
Knowledge and the limits to institutional restructuring: the case of South African higher education

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Introduction

This paper is about the social institutions of higher education in South Africa, and their complex relation to the problematic of 'restructuring'. Even with so bald a statement, possibilities of confusion and misrepresentation arise. Global policy terms travel through various iterations of policy borrowing and become translated, recontextualised and transformed. As Latour (1999, p.298) has said: '...transfers of *information* never occur except through subtle and multiple *transformations*' (see also Callon, 1995). 'Restructuring' is just such a term. In South African higher education policy discourse, 'restructuring' refers specifically to the policy of institutional mergers, gazetted on 24 June 2002 (see The South African Universities Vice-Chancellors' Association or SAUVCA, 2002), which aims in the interests of quality and efficiency to reduce the number of higher education institutions in the country from 35 to 21. In contemporary South African policy-speak, 'restructuring' and 'mergers' are synonymous.

If, however, we ask what it is that discursive clusters like 'restructuring' are *doing*, it is soon clear that they form part of the macro-cluster of what Lindblad and Popkewitz (2002) call the problematic of the 'new governance'. The master term for this in South Africa is 'transformation', and it is being pursued at a central policy level at a hectic pace. The SAUVCA calculates that there are at present 30 'change initiatives' which in 2002 demanded higher education management time and resources (see Appendix A). Diverse as these 'transformation' policies are, they all face in one of two directions: they are directed towards equity and access (social inclusion/exclusion) on the one hand; or innovation and economic development on the other. To put that in different terms, the redemptive longings driving higher education transformation in South Africa are salvation from the dead hand of apartheid on the one hand, and progress towards global economic competitiveness on the other. These two longings anchor the political theology of restructuring in

South Africa. The logics of these two redemptive longings are, unfortunately, contradictory – the logic of equalisation (Lindblad and Popkewitz’ ‘problematic of equity’) is in strict contradiction to the logic of differentiation (their ‘problematic of knowledge’) – but this contradiction rarely if ever becomes visible in the policy discourse itself, and the contradictory ensemble constructs a discursive alibi for the overall transformation agenda that placates but can never resolve the salvation anxiety driving the ‘new governance’ (Lindblad and Popkewitz, 2002).

The focus of this paper is not to analyse the lineaments of the ‘new governance’ but rather to examine the response of higher education institutions to this double-edged exhortation, which come exogenously from either the policy prescriptions of the national government, or from the multiform facets of global markets, or often from both together. In governance terms, this exhortation generates a complex generic pressure on higher education institutions to be more ‘responsive’ or more ‘relevant’. But to what or to whom should they be responsive and relevant? The answer recapitulates the contradictory couplet: to society (the logic of equalisation) and to the market (the logic of differentiation). This contradictory imperative forces institutions to make strategic choices. This paper is about how they arrive at their choice. In particular, it is about the constraints placed on choice or responsiveness by their sedimented histories, by their inherited institutional forms, which project particular dispositions for action. For the purposes of this paper, I shall discuss two dimensions of institutionality, the institution of organisation and management on the one hand, and the institution of knowledge on the other. Because the policy exhortations I shall be concentrating on here are targeted at the knowledge core business of higher education – academic programmes and forms of research – I shall concentrate mainly but not exclusively on the institution of knowledge. The specific question I wish to investigate is: how does the knowledge structure of a programme and the strength of its historical presence in a particular university affect the way it responds to the political theology of restructuring? Consequently, I want to investigate if and how knowledge structure strength and capacity construct social limits to the possibility of restructuring and transformation.

The paper proceeds by looking at recent research in South Africa which assesses the degree to which the universities have changed their curricula from discipline-based programmes to interdisciplinary-based programmes in response to national policy imperatives: and the degree to which they have changed their research profiles from basic to applied research in response to

market imperatives. In each case, the response is neither direct nor simple. The paper will argue that universities make largely rhetorical accommodations to interdisciplinary curricula, especially where the discipline and the disciplinary tradition is strong, except where universities are in search of students or a market niche. It will also suggest that universities respond to the new market demand for 'relevant' academic research neither by changing their cognitive or epistemic structures, but more often than is recognised by shoring up their basic research programmes within research contracts awarded for 'relevant' research, that is, by clothing their usual research practice in the lineaments of the new relevance.

The paper will conclude by suggesting that universities respond to exogenous pressures for restructuring – from government policy, society or the market – in large part on the basis of features internal to the science system (the structure of disciplines, their state of innovation) and internal to university institutions (their intellectual and managerial capacity or capital). The post-modern froth about the end of universities, of disciplines and of epistemology as we know it notwithstanding, the paper will attempt to make the case that science as an innovation system, and universities as its primary carrier, are far more durable and resistant to external pressures to change than either policy analysts or market pessimists usually give them credit for. They respond, or not, in ways that have far more to do with their internal organisation as institutions than is normally recognised. Changing science and universities can thus best be done via steering, rather than by plans or money. Both may be important, but the institution of science also keeps its own council, a fact the social engineers of central policy are all too prone to forget.

Internal and external explanations of changes in knowledge

The generic discourse of higher education restructuring embeds the assumption that universities in general, including their knowledge activities of academic programmes and research, are amenable to exogenous propulsion, that is, that they can be pushed by policy and pulled by the market. In traditional academic accounts of knowledge change, by contrast, far more attention is paid to internal dimensions of knowledge and its environment than it is in the policy literature concerning restructuring. In science studies, for example, there are currently two main approaches to explaining change in the science system endogenously. First, there is the *institutionalist* (or neo-

institutionalist) approach, which deals with changes in the institutional settings of research, including science policy (e.g. Mayntz and Schimank, 1998; Weingart, 1998). This approach focuses on the structural conditions and mechanisms created to direct science, and on the institutional responses of science. Secondly, there is the *cognitivist* approach, which deals with changes internal to the knowledge structure of science as the driver of change, focussing on changes in the mode of knowledge production. The two main contending theories here have been the Starnberg group's finalisation theory, and the mode 1/2 account of Gibbons, Scott, Nowotny and others (Gibbons et al, 1994). There are other contenders, like the triple helix approach of Etzkowitz and Leydesdorff (1995) and Rip's socio-cognitive approach (Rip, 1997), which I will return to later¹.

Accounts of change in the South Africa science system generally speaking, employ neither a cognitivist nor an institutionalist approach. Rather, the standard form of account is heavily policy-based. Such accounts start with invoking a change in policy, and then enquire as to whether university change has followed in accordance with the policy (Cloete and Bunting, 2000). The explanatory line for curriculum and research restructuring thus leads from policy suggestion (the National Commission on Higher Education, 1996), to policy proper (the White Paper, Department of Education, 1997), to funding levers, thereby to changes in research or curriculum patterns. To put it another way, most of the literature on restructuring in South African higher education locates itself in a typical rationalist policy paradigm, in accord with global restructuring policy literature, a position that typically underestimates the effect of endogenous factors on knowledge configuration and change.

I begin by suggesting then that basic research disciplinary traditions respond to 'responsiveness' pressure – that is, exogenous pressure towards applications and 'relevance' - in different ways. Some disciplines or disciplinary fields show a marked convergence between basic and applied research (e.g. molecular biology, biomedicine), while in others, the two are as far apart as ever (most of the humanities, cosmology; Glaser 2001). In those knowledge fields where basic and applications driven research is drawing closer together, basic research can either lead to successful applications or it can pass itself off as relevant. But here lies a potential danger, since to accede to relevance may require not following the knowledge-driven path of growth, hence running the

¹ None of these approaches ignores the social dimension, but they understand it in a more analytical sense than the policy literature generally does, and they are always concerned to understand how the social dimension interacts with the cognitive dimension.

risk of curbing the growth of knowledge in the interests of demonstrating its 'utility'. This need not be life threatening to this kind of discipline. Imagine though the costs of this strategy of piggybacking basic on applied research in knowledge fields where basic and applied are much further apart in the developmental cycle of the discipline, where it is consequently far more difficult to pass normal innovation off as strategically 'relevant'. The result must be the 'crowding-out' of basic research. Policy-driven or market pressure for applied research – under apartheid, in the state socialist societies, and now with the new political correctness of 'responsiveness'- runs the risk of creating the opposite effect it intends to: 'Thus, in most cases, science policy does not redirect research on the micro-level. Instead, old research trails are cut off and new ones started' (Glaser, 2000, p.462). This is if we are lucky. Whole trains of promising research may die out simply 'because new lines of basic inquiry do not emerge, and the old ones face a constant fall in resources' (p.463). From this it is plausible to presume that the dynamism of science can be *leveraged* from without, but must be *propelled* from within. Without good research scientists, good graduate programmes, or cutting edge research programmes - some of the institutional preconditions for the internal propulsion of knowledge growth - all the external propulsion and good intentions in the world may produce but a withered vine.

There are then basically two strategies for explaining changes in knowledge: endogenous and exogenous. The argument so far has been that exogenous strategies (market or policy-driven), and hence explanations based solely on them, are limited by the state of play of the endogenous factors. What then are these endogenous factors? There are two kinds of explanation. The first accounts for knowledge change by looking at changes in the internal dynamics of knowledge-based activity and knowledge growth in the system. The conclusion suggested above is that unilateral change to the funding regime from basic to applied could have exactly the opposite result intended, because the roots of the vine may become inadvertently starved by this strategy, or the strategy may only be productively accommodated by some disciplines in the system, and not by others.

The second explanation, neo-institutionalism, has so far received less attention in this paper. The institutionalist strategy for accounting for science change begins by looking at institutions as adaptive systems, and at the university system as a series of institutions that can be placed on a graded continuum of stability and adaptability (see Bunting, 2002; Gournitska and Maassen, 2000). However, unlike the exogenous view of change, which in its policy restructuring manifestation imagines that change is produced by articulating

politically desirable good intentions, the institutionalist approach takes change, or transformation, as the exception rather than the norm:

The chief problems an organisation encounters in developing a new structural pose are, 1) recursiveness, and 2) the capacity for learning. These factors are inter-connected, they appreciate that an organisation possesses a repertoire which is durable and robust over time. The corollary is that organisational transformation is more difficult than is generally supposed; ... (Clark and Carter, 1999, p.7).

Before globalisation sped up the transformation agenda of higher education, higher education institutions were able to get away with endogenously-paced change. This has become much more difficult globally. The pressure is compounded in South Africa's political climate. Lack of transformation in a time of virtuous social change, such as that which South Africa has recently passed and is still passing through, is a heresy, and usually attributed to political recalcitrance. The institutionalist position sketched below would suggest, on the contrary, that some institutions may not change, not because of bad faith, but rather because the supposedly desirable change cuts across their niche strength and would undermine it; others simply do not have the capacity to adapt. On the other hand, some institutions may change in the desired direction not for reasons of policy adherence but rather as part of their niche or market-searching strategy, from weakness so to speak. The truth of the matter is, university systems *as systems*, when they have relatively stable systemic capacity, change slowly; the USA 'big four' (Harvard, Yale, Princeton and Stanford) and the British top rank have hardly changed place over the last century. It is not hard to see why: they possess the physical and social capital, and therefore the cultural capital to steer their own path - the top academics, who will naturally nurture the basic intellectual roots and who will then also naturally attract good colleagues from elsewhere, and last but by no means least, they therefore tend to attract the best students. This Bourdieuan reproductive dictum is well-nigh universally observed, superficial signs of turbulence notwithstanding (Bourdieu, 1988).

Institutions are, at any given point, quite differently disposed regarding intellectual and administrative capacity, and therefore responsive capacity, usually for clear historical reasons. To step back briefly in time for a moment, it is useful to recall the three distinct phases of development of the university system in South Africa (see Muller, 1991). The first saw the evolution of the small handful of elite institutions that, up until 1948 at least, pursued a classical, basic disciplinary agenda. The then Prime Minister Field-Marshal Jan Christian Smuts could himself still write the annual report of national scientific progress for the London-based Royal Society each year. Next, a

group of Afrikaans institutions were established to train the upper reaches of the civil service and private sector, including the teachers and lawyers. It was in this phase that the new Nationalist government began the drive to applied research, spearheaded by the national research councils, and later the other research parastatals, a move tailor-made for the niche-seeking Afrikaner universities as we shall see below. The final phase was the establishment of the black institutions in the so-called 'homelands' to train personnel for the civil service for the homelands. The correlative research expectation for the three sets of institutions, underwritten by resourcing, was: the elite universities would do basic research, the second phase Afrikaans institutions would do applied research, and the black institutions were not expected to do research at all, at least initially. This is now imprinted into the institutional histories of these institutions. We may of course expect individual institutions to break their mould, as has of course happened, but it would be unusual indeed for an entire category to jump over its historical shadow. If this is so, the question that then arises is: what kind of responsiveness capacity predisposes institutions to change, and how?

On attributing impact to policy

Policy impact is a difficult concept to nail down once one has abandoned any hope that policy proceeds in a linear way through to practice (Ball, 1993). It simply never does. This difficulty is compounded by new indirect forms of governance that seek to precipitate beneficial effects rather than to bring them into being by decree (see Lindblad & Popkewitz, 2002). The most effective policies, it can be surmised, leverage a balance of forces that bring into virtuous structural alignment various aspects of the demand/supply environment with the institutionalised strengths of an institution. This of course makes it much more difficult to design an investigation to filter out the contending variables so as to assess what contribution the policy itself makes to determinate empirical outcomes. Nevertheless, to forsake linearity in policy analysis does not spare us from the task of assessing policy impact; quite the contrary.

Research on higher education is sometimes considered an under-developed stepchild of theoretically and empirically more sophisticated school-based research. Supporting this view, we sometimes find in higher education policy research the kinds of misattributions that are usually criticised and avoided in school-based research. One such misattribution is that of the effects of policy

on practice. The error consists in generalising from policy intent (what school-based studies call the *intended* policy) to practice effects (the *learnt* policy) without taking into account the crucial intervening variable, the mediating context that *translates* the policy into practice (namely, the *enacted* policy).

Recent studies on university curriculum change in South Africa are instructive in this regard (see Ensor, 2001, 2002). Both the White Paper (1997) and the Higher Education Act (1997) exhort universities to 'programmatised' their curricula, a measure seen by policy planners as necessary to break the grip of disciplinary majors on curricula and to promote greater interdisciplinarity and thereby greater 'relevance'. Instead of uniform compliance, the result was a spectrum of institutional accommodations to programme policy, from high accommodation to low, from enthusiastic to reluctant. Insofar as the institutions had to make at least a token response to programmatisation because their statutory funding depended upon it, we could have expected some change in each institution. But the range and unevenness of change is noteworthy. More importantly, it is unclear whether the changes that were made were because of the policy, or because the universities were reading the need for change off some other market-based script. Indeed, the very varieties of change, and in one case, change in advance of the policy, makes it plausible that the proximate cause was something else over and above the policy (see Muller and Ogude, 2002).

So what can we conclude about institutional responses to the policy of curriculum programme restructuring? First of all, we cannot conclude, on the evidence, that the policy caused the change: and secondly, we don't know whether the national policy as represented by the policy documents influenced the new programmes of the various institutions (the *enacted* curriculum proper, i.e. whether it was actually taught like that in the lecture rooms), let alone whether the students actually learnt anything significantly different because of the policy. What we can conclude from the evidence (see Ensor, 2002) is that changing the curriculum *in that particular way* (towards interdisciplinary programmes) was resisted by the institutions, such that attempts to break down disciplinary boundaries, especially with subjects that have robust disciplinary identities, from physics to history, resulted in internal disciplinary enclaves within the programmes, rather than in integrated programmes. In other words, the *form* of accommodation was observed, but not its substance.

Whereas curriculum restructuring towards 'relevance' was mandated by national policy documents, though relatively weakly policed, university

research towards greater 'relevance', though advocated in the White Paper of 1997, was more indirectly steered by changing the allocatory conditions for research awards to favour 'relevance' and applied research. The results are ostensibly more positive. There is a dramatic shift away from 'basic' to 'applied' research, a shift from 75% to 50% denoting a 25% shift over a five year period (Bawa & Mouton, 2002, p.315). The question is how we interpret this shift. Bawa & Mouton are inclined to see this as a response to both urgings on the part of government as well as a response to 'global pressures' for more applied research (Gibbons, et al, 1994). The intended policy is read as having an effect on research, here conceived not as research practice (*enacted*) but as published research (*learnt*). They infer that a global research shift towards applications-driven research is translated into policy (the White Paper, 1997) which is then read by researchers and acted upon effectively, yielding the change in the desired research direction in completed/published research. The evidence is simply not there to make this conclusion with confidence, as the authors admit. The intervening variable of changed research practice has only begun to be studied, and since this has not been the focus of study here, the researchers could not assess whether the changed research practice (if indeed it has changed, which is debatable) has changed because of the policy, or because of something else: say, lucrative consultancies with government, or the private sector, or bilateral and multilateral donor funding, a global shift that is increasingly evident. What we can say is that there is more published applied research in South Africa than there used to be, relative to published basic research, and that this is consonant with the policy. But *why* the two are consonant, or even if there is any relationship between them, is unclear. In fact, this may well be an artefact of something else altogether – like Internet publishing of basic research, a form of research not counted by the research referred to earlier.

To summarise so far: the research on curriculum restructuring concludes that the knowledge structure of a discipline shapes the form of accommodation to market and policy fashions; the research on research type restructuring concludes that knowledge production may very well follow policy. What are we to make of this?

It may be useful to reflect briefly on knowledge morphology and morphological change. First of all, the forms (that is, the formal units) of knowledge are, like the desert, always in motion, in response to innovation and knowledge growth at the apex of the discipline. The traditional knowledge form is the discipline (both for research as well as for teaching purposes), and

disciplines often grow towards each other in response to converging research programmes. At a given point, although not yet fixed together, disciplinary 'singulars' form a loose 'regional' association, they become regionalised. When the regionalising amalgamation process is sufficiently advanced, the region morphs, or integrates, into a new stable singular again at a higher level of conceptual integration and abstraction (Bernstein, 2000).

A plausible explanation for the policy of programmatisation then is that the programme-policy advocates read the signs that we are, globally, in a period of rapid knowledge growth, hence of generalised regionalisation (growing together of disciplines). Since the traditional disciplines naturally hold onto their turf, a way must be found to circumvent this reaction in order to teach the new transitional regions to a new cadre of students; hence the need for interdisciplinary programme.

There are two arguments against this explanation for programmatisation. The first is that, in the Humanities, where the drive to programmes has been the most avid, we are unlikely to get a successful transition from singulars, through a process of growing together or regionalisation, to a new higher-order singular, because the Humanities, nearly all having a relatively horizontal knowledge structure with a weak internal grammar, simply proliferate new languages of description. That is, horizontal knowledge structures exhibit movement laterally, into the formation of sub disciplines with low explanatory power, like cultural studies, or critical legal studies for example, rather than vertically into a higher order regional integration. They don't easily morph into higher-order singulars (there are exceptions – usually in response to changes in a knowledge field adjacent to science i.e. to a more vertical knowledge structure, like archaeology and urban studies). Under such circumstances, programmatisation looks suspiciously like trying to force regionalisation on the terrain of production (research) from the terrain of reproduction (curriculum), which can't easily be done. Knowledge forms can only stably be changed at the sharp end of innovation and genuine knowledge growth, not by trying to teach a premature integration of disciplines.

The second argument against the plausible explanation is that it assumes that in order to acquire applied or interdisciplinary skills (or whatever else in the programmes it is assumed is lacking in the traditional disciplinary curriculum) it is necessary to teach them directly, often *in place of* the disciplines. Here the old debate about *learning transfer* rears its head. A broad church of curricularists, including the social Darwinist Herbert Spencer (of the original

‘useful knowledge’ argument), the behaviourist Thorndike, vocationalists of every stripe, and the protagonists of outcomes based education (by no means an exhaustive list) believed and believe that knowledge cannot be generalised across contexts, and that each knowledge or skill for each context must be explicitly taught, (see Supovitz, 2001). This is the *low-transfer* school of curriculum thought, intellectually compatible with the ‘mode 2’ research form change theorists Gibbons and Scott mentioned above. The *high-transfer* school, on the other hand, including an equally broad church of congregants that would include certain curriculum traditionalists (after all, Latin was retained for so long in both the university and the school curriculum because it was assumed that Latin conveyed a ‘mental discipline’ that was transferable to all other contexts), but also Durkheim, Gramsci and the ‘situative cognitivists’ who hold that learning is a combination of context-specific knowledge and general problem-solving abilities. Here, generalisable conceptual tools are learnt only in the course of acquiring a domain-specific knowledge base. But not all domain-specific knowledge bases have generalisable conceptual tools (or, as I said in cognate terms above, they do not all have a vertical knowledge structure with a strong internal grammar). Many low-transferists, ignoring such relative differences in knowledge structure, imagine that any subject is equivalent to any other in teaching higher-order thinking. John Dewey once notoriously said in a public lecture that children would learn as much from laundry as they might from zoology (Ravitch, 1999, p.59), a misconception widely-held amongst curriculum engineers seeking to promote ‘equivalence’ via schemes like ‘programmes’, ‘unit standards’, and other forms essaying to replace the continually-evolving morphological structure of the conventional discipline.

In the South African higher education policy debate, I have advanced a form of the high-transfer view against that of Gibbons and Scott, and against current government programme policy (see Ensor, 2002), who favour teaching an integrated interdisciplinary curriculum to undergraduates the more quickly to induct them into useful, applied, and interdisciplinary creative work. My argument (Muller, 2000) was that integrated interdisciplinary cognitive skills could only be acquired once one had already acquired a base of disciplinary skills, (that is, domain-specific knowledge with vertical extension and generalisable conceptual tools). Teaching interdisciplinary knowledge (that is applied skills), before giving students the conceptual tools with which to ‘situate’ that knowledge in its larger coherent pattern, I argued, was to leave the students in a procedural ‘how to’ mode, without tools of extension and

innovation, precisely the skills that the interdisciplinary advocates wish the students to learn.

At the beginning of this section on assessing policy impact, I asked what weight could be attached to the conclusion that programme policy was confuted by the dialectic between knowledge forms and academic identities, or that policy had changed the social formats of knowledge production and the habitual practices of an entire research community. Unfortunately the answer must be – not very much. The evidence simply does not demonstrate policy impact, conventionally understood. Without the evidence, there is not a lot we can say about the impact of policy on either university curricula restructuring or on the domain of academic research practice.

Responsiveness versus innovation

In *The Constant Gardener*, his recent novel, John le Carré all but accuses the pharmaceutical companies of insidious, methodical corruption of scientific opinion, by buying favours, targeting grants to universities, to centres and to favoured researchers on a scale that makes normal governmental corruption look almost quaint. So saturated is medical research by doing company *quid pro quos*, insinuates le Carré, that the suppression of inconvenient conclusions is commonplace, of inconvenient researchers too. The impartial medical journals, that premier indicator of research excellence, become mouthpieces of corporate propaganda under professorial imprimatur. Why does the press not expose this? Well, reporters are even more easily bought than professors: and besides, the issues are complex, and the companies can, with laughable ease, buy politically correct public opinion. This is the general substance of le Carré's charge.

In a world where academic merit is measured in part by the amount of research funding garnered, and in a world where, by the end of the 1990s, the statutory funding bodies of central government couldn't begin to compete with private money, then defining 'responsiveness' as 'responsive to societal needs' was less a faded dream than a bad joke. As Jansen (2001, p.6) says:

The single most important mistake made by the former CSD (Centre for Science Development) and the former FRD (Foundation for Research Development; the names of the state run statutory funding councils) was to think that a small amount of money could be spread so thinly within research-weak institutions and make any difference at all.

Researchers like Subotzky (1999) like to draw a distinction between ‘noble’ private money (usually from global donors) for noble ‘social ends’, and other private money for other more market-related ends. But what really is the difference? Organisations, once committed to an externally funded project of whatever kind, become socially locked in for financial rather than intellectual reasons. The truth is, once you’re in the market, once you’re chasing money for the sake of it, or rather, once private money pushes out public money, then these things blur, and market logic blots out social responsibility niceties. Countries, South Africa included, that pursue ‘third-way’ centre-left political policies that attempt to steer a path between rampant free market ideology and state collectivism, are thus likely to have higher education restructuring strategy statements that attempt to ‘reflect both the “marketisation” as well as the “equity” strands of the “third way” political frameworks’ (Naidoo, 2000, p. 26)² as we saw in the Introduction. Does this mean that ‘third way’ policies manage the balancing act? Unfortunately, no. Because the trade-off is not forthrightly faced, they end up managing to widen stratification and widen exclusion.

The reason though is not because the market trumps policy. Rather, the unintended consequences arise directly from the exogenous pressures (the market or policy) trying to direct endogenous intellectual activity, (the growth of science and the kind of research the universities, and other institutions, do). In a classic paper, Michael Polanyi (1962) points out the similarities between market dynamics and science dynamics. The dynamics of both are created by the accretion of multiple independent initiatives mutually adjusting themselves at every successive stage stepwise towards a joint achievement. Such self-coordination – by means of an invisible hand – is what is common (see also Lindblom and Cohen, 1979). But the differences are also important. Mutual adjustment in the market is on the basis of prices motivating agents to exercise economy in terms of money. Scientists, by contrast, are motivated by professional standards – plausibility, accuracy, importance, intrinsic interest, and above all, originality (see Polanyi, 1962, pp. 56-59). The net result is coordinated action in general, but also subversion in particulars. Scientific growth depends on principled subversion, on the precise enunciation of the unknown. This is what the economists call innovation.

² A cruel contemporary jest: what is the difference between Margaret Thatcher and Tony Blair? Answer: Thatcher believed in privatisation; Blair just likes rich people. What the joke insinuates is that entrepreneurialism has become a New Age aesthetic.

Polanyi goes on to explore attempts to direct science either for ethical (serving 'social' needs) or practical ('relevant') ends, and concludes that it is only possible to stop scientific trends, not create or direct them: 'You can kill or mutilate the advance of science, you cannot shape it. For it can advance only by essentially unpredictable steps, pursuing problems of its own, and the practical benefit of these advances will be... doubly unpredictable' (Polanyi, 1962, p.62). As far as unpredictability goes, Polanyi goes on to give the example of a BBC Brains Trust programme in January 1945 where he and Bertrand Russell had both denied any practical value to Einstein's theory of special relativity: a few months later in August 1945 the atom bomb was dropped on Hiroshima.

It has become customary, in these 'postmodern' times, to say that the 'republic of science' turns into the 'entrepreneurial university' (Slaughter and Leslie, 1997) because it has lost the autonomy on which it was built (see Rip and van der Meulen, 1996; Delanty, 2001). While this captures a part of the story, it misses the contemporary relevance of Polanyi's analysis, which aimed to provide a 'political and economic theory' of scientific innovation, and which anticipates central insights of current economics of innovation. In this body of work we find the conundrum, already alluded to above, that normal novelty (first order learning) is relatively easily predictable and directable, but real or 'reconstructive' novelty (learning to learn) is in its essence uncertain: 'it is unpredictable and therefore cannot be selected by rational choice' (Nooteboom, 1999, p.128). In other words, real research novelty - true innovation - cannot be rationally directed by policy on the supply side, or by users on the demand side. This is the classical picture, and it means that, classically, the core conditions for the production of innovation operate optimally at a relative 'necessary distance' both from supply-side control (the state's control model which van Vught (1991) shows is inimical to innovation) and from the demand-side tyranny of short term utility.

We do not live in classical, but globalising, times. The key entailed feature for higher education, technology aside, is the circumscribed role of the state, shifting it inexorably from the role of main provider (predominant source of funding) to that of regulator (Delanty, 2001, p.121). Universities worldwide get less and less of their funding from government. The University of Wisconsin-Madison now receives 23% from the state, down from 33%: the state University of California is similarly down to 30%. In South Africa the average is still a relatively high 60%. For all universities world wide, the balance must come from the private sector, pushing universities inexorably

into ‘academic capitalism’ (Slaughter and Leslie, 1997) and multiple stakeholder contracts, and away from the singular influence of the state.

The optimal condition for innovation above can therefore be re-stated as: preserving ‘necessary distance’ especially from the user interface, when reputational advantage, professional standing, even survival, depend on an ever greater dependence on multiple sources of funding. The danger from this interface lies in the possibility of stunted research agendas, in the unintended consequence of ‘crowding out’ basic research as we saw above (Glaser, 2000), but it lies also in the danger of premature utilisation. All the user interface terms currently used to designate research applicability – ‘relevance’, ‘responsiveness’, ‘context-of-application’ research – embed the idea that the commissioning interface is necessarily the one the research results will be most applicable to. The economics of learning recognises that this is rarely so: ‘Its early use may occur where its fit with the prevailing architecture is feasible with a minimum of systemic changes rather than where it is most productive’ (Nooteboom, 1999, p.138). Many of science’s most dramatic applications occur in a different time and space to that of the original discovery itself. The case of special relativity and nuclear fission is just one example. The peril of premature relevance is that eager commissioners at the user interface, anxious to show spending efficiency to their financial bosses, tend to go off half-cocked. The systemic consequence is a flaccid and malfunctioning innovation system.

The user interface is thus potentially now a greater danger to innovation than during the time of greater autonomy. What is to be done? The IDRC Report (1993) believes that ‘the thirty-year old idea of a “republic of science” (that is, scientific autonomy), in its simplest formulation, is still, in fact, a guide to the operation of South Africa’s long-term S&T policy’ (IDRC, 1993, p.24), but this states the requirement – for greater distance – rather than the means for achieving it. Certainly the clock is not going to be turned back to full state provision, the classical condition for full autonomy. What then is the contemporary condition for ‘necessary distance’ in research? In some quarters, the answer is seen as lying in the deployment of the idea of ‘strategic’ research.

The National Commission on Higher Education Report (1996) had mentioned strategic research as one of four research types, the others being ‘traditional’, ‘applications-driven’, and ‘participation-based’ (see Mouton, 2001, p.6). Mouton goes on to trace the provenance of the idea of strategic research,

showing that it is sometimes placed closer to applied, sometimes closer to basic research (basic research with a long term perspective). Rip (1997, 2001) extends this idea of what he calls the *emerging regime of strategic science*. In his view, scientists have begun to internalise the global pressure towards relevance and accountability, while holding on to the basic longer term trajectory of knowledge growth. In other words, scientists increasingly attend to global scientific horizons by means of framing them in terms of local issues (think local, act global): ‘Strategic research combines relevance (to specific contexts, possibly local) and excellence (the advancement of science as such), and may therefore bridge the eternal tension between the regional and global’ (Rip, 2001, p.4). But because this is not directly and narrowly ‘applications-driven, ‘(a) distance is created between the research and its eventual uptake...’ (ibid). Strategic research is thus a ‘strategic’ synthesis of basic research with the new press to relevance specifically to avoid the ‘dominance of short-term considerations’ (Rip, 2001, p.5) – to tap into the money available for social problem solving while preserving a distance from the user interface. Or as Mouton (2001, p.26) puts it, ‘to address the seemingly conflicting demands from internal and external stakeholders’.

There are two questions that arise here. The first one is whether the ‘strategic regime’ is a genuinely new mode of knowledge production, superseding basic and applied modes, or whether it is merely a ‘resource mobilising strategy’, a rhetorical device to get to the money while holding on to autonomy and ‘necessary distance’. Rip and Mouton both consider that it is a real, rather than just rhetorical, phenomenon. Rip particularly sees it as a natural correlative to the emergence of regional development and innovation centres (see Castells, 2001) in the global economy, where the growth of the economy and the growth of knowledge are equally nurtured. Maybe, but we will have to wait and see: perhaps it is a bit of both. Certainly South African researchers increasingly embrace the term, and it is a distinct organising category in the national data set (see Mouton, 2001). The second question is whether ‘strategic’ research is not just a beguiling term adopted by newer and less established institutions who are ‘systemically marginal’, in other words weak, used to bid for a more central position, in money and status terms, in the reputational field. Rip acknowledges the possibility, but denies that it impairs the theory. After all, that is what the Afrikaans universities did in the 1960s, and this facility with ‘strategicity’, initiated under apartheid and refined over the last decade, probably accounts for the unexpected and uncontested ease with which Pretoria University, once the ideological home of apartheid, has laid claim to the statutory Centre for Scientific and Industrial Research (the

most potent of the former statutory research agencies). Strategic research, with a foot in both basic and applied, is tough-minded research, bringing in the money and advancing knowledge growth. The currently marginal institutions will not easily improve their position by embracing participation-based or action research alone, as some have suggested (for example, EPU, 2001).

Conclusion

This paper has been concerned to elucidate two key features of restructuring and the ‘new governance’ in South African higher education. The first is the ‘restructuring of the governing principles that relate the individual (here the individual higher education institution) and the state’ (Lindblad and Popkewitz, 2002). We have seen that this complex dynamic has driven universities into a new ‘strategicity’ in relation to their increasingly diverse environmental network of pacts and partners. One facet of this dynamic is certainly that the state loses a certain influence over universities, but more important still, the university must deploy a multidirectional strategic cunning in order to survive. The second feature is that the ‘problematic of knowledge’ (ibid), one of the two redemptive longings anchoring restructuring, drives a logic of differentiation, both within the institution between departments and faculties, and between institutions, that makes a ‘one size fits all’ state-driven policy increasingly unworkable. The ‘problematic of equity’, the other redemptive longing and one that necessarily looms large in the South African political imaginary, currently blinds policy makers to this insight. The paper has tried to demonstrate these points in relation to the two domains of knowledge work of universities, curriculum programme organisation, and research policy and practice.

What can we then conclude about the impact of educational restructuring on research and curriculum practices in universities in South Africa? First, we should accept the argument of Delanty (2001) above that the state, under globalisation, recedes as a financial provider and hence too as the most singular source of influence over public higher education. Universities are increasingly embedded in a cross-meshed network of public-private partnerships that include government, industry, and the professions, an environment of ‘multiple markets’ that cannot easily be reduced to a single source of influence. It comes as no surprise then that we have no hard evidence that state policies in either research or curriculum have had any fundamental influence on what academics actually do. It would be tempting to

conclude that this was so simply because of the weakness of the state, but that too would be inaccurate. Not only are 'multiple markets' more influential, but – and this has been a central argument of the paper - the institutions themselves also contribute powerfully to this effect. Institutional theory shows that organisations are easier to influence from without only when the outside signals correspond to their internal criteria of, and learnt capacities for, relevance. When the external signals go against these, they become highly resistant: they are able to 'ignore control signals, to forego incentives, and to absorb sanctions, without changing their ways in the direction desired by government policy makers' (Scharpf, 1987/8, p.105). Scharpf goes on to say that many institutions will collapse rather than change their internal value system. In similar vein, van Vught (1991), in a wide-ranging discussion of why university curricular reforms invariably fail, concludes, like Scharpf, that fundamental reforms will fail because their complexity cannot be absorbed by the institutions:

When complexity is defined as the combination of the degree to which an innovation is a departure from existing values and practices with the number of functional areas aimed at by the innovation, the level of complexity of an innovation process in higher education may be expected to be negatively related to the rate of adoption of the innovation. The more complex an innovation, the less successful that innovation will be in getting adopted (van Vught, 1991, p.34).

It is highly likely that the sheer complexity of curriculum programmatic change was entirely underestimated by the state policy makers in South Africa. Programmatic curriculum restructuring thus partly failed because of its ambitiousness, and partly too because policy makers underestimated the diversity of institutional capacity in the system.

The same holds in the realm of research. One may be inclined to conclude that the balance of power has, in the case of research, swung from the state to the 'multiple markets' commissioning and funding a veritable flood of new research, but that would be to underestimate the power of the endogenous features of the higher education institutions. The swing to the user interface, conventional fastidiousness about the instrumentalisation of knowledge aside, does not present the same kind of structural threat to knowledge-based practice as that presented by programmatisation, which after all in its maximal form would have entailed the end of conventional departments as well as conventional disciplines.

If suppositions about strategic research, advanced by Rip and Mouton above, hold up, then it is quite likely that the imperatives of knowledge growth and

relevance will both be served by the new if seemingly contradictory impulses behind strategic research. But as was said above, not all disciplines can present an equally effective strategic face to the world, and it will take a discerning policy to nurture those disciplines with a great gap between their basic and applied activities, while those with a narrower one prosper by the strategic route.

A main conclusion arises from considering the impact of exogenous factors on universities. First, consider *government policy impact* on universities (alternatively, institutional responsiveness to policy). Here, as in other domains of education, South African commentary dwells over-much on the intended policy, investing it with an importance that is rarely borne out empirically. We tend naturally to expect that the policy can and should have its intended impact, and are invariably surprised when it doesn't. Secondly, the same goes for *multiple market impact*, which, all too often reduced to a singular force, is either wholeheartedly welcomed as the private solution to public inefficiency, or treated as the evil eye. One consequence of this simplification and its consequent distortion, the analysis above suggests, is that we do not take the institutions and *institutional responsive capacity* sufficiently seriously. Were we to do so, we would have different and differentiated expectations about institutional response possibilities. Furthermore, were the policy makers to take institutional responsive capacity more seriously, together with the differential impacts of markets on different kinds of institution, they may very well frame their policy levers in more differentiated ways.

South African universities, like their peers elsewhere, are thus beholden to their exogenous partners, but not fatally so, with the specific exception of a small group of institutions in the country that are historically poor in social and cultural capital. It is only from their perspective that state support in the form of input-based subsidies makes the difference between financial survival and ruin. For all other kinds of institutions, state and markets are both exogenous forces with variable possibilities, to be treated with variable degrees of caution and strategic guile. *Endogenous self-propulsion* is probably still the mode best suited to the long term health of the science and innovation system, as the IDRC Report (1993) affirmed. Under these circumstances, a globally repositioned state like South Africa should adopt a more nuanced, more differentiated, and principally reward-based approach, if it is to get the best from its higher education institutions.

Appendix A

Change initiatives in higher education

Over 30 change initiatives from various government departments currently demand higher education management time and financial resources.

Table 1: Policy Issues Requiring Integration

Restructuring

National Working Group proposals

Minister of Education's proposals for restructuring

Merger discussions, with array of attendant issues

Regional aspects of restructuring

Formation of new types of institutions – e.g. Institutes of Technology,

National Institutes of Higher Education, comprehensive institutions

Research

Programmes for capacity building

Emphasis on innovation

Ratings for researchers in Humanities

Academic Planning

Provisions of National Plan for Higher Education (NPHE)

Mission and niche documentation

Programme and Qualification Mix (PQM)

Regional discussions/proposals on identified programmes

Three-year rolling plans

Changing admissions requirements

Implementing National Higher Education Information and Application Service (NHEIAS)

Quality Assurance

Institutional audit framework proposals

Programme accreditation framework proposals

Research framework being prepared

Teaching and Learning support framework in progress

Institutional visits by Higher Education Quality Committee (HEQC) now under way

National Qualifications Framework: Programmes & Qualifications

New academic policy

Revision of South African Qualifications Authority (SAQA) under way

Outcomes-based formats for programmes/qualifications

Procedures for registration/approving funding of new programmes

Regional clearing of new programmes

Governance

Council on Higher Education (CHE) Policy Report: Promoting Good

Governance in South African Higher Education

Equity & Labour Issues

Implementation of labour legislation

Employment Equity Act

Institutions formulating equity policies, plans and reports

Skills Development Act

Transformation processes within institutions

Data Collection & Reporting

Changeover from SAPSE (South African Post-Secondary Education system) to HEMIS (Higher Education Management Information System)

Production of institutional annual reports

Issues of reporting vis-à-vis governance, with reference to King Report II

Responding to requests for information from government departments

Funding

New funding formula awaited – will impact on academic planning and PQM

Funding for mergers, for redress, for deficits

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