The New Production of Governing Knowledge

Education Research in England

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Abstract: This article draws on critical discourse analysis (CDA) to explore the extent to which there is an interdependence between new governing forms, often characterised as 'post-bureaucratic' and new knowledge forms, that are often described in terms of 'mode 2' knowledge – that is, knowledge that combines the academy, the state and the private sector in co-production. The discussion is based on the analysis of a large number of policy texts concerned with education research as well as scrutiny of academic literature on research policy in England from 1945 to the present. Much recent policy and academic discourse, we suggest, characterises new knowledge forms as socially-responsive, and as potentially democratising knowledge, because of their apparent interactive, iterative, problem-focused and trans-disciplinary character. We suggest that such an analysis is insufficiently attentive to the discourse of the knowledge economy, and the related (discursive) turn in new knowledge production towards *governing* knowledge.

Introduction

The relationship between knowledge and policy is the topic of this special issue and of the project on which it is based (www.knowandpol.eu). The KnowandPol project is pursuing enquiry into the kinds of knowledge (very broadly defined) that policy-makers recognise and draw upon. A major theme or hypothesis of the project is that there is a new relationship developing between knowledge and policy that reflects the emergence of a trend towards 'post-bureaucratic' governing and knowledge regimes (Maroy 2008; Delvaux / Mangez 2008). This trend is more or less developed in the different countries in the study.[1] These new regimes draw upon different kinds of knowledge actors, for example brokers and consumer groups rather than academics (Kosa et al. 2008). In this paper, we want to look at a specific case history of the emergence of such a putative new knowledge regime in the field of education research and policy in England.[2] We suggest that in this instance, changes in policy-making, which may be summarised as a shift from government to governance, and changes in knowledge, which may be summarised as a shift from Mode 1 to Mode 2 knowledge production (Gibbons et al. 1994; Nowotny et al. 2001), come together symbiotically: changing governance creates the conditions of Mode 2 knowledge production, and Mode 2 knowledge is a resource for governing in the new 'post-bureaucratic' or networked mode.

The paper draws heavily on the theory and methodology of critical discourse analysis (Fairclough 1995, 2001): thus we are drawing on the interrogation of policy texts to identify and illuminate the work that particular ideas and key concepts do in making and promoting meaning in this case about policy and knowledge production. The argument is set out through a brief review of key features of new governance forms along with a discussion of the changing nature of knowledge, as these phenomena are treated in the academic literature and in policy discourse. We then discuss our methodological orientation and identify the data with which we have worked before discussing some of the peculiarities of the policy discourse around research (the

1 The countries in the study are France, Belgium, Germany, Romania, Scotland, Hungary, Norway, Portugal and the sectors studied are Health and Education.

2 Scotland is the national system studied in the Knowandpol project, not the UK. However in this paper we are dealing with policy discourse in England, in order to illustrate an 'advanced' case of governance and knowledge interaction. See the knowandpol website for further discussion of Scotland.

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form of knowledge production on which we focus in this paper)[3] in the distinctive field of education, in the equally distinctive context of England. We cannot be comprehensive here, but attempt to provide sufficient illustration of the discourse of governing education research in England, which may be seen as an extreme or developed case of changed or 'modernised' governance (Newman 2001), and where the field of education research has been especially vulnerable to steering (Ozga et al. 2006). In passing, we should stress that the use of these extreme cases is intended to provide heightened examples of policy-knowledge-interdependence that may throw into relief contrasting relations and practices in other systems. We emphasise that we are not promoting the English case as a model and we are anxious to avoid accusations of Anglo-centrism. However, England has a governing system that has been discursively constructed around adherence to neo-liberal principles of competition, de- and re-regulation and private sector involvement to build competitive advantage in the knowledge economy (of which more below). In order to understand the extent of change and the relationship of changing government to changing knowledge, we then review the history of research-policy relationships from the 1950 s to the present day, identifying changes in the uses of research by governments, and related changes in knowledge production. Finally, the paper draws some conclusions about the interdependence of governance and knowledge regimes.

Interrogating the Discourse: From Government to Governance and from Mode 1 to Mode 2 Knowledge

The methodological resources that we bring to bear on this discussion are drawn from Critical Discourse Analysis (CDA), and especially on the interrogation of policy texts to identify and illuminate the work that particular ideas and key concepts such as governance and knowledge do in promoting particular policy shifts. Thus our analysis of key texts (major policy documents and academic analyses)[4] was carried out through the following stages: the identification of key terms relating to governance and research (for example networked, inclusive, responsible, responsive and accountable) that formed a 'cluster' of interrelated concepts carrying consequences in terms of redefinition of relationships between policy makers and research. We examined the interaction between those (frequently occurring) terms and the extent to which, and in which cases, they were mutually reinforcing and created fluid, inclusive and processual modes of describing both knowledge and governance. Critical discourse analysis of this kind enables the study of key policy texts, interviews and speeches (Fairclough 1995; Fairclough / Wodak 2008 DELETE JONES) with a focus on their interdiscursive features. That is, we are able to study policy texts as persuasive, but also as referencing particular contexts and connections – in this case a move away from previous governing practices of research and the combined mobilization of new governing forms (networked and collaborative) with redefinitions of knowledge (as flexible, responsible and useful). Attention to these discursive strategies helps to reveal the connections between text, discursive practices and wider policy, and may also reveal the relations between discourse and power relations and between text production and networks of policy actors. Policy actors use discourse to foreground certain key ideas and thus restrict or reduce the significance of other competing ways of seeing or thinking about a policy issue. Discourse, in effect, creates and recreates the world by eliminating some possibilities and focusing on others.

In addition to the theory and methodology of CDA, we turned to the key ideas encapsulated in the idea of a 'governance turn' as recognised by political scientists as marking a significant

3 We do not regard research knowledge as fundamentally distinct from other knowledge forms, but we treat it separately here only to make the scope of the paper more manageable.

4 A full list of the policy texts is included in the appendix: the key academic texts are included in the bibliography.

shift in governing practices in Europe and beyond (Beukel 2001; Hooghe / Marks 2001; Mayntz 1994) for identification of our key terms. In brief these terms describe a move from centralised and vertical hierarchical forms of regulation to decentralised, horizontal, networked forms – a phenomenon claimed by some to be global (Rosenau 1999) though this is hotly disputed (Latham 1999). However, whatever the extent of variation, the governance phenomenon is described in ways that reflect broad patterns which themselves may be understood to discursively reflect dominant political forces. The new governance promotes ways of controlling and shaping behaviour (Hood et al. 2001) that mix material and discursive strategies: the discursive mobilisation of new norms and values is combined with external regulatory mechanisms (such as competitive indicators of performance) which together seek to transform the conduct of organisations and individuals in their capacity as 'self-actualising' agents, so as to achieve political objectives through 'action at a distance' (Miller / Rose 1993: 1).

In the UK, and specifically in England, we can trace a process of circulation of these discursive norms from the 1980 s, and the simultaneous development during the various Conservative administrations from 1979-1997 of new regulatory forms: deregulation accompanied by tighter specification (for example in the field of education in a centrally-prescribed curriculum and testing regime); the growth of technical accountability, devolution of management, the growth of new public management principles applied to public sector services. There has been a steady growth of governing through performance management around principles of decentralisation, devolution and deregulation as key principles of system restructuring (Whitty / Power / Halpin 1998). Those key principles were not challenged – indeed their performance management elements were reinforced – by the change in political control in the UK government to New Labour in 1997: the new government proved itself to be highly expert in and engaged with the creation of 'imaginaries' (Jessop 2008) through the propagation and circulation of a discourse of knowledge production for economic and social ends (Mulderrig 2008).

In the same timeframe, we can also chart the emergence of apparently new forms of knowledge, that provide useful support for agendas that stress collaborative solutions and rapid adaptation, or that express 'new institutional compatibilities' (Nowotny et al. 2001) between knowledge production and use**.** In the neo-liberal framework that remains (or remained until October 2008 when some strong modifications were in process following the global financial crisis) the only governance discourse, knowledge is part of rather than external to and distinct from the economic process, and growth is dependent on maximising the outputs of knowledge workers and the productivity of knowledge resources. National systems seek to ensure competitive advantage through the commercial exploitation and application of knowledge. Technologies enable the instantaneous exchange of information, and the exchanges transcend national boundaries, so the constraints of national economies give way to an interdependent global economy. Because of the primacy of information as the new raw material and creator of wealth, world regions prosper or decline 'not so much because of natural resources, but because of the capacity of their managers, engineers, scientists, and workers to harvest knowledge as raw material' (Hughes 2004: 105). The funding, organisation and assessment of research quality are all affected by these developments. Kenway et al. (2004) illustrate the trend towards prioritising techno-scientific research and its modes of operation and organisation, so that research is increasingly concentrated in designated centres of excellence, organised in teams and characterised by differences in conditions of work and employment rights. Traditional intellectual autonomy is challenged by the need to meet industry needs and as a consequence science is becoming 'less a public good than a tradeable commodity'. The World Bank publication 'Building Knowledge Economies' illustrates the new emphasis on translation of ideas into commodities:

> *'Continuous, market-driven innovation is the key to competitiveness, and thus to economic growth, in the knowledge economy. This requires not only a strong science and technology base, but, just as importantly, the capacity to link fundamental and applied research, to convert the results of that research to new products, services processes or materials and to bring these innovations quickly to market.' (World Bank 2002: 21)*

The centrality of research to the knowledge economy helps to explain enhanced research steering policy agendas across different national settings including England. Research steering processes emerge at the national level that promote particular methodologies, particular forms of measurement of quality and recognition (for example various forms of metrics, benchmarking and citation indices), and particular forms of research management (Ranis / Walters 2004). The UK's research assessment exercise has been exported to New Zealand and Canada and has entered Australia (Ozga / Seddon / Popkewitz 2006). Funding bodies define the way reports must be submitted, demand to retain intellectual property rights over data, and require interaction with specified users. These trends reflect a perspective on research that prioritises its 'use-value' and its problem-solving potential for policy-makers, as key indicators of quality.

In addition, at least in England**,** knowledge has further been commodified, through the emergence of a large data production and information industry, which is described by policymakers as promising greater transparency and hence quality for the public services, education included (Ball 2007).

This increased significance of knowledge means that in the developed world, information and expertise are now more widely available and more widely distributed than ever before. At the same time, new governance forms promote the idea of transparency and public accountability as part of their strategic positioning. Knowledge is drawn into supporting the legitimacy and authority of the social and political processes of networked, new governance forms. Discursively, knowledge and policy are produced as a form of cultural political economy (Jessop 2008) which combines semiotic and material elements in changing the nature of research and its role in governing. Policy makers suggests that social cohesion and effective government now depend on integrating knowledge as well as on integrating, accommodating and managing different interests. This positioning promotes an agenda for the future in which potentially disruptive energies (including, perhaps, those traditionally developed in the Academy) are harnessed to promote a discourse of entrepreneurship and continuous scientific and technical advance that also ensures social harmony (Mulderrig 2008: 167). As Baumann (1992) puts it, in a decentred, information-rich society, governance needs to use 'science' more actively to minimise risk, or to minimise anxiety about risk.

The Field of Education and Education Research

The centrality of education as a policy field in England is evident from analysis of key policy texts since the 1990 s, as policy makers focus on education (often rebranded as 'learning') as both an economic and a governing resource. Discourse analysis of these texts suggests that governing education is being done through a combination of shared 'interests' in attracting mobile capital, while regulatory instruments at all levels measure and compare performance, create governing knowledge, and also, importantly, construct an image of governing through knowledge. In this context the heated debates in England from 1997 onwards about the quality of education research may be understood as the government's discursive construction of a narrative of problems to be overcome by 'evidence-based' or 'evidence-informed' policy. As government presents (re-formed) knowledge production as informing, justifying and legitimating policy, so debates in the academy focus on the desirability of this close relationship between knowledge production and governing (see for example Ball 2001; Hammersley 2002; Pring / Thomas 2004; Whitty 2006). There is predictable controversy over what counts as

evidence, about the extent to which research in education should be steered by policy concerns, about the extent to which knowledge is selectively mobilised to justify policies that have already been decided upon, and about the possible narrowing of research agendas and privileging of particular methods that may follow from this close engagement with policy. Such disputes spill over into debates about research funding and tensions between accountability and autonomy in education research. The government strategy also provokes debate about the place of research knowledge in the professional formation and development of practitioners. It produces divisions within the academic research community in education. In sum, academic commentators are often pre-occupied with elements of the government's redefinition of knowledge production, but lose sight of the construction of the overarching narrative of redefinition of knowledge-policy relations and its relationship to governance.

Thus the academic commentators are nostalgic for a lost 'golden age' of autonomous knowledge production that never existed (Ball 1997), and the research community is driven into defensive postures that are disconnected from analysis of the interconnections between the governance turn and changing knowledge production.There are contributory factors at work here: for a variety of historical reasons, education research in the UK has not had a strong social science base, and most research has had a practitioner focus, in part because of the size and scale of the teacher training institutions, (which until relatively recently were outside the universities) and the relative weakness of those education departments that existed within universities (Lawn / Furlong 2007). The dominance of practitioner research led to the development of knowledge production in very varied forms and without clear disciplinary rules, tribes and territories (Becher / Trowler 2001). That variety contributes to strongly felt internal debates within the field about ways of defining quality, standards, evidence and impact, and constant fluidity and division within the field (Yates 2004: 2) and results in the absence of connection to the larger narrative of redefining knowledge and governance. Let us now move to the history of the policy-research relationship in more detail, in order to explain this internal division more fully.

Education Research and Policy 1945-1997

Before 1960 there was relatively little research on education in England,[5] and governing is largely treated in the academic and official literature as the preserve of an elite group of politicians, networked through social class relations and informed (and sometimes strongly steered) by administrators, with similar class backgrounds, at central and local government levels (Baron / Howell 1974, Kogan / Mansfield 1975; Gewirtz / Ozga 1990). As a consequence, up to the period of post war reconstruction in the 1940 s and 50 s, research in education in England was dominated by psychologically-oriented empirical research on the measurement of intelligence and related ways of selecting children for special assistance or elite secondary education, or by pragmatic and class-based accounts of the system and its benefits.

Developments in the immediate post-war years reflect the newly elected Labour government's attempts to use research to enable its work of creating the UK welfare state. The establishment of the National Foundation for Educational Research (NFER), initially on the Scottish model and supported by a Carnegie grant, is one sign of a new interest in empirical data to aid policy (Lawn 2008). In particular there is a growth of the use of large-scale quantitative data throughout government at this time. Indeed a government report entitled Provision for

5 This section deals with England, and with the policies of the UK government. We cannot deal with the different context of knowledge production in Scotland within this paper, but a discussion of the relationship between knowledge and the emergent post-bureaucratic governance forms in Scotland, which has a separate government and parliament, may be found in the country report (Scotland) on Education on the knowandpol site.

Research, published in 1964, cites the important part played in the 'coming of age' of education research by the war-time need to classify service men and women and the post-war need to classify pupils (DES 1964). This emphasis on measurement and classification is represented in the growth of the 'political arithmetic' (Halsey 1997: 37) school of sociological research. In the broader context of the development of social science and its relation to social policy, from the mid nineteenth century onwards, there is a relatively close link between social science and its development of a 'science' of society through statistical methods and policy making, a link which centred on 'identifying and instituting suitable reforms for particular social problems,'(Oakley 2000: 134).

The period of the 1940s-60 s may be seen as a high watermark in a particular kind of interdependence of knowledge production and government. By the 1970 s, this political arithmetic approach, more accurately described by Dale (1986) as the 'social administration' project, had begun to decline in influence. The distinguishing features of this approach were, firstly, its production and analysis of large scale data that are authoritative and representative and secondly the assumption that such data 'speak for themselves': for example, that confronted with evidence of class-based inequalities in education al outcomes, policy makers will act to redress them.

From the 1960 s onwards, there is a growing interest from the government department in charge of education in England [then the Department for Education and Science – DES] for more practical knowledge about the system. The Department was growing and developing increasing sophistication in 'official' expertise and a stronger role for professional experts (civil servants) in the management of an increasingly complex service (Pile 1976; Weaver 1979). In this period we also see the establishment by Claus Moser of a statistics branch in government, intended to create knowledge that supported policy-makers in recording social facts and in addressing and evaluating approaches to social problems.

At the same time university-based research in education – and perhaps particularly in the sociology of education – did connect to and influence the government of education throughout the 1960 s and early 1970 s. In the 1960 s, there was a comparatively close relationship between education research and its 'parent' discipline sociology, and the context of policy making (Deem et al. 2004). Aspects of sociology's empirical methods, and also its conceptual and theoretical resources, were employed to investigate the structures and processes of schooling, and created research that came to raise increasingly difficult issues for policy, particularly in relation to equality of opportunity in schooling. Here, there was a significant degree of concern amongst politicians that working class pupils were being failed by the education system, and that, as a result, talent was being wasted. The work of Halsey et al. (1961), Bernstein (1961) and Douglas (1964) are important and influential in England and beyond.

By the mid 1970 s, a good deal of policy-related research in education was focused on race and gender, as well as class. Policy responses to concerns about discrimination related to race and gender were expressed in the Sex Discrimination Act (1975) and the Race Relations Act (1976). As research on educational inequalities associated with race and gender produced evidence of sexism and racism in schools and local authorities (Stanworth 1983; Troyna 1982; Weiner 1985), so the critical appraisal by researchers of policy interventions increased, and close relationships with policy became more difficult. The turn in sociology of education away from a joint 'problem-solving' enterprise towards much more critical views of policy and its preoccupations reflected changes in the way that inequalities were understood by researchers, as well as a changed policy context and direction. Government was no longer understood by researchers as an ally in a struggle against class-based inequalities, whose actions would address these problems, provided they were well-informed about them. As Young (2004) has commented, the tendency was to view policy as a means by which power and control operated,

and policy makers as complicit in the maintenance of unequal power relations. The sociology of education consequently became more focused upon unveiling the masked forms of power contained in policies. At the same time influential theorists underlined the inability of education to 'compensate for society' (Bernstein 1970) and its role in social reproduction was stressed (Bourdieu / Passeron 1977; Bowles / Gintis 1976). Such ideas produced a strong reaction among researchers against the idea of policy as productive and among policy-makers of researchers having the capacity to contribute to solving policy problems.

To add to this policy-makers began to express dissatisfaction with teacher performance, and we see a growth of official criticism of the teaching profession throughout the 1970 s in England, as the economic situation worsened and preoccupations with cost-effectiveness and competitiveness grew (David 1977). This in part created, in part reflected the breakdown of 'consensus' about education. Hammersley talks about research in education becoming 'infused with radical ideas – anarchism and Marxism initially, feminism and anti-racism later' (Hammersley 2002: 2). The often trenchant nature of the critical knowledge produced by education research in the 1970 s caused policy makers to legislate it out of teacher training provision or to discredit it by accusing it of bias. This was a situation that saw 'the almost total disappearance of the sociology of education as a separate teaching subject from the syllabus of courses of initial teacher training' (Dale 1992).

Of course, as noted above, these developments need to be related to the attempts by governments across Europe in the decade from the late 1960 s to diminish the power of organised labour and restore productivity through new, post-fordist forms of production. This drive to reform was accelerated by economic crisis from the late 1970 s onwards, leading to the reinvention of neo-liberalism and its promotion by successive 'modernising' Conservative administrations in the UK from 1979-1997. In this climate, faced with growing hostility from policy makers, research in education also changed and turned away from overarching concerns with education's role in promoting or challenging inequalities towards more specific and more classroom and practice – focused enquiry in curriculum, in education administration and management, in school effectiveness research and in evaluation of specific policies throughout the 1980 s. From 1981 increasingly interventionist strategies are pursued by the then DES, or through new agencies, that carry the business agenda of coupling education tightly to economic performance, and using competition to drive improvement. The drive to raise standards is signalled in the policy document 'Better Schools' (1985). In sum, the policy-making culture at DES becomes much more directive, much less bound by convention, and much more inclined to reorganise and legislate in order to achieve its policy ends. This period is one in which deregulation is followed sharply by re-regulation, as public bureaucracies are displaced by new agencies, and tight controls over curriculum, pedagogy and assessment are instituted, in order to enable competition between schools to operate, by providing consumers with performance data on which to base choice (Whitty et al. 1998).

Reviewing policy research from the 1980 s, there is considerable evidence of a research community trying to get to engage with new policy agendas, though often in a rather descriptive and reactive way (McNay / Ozga 1985). Research followed the lead of policy. This highly contested period in changing social and political relations formed the backdrop to the continuing policy interest in education research throughout the 1990 s, and growing government criticism of its failure to adapt to new times. The criticisms can be encapsulated as follows: knowledge production in education was too theoretical, poorly articulated with classroom practice and poorly articulated with policy making (Hargreaves 1996).

The discussion above has summarised a changing relationship between knowledge about the education system and its steering, in which research was initially close to policy, but the relationship was envisaged as linear, so that knowledge was produced and made available to

government, which was assumed to act upon it. Social research was thus seen as providing a scientific basis for the problem-solving actions of government. In the period of post-war reconstruction in the 1940 s and 1950 s, there was a prevailing political rationality of state solutions to social problems, with assistance from knowledge producers, who shared that faith in state action informed by social facts. Governing education was managed through a professional bureaucracy that promoted public service and operated discursively in traditional democratic mode. Education policy appeared to be broadly progressive, education was understood as a public good and educational opportunities were extended as a form of redistribution. The deeper structures and relations exhibited inequalities in resources, opportunities and choices of provision, and underlying elitism and hierarchies of esteem. As 'knowledge' failed to address these problems, and research found more and more evidence of their intractability, so the knowledge-policy relationship changed. Education research divided into normative and micro-level activity or became a form of critique. In its micro and normative form it became a mass production activity attached to promotion and institutional strategies for maximising shares of government funding, allocated on a competitive basis. Its former focused and linear relation to policy making became distant or estranged. At the same time, the fundamental shift from state-centred to market driven governing forms disrupted and displaced the public sphere of knowledge production.

New Labour and the 'Resurrection' of Research

While the election of a New Labour UK government in 1997 brought considerably increased resources for education research in England, along with increased support throughout the UK for capacity building in education research, it did not diminish official criticisms of education research. These carried over into the new administration, and the additional resource was largely targeted funding, aimed at encouraging research in particular policy-relevant areas. Ministers linked the resurrection of education research to the raising of standards of school performance, and stressed the need for research knowledge that 'can identify the most effective approaches which will contribute to raising standards at all levels (Clarke 1998: 2). This was to be achieved through particular kinds of knowledge production (systematic reviews and randomized controlled trials [RCTs] were favoured) and through the creation of centres of excellence and user-involvement in setting research priorities. At the same time the main social science research council set up the Teaching and Learning Programme (TLRP) with a framework designed to support research 'which will lead to significant improvements in the achievements of learners' (ESRC 2000; Whitty 2006),

As discussed earlier, the idea of evidence based or evidence-informed policy and practice in conjunction with increased interest in raising quality and standards became key to New Labour's 'modernisation' project for governance, especially in the public services. The then Secretary of State for Education and Employment (the DfEE had replaced the DES), called for a revolution in the relationship between knowledge producers and government:

> *'Social science should be at the heart of policy-making. We need a revolution in relations between government and the social research community – we need social scientists to help to determine what works and why and what types of policy initiatives are likely to be most effective' (Blunkett 2000:15)*

He went on to call for knowledge that gives a coherent picture of how society operates: the main forces at work and those which can be influenced by government, such as inter-generational poverty, low aspirations, employability, participation in society or exclusion; that evaluates policy initiatives and systematically reviews existing evidence.
The policy discourse, then, is one that stresses the need for redesign of education research to accommodate the pressing needs of policy-makers. Knowledge production has to be changed

in order to focus on driving up performance in order to achieve competitive advantage in the new knowledge economy, and this, it is suggested, will also challenge inequalities and build social inclusion. Research was required to address key problems of underperformance through providing reliable knowledge about 'what works': structural disadvantage was discursively eliminated as a cause of low attainment. In order to drive this agenda, since 1997 UK policy in education has been characterised by data-driven, outcome-focused design, mostly expressed through increasing trust in numbers, and the constant monitoring of quality and standards. In the next section we discuss the implications of this dominant policy form for knowledge production and use.

Governing Knowledge, Experts and Data

Governing knowledge in the UK, and especially in England, has changed remarkably since 1997. Performance management drives knowledge production and use. There are flows of data about performance in constant movement throughout the system: this process is building new relations and knowledge and driving policy. We have discussed how the 'social administration' project assumed a synergy between the state and data that would lead to solutions to intractable problems of inequality in education opportunity. The failure of this project, combined with economic crisis and the consequent neo-liberal turn in governing, placed knowledge production in the marketplace and shaped its forms and social relations in ways that echoed the forms and relations of capital (Ozga / Seddon / Popkewitz 2006). Thus performance is made visible and transparent in the form of indicators and targets that can be constantly scrutinised. Importantly, a new common language is being created and shared to facilitate the work of new integrated children's services, which include education, social work, health and the police. Education performance (along with the performance of other public services) is constantly reviewed through joint inspection frameworks, and the learners, teachers and citizens engaged in it are rendered visible and calculable.

Like the monitoring of economic performance, the monitoring of education performance data never ceases. In the central government department (now no longer the DES or the DfEs but the Department of Children, Schools and Families, reflecting the concern to monitor all sites of production), a senior official comment on the visibility of education stocks and flows:

> *'[…] its interesting to reflect on how the work of a central government policy department has evolved […] In fact actually we've been developing a concept here in the Department which we've called 'the bridge' where we corral all of this data and information and at a glance now across all local authorities in England you can go downstairs and look at a big screen and you can look across all the key performance areas and that's actually across all the social care areas as well as education. So at that level we're doing quite active performance management of the system and that's quite a powerful tool' (DCSF CP7 E)*[6]

Research knowledge in education is subjected to the same forms of regulation, and is discursively positioned within governing knowledge, which is produced and analysed by government agencies, and then mobilises actors who take that knowledge and 'drill down'-as they themselves put it – to the individual school, classroom and pupil, targeting the causes of failure and driving improvement (DfES 2007). This is applied knowledge, scientised knowledge, official knowledge, knowledge packaged in flows of data, containing coded meanings and instructions for delivery. Knowledge production is equated with particular forms of data collection and comparison and its quality is judged in relation to its usefulness in assessing comparative performance. This transformation of the field of education is happening through the reshaping

6 Interview data from the ESRC project 'Governing by Numbers' (RES-000-23-1385) see www.ces.ed.ac.uk\research\projects for further details.

of the old institutions of schooling and post-compulsory education and their replacement with designs for lifelong learning, that require new, accessible and portable qualifications frameworks (Ozga 2008; Grek 2008) and through the development of new attitudes to learning that instil responsibility and commitment to continuous self-improvement. It is also happening through the new connections between governing and the creation of new political instruments that are devoted to the creation of data and to constant comparison of data about performance. The task of governing knowledge is to map a complex space of flows of agents and data, with the aim of imposing its logic over scattered, segmented places and producing a disciplining and enabling space of policy engagement through new policy instruments that:

> *'orient relations between political society (via the administrative executive) and civil society (via its administered subjects) through intermediaries in the form of devices that mix technical components (measuring, calculating the rule of law, procedure) and social components (representation, symbol)' (Lacoumes / le Galès 2007: 6)*

These developments are visible in many of the systems in the KnowandPol study, we would argue, but are perhaps most visible in a system that lies outside – in England. Here complex and large scale systems of performance and quality management provide 'proof' of the quality of the outputs of systems. Middle class parents become experts in decoding and using this information, others become more dependent on and subject to the judgements of experts. Quality management regimes or the various systems of research quality assessment are input-output machines that contain team rules, rules of evaluation, co-operation and innovation. Experts propagate 'efficiency myths' that allow for the growth of quality management and professionals, including the teaching profession and academic researchers, are reformed as active protagonists of quality systems. In this process we see the 'transformation' rather than the transfer of knowledge, with the key element of scientific knowledge production – i.e. self doubt-eliminated (Nassehi 2007; Stehr 1994). The elimination of doubt and affirmation of usefulness and impact are constructed discursively through the language of research assessment (HEFCE 2008; ESRC 2009). Experts are 'chosen' for their capacity to provide what they often see or translate into technical advice-on qualifications systems, on benchmarks and indicators-and – increasingly – the presence of experts in such 'user-driven' activities counts as a quality indicator in itself (Lawn / Lingard 2002).

Data-and their effects as they move through and across systems constitute a 'state optic for governing' (Scott 1998) There are intimate and interwoven relationships between the development of state administrative structures, characterised by Latour (1987) as 'centres of calculation' – and the development of the standardization, methodological approaches, technologies and related cognitive schemes of statistics and scientific thinking (Porter, 1995, Desrosières, 1998). This analysis is, of course rather at odds with the collaborative and socially-embedded possibilities of co-production of knowledge as presented by Nowotny and her colleagues (2001, 2003)

Co-production or co-option?

The idea of co-production as offering a new social contract between science and society (Gibbons 1999) originates in the publication of The New Production of Knowledge (Gibbons et al. 1994) and Re-thinking Science (Nowotny et al. 2001) where the idea of a shift in the nature of knowledge from Mode 1 to Mode 2 is elaborated. These texts argue that changes in society, as well as changes in the use of knowledge, have transformed science in terms of its research practices, institutional locations and epistemological bases. The driving force of change presented in these texts is social change, rather than political redesign. Mode 1 Knowledge is characterised as traditional, discipline based research, while the emergent Mode 2 form is derived from hybridised research that combines the academy, the state and the private sector

(Gibbons et al. 1994). Mode 2 research encompasses a shift from a linear process of knowledge production and dissemination to an interactive, iterative, problem-focused, trans-disciplinary model (Delanty 2001; Gibbons et al. 1994; Nowotny et al. 2001). In these new knowledge production forms and processes, creative thinking, innovation and problem-solving are valued over and above the consolidation of static knowledge stocks and their linear transfer into 'outputs' (Stehr 2002).

It is suggested that the strongly contextualised production of Mode 2 knowledge offers opportunities for democratisation of knowledge production in close relationship with society and wider social movements (Liberatore / Funtowicz 2003; Nowotny et al. 2003) as Mode 2 knowledge is required to be 'socially robust', that is deemed to be valid not by narrowly-defined scientific communities but by wider 'communities of engagement' (Nowotny et al. 2003: 183). Mode 2 knowledge is presented discursively as positioned somewhere 'beyond' the political system and the market place (Nowotny et al. 2003: 192), but this rather neglects the capacity of policy makers and other powerful actors to shape knowledge through their influence on contextualised production, to guide and shape activity in apparently distributed, open and equitable networks of policy makers, researchers and user-group representatives. Network forms carry possibilities for collaboration, but they are vulnerable to capture by particular interests, and offer ways of ensuring the governing of those actors and interests that lie outside of or are resistant to hierarchical control (Kickert et al. 1997). Networks as a form of governance avoid the difficulties of hierarchy or market, enabling the mobilisation of political resources in situations where these resources are widely dispersed between public and private actors.

Indeed, as Dominique Pestre points out, analysis of the discourse used to characterise Mode 2 knowledge (for example social relevance, responsibility, reflexivity, fluidity) draws attention to the work being done in eliminating alternative definitions of knowledge and knowledge production, and creates a strong normative pressure on researchers to work with the apparent logic of democratic development, to enhance their responsiveness and usefulness. As he puts it, the Mode 2 discourse conveys an 'overly optimistic' vision of the changes affecting science and society today. He goes on to comment that:

> *'The authors may have underestimated the extent to which these transformations have been the result of political and social choices. This would mean recognising that the developments they describe are not cases of natural evolution, which have simply to be identified and acknowledged, but are, rather, articulated with alternative and conflicting social, economic and political projects" (Pestre 2001: 246 emphasis in original).*

As well as reminding us of the ways in which knowledge has always mattered to states and economic elites, Pestre underlines the importance of knowledge as a resource for changing social ideologies (ibid: 250). The transformation of knowledge is linked to the transformation of capitalism in this analysis, showing how knowledge has both mirrored that shift and made it possible, thus creating new levels of interdependence, of the kind illustrated earlier in our discussion of performance data. This interdependence is also neatly captured in Nigel Thrift's book Knowing Capitalism (Thrift 2005), which illustrates how the cultural circuit of capitalism produces knowledge about itself, and illuminates how capitalism has become *knowledgeable* and thus increasingly impinges on traditional academic preserves (Thrift 2005: 21). Part of this process, Thrift argues, involves capital and traditional knowledge producers in the academy coming to 'think more alike about thinking' (ibid: 21).

Conclusion

We return here to our overarching argument about the convergence and interdependence of new modes of governance and new forms of knowledge. Not only do 'governance' and 'mode

2 knowledge' share a repertoire of defining terms, they also work discursively to create images of progress and democratisation, to support inclusion, and to co-opt knowledge into governance, dissolving boundaries between policy and knowledge. The so-called governance turn is often defined in terms that echo the supposed Mode 1 to Mode 2 knowledge transformation: a shift from centralised and vertical hierarchical forms of regulation to decentralised, horizontal, networked forms. Yet rather than representing the potential for democratisation of either knowledge or governance, these forms closely resemble the networking practices and open communications systems of global business. Their technologies also reflect the processes and instruments of knowledgeable capitalism and their 'economic imaginaries' establish new organisational forms that have 'a performative, constitutive force' (Jessop 2008: 18). Jessop continues:

'Technologies of economic governance, operating sometimes more semiotically, sometimes more materially, constitute their own objects of governance' (ibid: 18).

Throughout this paper, we have presented a discourse analysis of the ways in which governance and knowledge are being brought into relationship with one another and presented as interdependent. At the same time, we have charted the relationship between education research and policy from the 1940 s to the present in England, drawing attention to the proximity of research to policy in the 1950 s and 1960 s, and to the breakdown of relations as research produced more and more complex knowledge that revealed structural disadvantage and challenged the capacity of the state to address problems of inequality in education. We then explored the discursive turn through which a modernising New Labour government combined new governance and new forms of knowledge production to create an 'economic imaginary' that carried messages about social inclusion through economic growth and self-management. Our discussion included the material as well as the discursive shifts: here we stressed the growth of information production, processing and management, and the rise of performance data as a policy technology. From this account, we cast a sceptical eye on claims that new forms of knowledge form a natural partner to new forms of networked, collaborative governance, and suggested, rather, that the interdependency identified between these forms is one in which knowledge is being constituted, materially and semiotically, as an object of governance.

Appendix: Policy Texts used in the critical discourse analysis

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