be interested in changing what happens outside the academy.

This distinction between kinds of questions has a number of implications. It raises, first, questions about the relationship of theory and action. Whilst policy may rely on explicit theory or implicit assumptions about *why* things happen - such as that students learn best in small groups because they receive more attention from a teacher (which may or may not be true but is testable proposition susceptible to analysis) - establishing answers to theoretical questions is not the purpose of policy. For the policy-maker in the 'real world' of time and financial constraint and of public pressure to act, the empirical statement (for example, *that* students learn best in small groups) is enough (provided it is accurate). *That* something happens as a consequence of something else, in policy, is what matters, because we cannot wait for research to test all conceivable propositions about, for example, learning; students need to be educated now. . So the distinction between kinds of problems is important, because attempting to solve one kind of question does not necessarily lead to solutions to the other. There is a tension between the

two. But while knowing why things happen *may* help to change them, it is not a necessary condition for change. Knowing why does not infallibly lead to solutions to practical problems. Deep-seated social or environmental factors that inhibit learning may not be remediable within the time-scale in which a teacher has to operate - or perhaps even at all. It may be better on occasion to attempt different solutions and see which works best.

Of course, uninformed or ill-informed action is dangerous, but so too is inaction. In the practical world of policy, you need to act on whatever knowledge base is available. Yet, researchers (and policy-makers) have been known to argue that we should not act to remedy some pressing problem until we understand all the underlying issues. For example, a Working Party of the British Government in the 1970s argued that no action should be taken about social deprivation until 'the theoretical framework for the understanding of the whole phenomenon' was 'firmly constructed' (cited in Tunley, Travers and Pratt, 1979: 10). This can condemn a generation to the problems of the present. Trying different solutions, with care, may identify helpful courses of action. This is the method of trial and error, advocated by Popper (1976) as the method of the sciences and by him and a range of policy analysts (eg Lindblom 1959, 1979) as an approach to policy making. It can have practical advantages - certainly of time - over an approach which concentrates on 'why' questions.

In distinguishing between practical and theoretical problems (and in this we go beyond Popper), there is an obvious danger of creating an unhelpful – and potentially false – dichotomy. The two kinds of questions are interconnected as well as distinct. Finding out how to do things also adds to theoretical knowledge; theory can underpin action. So I would not argue that policy-makers should eschew theoretical knowledge. They need knowledge about the likely consequences of alternative courses of action, to increase the chance of success and avoid unintended consequences.

But there are widespread misconceptions about the nature of knowledge, particularly social scientific knowledge - and unfavourable comparisons are often made with the physical sciences. The laboratory based physical sciences examine only a small, and isolated aspect of the real physical world. Policymakers face some difficulties that many physical scientists do not. They almost invariably have to act in circumstances that they may not be able to fully control. This is a far cry from the traditional (though largely mistaken) view of science as the controlled experiment in a laboratory, under rigorous conditions of safety and elimination of extraneous variables (see Gould 1990: Ch IV for a spirited discussion on this topic). Policy is much more like engineering than it is like science (just as most of the complex aspects of aspects of the physical world are dealt with by engineering rather than 'pure' science). Many of the criticisms of social research arise from this failure to understand (often by social scientists themselves) this distinction. Policy is a social artefact, more analogous with a physical artefact, such as an aircraft, than it is with a scientific theory such as the law of gravity. Whilst the law of gravity explains and predicts the behaviour of an aircraft in its relation to the earth, science does not exactly predict all the consequences of operating such a complex artefact in a complex physical (let alone human) environment. There are many variables, some unanticipated (such as metal fatigue in the 1950s), some, like the weather, are probably always unpredictable - and they may all interact in unpredictable ways. You have to test the aircraft to identify its actual behaviour in a range of circumstances - an engineering task. Thus, the physical sciences offer far less convincing and all-embracing explanations and predictions of complex real world phenomena than is often thought. The development of chaos and complex systems theory reflects this complexity. In policy, there are similarly many variables interacting unpredictably, but often an expectation of a monocausal explanation. One need think only of the complexity of the university - with such variables as teacher attitude, students' backgrounds, imposed curriculum, institutional ethos, resource limitations - to understand why precise predictability is difficult to achieve.

Yet, research can generate knowledge which can be applied in particular circumstances and on which policy-makers may draw (though the evidence is that they do not do so sufficiently (Lampinen 1992)). This identification of limiting conditions is one of the important outcomes of research (in the physical sciences, for example, the finding that water boils at 100 degrees Celsius only at standard atmospheric pressure helps to understand why cooking at high altitude is a problem. In the social sciences, the counterpart might be, for example, knowing under what conditions learning best takes place). Moreover, research produces knowledge about which there is some security about its validity and understanding of its limitations. But, unfortunately this leads us into another (in this case actually as well as potentially) pointless dichotomy.

### **Kinds of research**

The social sciences and the field of policy are bedevilled with controversy. There is long-standing debate about different paradigms, usually associated with different techniques and methods, and even about different kinds of 'knowledges' (Lyotard, 1984). An Organisation for Economic Co-operation and Development report into educational research (OECD, 1995) distinguished a 'positivist' view of knowledge – independent of context, value-neutral and generalisable – and 'locally embedded' knowledge, arising from reflection on experience and the 'art of practice'. 'Positivist' research is characterised as using 'hard' data and techniques such as statistical analysis. The 'qualitative' paradigm is seen as using 'soft' techniques such as interviews, ethnography or auto/biographical data. It is often extended to the relativist argument that objectivity cannot be achieved: knowledge consists of an interpretation of meanings which we, individually, ascribe to things. 'No interpretation can claim final authority, since it must, in turn, be dependent upon other interpretations, which are further dependent on others' (Bailey 1999: 32).

In my view, this distinction between two broad approaches is misleading, and much of the discussion it raises is sterile. It is not clear that the dichotomy is valid. So-called 'positivist' research cannot be value-free – for example in the

choice of propositions for testing, and because all evidence depends on the perception of the observer. Much research that seeks to test general propositions uses locally embedded knowledge and the qualitative techniques associated with the positivist paradigm.

### **A realist approach**

My own work subscribes to a 'realist' epistemology (see Pawson and Tilley (1997) on realism and realist explanation in social science and evaluation) which accepts that there is a world which exists 'out there', independent of our knowledge of it, but it recognises that our knowledge of the world is a human construct – an interpretation, conjecture, theory. We cannot be sure whether our constructs (theories) accurately describe reality. Our observations, too, are theory-laden (Popper 1966: 217) and no number of observations can prove the truth of a theory (as Hume showed nearly 300 years ago). But subjectivity of observation or interpretation does not mean that truth is 'relative': 'If an assertion is true, it is true for ever' (Popper, 1966: 221). Although we can never prove the truth of a theory, we can, as Popper (1972 [1934]) showed, have some understanding of the validity of our conjectures by subjecting them to test. Those theories which have withstood rigorous testing are still provisional; but, within known limits, we can accept them as a basis for action or further exploration or scrutiny.

What this means, incidentally, is that a Popperian approach, despite frequent accusations to the contrary, is *not* 'positivist'. It seeks not to verify and produce certainty, but instead to test and to approach the truth.

Popper put forward his views about knowledge as conjectural nearly 70 years ago (Popper, 1972 [1934]), well before most of the debate about relativism and 'postmodern' approaches and his work anticipates and rebuts many of the criticisms made later. Popper accepted, for example, that choice of hypothesis is value bound. Hypotheses are, of their nature, interpretations of the world. Power structures in society may affect or control which hypotheses are selected for test, and which achieve prominence. This means that

researchers should be wary of the intentions of those who set the research agenda, and may have to resist particular pressures, and fight to do research into hypotheses or use methods that conflict with the dominant paradigm. They can and should take advantage of a multiplicity of interpretations to generate – and test – a multiplicity of hypotheses. Interpretations of reality are the building blocks of science.

Popper offered a way of approaching objectivity by taking advantage of this plurality of view. Generating knowledge is a social activity and it relies on the 'public character of scientific method' (Popper, 1966: 218). Hypotheses and evidence, once made public, are no longer only the products of the individual. They are what Popper (1979) calls 'World 3' objects, which can be scrutinised independently of their source. Hypotheses and evidence are subject to 'something approaching free criticism' (ibid). Criticism is often uncomfortable, but it makes the outcome better. Working with others, in a wider community as well as with immediate colleagues, is central to research. Hypotheses can be tested *inter-subjectively* (Popper, 1966: 217). What results from this (continuing) process is always provisional knowledge, but knowledge which has been subject to test. What is important about scientific knowledge, particularly for policy, is that we know something about its nature, origins and reliability.

### **Policy as hypothesis**

Popper's approach to the generation of knowledge is summarised (Popper 1976) in a schema starting with the formulation of a problem (P1) for which a trial solution (TS) is proposed, rigorously tested to eliminate error (EE), and leading to a new situation with new problems (P2):

P1 -> TT(TS) -> EE -> P2

The task of the scientist, whether social or natural, is one of trial and error, of inventing hypotheses which can be tested and submitting them to tests.

In policy, as Magee (1973: 75) points out 'All government policies, indeed all executive and administrative decisions, involve empirical questions: "if we do X, Y will follow: on the other hand, if we want to achieve B we must do A"'. In this sense, as Magee goes on, 'a policy is a hypothesis' - though it might be more appropriate to say a policy can be treated as a hypothesis) since the empirical statements imply explanatory theories (Y follows X because...).

This approach has a number of implications for policy-making. Magee (1973: 75) notes, it is '*normal* for [empirical predictions] to have to be modified as their application proceeds'; the policy hypothesis 'has to be tested against reality and corrected in the light of experience'. Thus in policy-making as in science, 'trial and error' is an essential part of the process. This challenges in significant respects the 'ideal type' models of the classical policy analysts (for example, Simon, 1947, 1957, 1960), which assume that perfection is attainable. Popper (1966a) extends the logic of trial and error to an advocacy of what he calls 'piecemeal social engineering', rejecting as dangerous, tyrannous and ineffective the alternative utopian approach, typified by the Soviet system. In this he, again, anticipates and offers epistemological support to policy analysts, such as Lindblom (1979), who reject ideal-type approaches as dangerous, though Popper's rejection is on political as well as empirical grounds.

Others have extended this argument. Majone (1980: 17) writes of policy as 'craft', arguing that it (and interestingly also science) uses a 'repertoire of procedures and judgements' and knowledge that is 'less explicit than formalised theory but more objective than intuition'. Thus, we have some idea of what can be achieved by policy measures - for example in higher education by such as legal changes, financial mechanisms, quality assurance processes (see below) - and a reasonable expectation that they will broadly achieve what is intended, but equally we know that they will not be perfect, though we cannot be precise about how imperfect.

A second implication of a Popperian approach is that it offers a basis for *choice* of policy. Policy is concerned with doing things and it is important to

do the right things. Policymakers need to choose policies that are likely to be successful. Merely to experiment is dangerous, even immoral. Research can contribute to policy choice; it can offer an independent and alternative views of the policy options and their likely consequences, and provide a check on what policymakers are doing. For the approach discussed above – unlike relativism, in which all points of view are equally valid – seeks preference for one statement over another. As Popper put it, ‘we may speak of “better” and of “worse” theories ... the better theories are those with the greater content and the greater explanatory power.... And these ... are also the better testable theories; and – if they stand up to tests – the better tested theories’ (1976, p 86). In policy, this is crucial; we should have some grounds for believing that the outcomes of policy will be what we hope; ideally, policy should be based on theories which are not only testable but also tested.

It is important to note that the approach offers grounds for choice in terms of a policy's effectiveness in solving problems. Further, by analysing policies in terms of their success or failure in problemsolving, it permits assessment of the effectiveness of policies without accepting that what policymakers do is necessarily 'rational'. It is essentially pluralist, allowing alternative formulations of the problems to be tested.

This has another implication. Popper's problem-based theory of knowledge focusses attention on the way in which the policy problem has been formulated. This, in turn, raises a number of issues. The 'ideal models' of policy start with a phase variously called 'issue search' or 'scanning', which implies that the problems are simply there to be 'discovered'. This fails to recognise that problems are *formulated* - and different people may formulate them differently. For example, the policy for polytechnics in the UK in the 1960s was seen as, amongst other things, an attempt to solve the problem of unresponsive traditional university education and as a way of offering higher education to more people 'on the cheap'. The problems that the policy in Austria to create a new set of institutions called *Fachhochschulen* (similar to polytechnics) in the 1990s can be formulated as a sequence:

*Problem 1*

A desire for change in Austria and pressures from outside the education system (including impending accession to the EU) generate a need for vocational higher education.

*Problem 2*

University resistance and constraints on public funding preclude radical reform of the existing institutions

*Problem 3*

What kinds of institutions and mechanisms of control of these institutions, should be used as alternatives to universities?

*Problem 4*

How to avoid the problems associated with the obvious German model?

*Problem 5*

The need to 'sell' the policy to the higher education community and wider society

*Problem 6*

How to implement policy, to ensure that an alien model works in the Austrian context.

The crucial choice of kinds of institutions and control based on the UK model arose largely because of the fortuitous combination of key personnel in one of the Austrian ministries responsible for education and other adventitious circumstances. The Ministry of Education advocated a more conservative approach with rigid centralisation, seeing the problem in a different light from those in the Ministry for Higher Education who formulated the problem as one of breaking with tradition (Pratt 2004)

It is clear that similar situations in other countries lead to similar, but not identical outcomes: the UK abolished its polytechnic sector at the time that Austria created the *Fachhochschulen*; Finland created its polytechnic sector at about the same time as Austria, but unlike in Austria, it is now the larger part of the higher education system.

It is a common experience to find that little attention has been given to problem formulation in policy-making. Often the urge is to act, or be seen to act - 'the government should do something about...'. Policy documents often start with vague, value-laden generalisations (nowadays a 'vision') and then set out in detail the measures that will be taken. In other words, they elaborate the solutions rather than the problems. Typically, too, policy addresses not the 'real' problem, but what might be called 'problems of the solution'. In some respects the *Fachhochschulen* policy was an attempt to tackle the problems of the existing solution (the unreformed higher education system of the early 1990s). The nature of the new solution was conditioned by a further problem of the existing solution - the existence of two ministries (for education and higher education) with different approaches to post compulsory education.

At the Centre for Institutional Studies we have found that a Popperian approach enables us to explore the reasons for these weaknesses in policymaking, using the concept of 'situational logic'. We can look at the problem the policy could be seen as designed to solve and assess the situation in which the actors find themselves. The idea of situational logic or situational analysis was developed by Popper (1972: 179) in relation to historical explanation, but it applies to public policy as well:

'By a situational analysis, I mean a certain kind of tentative or conjectural explanation of some human action which appeals to the situation in which the agent finds himself...(We) can try, conjecturally, to give an idealised reconstruction of the problem situation in which the agent found himself, and to that extent make the action "understandable" (or "rationally understandable"), that is, adequate to his situation as he saw it.'

This technique involves conjecturing what would happen if people follow the logic of their situations. It enables us to posit propositions - about how people are expected to behave, and thus explanations of their behaviour - which are testable against their actual behaviour.

Using the concept of situational logic has proved helpful in cases where policies themselves were unclear. The task for researchers here is to assess the constraints and opportunities within which institutions or actors are placed (see Locke et al 198x). Situational logic is helpful because it focuses on institutions' or actors' assessment of their interests. It helps us to understand the interaction between policy formulation and action and the negotiations and political struggles which occur in the course of implementation. It reminds us that for those who make policy and for those on whom policies act, the policy is only one element in their situation. The actions of, for example, higher education institutions faced with financial constraint or the threat of closure can be analysed in this way (Pratt and Silverman 198x, Locke et al, 198x). It helps to explain why the outcomes of policy (as was the case in both the studies referred to) are not always those intended by the policymakers, and - sometimes - inadvertently detrimental to the institutions taking the actions, as was (arguably) the case with the polytechnics and colleges responding to the new competitive funding regime in the 1990s.

Situational logic offers a further tool for policy-makers and policy research. It offers a way of predicting some of the likely consequences of policy before it is implemented. It allows researchers and policy-makers to ask: Are the proposed solutions *prima facie* apt? We can ask: what, on the basis of hypotheses tested by evidence of past experience and of what we know about the logic of the situation, are the likely actions of, say, university managers if the government were to introduce particular financial reforms? The use of situational analysis with predictive theories tested on past policy can enable solutions to be proposed that might otherwise be rejected. A good example was the establishment of the *Fachhochschulrat* in Austria, as an accrediting body for the awards of the new *Fachhochschulen*.

The idea of the *Fachhochschulrat* drew on British experience of the Council for National Academic Awards. But much informed opinion in Austria assumed that a body composed of university academics and social partners would act conservatively in course validation and that the *Fachhochschulrat* would be

dominated by the sectional interests of its members. British experience, however, indicated that such an institution's behaviour is not predictable solely from its members' interests, and so it has proven in practice (Pratt and Hackl 1999, Pratt 2004). As noted above, it was possible for those with knowledge of the British experience to predict that the institution would broadly fulfil its purpose (though with some differences because of its different environmental conditions). Subsequent research has identified some of the factors in the situation which contributed to this particular outcome (Pratt, 2004: Ch 6).

Thus, for reformers, situational logic offers the understanding that the potential for change in institutions consists not so much in issuing instructions, as in setting up the situations in which they operate, the logic of which will make desired outcomes more likely. It draws attention to the importance of social institutions which constitute a large element of any social situation and which are the usually the elements most susceptible to change. As Popper (1966b: 93) says '...institutions and traditions are neither the work of God nor of nature, but the results of human actions and decisions, and alterable by human actions and decisions.' Policy is implemented through social institutions (such as governance structures and accreditation agencies). We have to ensure that these are fit for their purposes, whether they are achieving what is required of them. Again, the process is one of problem formulation, trial solution and testing. As a result, we can adjust the institution or use it differently.

The Popperian approach places importance on testing predictions against evidence. Policy-as-hypothesis can be tested against its outcomes, in the same way as a scientific hypothesis is tested. There has been a burgeoning of monitoring and evaluation of policies over the last decade or two, reflecting the development of the 'contract culture' and increased demands for public accountability (Scott 1995). Yet these evaluations are still often misconceived. One of the features of current 'managerialist' approaches to policymaking is a hierarchical process, which starts with a statement of 'vision' and usually involves a 'mission statement'. From these may be derived strategic objectives, and from them a sequence of operational objectives. These in turn may be used

to develop statements of expected 'outputs', against which actual performance is to be assessed - usually on an annual basis. Elaborate monitoring and review processes are usually proposed to secure this assessment.

What such processes usually achieve is an assessment only of the extent to which the programme - the chosen solution - has been implemented. This may not result in the problem(s) that the programme was set up to tackle being solved. The approach espoused here makes clear that testing of a solution must be in terms of solving the policy problem(s). For example, the *Fachhochschulen* policy should be tested not just in terms of the number, kind and quality of students recruited or courses running, but in terms of such outcomes as the impact on students' learning, the employment market and so on, depending on the nature of the problems in the first place.

A further reason for the emphasis on testing outcomes in practice is that it is, in any real situation, almost always impossible to predict all the consequences of the complex interactions between institutions, people and other factors. As Magee (1973: 75) puts it, 'it is often only by critical examination of the practical results [of policy]... that some of the mistakes are to be identified'. Any action may have unintended consequences. Human action is not always consciously defined or explicable in terms of needs, hopes or motives. Even consequences which arise 'as the result of conscious and intended human actions are, as a rule, the indirect, the unintended and often unwanted byproducts of such actions' (Popper 1966b: 93). There are likely to be unintended but largely unpredictable consequences of most policies (not least because of their very complexity). A realist approach is concerned with outcomes, whether they are intended or otherwise. It is through this that we may learn how policy works, and what works. One of the both unpredicted and unintended consequences of the British polytechnic policy of the late 1960s was the emergence of a group of colleges of higher education aspiring to polytechnic status. In Austria, the way the *Fachhochschulen* have been managed and financed has led to the (unintended and I think undesirable) emergence of the *Länder* (regions) as brokers in the distribution of student places between their institutions.

## **Conclusion**

This article set out to discuss the link between policy and research and thus between practice and theory. I have argued that there is a crucial distinction between kinds of problems - practical and theoretical - but that though they are distinct there is a relationship - and tension - between them. Policy is concerned with practical problems, and I have set out an approach which, drawing on the logic underlying the development of knowledge, offers a way of tackling both practical and theoretical problems. It seems to me that much policymaking in Britain today, although it follows an established structure in the managerialist mode, and despite the concerns of government to produce 'joined up' policymaking and 'evidence based policy' lacks an intellectual underpinning of the kind suggested here. At its worst it is merely formulaic, with policymakers filling in spaces under a series of predetermined headings. One outcome is that the reverse of these intentions is often achieved, in particular that policy is increasingly short term: it is a commonplace that the policy space of education is crowded with 'initiatives', as new measures are introduced to tackle apparently ever-increasing problems. In part this reflects, I suspect, an impatience in government, heightened by an increasingly raucous press. But it also reflects the lack of understanding of the nature of problems, solutions and evaluation. A vision, good though it may be for political purposes, is not a good place from which to start policy, for it prescribes a solution without being clear about the nature of the problem. Similarly, although policy is implemented through institutions, understanding of what is possible to achieve by - and the likely consequences of - particular institutional devices is limited (think of hospital waiting lists). In the past, long established civil servants developed this knowledge (and kept it arcane); as the civil service has changed so this 'institutional memory' has declined; situational logic could have an important role to play here to build this knowledge base - and perhaps help to ensure that solutions last rather longer than they seem to now.

## Note

This working paper draws on material in Swann and Pratt (1999) (especially Chapter 4), Swann and Pratt (2003) (especially Chapter 4) and Pratt (forthcoming).

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