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EXPANDING HIGHER EDUCATION: ISSUES AND CHALLENGES

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Editor's Foreword

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Foreword

A central thesis of Barnett's (1994) book *The Limits of Competence* is that the emergence of mass Higher Education in Britain after the Second World War has resulted in a substantial shift in the role of Higher Education as an institution and the relationship between Higher Education institutions and their host society. The university, Barnett (op. cit.) argues, now occupies a much more central position within society and in so doing has acquired new responsibilities. In particular, the economic role of the University, both as a source of ideas that can be commercialised and as a place where a highly skilled workforce can be developed, has been emphasised vigorously by Governments increasingly concerned with national competitiveness. To this end, both Conservative and New Labour Governments since the 1980s have shown themselves more concerned with the efficiency and the effectiveness of the Higher Education sector in producing the sort of knowledge that is perceived as being 'useful' for economic development, and the production of the 'right sort' of graduates with the 'right sort' of skill set. In order to achieve these ends, the State, as the paymaster for much of Higher Education, has been increasingly concerned to find ways of opening up the University sector to new forms of knowledge, differing conceptions of what knowledge is worth developing and teaching, and how such knowledge might be acquired by students (Readings, 1996, David, 1997). As a result universities have been increasingly placed under pressure to change.

> *Pushed and pulled by enlarging, interacting streams of demands, universities are pressured to change their curricula, alter their faculties, and modernise their increasingly expensive physical plant and equipment – and to do so more rapidly than ever. (Clark, 1998, p. xiii).*

There is a tendency within such debates about the changing role of the university to counterpoise the current situation with an older historical view of the university as isolated from society and, therefore, less affected by social changes; as timelessly engaging in the pursuit of truth. Such a view is in itself mythical (Natale, Libertella and

Hayward, 2001). Indeed, the success of universities as institutions can be partly attributed to their capacity to reshape themselves to meet the changing internal and external pressures brought to bear on them. As Dent pointed out in the early 1960s, such responses have developed and reshaped nearly every aspect of the university's life and work:

> *Ideals, aims, and functions; government, finance and administration; subjects of study and academic standards; professional techniques and domestic life; relations with the State and local authority, with the Church, with other educational institutions, and with society at large … Even during the course of the Middle Ages universities were transformed almost out of recognition, from rudimentary groups of teachers and learners into highly organized corporations, often not only mighty in scholarship but also powerful in politics (Dent, 1961, p.11).*

Nonetheless, the pressures on universities to be more socially responsive have undoubtedly increased in the last thirty years. Such pressure, Natale, Libertella and Hayward (2001) argue, has led to universities increasingly adopting corporate values at the expense of other older values to do with the unbiased pursuit of knowledge for its own sake. At the same time, the academic autonomy of universities has been limited by government funding that is increasingly dependent on curriculum change, entry requirements and changing the profile of students. This has led commentators, such as Readings (1996, p. 60), to argue that the constant appeal to the national interest, both economic and cultural, has led to a situation where

> *The University is pressed into the service of the state once the notion of universal reason is replaced by the idea of national culture as the animating principle of the University. Thus, through an appeal to culture, the state, in effect, orients the University's institutional structure and directs its social articulation effectively controlling both research and teaching.*

All of these various issues are explored in the contributions to this volume. These papers have been drawn from a much wider range of presentations made during a series of seminars on Higher Education in 2001. Richard Pring first develops an historical account of the function of universities arguing that there is no 'essence' of the university but rather that universities adapt and develop over time. His contribution concludes with a number of issues that need to be addressed in terms of the diversity and distinctive missions of different providers of higher education; the challenges of defining intellectual excellence; the potentially subverting effects that can result from confusing business language with the moral language of education; the need to consider how people learn; and the importance we should attach not just to personal befits that arise from an individual's participation in Higher Education but to the wider social benefits.

However, the expansion of Higher Education in the UK does not just involve increasing the number of students. It also involves political decisions about the teaching and research that is considered worthwhile. In the case of the former, the idea of Entrepreneurship and Enterprise Education has a growing band of followers in the UK. In their contribution, Geoff Hayward and Ole Sundnes explore in some detail the formation and adoption of a particular entrepreneurship education policy in Scotland: the Higher Education Entrepreneurship Education Initiative. Set within the twin dimension of economic and educational policy making, their case study reveals that the universities were not only levered open by the use of powerful policy instruments to ensure compliance with the aims of the initiative, but were also active in designing the initiative and were, for a variety of social and historical reasons, attracted to the initiative. This resulted in an unusually very high level of compliance at the level of policy adoption and implementation. Thus the universities involved were complicit in expanding their own rationalities by admitting a new form of activity at the behest of policy makers.

Ian Finlay's paper focuses on managing the entrepreneurial university. Arguing that the idea of the entrepreneurial university is hardly new, Finlay stresses the need to develop universities along multiple lines, not just entrepreneurial ones. In so doing he undertakes essential definitional work on the meaning of the concept of an entrepreneurial university.

He concludes by arguing that entrepreneurship, despite the almost evangelical stance taken by its proponents, is unlikely to provide the silver bullet for universities seeking to find a course in the difficult waters of long term institutional change.

Finally, Su Ann Oh examines the research dimension of entrepreneurial universities. Her comparative approach examines this phenomenon in the context of the UK and China. She provides a detailed account of the stresses and strains, as well as the benefits, of engaging in research with business partners and business sponsorship. In so doing she reveals the fundamental nature of the contest: what is the purpose of research in a university and who controls the research agenda? Ultimately she leaves us with a question: what is the prime role of universities in society? Is there a universal purpose of higher education or is that purpose linked to the shifting economic and political environment?

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The Changing Nature of Universities: economic relevance, social inclusion or personal excellence*?*

Richard Pring

Introduction

There is no 'essence' of *university* – some fixed and unchanging core of values and activities which are picked out by this word. Universities (or institutions of higher education) are part of a wider network of social and educational institutions, and this network will constantly be changing in recognition of or in response to changing economic and social factors.

On the other hand, it is useful to analyse what those core values and activities are at any one time, lest something of value might be lost in the changing understanding of those institutions. There are, perhaps, certain values and commitments which ought to be preserved and yet are being endangered. On the other hand, one should not, in preserving those values and commitments, turn a blind eye to the wider social and economic forces which inevitably impinge on universities, affecting their financial basis or their status within the wider community or the expectation people have of them in terms of their usefulness to the wider society. There is a constant need to find a new synthesis of that which one wants to preserve and that which requires change and development.

This paper is divided into three. First, I shall outline those values and commitments which have traditionally been associated with a university and which one wants to preserve, albeit in a rather different form. Second, I shall outline the forces which impinge upon the university, requiring a reassessment of those values and in some cases questioning whether or not they should be totally replaced. Third, I shall point to the issues which emerge from such an analysis and which need to be addressed.

The idea of a university

The key reference is, of course, Newman's *Idea of the University*, where he argues that

> Liberal education, viewed in itself, is simply the cultivation of the intellect, as such, and its object is nothing more or less than intellectual excellence (1852, p.121)

Universities are, as it were, the pinnacle of a system of education, guarding an intellectual inheritance and ensuring that it is preserved through its transmission to the next generation. In so doing, the universities will enrich that tradition through scholarship and research. Newman describes the different forms of knowledge which 'perfect' the intellect because, without them, one would not have the powers of mind necessary for intelligent thought and reflection.

Hence, the teaching function of a university is concerned with getting students on the inside of those different intellectual traditions, to enable them, for example, to think scientifically or to appreciate the arts intelligently or to be informed about and critical of literature. And that requires, as a result of criticism and scholarship within these different academic traditions, an agreed corpus of scientific knowledge, a canon of philosophical and literary works, with which the students can engage. Hence, O'Hear argued in his defence of 'traditional learning' that

> ... the proper and effective exercise of reason must take place against the background of inherited forms of thought and experience (1987, p.102)

The 'idea of a university', as primarily concerned with the 'cultivation of the intellect' as that is reflected in distinctive traditions of thought, is reflected, too, in the work of Oakeshott (1972), for whom education was an initiation into the ideas through which we come to understand the world and operate intelligently within it. These ideas are inherited: they are transmitted through the 'conversations' which take place between the

'generations of mankind'. And it is the role of education (as opposed to mere training), especially university education, to get the next generation on the inside of that 'conversation' – and of the different voices of poetry, of philosophy, of science, of history which constitute that conversation. For that reason, places of education should be much more like monasteries than workplaces – isolated from the 'business' of economic life so that nothing will disturb that immersion into the world of ideas. Hence, the construction of so many universities in the 1950s and 1960s in leafy campuses, away from the distractions of commercial life.

Such a view of higher education was (and is) generally suspicious of 'usefulness' or 'relevance'. The preservation, promotion and enrichment of the world of ideas constituted an end in itself – the maintenance of a distinctive form of human life. Such a form of life could be enjoyed by relatively few, since only a few would be capable of such a disinterested pursuit of the truth. On the other hand, such a form of life could indirectly be seen as relevant and useful, too. John Stuart Mill, at his inaugural lecture at St Andrews, though agreeing that universities should not be places of professional education as

> their object is not to make skilful lawyers, or physicians, or engineers, but capable and cultivated human beings,

nonetheless argued that the educated and cultivated person would thereby be *useful*.

> Men are men before they are lawyers and if you make them capable and sensible men, they will make themselves capable and sensible lawyers ... what professional men should carry away with them from an university is not professional knowledge, but that which should direct the use of their professional knowledge, and bring the light of general culture to illuminate the technicalities of a special pursuit. (Mill, 1867)

This ‘idea of a university’ – the cultivation of the mind rather than the acquisition of useful skills and economic relevance (except in so far as ‘a cultivated mind’ would thereby be better equipped for the proper direction of those skills and economic ‘know-how’) – was regarded as almost self-evident until recently. And since only a relatively few people would be regarded as capable of that disinterested pursuit of the truth and engagement with ideas, universities were the homes of a relatively small proportion of those leaving school. Indeed, the ‘doctrine’ of the 1943 Norwood Report, that there were three types of children (identifiable at the age of 11), provided a basis for the continuation of universities as the privilege for a few only.

> Some (a few) were capable of abstract thought and interested in ideas, in ‘learning for its own sake’ – for these grammar schools should be provided. Others (also a few) were more interested and adept at the application of ideas in technology – for these there should be (selective) technical schools. The great majority, however, were more concerned with practical activities and the immediate environment – for these the new type of secondary ‘modern’ schools should be designed. Each of the three types of school were needed to ‘match’ the nature of the child (Simon, 1991, p.61)

The development of higher education after the Second World War reflected that tripartite division of children (according to their nature) and of the institutions catering for them. In the 1960s roughly 6% of the age group went to universities; there was the steady increase of Regional Colleges and Colleges of Advanced Technology (these finally becoming Polytechnics) for those who were adept at the application of ideas in technology; but the vast majority left full-time education at 16, supported in some cases by part-time day release at the local technical college. Such a tripartite division of young people and their institutions both reflected and helped preserve a particular idea of a university. There were, of course, some prophetic voices drowned at the time by incredulous colleagues; Professor Robin Pedley’s inaugural lecture at the University of Exeter in the 1950s argued for and predicted the ‘comprehensive university’ – a

proposition which was greeted by his audience, not with a reassertion of 'the idea of a university', but with disbelief and derision.

Reassessment of the idea of a university

The retreat or the advance (depending on one's point of view) from such a view of the nature of a university, and thus of a university system, has (until recently) been inevitably gradual – and of such a kind that the 'idea' might be preserved. The role of the university, as originally envisaged, was not fundamentally questioned, for the expansion of the universities in the 1960s (reflected in and encouraged by the 1963 Robbins Report *Higher Education*) arose from the growing demand for higher education coupled with doubts about the assumed limitations of intelligence amongst the population at large. Hence, there should be more universities and many more people going to them – because many more than had previously been thought were capable of 'abstract thought' and 'learning for its own sake' (see particularly in this respect Vernon's and Floud's evidence to the Committee, referred to in Simon op. cit., pp.234-236). Nonetheless, even here was there concern that, without a greater sense of relevance, the country would not be producing the scientists and the engineers which an advanced economy needs. It was not just a matter of producing 'capable and sensible men' (and now women) who would therefore make themselves 'capable and sensible lawyers'. More than general culture was required. There was a need, too, for the knowledge and understanding essential for competing in an ever more competitive global market.

After Robbins, expansion continued apace both through the creation of new institutions and (more especially) through the transformation of technical and technological colleges into polytechnics and thence into universities. Characteristic of this expansion and transformation has been the greater vocational and economic relevance both to the individual and to the wider community. The Dearing Report (1997) pointed to the significance of such a gradual change, marking out a very different idea of a university from that of Newman. The Report referred to '.. a new compact involving institutions

and their staff, students, government, employers and society in general'. Such a compact would involve the following:

- *wider access*, thereby transforming an erstwhile elite system of higher education into a mass system, and requiring a more practical and 'useful' orientation to accommodate those incapable of or uninterested in 'learning for its own sake';

- *framework of qualifications* and programmes within that framework, which would provide for lifelong learning of people who start from different positions and who have very different aspirations;

- *greater relevance* of programmes to the social and economic needs of the local and national communities, as understood by stakeholders within those communities;

- *quality assurance* to satisfy 'stakeholders' about the maintenance of standards despite the massive expansion;

- *maintenance of high quality research*;

- *funding arrangements* which will reflect certain priorities (such as widening access and relevance to the economy) and which will reflect, too, the contribution from the beneficiaries of higher education.

The Dearing Report captured a mood and a policy aspiration which no doubt preceded the work of the Committee. But in so doing, it spelled out a very different idea of higher education – one in which 'relevance', 'utility', 'social inclusion' and 'accountability to a wider public' seemed to predominate. I wish to spell out these changes in a little more detail before returning to two questions, namely, first, 'how far might such a shift be reconciled with the aim of 'perfecting the intelligence'?' (are we, in other words, losing certain values as universities become very different places?), and, second, 'how far do

such programmes and institutions in fact provide a better preparation for the world of work?'

In answering these questions, I shall need to look at aspects of these changes.

(a) Changing aims: relevance and social inclusion

Coffield and Williamson (1997, p. 2) argue that 'the old elite model has run its course and needs to be replaced'. 'Elite', of course, is now a word of abuse. But, shorn of its emotive overtones, it signifies a relatively small group of people picked out for special status and privilege – marked out, in certain respects, as superior to the rest. When, in the 1960s, only 6% of the population went to universities (not only because they were capable of 'abstract thought' but also because only they were thought to be so capable) they formed an 'elite'. As the university population expanded (partly because many more were deemed to be capable of 'abstract thought'), so the 'elite nature' of university education diminished but the elite nature of certain universities increased – the small group of high status, highly selective institutions, from which students graduated to high status jobs. And so it is not easy to understand what exactly Coffield and Williamson could be claiming. 'Elite status' is something which is inevitably bestowed by others, and it is tied to a whole range of perceptions, images and values.

What Coffield and Williamson seem to be claiming is not that elitism must be replaced but that the criteria of elitism must change. No longer should 'intellectual excellence' be regarded as the sole criterion – the capacity to engage in 'abstract thought' or to enjoy the disinterested pursuit of the truth for its own sake. Rather should 'relevance' and 'utility' of what is taught, experienced and researched be equal criteria for the claims to elitism – a quite different model. Dearing (op. cit.) noted that

> higher education is now a significant force in regional economies, as a source of income and employment, in contributing to cultural life, and in supporting regional and local economic development.

And this was not simply an observation – a recognition of what in fact was the case. It was part of Dearing's approving acknowledgement of what universities could and should become. There has been a shift in how we value the kind of knowledge which universities should both develop and teach.

Part of the revaluing lies also in a redrawing of the organisational map of knowledge. In responding to social and economic needs, knowledge comes to be organised in different ways, reflecting 'usefulness' and 'relevance' rather than the logically discrete forms of knowledge (see Hirst, 1965, for a philosophical justification of these) which are so often appealed to in the defence of subject departments. New interconnections of academic (and not so academic) disciplines are established (often temporarily) for purposes of teaching and research. This produces a more fluid map of organised knowledge which reflects practical demands from outside the university rather than the 'logical nature of subject matter' from within. Gibbons (1997) illustrates the impact of this shifting set of research interests and social concerns upon the map of knowledge and upon the organisational arrangements of higher education.

But universities are being required to march to other tunes as well. 'Elitism', though in the main referring to academic prowess, is closely associated with social status and exclusivity. A different social agenda, not simply that of economic utility, affects therefore the changing conception of the university. Just as the ideal of the comprehensive school was shaped not only by wider access to academic achievement (Prime Minister Harold Wilson's 'grammar school education for all') but also by a greater sense of community, so too is the wider access to higher education in part shaped by an agenda of greater social equality and reciprocity.

Dearing's 'new compact', therefore, makes universities beholden to a new set of demands which affect the degree of internal autonomy and outside accountability in the shaping of aims and values. Hence, the diversity of institutions which has replaced the essentially uniform nature of higher education of just a few decades ago. Whereas some universities may preserve the 'pursuit of knowledge for its own sake' within fairly traditional subject

boundaries, others will actively pursue the preparation for the knowledge-based professions of teaching, nursing, and public services management. Yet others, as technical colleges used to do, enter into compacts with local industry to provide the trained manpower for the specific needs of that industry. Yet others again focus upon facilitating wider access to lifelong learning by those who traditionally would not have entered higher education.

Diversity of institutions, reflecting diversity of aims and values (academic excellence, economic relevance, social inclusivity and lifelong learning), inevitably raises questions of standards. Can the system of higher education expand from the 6% of the age cohort of the 1960s to the 50% pursued by the present government without a lowering of standards? Certainly that was a question posed by Dearing.

There are two kinds of answer. The first is to put in place quality assurance systems to ensure that more explicitly defined systems are maintained. Hence, the creation of a Quality Assurance Agency (QAA) and its attempt to define the 'graduateness' of a graduate in whatever subject and to identify the universal benchmarking against which performance in subject X or in subject Y at any institution might be judged. The £100 million spent in ten years by the QAA is precisely to measure quality.

The second response might be to recognise that quality, and hence standards of performance, can be defined only in relation to the aims of the activity. Standards are logically related to purposes and values. The standards of good performance in professional competence are different from those of good performance in philosophical criticism. The standards of economic relevance may be very different from the standards assumed by social inclusivity. Standards invoked by those who promote 'lifelong learning' for all through a more flexible and inclusive access policy would be different from those appealed to by universities which work within traditional boundaries of academic excellence. Indeed, in becoming more socially inclusive, universities extend the range of 'subjects' or learning experience, each with their own distinctive and imminent standards according to which excellence is to be judged. There are degrees, for

instance, in aspects of sport and of business management which a generation ago would have been inconceivable.

The expansion of higher education, therefore, inevitably brings with it a re-examination of the aims and values to be pursued and the kind of 'intellectual excellence' to be valued – and thus a diversity of institutions which need to position themselves differently in terms of the underlying aim and definition of quality and standards.

There do, however, remain tensions within such a diverse system. How diverse can such a collection of institutions be before little in common remains in content to justify a common name? Is there nothing of the former characterisation of a university which needs to be preserved, namely, the cultivation of intellect in its various forms? And, perhaps, more importantly, is there not a danger that the wider 'mission' of universities (namely, to be more economically and socially relevant) might distort the aim of academic excellence even in those institutions which vigorously fight to preserve it?

(b) Increased economic and social relevance

Watson and Bowden (2001) provide an excellent account of the 'New Labour' stewardship of UK higher education, 1997-2001 – the period following three significant reports, namely, the Dearing Report (already referred to), the Kennedy Report (1997) concerned with widening participation in further education, and the Fryer Report (1997) concerned with a universal 'learning culture'. Perhaps the significance of the last two is summed up in the words of the Fryer Report (4.28), quoted in Watson and Bowden.

> We wish universities, higher and further education to be beacons of learning in their local communities. At today's participation rates, 60 per cent of school leavers can expect to enter higher education at some time in their lives.

The government's agenda for higher education, therefore, has been the preparation of people for what is often referred to as the 'knowledge economy' and the widening of

access to higher education, not simply in total numbers of those entering but also in spreading its claimed benefits to social groups which traditionally have not benefited from higher education. 'Social inclusivity' is partly to be engineered through participation in higher education. And these two purposes have resulted in novel and innovatory changes – the focus upon 'key skills' (especially of communication, numeracy and the use of information technology, but also of personal and social skills related to employability), closer links between further and higher education and the Regional Development Agencies (and now the Learning and Skills Councils), the development of Individual Learning Accounts, the creation of the University for Industry, the establishment of a National Grid for Learning, and the creation of Foundation Degrees. These are quite massive developments, still to be proved successful, which transform the landscape of post-school education. There is a deep commitment to nurture a universal 'learning culture', where successful learning cannot be measured solely against the standards implicit within the 'traditional learning' referred to by O'Hear (op. cit.).

This widening participation, driven as much by the aim of social inclusivity as by 'economic relevance', has attracted a lot of public funding which (one might argue) has helped promote the diversity of higher education institutions at the expense of traditional centres of learning which have experienced an annual decline in the unit of resource. In the period 1999 to 2001, £45 million was distributed to institutions to recruit and support students from disadvantaged backgrounds (the so-called 'postcode premium'). In the 2000-2004 period a further £349 million has been set aside in what are referred to as the 'Excellence Challenge' and 'Widening Participation' initiatives. (The figures are given in Watson and Bowden, 2001, p. 15.)

Related to the social inclusion agenda is that of economic relevance. That was clear from the Dearing Report and from the government's response to it (see DfEE, 1998). This recognised the critical role of higher education in making Britain more competitive; the links between universities and local and regional regeneration were emphasised (and one sees the impact of such links in particular areas, reflecting the distinctive mission certainly of some of the newer universities); and the targeting of funds to what are seen to

be economically advantageous investments (for example, the Higher Education Reach-out to Business and the Community Fund of £83 million over four years, and the Higher Education Innovation Fund of £140 million over three years) – all to develop the capability of higher education to respond to the needs of business.

Those seeking to make sense of this – or at least to understand how the idea of a university is being redefined – would need to attend to the many different innovations taking place in all universities. These would include, of course, the new qualifications – for example, the increase tenfold in MBAs in a period of ten years, the rise of science 'parks' and business partnerships within universities, the changing management structures of universities as they are reorganised along business lines, the more explicit focus upon business related skills. But above all they would need to examine the changing language through which learning is described and evaluated. That more than anything affects the idea of a university as that has been traditionally understood. To that I return at the end.

(c) Changing funding arrangement

The result of the massive expansion of higher education, and of the growing diversity of its institutions and their aims, has been the decline in the unit of resource. This was estimated by Dearing to have been 40% in 20 years. Since Dearing, the decline has continued. According to the Taylor Report, 2000, the funding per student (that is the HEFCE grant plus tuition fees) has declined, in the period from 1996-7 to 2001-2, from £4,800 to £4,600 – a slowdown in the decline, certainly, but nonetheless a continuation of a decline of £800 in the previous three years.

The Taylor Report spelled out four options: (i) simply increasing public funding; (ii) deregulation of fees so that each university could charge whatever the market could bear; (iii) income-contingent graduate contributions; (iv) a kind of privatisation through institutional endowments. It would be difficult to see that there would be much in the way of increased public spending, given the other educational priorities (particularly

those concerned with early years education). The government, therefore, has really opted for two major shifts in policy. The first is that of income-contingent student contributions both through payment of government fixed fees and through a system of loans. The second is through targeted funding of specific initiatives which, in the view of government, would help the government's economic and social agenda. (Such shifts in policy must, of course, be seen in addition to previous governments' policy of redistribution of funds through the Research Assessment Exercise.)

Such 'funding levers' (examples have been given above) do, of course, shift the balance of control over the content and priorities of universities. Of course, ever since the universities have been in receipt of government funding they could never claim total control of their funding. But the role of successive funding agencies had been to act as a buffer between the source of income and the institutions which spend it, thereby preserving the academic autonomy of the latter. The increased dependence on special initiatives, which have to be bid for and which depend on meeting certain conditions, inevitably changes that relationship – and in an important respect the idea of a university.

The 'funding levers' are used with real impact within research – the increased demand by Research Councils for evidence of economic and social relevance (defined within their lists of priorities) and the investment (through the Joint Research Equipment Initiative, the Joint Infrastructure Fund and the Science Research Investment Fund) in science and applied science infrastructure, adding up to nearly £2 billion in a period of five years.

Hence, we have seen a declining unit of resource (that is, money per student) side by side with targeted spending to ensure that higher education fits in with the agenda set by government. Universities will, therefore, increasingly depend upon Dearing's new compact with various 'stakeholders' – for example, the government (as it links money to specific agendas), sponsorship from industry and major trusts like the Wellcome, and research council grants within a limited range of priorities. Furthermore, as the supply of students matches or fails to match the supply of places, so customer choice will force universities to provide courses which, on purely academic grounds, they would not

choose to do. The word 'stakeholder' is new in university circles, and so indeed is 'client satisfaction'. No longer is a relatively few students seeking entry to institutions where they will be apprenticed to activities under the control of academic 'authorities'. Rather are there many who will pick and choose what they want – with the 'authorities', in order to survive, having to be more responsive to the needs of what are increasingly being called 'customers'.

(d) Changing organisation of higher education

The changes I have described in the aims, relevance and funding of higher education inevitably have an impact on the organisation of the system as a whole and of the individual institutions within it.

First, this diversity of universities, at least in terms of the mixture of research and teaching, was partly anticipated in Shirley Williams' Green Paper on higher education in 1981 when it was proposed that there should be three types of universities for the sake of appropriate funding, R, X and T - that is, those that would be major centres of research with a concentration on postgraduate teaching, those which would mix research and teaching, and those which would be basically teaching institutions. Such a proposal was universally rejected at the time by the university community, but now such an outcome would seem to be inevitable even if not a formally declared policy. Furthermore, the essentially research based universities increasingly compare themselves within an international league rather than a national one. Already, as a result of the Research Assessment Exercise, there is a closure or merger of departments with fewer but bigger departments aiming for high standards in research.

Second, higher education could lose its near monopoly in the provision of higher level learning and the research tradition through which knowledge is produced, developed and disseminated. As Robertson (1997, p. 79) argued

> The development of new information networks and the growth of centres of expertise outside universities opens up the possibility that a new kind of learning market may be forming in which the campus-based residential university is merely one of a number of suppliers of higher education.

Moreover, Robertson continues, higher education institutions may need to evolve

> from professional communities defined largely by academic judgement towards stakeholder communities defined by the needs of the interested parties, including service users (p. 81).

Such 'consumer sovereignty' requires a very different relationship (or, to use Dearing's word, 'compact) between higher education and, first, those who expect to define their own learning agenda, second, those who provide the money or require the services (industry, government, community, professions), and, third, those other agencies of higher learning and research.

Third, such a shift in relationship leads to a 'decline in donnish dominion' and to a management structure that bears all the marks of the new concern for 'enterprise in higher education'. The modern university at times sounds like 'a sort of holding company in which the various subsidiaries trade, co-operate and compete much like other commercial enterprises' (*Times Higher Education Supplement*, 24.7.98)

Fourth, these changed funding arrangements, diverse missions and greater response to 'customer needs' inevitably leads to a blurring of the boundary between higher and further education. Already there are mergers across the divide and the creation of institutions to cope with the whole of lifelong learning from the end of compulsory schooling. Degree level work is franchised to further education, and much of the increase in higher education is expected to take place in colleges of further education.

Fifth, the new compact with the community, that Dearing refers to, requires more flexible learning opportunities, assisted by technical advances in the delivery of teaching (the Higher Education Funding Council for England has invited expressions of interest in e-learning) and by a common framework of qualifications. Old distinctions between part-time and full-time, between mature and 'normal' students, between short courses and degree programmes, break down, as credits are accumulated over time and transferred across institutions, in accordance with interest or relevance or domestic circumstances.

(e) Changing accountability

Government and the various 'stakeholders' are concerned that these changes and the consequent diversity of aims might lead to the dilution of standards. Hence, the importance attached to creating, first, a common framework of qualifications and, second, rigorous quality assurance arrangements.

With reference to the framework of qualifications, the QAA has tried to define 'graduateness', and thus, first, the minimum 'threshold' standards for taking a degree, second, the common core content within the respective subject degrees, and, third, the 'benchmarks' for judging success in a degree. The 'unitising' of degrees, which have an agreed common core within an agreed framework of qualifications, would assist the credit accumulation and transfer described above, essential for the more flexible arrangements of a more responsive system. But such 'graduateness' is but one stage in Dearing's defined levels of progress in lifelong learning - from Level H1 (Certificate, linked to NVQ level 3/4) through Level H4 (Honours Degree, linked to NVQ level 4) to Level H8 (Doctorate, linked to NVQ level 5). Furthermore, the 1992 Further and Higher Education Act gives powers to ministers to interfere where agreed standards are not met and where the universities are not meeting the government's distinctively social agenda. Universities will for the first time be forced to reveal the class background of student numbers, this information being used for allocating resources in the promotion of wider access.

To conclude this section I wish to emphasise the nature of the changes which are affecting the idea of the university, and (in some cases) challenging the very core activities through which that idea is defined. The shift from a set of institutions which housed only a small minority of the relevant cohort to one which seeks to cater for 40% to 50%, as well as adult learners, has occurred in response to a very different set of demands – namely, those concerned with producing suitably qualified graduates for a more sophisticated economy and those concerned with creating a more inclusive society. There is, as a result (to use Dearing's words) 'a new compact involving institutions and their staff, students, government, employers and society in general'. Such a compact leads to a diminishing of the autonomy of universities for two reasons. First, higher education needs to be responsive to the very different needs of the expanded student body – there is a *prima facie* case for diverse aims and missions to meet these different needs. Remember that the aims of the Fryer Report were the creation of opportunities for lifelong learning for everyone – the universal 'learning culture'. And such a culture could assume no uniformity in starting points, desirable outcomes or processes for getting from the one to the other. Second, not only is there a need for greater responsiveness (that is, there are increasing limits on the extent to which the 'academic authorities' can set the agenda), but also there is much greater central regulation over the conditions to be met for the receipt of funding.

Issues to be addressed

First, diversity of institution and of distinctive mission (with diverse criteria of excellence) would be generally accepted as a necessary and desirable consequence of the expansion of higher education due to the economic and social demands made upon it. But as Lord Annan observed in 1990 (quoted by Coffield and Williamson, 1997, p. 6),

> It had been right to expand higher education. What had been wrong was to imagine that all students could be given a Rolls Royce higher education. No country could afford it ... No country could afford centres of excellence (the

equivalent of Harvard and Berkeley, the Grand Ecoles and Max Planck Institutes) and declare that all other universities wee to be given equal status.

Hence, diversity – of mission and of criteria of excellence.

But there will inevitably remain nagging doubts. How diverse can diversity be before the idea of a university becomes so elastic, so accommodating that it has no significance whatsoever? Are there certain values and core activities, present in Newman's idea of a university, which we would not wish to lose?

Intellectual excellence can, of course, be broadly or narrowly defined. There are, so we are told by Gardner (1993) and others, different forms of intelligence, different kinds of intellectual prowess which too often have been ignored or even treated with contempt. The history of Oxford University, for example, reflects the continuing battle to get certain activities and disciplined thinking accepted as legitimate contexts for intellectual excellence – science, history, sociology and now management. (See, for example, Slee, 1986, on the battles fought for the recognition of modern history within the universities of Oxford and Cambridge.) Nonetheless, there would seem to be the following requirements for any activity to be recognised as contributing to 'intellectual excellence' or 'the perfection of the intellect', namely, first, that it participates in a tradition of scholarship and research; second, that it contributes to the development of more generic intellectual development through critical engagement, philosophical reflection, etc.; third, it has within it the tools for independent critical analysis. A key element of universities (implicit within Newman's idea of a university) is both the spirit of and the opportunity for an independent critical tradition. It is not clear how the establishment of certain degree courses in certain universities meet such a basic criterion.

Second, however, the different demands on universities (the pursuit of academic excellence, the provision of economic relevance especially in a 'knowledge economy', and the creation of greater social equality) seem at times to be incompatible. How far, for example, is the pursuit of academic excellence compatible with economic and vocational

relevance? Certainly there are dangers rarely acknowledged. As I explained elsewhere (Pring, 1995), there is a danger of the language of business (the language of inputs and outputs, of performance indicators and audits, of clients and customers, of stakeholders and market forces, of efficiency gains and target setting) encroaching upon and subverting the moral language of education, concerned as it is with intellectual excellence and personal development, with the pursuit of the truth and the nurturing of a critical tradition. The academic and the vocational (and the economically relevant) are compatible but it is often a delicate balance one needs to achieve.

Third, the social agenda – namely, the expansion of learning opportunities to everyone – has been pursued without much reference to how people learn or to the quality of the learning experience which higher education is meant to provide. One might think back to the 'sandwich courses' of the Colleges of Advanced Technology or to the more practical modes of learning embedded within the BEC and TEC courses of the 1960s and 1970s. The point is that the nurturing of a 'learning culture' requires much closer attention to the different ways in which different people most effectively learn.

Fourth, there is much evidence of a strong correlation between higher education and enhanced personal benefit – between graduation and 'positional good' (though, as the number of graduates increases, that connection may be less pronounced). Indeed, there is, as the participation rate increases, a need for clearer distinctions between the kind of institution and the kind of course, on the one hand, and the personal benefit (the positional good) on the other. However, personal benefit does not necessarily entail overall economic benefit for the community. And Dearing was not able to show what the economic benefits would be from an increased investment in higher education. That argument has still to be won, and the victory will lie in the detail - in the particular areas or subjects and the quality of learning experience where investment leads to economic advancement.

Finally, the changes, which I have given an account of, indicate a much greater central interest in, and direction of, higher education. There is a micromanagement of higher education as well as of schools. It is as though those at the centre can say what is needed

in universities which will support both its economic and its social agenda. Hence, the various ‘funding levers’ to ensure that certain things happen. There is an instrumentality to the funding arrangements which fits uncomfortably with the idea of a university pursuing independent research, scholarship and criticism which are crucial to the pursuit of academic excellence.

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Levering open the University? The Entrepreneurship Education Initiative in Scottish Universities.

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Much state policy making in the UK over the last twenty years, under both Conservative and New Labour governments, has been concerned with the attempt to create an 'enterprise culture'.

> Successive Conservative governments have sought to reverse our economic decline by replacing what they have termed the dependency culture with the enterprise culture. (Coffield, 1990, p.75)

Education, including higher education, has increasingly been seen as being vital in effecting the transformation from a 'dependency culture' to an 'enterprise culture.' Clearly the concept of an 'enterprise culture' and the role of education in developing the qualities, we hesitate to call them virtues, needed by enterprising individuals to prosper within such a culture, are highly contestable and contested. However, our purpose here is not to examine these issues (see, inter alia, Bailey (1992), Bridges (1992), Coffield (1990), Gibb (1987), and Hayward (1998) for further discussion). Rather we seek to understand the mechanisms through which the state acts to open up the university to include new forms of knowledge and experience for students that are seen as being desirable for economic development purposes. To what extent is this a process of the state, as the major contributor to university funding in the UK, imposing its vision on the sector and to what extent is it a product of a developing, subtle, dynamic and dialectical relationship between the state and the university in late modernity?

To achieve this we report on the policy formation and adoption processes involved in the Scottish Entrepreneurship Education Initiative (EEI). Launched in 1995 by Scottish Enterprise, the development agency for Scotland, as part of their Business Birth Rate Strategy, the EEI initially involved six universities.

Policy development

Schneider and Ingram (1997) argue that policy design emerges from a multi-stage cyclic process in which they distinguish between policy framing and policy designing phases. In the framing stage, the societal context, such as issues to do with citizenship and economic growth, are framed by policy makers' knowledge of events, groups and prevailing societal conditions. This leads to the development of an issue context that reflects the prevailing 'political environment shaped by policymakers' ideology and interests, constituent pressures, and a variety of fiscal and institutional constraints' (McDonnell and Grubb, 1991, p. 9). This issue context then impinges upon the ways that policies are designed. The societal context reflected in the policy documents we analysed to understand the development of the EEI was dominated by concerns about long term structural economic change, a nation increasingly reliant on Foreign Direct Investment as a means to produce new products and services, and a failure to appreciate the importance of Small and Medium sized enterprises as a means of achieving economic growth.

Structural economic change

Historically, Scotland played a leading role in the first Industrial Revolution of the late 18th century through the textile industry and the production of textile machinery. Later, in the 19th century Scotland developed more capital and labour intensive heavy industries such as ship building and marine engineering. By the beginning of the twentieth century, therefore, Scotland was a major world manufacturing centre (Devine & Finlay, 1996). However, Scotland's dependence on a narrow range of 'clang and bang' industries made it increasingly threatened by overseas competition (Ashcroft, 1996). After World War II, these traditional industries suffered a sharp decline with a concomitant rise in unemployment during the 1950s and 1960s.

Thus, the structural changes which have transformed the economy of the United Kingdom (UK), in common with other developed countries have applied to Scotland with a vengeance. Traditional 'smoke-stack' industries such as coal mining, steel making and ship building have declined in importance while service and 'hi-tech' industries, such as finance and electronics, have gained in importance (Rubinstein, 1993). Rajan (1997), amongst others, argues that these changes have been accompanied by massive re-organization of work place practices, at least in larger and Trans-National Organizations (TNOs). Such an argument posits a transition from 1970s mass production with an emphasis on vertical integration and no labour flexibility, through the 1980s decentralized production and the lean production systems of the 1990s, to so called agile production with an emphasis on core competencies, business alliances and high labour flexibility.

For much of the twentieth century, then, with the exception of the wartime revival of 1938 to 1948 and the economic cycle from 1989 to 1993, the Scottish economy has under performed the economy of the UK as a whole (Payne, 1996). This under performance is reflected in Scottish employment performance, with the employment growth rate in Scotland being stationary from 1921 until the early 1970s, while UK employment grew at 0.46% per annum over the same period (Lee 1971). From 1971 until 1994, Scotland did relatively better as employment growth broadly kept pace with the UK although the absolute increase was minimal. However, the long term economic picture for Scotland compared to the rest of the UK was not favourable, leading to a greater dependence upon unemployment benefits and welfare payments.

> For much of the century Scottish unemployment rates were higher and per capita income lower [compared to the rest of the UK], thus encouraging more reliance on the social security and health systems. (Devine, 1996, p.4)

These twin concerns of unemployment and dependency on social welfare formed a major part of the rationale for the Business Birth Rate Strategy reflecting, at least to some extent, the neo-liberal agenda of the Conservative government's of the 1980s and early

1990s. Thus, within the overall strategy for enterprise and entrepreneurship within Scotland, there was a specific emphasis on nurturing entrepreneurship and self-employment as a means of escaping poverty through special projects, such as the Business Start-up Scheme in one of Glasgow's most deprived neighbourhoods. The logic of the approach was described as involving

> … firstly, to bring about a culture change so that enterprise (in any form) becomes a mainstream option for residents in [the deprived area]; secondly, … to broaden the base of clients interested in 'enterprise' and business start-ups; and thirdly, … to increase the level of enterprise activity and, therefore, new business activity … (Scottish Enterprise, 1996a, p.30)

A range of internal and external, demand and supply side factors have been identified by Ashcroft (1996 pp. 2-3) to account for Scotland's economic decline relative to the rest of the UK.

Domestic Economic Factors: demand-side

- Relatively low income per head in Scotland
- Relatively small market size of the Scottish Economy

Domestic economic factors: supply-side

- Scotland too committed to traditional staple industries
- Low productivity and high unit labour costs
- The costs of serving major markets from Scotland's relatively peripheral location
- Institutional and organisational failure with managerial weaknesses

External economic factors: demand-side

- Differential impact of UK macroeconomic policy (exchange and interest rate, fiscal policies)
- Loss of specific world markets (technical change, changing taste)

External economic factors: supply-side

- Diversion of capital, skilled labour and resources to the South East and other regions
- Loss of organisational control to majority shareholders in the South East and abroad

As Ashcroft (ibid.) points out it is very difficult to distinguish which among these factors has had the greater effect on Scotland's economic performance.

Before moving to consider the indigenous entrepreneurship agenda, however, two other issues, Foreign Direct Investment (FDI) and the Small and Medium Sizes Enterprises (SMES), require some exploration.

Foreign Direct Investment

From the beginning of the 1970s employment growth in Scotland improved to match the UK average primarily because of considerable Foreign Direct Investment (FDI) (McNie, 1983; Payne, 1996). Thus, overseas owned manufacturing units in Scotland increased from 65 in 1950 to 357 in 1994, of which 45%, such as Hewlett Packard and Motorola, were US owned. These 357 companies accounted for 28% of employment in Scottish manufacturing (Sundnes, 2001). However, while they provided a valuable transfer of technology, such companies demanded costly infrastructure and education to support the high-tech and high-value added export products they made (UNCTAD, 1996). Furthermore, for those committed to the indigenous entrepreneurship agenda, such FDI itself constituted a threat because Scotland could find itself dependent on foreign controlled business.

The recession in East Asian economies in 1998, with the subsequent cancellation of FDI in Scotland, global over capacity in silicon chip production, and withdrawal of TNOs from Scotland when the initial period for tax breaks and other 'greenfield' benefits came to an end, showed how complicated the relationship with FDI by TNOs could be. Furthermore, the Transnationals also tended to drive up the price of labour, which posed

problems to indigenous Scottish enterprise dependent on stable and lower labour costs (UNCTAD, 1996).

The risks of an over reliance on FDI as an economic development strategy are emphasised by Bosworth et. al. (1996, p. 447) who comment,

> While there is nothing wrong with the strategy *per se*, it perhaps leaves the UK over reliant on foreign sources of technology, know-how and investment – which becomes more uncertain if (or when) UK income levels begin to approach those to be found in the foreign investor's home base. Our earlier discussion … suggested that long-term job opportunities in the UK would be improved by an increased flow of indigenous new products on which an export offensive could be based.

In addition, Ashcroft (1996) argued that overseas investment could have had the following negative consequences for entrepreneurial activities in Scotland:

- Direct and indirect displacement of previously profitable activities
- Dilution of resources and knowledge base leading to less productive use of resources
- Diminished supply of entrepreneurs through emigration and reduced immigration
- Management and R&D activities in foreign managed firms primarily located outside of Scotland

There was also a perceptible feeling amongst those we interviewed that the foreign ownership of 'Scottish firms', largely resulting from a wave of acquisitions and mergers in the 1970s and 1980s, and an over reliance on FDI amounted to a form of economic neo-colonialism that did not chime with the growing nationalist agenda surrounding the referendum for the Scottish parliament that was taking place at the time we conducted our research.

SMEs and the Business Birth Rate in Scotland

In addition to the structural changes, which have affected economies more generally, there has been an increasing concern from policy makers with the small business sector. In the early 1970's this sector formed an unimportant component of the UK economy (Stanworth & Gray, 1992) but by the early 1980's small businesses began to take on a more important role both politically and economically. As the numbers of self-employed and small business developments increased, so did the State's focus on entrepreneurship and the economic well-being of the small firm sector, partly as a means of coping with rising unemployment due to the structural economic changes outlined above, and, through an emphasis on hi-tech industries, as a means of creating export revenue.

The view we formed from our analysis of policy documents and interviews with civil servants within Scottish Enterprise was the overwhelming importance attached not just to wealth creation through new business start up but job creation. For example, research commissioned by Scottish Enterprise (MORI, 1992) emphasised not only that the rate of innovation in manufacturing and the rate of formation of new firms remained low in Scotland compared to other regions of the UK, notably the South East of England, but also that the number of jobs created in Scotland from new ventures between 1978 and 1990 was only 39% of those created in the South East of England.

> *The importance of this gap was illustrated when the job creation of new starts was calculated, using the Dun & Bradstreet database … On the one hand the data showed clearly that new starts were important to the economy. The research showed that, between 1978 and 1990, new starts created approximately 120,000 new jobs in Scotland - almost double the 65,000 created during the same period by inward investment*
>
> *The data also showed the consequences of the persistent gap in new* business starts … there was a significant shortfall in job creation compared with an average UK region, the West Midlands, with Scotland producing 65,000 fewer jobs from new starts between 1978 and 1990. Against the South East of England, the gap was even

> wider, with a massive gap of 195,000 new jobs. Identifying the scale of these 'job gaps' was critical to the Business Birth Rate Strategy's initial success, and did much to sell the message of the importance of new starts and entrepreneurship to the economy - and the need for action to tackle the problems caused by Scotland's poor performance in this area. (Scottish Enterprise, 2003)

Throughout our research this discrepancy between the business birth rate in Scotland compared to other regions of the UK, and the importance of such new businesses in creating the jobs of the future in Scotland, were continually emphasised by Scottish policy makers and academics as a source of concern and as a justification for the Business Birth-Rate Strategy implemented from 1993 onwards.

Establishing the need for indigenous entrepreneurship

What emerged, then, as the issue context from framing Scotland's economic problems in this particular way was an emphasis on increasing the business birth rate as a key policy objective and the importance of indigenous entrepreneurship to achieve this outcome. Identifying the barriers to, and the need for, entrepreneurship became, therefore, a key component of the policy design phase and involved active participation by academics in Scottish universities.

For example, econometric modelling by Ashcroft and Low (1996) suggested that amongst other factors explaining the historically low business birth rate in Scotland the following were important: emigration, low rates of home ownership, a lower proportion of the population with professional and managerial qualifications, low participation by women in business start up and a range of cultural factors relating to self-employment and risk taking. This analysis led Ashcroft and Low (1996) to suggest that one reason why Scots were less interested in starting their own business was because of the lower rates of home ownership that could provide the collateral against which money could be raised to start a new venture.

However, within the myriad of factors affecting Scotland economic performance, Ashcroft's (1996) analysis that Scotland's economic problems, at least in part, particularly after World War II, had their roots in too few entrepreneurs and too little enterprise gained particular currency in policy making circles.

> Weaknesses both in the supply and practice of indigenous or domestic entrepreneurship in Scotland have contributed to the historic under-performance of the Scottish economy. Moreover, these weaknesses continue to affect the present-day performance of the Scottish economy and, if they persist, are likely to hamper the economy's progress into the next century. (Ashcroft, ibid., p.1)

The research commissioned by Scottish Enterprise was used to paint a picture of the importance of entrepreneurship being undervalued by people in Scotland compared with the populations of England/Wales, the US and Germany. The claim was that only 1% of the Scottish population could be classified as committed potentials for careers as entrepreneurs whereas the figure for the USA was 4% (Ashcroft, 1996). Ashcroft (ibid.) further argued that the factors outlined in Table 1 served to reduce entrepreneurial opportunities within Scotland, contributing to different sorts of unproductive entrepreneurship and to considerable migration of Scottish entrepreneurs who pursued their ventures elsewhere (Griggs, 1995).

In addition to the identification of the difficulties of raising finance in capital markets for new ventures, cultural factors, gleaned from academic studies, assumed a particular importance within the development of the Business Birth Rate Strategy by Scottish Enterprise. For example, Griggs (1995) sought a cultural explanation of the low business birth rate in Scotland in a supposed national trait of being overly critical of failure. This, it was suggested, leads to emigration of entrepreneurs to pursue their business ideas in more hospitable host cultures, notably the USA. Griffith (1994) argued that the Scottish social identity takes for granted differences in social and economic power, whereas in the USA, the 'American Dream' promotes the ideal of equal access to economic

opportunities. For most Americans this dream remains a myth, but Griffith (ibid.) suggests that as a nation the USA has been able to capitalise on this mythology with a social structure organised to grant individuals the freedom to pursue their dream of self-employment and economic success. In contrast, the argument goes, Scotland has developed a class structure within which individuals have to accept their assigned place in society and a corresponding lack of an entrepreneurial vision.

Our purpose here is not to offer an empirical evaluation of these claims but rather to note their influence in relation to the emerging entrepreneurship agenda in Scotland promulgated by Scottish Enterprise. The turn to culture and the need for culture change is found throughout the policy documents that set out the various components and developments of the Business Birth Rate Strategy. For example,

> Many people believe the Business Birth Rate Strategy is about trying to change a culture. In a sense, it is. The real breakthrough won't happen until we have a culture that is far more encouraging for our prospective entrepreneurs. (Scottish Enterprise, 1996 a, p.3)

The problem of how to develop further the Scottish economy was articulated in Scottish Enterprise policy documents in terms of cultural change and renewal within a globalised world economy:

> Accelerating change is the central and consistent theme; and change will impact on everything ... Globalisation of markets (including capital markets) is key, facilitated by technology and reinforced by political and economic restructuring, deregulation and privatisation. (Scottish Enterprise, 1995a, p.1)

However, such structural and organizational changes, with increased out-sourcing and wider opportunities for self employment, will only meet the continuing challenge of

competitiveness in a global and flexible market, it was argued, if the education and training system produces better qualified and flexible individuals This point is emphasized by C.W. Beveridge, the Chief Executive of Scottish Enterprise at that time, in his foreword to the Network Strategy document produced by Scottish Enterprise:

> Business is the vehicle for wealth and job creation, but people are the key to business competitiveness.... the knowledge, skills, attitudes and creativity of our people are the key sources of sustainable competitive advantage. (Scottish Enterprise, 1995(a))

A particular criticism was how little preparation Scottish Higher Education gave to students in relation to entrepreneurship, and how little understanding there was amongst undergraduates in Scottish universities about careers in SMEs. For example, a widely quoted study was one conducted by the University of Stirling (Rosa, 1994). This project surveyed 3000 undergraduate students completing their degrees between 1983 and 1985 in the UK, and concluded that whilst there was significant interest amongst graduates about entrepreneurship this was accompanied by a lack of knowledge of the SME sector as well as insight and understanding about business and enterprise.

The policy discourse surrounding the Business Birth Rate Strategy, and the EEI which was embedded with in the wider policy, emphasised the importance of entrepreneurship as a means of reinvigorating the Scottish economy and providing jobs for Scottish people. Concerns were also expressed about the increasing importance of FDI as an economic development strategy and unfavourable comparisons were drawn between Scotland and other regions in Europe and the US in relation to business start up. Calls were explicitly made upon a Scottish history of entrepreneurial zeal to justify the decision to develop indigenous entrepreneurship backed up by econometric modelling and academic analysis of the entrepreneurial failings of Scotland. The policy target constructed during this phase of policy development was the perceived cultural antipathy amongst Scots towards entrepreneurship. Institutionally, Scottish universities were seen as a key resource in

terms of both teaching entrepreneurship, and as a source of fruitful ideas for new, high technology businesses. The analysis also identified a number of undesirable behaviours, for example universities failing to prepare graduates adequately for work in a dynamic SME sector. Thus, the problem setting phase of policy development established explanations for the perceived poor rate of business starts in Scotland in a longer term cultural malaise (a dependency culture), and in terms of supply side deficiencies in the education system which was failing to develop entrepreneurial attitudes and dispositions in the Scottish population. Both of these dimensions were addressed within the Business Birth Rate Strategy.

The policy response: the Scottish Business Birth-Rate Strategy

Scottish Enterprise was born after three months of consultation on the White paper, Cmnd 534 (1988). This paper had familiar themes: training and skills, a key role for the market and private sector leadership, and a deficient education and training system:

> The system has to be market-driven. Competitive, efficient and geared to results; it has to encourage personal responsibility, fully exploit our educational resources, and give value for money for the tax payer. (Cmnd 534, 1988, p.2)

Scottish Enterprise was responsible for managing both FDI and indigenous enterprise development. In relation to the latter, the policy response developed to deal with the problems identified by commissioned research was called the Business Birth Rate Strategy. This was a multi-faceted approach which offered a mixture of advice, for example about business start up processes and access to finance, and a deliberate attempt to develop a more 'entrepreneurial culture' within Scotland.

Dunn (1977) argued that the radical change in political policy needed to produce a zeitgeist based upon the idea of an enterprise culture requires

> … the creation, or rediscovery of what the New Right call a "myth" or "spirit". In order for these myths to be accepted politicians must appeal to the imagination of the British people … This new spirit can be called the spirit of enterprise. It should create greater economic freedom but it requires faith to maintain it … As with religious faith, the faith in the spirit of enterprise takes the shape of a new way of life, which becomes the driving force of the community. (p. 226)

This view is reflected in the rallying call provided by Beveridge in his forword to the document launching the Business Birth Rate Strategy:

> This document sets out the ideas to close the gap between Scotland and the rest of the UK in terms of the number of new businesses we create … We need to recapture the spirit that made Scotland synonymous with enterprise not so long ago … The best way of achieving this is for more of us to adopt the 'can do' attitude of the entrepreneur. (Scottish Enterprise, 1993)

Such a view also received a ringing endorsement from the entrepreneurs featured in a book *Great Scots in Business* (Houston, 1995), published by Scottish Enterprise to provide role models for the Scottish population. One successful Scottish Entrepreneur is portrayed as follows,

> As a businessman who, first and foremost, is a nationalist (with a small 'n'), his impatience at what he perceives as commercial timidity and our laggardness in embracing an entrepreneurial culture is understandable; he is accustomed to progressing business with swift and bold decisions, once he has assessed risk and potential. (Houston, 1995, p. 120)

To address the issues highlighted by the MORI (1992) research, a special forum of 'stakeholders' was assembled to generate support in Scottish society for an enterprise and development strategy:

> This initial forum was made up of a hand-picked group of people, about half of whom were entrepreneurs, and the rest bankers, policy-makers, advisors, and lobbyists. People were selected on the contribution they could make to the debate and their ability to act on the forum's findings and spread the word by influencing others. (Scottish Enterprise, 1996a, p.9)

What emerged from this initial stage of policy inquiry was the Business Birth Rate Strategy – the policy design. The Business Birth Rate Strategy contained multiple strands (Table 2) each intended to develop the 'spirit of enterprise' in Scotland and so tap into the historically constructed idea of indigenous Scottish entrepreneurial flair (Cox *et al.*, 1997). The elements ranged from a mass advertising campaign, using Scottish role models such as Tom Farmer, to Business Shops offering support and advice to those interested in starting their own business. This range of activities and projects would, it was hoped, lead to the promotion of indigenous entrepreneurship in Scotland by focusing on

- Developing positive attitudes to change
- Providing better access to capital
- Providing increased opportunities for Enterprise and Entrepreneurship Education.

(Griggs and Weaver, 1997, p. 7)

However, the policy document that launched the Business Birth Rate Strategy reflected the perceptions of the enormous scale of the challenge needed to meet the targets being set for creating new businesses and the uncertainty about achieving the desired ends amongst the policy makers:

> In this document we have tried to outline our vision of what is needed to close this gap [in business start up between Scotland the rest of the UK], and to provide a framework within which initiative can be taken towards this goal. We have also outlined the possible actions, which could be taken, directed at what the enquiry concluded were the main obstacles to progress. The ideas presented her cannot represent everything that needs to be done. Success will require creativity, partnership and – above all – commitment (Scottish Enterprise, 1993, p.23)

A number of sub-texts run through the documents that surround the Business Birth Rate Strategy that reflect the zeitgeist of the policy: the construction of a modern cultural myth which could be called 'business success for everybody' (Sundnes, 2001, p. 118). This is the vision articulated time and again in the policy documents:

> … many more people living in Scotland have to come to believe that establishing a successful business is both within their capabilities and a worthwhile means of achieving wealth, and social and personal fulfilment. (Scottish Enterprise, 1993, p.2)

> People from all works of life [in Scotland] are finding that they can have an idea, start a company to exploit it, and be successful. (Baur, 1995, p.9)

> This book is the story of a nation which is changing its mind. For years, Scotland has lived with an extraordinary contradiction about itself – an unwritten understanding that personal enterprise and business acumen are better exercised outside Scotland than in it. At last that culture is dying. In its place a native entrepreneurial dynamism is growing. (Scottish Enterprise, 1995a, p.6)

Such rhetorical slogans are essentially exhortatory policy instruments[1] which were intended to portray a country that was in need of recovering or rediscovering the spirit of enterprise. Of particular significance was the view that in order to combat Scottish unemployment there was a need to shift policy from support of redundant industries, such as steel making and ship building, to a focus on new business ventures, small and medium sized enterprise, and entrepreneurialism. With respect to this, much play was made of the need to commercialise research being undertaken in Scottish universities in order to create 'high skills ecosystems' (Finegold, 1999) such as those found in Massachussets and Southern California. To achieve this would require more direct intervention in the Scottish education system.

The Scottish University Entrepreneurship Education Initiative

Dewey (1915) recognised the importance of education as a means not only of reproducing but also of changing society. Thus, the education system will always be a key target for policy makers concerned to foster a 'spirit of enterprise.' Space does not permit a full account of these developments. However, it would be incorrect to portray the role that education should play within the Business Birth Rate Strategy as a major shift in thinking about the role education should play in the economic development of Scotland. Rather it should be seen as a development of an ongoing trend common to many countries that tends to assume a causal relationship between education and economic development

> Educational policy has become one element of broader economic policy as a new human capital view of education has taken hold (Taylor, et.al., 1997, p.97)

We would dispute the nature of this causal relationship grounded in a naïve interpretation of human capital theory, but the point here is that it was a major driver behind the

[1] The term policy instrument is taken from McDonnell and Grubb (1991) and refers to 'the different strategies that policymakers use to promote education and training goals through the allocation of public funds and the imposition of regulations by one governmental level on the levels below it.' (p. 3)

conception of the role of that the Scottish education system should play in the regeneration of Scotland's economy that was held within Scottish Enterprise.

> Scotland's skills and knowledge base is the greatest single source of competitive advantage. This will require a major shift in the attitudes and aspirations of employers, individuals, educators and trainers … We are now working with the Scottish office and others to achieve this. (Scottish Enterprise, 1995a, p.16)

Within this broader debate about the role of education and training in regenerating Scotland's economy, Scottish Enterprise policy documents placed particular emphasis on the importance of Enterprise Education if entrepreneurial potential was to be unlocked:

> Schools should promote the values underlying economic growth and enterprising behaviour in young people, and should recognise this in their mission statements. This should also be built into the training of teachers. Teaching methods, which promote the competencies associated with entrepreneurship, including 'open learning' case-study approaches, should be adopted. This should be recognised explicitly as a performance indicator by Here Majesty Inspectors of Schools. (Scottish Enterprise, 1996a, p.18)

Here the subtexts of the policy documents surrounding the Business Birth Rate Strategy reflect much of the polyvalent new vocationalist discourse of the 1980s (Ball, 1990) such as,

- The need for the education system to produce a better skilled workforce which can be deployed flexibly to meet the demands of high-tech industry and self employment.
- The role of education in producing a more positive attitude amongst pupils and students towards production and wealth creation, and making them more aware of how wealth is created in capitalist economies.

- The necessity of the business community playing a more active role in deciding the content of the curriculum.
- The importance attached to schools, colleges and higher education institutions developing in learners positive attitudes towards, and the skills of, enterprise and entrepreneurship.

Thus, in addition to initiatives intended to target the 'hidden entrepreneurial talents' of the general Scottish population, a range of school, college and university based 'Enterprise and Entrepreneurship Education' initiatives were also developed and implemented. Captured under the general title of 'From Primary 1 to Plc' (Enterprise Education Centre,1995) these activities included Primary and Secondary Enterprise Education programmes (Enterprising Infants, Mini Enterprise in School, Young Enterprise Scotland and Education Business Partnerships), and the University based Entrepreneurship Education Initiative (EEI). It is this latter programme we are concerned with in the remainder of this paper.

As previously mentioned, the educational worth of such Enterprise Education programmes is hotly contested but such matters are, in our view, best resolved by empirical study of the operation of actual programmes and their outcomes rather than pure philosophical inquiry. This is not our purpose here. Suffice to say we do believe that the economic outcomes of education are important (Winch, 2000) but that we would concur with Coffield (1990) that enterprise and entrepreneurship education is not a 'tightly defined, agreed and unitary concept' and that the rhetoric surrounding so called enterprise education initiatives often takes the form of a 'farrago of hurrah words'. What we are concerned with in the remainder of this paper is how why, given this, the Entrepreneurship Education Initiative was adopted and implemented so faithfully by the six Scottish Universities involved according to the model set out by Scottish Enterprise.

As Rosa (1994) points out, finding research which test theories of entrepreneurial failure on which to base policy conclusions is problematic. If, however, we assume, as this policy does, that the supply of graduate entrepreneurs is one factor limiting the business

birth rate in Scotland then the issue becomes what specific action policy makers need to take in order to ensure that potential graduate entrepreneurs successfully manage the transition from education into business. Here, Scott (1991) lists four challenges for policy makers:

1. Encouraging more graduates to start businesses, especially based upon their knowledge and ability larger and more profitable businesses producing hi-tech export oriented products;
2. Encouraging graduates to seek careers in the SME sector;
3. To achieve 1 and 2 by providing graduates with knowledge of entrepreneurship and the small business sector;
4. The more general need to produce more 'enterprising young people' not simply as possible entrepreneurs but also as intrapreneurs in large organizations.

Educational policy responses to these challenges in the UK have included a range of enterprise programmes in higher education including the Graduate Enterprise Programme (GEP), the Graduate Apprenticeship Programme, the Shell Technology Enterprise Project, the Graduate Gateway programme and the Enterprise in Higher Education (EHE) initiative. However, the research at Stirling (Rosa, ibid.) suggests that the GEP, for example, had a minimal impact on the awareness of the student body as a whole with only 15% of Scottish respondents to their surveys stating they were aware of courses/seminars on small business or entrepreneurship.

Scottish Enterprise sought to address the issues raised by the partial success of these earlier enterprise education initiatives through the Scottish University Entrepreneurship Education Initiative (EEI), which started in 1995. The ambition of the EEI was to transform the situation uncovered in The Scottish Young Entrepreneur's Inquiry, which reported for young people now running their own business:

> A general view expressed of university days was that experience at university gave no preparation for creating one's own business. It is never considered in course work as a possible career path, except in some specialist courses, such as graduate enterprise. In general, examples and case studies in courses reflect a supposition

> that students will move into employment as employees. (Scottish Enterprise, 1996b, p.27)

The envisioned role of Scottish HEIs within the Business Birth Rate Strategy was set out time and again in normative statements within the various policy documents, with the performance of Scottish graduates in terms of establishing there own businesses being compared unfavourably with supposedly equivalent American and German graduates.

> The Scottish Education community, at both school and university levels, have an important contribution to make to the creation of a more entrepreneurial culture, and – in the case of the universities – acting as a source of new spin-out and high-tech ventures. (Scottish Enterprise, 1993, p.19)

> In Scotland's Higher Education Institutions, only 20% were aware of careers advice on self-employment and this tended to be restricted to just business studies. And these are the people who set up in business anyway. The net results of this are that only 1.1% to 1.5% of our graduates go into self-employment, and this leaves us lagging behind our international competitors. About four times as many go into business for themselves in the States. (Scottish Enterprise, 1996b)

> The Business Birth Rate Strategy has identified the potential of HEIs and their graduates in increasing the rate of business start-ups. The Commercialisation Enquiry reinforces this role in relation to technology transfer through the creation of hi-tech start ups. Entrepreneurship teaching, therefore, not only offers valid career alternatives to employment for graduates but also has the potential to assist wealth and future job creation. (Scottish Enterprise, 1995c, p.7)

> Students in Higher Education should be taught to be more enterprising and should be encouraged to consider self-employment as a career option. As part of this, there should be greater cross fertilisation between the civil service, business and

> university faculties to encourage greater innovation in developing enterprise among young people. (Scottish Enterprise, 1996a, p.18)

Scottish Enterprise focused on the following enterprise development activities in the universities:

- Commercialisation of university research (intellectual property and patent licensing)
- Academic business spin-outs
- Graduate business start up.

It was this last area focus that led to the development of the Scottish Entrepreneurship Education Initiaitive (EEI). One way of conceptualizing EEI would be to see it as an extension of the earlier enterprise initiatives outlined above. However, we feel that the EEI should not be conceptualized in this way. Rather it should be seen as a radical departure from them, as an attempt to extend the provision of Entrepreneurship Education, including the practical application of entrepreneurial knowledge and skills gained by students for economic purposes, and to integrate it within the academic framework of Scottish universities

> Scottish Enterprise [seeks] ... to encourage the growth of new business start-ups by the development of entrepreneurship as **a significant academic subject** within the Scottish higher education curricula. (Scottish Enterprise, 1994)[Our emphasis added]

> Scotland's universities have been at the centre of a revolution … The changes are having a profound impact on the way our universities are run and how subjects are taught … One such change will be greater recognition of entrepreneurship as a viable career option for graduates. (Scottish Enterprise, 1996a, p.18)

Thus, the aim for the EEI was fundamentally more ambitious than previous Higher Education Enterprise Education initiatives: an attempt to embed the concept of Entrepreneurship within the academic curriculum of the University rather than as a bolt on accessory. Furthermore, unlike, for example, The Enterprise in Higher Education Initiative, where the model was essentially 'let a thousand flowers bloom' or, as one interviewee described it, 'grab the money and run', the EEI was a very tightly controlled policy initiative with a number of checks to ensure compliance with the preferred model of Entrepreneurship Education proposed by Scottish Enterprise.

The ambitious nature of the project is spelt out in the remarkably slim four page text that set out the guidelines for the policy with its aims and objectives:

Aims

- To help the Scottish higher education institutions realize their potential in the growth of new business start-ups
- Within a two-year programme, to help establish entrepreneurship as an integral part of the teaching and research missions of the Scottish higher education sector and thus to encourage graduates to consider the establishment of new ventures as an option during their careers.

Objectives:

- To allow the student body within the Scottish Higher Education institutions to learn about the processes, risks and rewards of entrepreneurship and venture capitalism through curricular development, teaching and applied research.
- To heighten awareness amongst graduates pursuing professional careers of the processes of entrepreneurship and the challenges and opportunities facing entrepreneurs. (Scottish Enterprise, 1994, p.2)

The EEI model

Under the EEI universities were asked to bid for start up monies from Scottish Enterprise to fund the development of Entrepreneurship Education centres. Five universities were successful in their bids with money provided to cover the first two years of operation. A sixth received money to develop a multi-media module.

The 'theory of action' (Patton, 1978) lying behind the EEI can be interpreted as a simple stocks and flows model. In 1995 the total number of students in Scottish universities was 43,177, of whom 52% were women (Scottish Office, 1997). Within that stock the belief was that there was a pool of potential entrepreneurs who, it was thought, could be converted into Educated Entrepreneurs by recruitment to and learning within the Entrepreneurship Education programmes. Some of the graduates of the programme would then become 'committed potentials' and move to business start up straight from University. A larger proportion, it was assumed, would become 'sleepers' who would then move to become committed entrepreneurs by some future triggering event after working as an employee for a number of years.

> Traditionally the culture of the higher education sector has never been geared to encouraging students to start-up in business. A first step, therefore, has to be challenging this assumption and show that self-employment is an acceptable and valuable career path for new graduates to take – perhaps not directly on graduation but within a few years of it. (Scottish Enterprise, 1996c, p.1)

The theory of action for the EEI is, then, to increase the appropriate probabilities of transfer from one pool to another, thereby increasing the number of committed and committed potential entrepreneurs within the graduate population in Scotland[2].

[2] Evaluating this theory of action would require a long term tracer study with an appropriate matched control group. Unfortunately such data are not available. Nonetheless, there are a number of more proximal and intermediate outcomes that have been evaluated and we will report on these in a future SKOPE Working paper.

However, it became clear from interviews with the civil servants responsible for guiding the development of the EEI that despite their commitment to the value of Entrepreneurship Education they actually lacked knowledge about how to achieve the ends that they were promoting, particularly what sort of Entrepreneurship Education would be suitable to achieve their ends. A key source of knowledge and information about how to develop the EEI model came from Babson College in Massachussets, USA, a small and little known institution. The main elements of the Babson College approach, which were actively marketed to Scottish Enterprise through a series of exchange visits and seminars, were:

- Twelve EE courses targeted at specific aspects of entrepreneurships
- Developing knowledge of the entrepreneurial process through case studies of local entrepreneurs
- Developing Entrepreneurial skills through project work and the start of actual businesses on campuses
- Continuous assessment of the student's contribution to the courses including assessing their contribution within classes (Babson College, 1996; Babson College, 1998).

Following several visits to Bason College by officials from Scottish Enterprise and sponsored entrepreneurs and academics, this approach greatly influenced the design of the EE initiative.

> Two or three years ago I was asked by Scottish Enterprise to go to Babson College to do the Symposium for Entrepreneurship Educators, and to come back and to say whether or not I thought it should be introduced into Scottish universities. I found the course enthralling, and my recommendation was positive. (Interview with Participating Entrepreneur)

These elements were all contained within the Scottish EEI model, though less emphasis was placed on actual business start up, and celebrated by Scottish Enterprise as the right way forward,

> Modelled on Babson College, Massachusetts, Scottish Enterprise has helped set up a series of teaching centres in Scotland to develop entrepreneurship as a significant academic subject within the higher education sector. (Scottish Enterprise, 1996a, p.14)

As conceptualized in the EEI, entrepreneurial knowledge was intended to be seen by students as different from other sorts of knowledge more usually associated with the university, and was to be acquired through different approaches to teaching and learning than those normally associated with university teaching. Thus the contract for the EE centres clearly set out the teaching and assessment methodologies that Scottish Enterprise required universities to use in delivering the EE programmes:

- analyses of real entrepreneurial case studies
- business plan development
- highly interactive teaching
- teaching by entrepreneurs in addition to academic staff.

Furthermore they stipulated that assessment techniques should be based significantly on

- class participation by students.
- development and presentation of business plans.
- case study analyses.
- field study reports and presentations.

This specification closely matches Babson College's approach to the teaching of entrepreneurship.

The model embodied in the contract with the various universities also regulated staff recruitment and curriculum development that was to be underpinned by applied research and the involvement of local entrepreneurs. In addition, the contract required each

university to commit to the continuation of the EE units once the initial two year contract had been fulfilled and for the results of initiative to be widely disseminated.

Policy Adoption

However, it is one thing for a particular policy to paint a normative picture of action for a particular educational institution, quite another for that policy to be adopted and implemented in the way intended by policy makers. The history of educational policy making is littered with examples of policies that have been subverted and radically altered during the adoption and implementation phases so that what results is not what policy makers intended. One of the surprising conclusions we reached was that this did not happen in this case: the entrepreneurship education courses in their first two years operated in accordance with the specification set out by Scottish Enterprise and we were able to identify all of the elements listed above being implemented in practice.

A number of factors were involved in achieving institutional compliance with the EEI model. First, a range of exhortatory policy instruments such as public relations campaigns, advertising materials, speeches and proclamations were used to establish the policy terrain. Scottish Enterprise's agents worked hard to establish a favourable context for policy implementation, actively involving what they saw as key gatekeepers in both the academic and business community to mobilise support behind the policy. There was considerable evidence from interviews with senior managers in all of the implementing universities that the messages being propagated, through the various activities undertaken by Scottish Enterprise, were being both heard and heeded within a policy adoption environment in which the wider and changing social responsibility of the University was recognised.

> I think it's very important that Higher education is developing and growing all the time. Its undergone all sorts of changes in what our perception of Higher Education is … I have been in Higher Education for forty years, and it has changed from what I went through in the 1950s and the 1960s. It was then what we would call

> traditional subjects like Physics and Chemistry and History and Languages or whatever. Now there is a much clearer appreciation of the fact that the university is embedded in a society, that the university is ultimately nurturing that society. (Senior Manager)

> Really the mission of the University reflects that we are still dedicated to vocational education and to serve the needs of the professions and commerce. So, we are coming from that standpoint, and anything we see that bolsters that or anything we see that contributes both to the local Scottish or indeed the UK economy, then it is a natural development for us to pursue. (senior Manager)

Two main constructs relating to this theme of social responsibility can be discerned in the interviews with the senior managers. First, the need to equip students with entrepreneurial knowledge and skills in order to further their own career ambitions and aspirations in order to help them participate in new ways of social and economic life.

> I think from the students' point of view it opens up another career path, certainly in one dimension. The opportunities for students when they leave an institution like this are two-fold: either they get a good job, or they get no job. With entrepreneurship they have a third option: they can create their own job. (Senior Manager)

Second, supporting the local and national (Scottish) economy through graduate enterprise, a position often linked to the increasing importance being placed by Scottish Enterprise on university participation in the creation of new companies through business spin-outs.

> So we aren't just the producers of education and research. We are also the source of new business development and commercialisation as well … The new thing that has

> come in is a kind of proactive view and responsibility for those who are leading this education for the future of the Scottish economy, working together. (Senior Manager)

The extent to which these views about the changing nature of Scottish Universities can be generalised to all Scottish universities is, however, questionable. Universities such as Edinburgh, Glasgow and St. Andrews were not part of the initial wave. Nonetheless, the messages that emerged from the interviews with senior managers across the six universities were remarkably consistent and positive. The extent to which these views were also reinforced by the devolution agenda at the time we were conducting field work remains to be explored.

However, good will is seldom enough to adopt, implement and sustain an educational policy development. Typically, 'the generic problem that work-re;ated education and training policies … address is that training of a particular type or for a particular group is not being provided on the scale that policy makers consider necessary' (McDonnell and Grubb, 1991, p. 17.) The usual response is to include some form of inducement as the main policy instrument. An inducement involves transferring money or other resources in return for certain actions which it is assumed that institutions have the capacity to produce; the Enterprise in Higher Education initiative provides an example of just such an initiative. Here, however, it was recognised that the Universities had a limited capacity to produce what policy makers thought was needed: graduates with an enhanced entrepreneurial awareness. Thus, a capacity building instrument was used, with resources being made available to establish and staff Centres for Entrepreneurial Studies, albeit within a tight set of contractual guidelines (see below). The lure of extra money is hard to resist for universities in need of resources. However, the sums involved were not large once spread across the participating universities and the centres had to become self-funding by 1997. Furthermore, the universities themselves were expected to match exactly the funding provided by Scottish Enterprise. In 2001 all of the centres were still running and new centres had been established by other Scottish Universities. Thus, while

a financial motive seems, at first sight, to be of overwhelming importance for the level of compliance seen in the adoption process, the opportunity and matching costs experienced by the participating institutions reduce, we would argue, the importance we should attach to the transfer of resources in achieving compliance.

Mandates as instruments of public policy take the form of sets of rules and regulations intended to govern the action of individuals and institutions in order to ensure compliance. Mandates are rarely used in the UK Higher Education sector not least because of the enforcement costs associated with this type of instrument. Nonetheless, the EEI contained a strong contractual mandate which set out exactly what the Entrepreneurship Education centres were supposed to do and how they were supposed to achieve desired outcomes. The small size of the Scottish Higher Education sector, and the small geographical scales involved, meant that enforcement and compliance costs were actually quite small. Indeed, much of the enforcement took place through a process of self-regulation as staff from the Entrepreneurship Education centres met to discuss progress against targets. Furthermore, the academics involved had been actively involved in developing the policy so that adopting it seemed the end point of the process: a natural thing to do. This attitude by those involved within the Entrepreneurship Education centres reflected the desire expressed by the senior managers we interviewed to pull the EEI into the University.

Mandates, capacity building and exhortatory instruments are all tools used by policy makers to achieve desirable policy outcomes. In this sense they can be seen as levers through which individual and institutional behaviour can be modified and steered to achieve desired outcomes. However, we have already hinted that this presents too much of a one sided view: these institutions were not simply being levered open in order to receive and implement new programmes they were actively colluding in the process. Thus, Scottish academics were actively involved in developing the policy and in implementing it. Integrating Scottish academics within the early enquiry phase of policy formation not only added legitimacy to the policy formation process, but also provide

active sponsors of the policy within the academic community. Scottish Enterprise had commissioned a number of reports from Business Studies academics in Scottish Universities and senior management figures were active in promoting the adoption of the EEI. For example,

> We have looked at business development, business birth-rate. We've said 'Let's improve the Scottish birth-rate' … I'm a Board Director of the Grampian Development Agency, so I'm in this network as one of the board managers of the system. (Senior university manager)

This is not to say that there was no resistance to the initiative. Indeed, resistance in some quarters was quite fierce with the new programmes being subject to exhaustive and, from the perspective of participating entrepreneurs, time consuming scrutiny to ensure that learning outcomes and the new forms of assessment being employed were of a satisfactory quality. Furthermore, one area where the policy had less success was in recruiting scientists and engineers, in particular, to take entrepreneurship modules. This desire was linked to the business spin-out strand of the Business Birth Rate Strategy. The reasons for the failure of this part of the policy are complex but the two most important issues was the location of the Entrepreneurship Education centres within Business Schools and the need to hit targets.

First, allowing a mechanical engineering student, say, to take the Entrepreneurship Education units would necessitate an internal transfer of resource within the HE institution. This would place departments who were already facing funding problems because of falling recruitment in an even more difficult position. Second, recruitment targets were set for the first two years of operation of the EEI to justify the use of public funds. In order to hit these targets there was a need to recruit students from the most readily available pool, those already in the business/management school.

Educational policies rarely, if ever, exist in a vacuum and the success or otherwise of a particular policy will be affected by previous policies and how they have affected the

policy adoption environment. The interaction between such exogenous factors and the policy under consideration, and their influence and impact on its adoption and implementation, can be highly complex but nonetheless significant. Thus, in the case of the EEI, one reason that senior managers seemed so enthusiastic was linked to the possibility of niche marketing their institutions and thereby maintaining a competitive advantage in the Scottish Higher Education market. Thus, there was a belief amongst at least some of the senior university managers interviewed that having entrepreneurship education electives within a modular curriculum framework would prove popular with students and so provide each university with a competitive edge in an increasingly competitive higher education environment.

> The product we have, you can either see it as a one-year product or a four-year product, either way you have the opportunity every September to convince colleagues in another part of the University that you've got something [the EE elective] that will make their programme, their course, their students more attractive, more exciting, more employable: will make their programme better than it has been. (Senior Manager)

This was certainly a card the Entrepreneurship Education programme managers wished to play in terms of attracting more students to their electives to ensure programme sustainability after the funding from Scottish Enterprise came to an end.

> The University knows this is serious. We can't afford to be let down on this. We also know we have a problem with student recruitment. If this is a serious goer, and going to be highly popular, we must put in the popular goer [entrepreneurship] and help solve our [i.e. the university's] recruitment problem. (Programme director)

Conclusion

The notion of the university as a site where entrepreneurship could be developed is not new (Kent, 1990). Furthermore, taking a longer historical perspective, which has seen the development of an increasingly vocationalist and instrumental view about the role of education amongst policy makers, locates the EEI firmly within a political ideology that envisages a key role of education in effecting a move from a dependency to an enterprise culture (Coffield, 1990). However, an important feature of the policy formation process for the EE initiative – compared with previous initiatives to foster enterprise amongst British undergraduates and graduates, such as the Enterprise in Higher education initiative – was the degree of direct control that Scottish Enterprise expected to exert over both the curriculum of the EE courses and the teaching methods to be used on those courses.

This degree of direct control over educational institutions is more commonly associated with countries such as Singapore within a model of the developmental state. Our conclusion is that this was the role being played, remarkably successfully, by Scottish Enterprise. This was achieved by using strong policy instruments (McDonnell and Grubb, 1991; Schneider and Ingram, 1997) - notably mandates in the form of contracts that specified targets and deliverables - supported by inducements to participate and capacity building instruments to underpin policy implementation and adoption. The sort of voluntarism normally associated with post compulsory educational policy initiatives in Britain was strikingly absent.

However, the subsequent adoption and implementation of the policy involved both pushes from the state but also a significant pull from the Universities themselves. A policy which both provides an account of a new cultural norm for the HE sector, the entrepreneurial university, and which also instituted new mechanisms for public accountability to external agencies, was readily absorbed and put into practice by the Higher Education institutions involved. In so doing, the universities were willing to concede control, at least to some extent, over that which has traditionally been seen to be their prerogative: the definition of knowledge that is worth teaching. The EEI represents,

therefore, an example of how within the policy making of the state the University has assumed a more central position within society. However, that more central position has come, to some extent at least, through a surrendering of autonomy to a more developmental and active State seeking to implement economically related education policy.

In so doing, the State made repeated calls to culture and the need for cultural change in order to revitalise the Scottish economy, and the central role that educational institutions had to play in this process was continually emphasised. To some extent, then, the EEI policy was successful in changing the internal architecture and the social articulation of these institutions. Such a policy would seem to be an archetype of Readings (1996, p. 60) worst fears,

> The University is pressed into the service of the state once the notion of universal reason is replaced by the idea of national culture as the animating principle of the University. Thus, through an appeal to culture, the state, in effect, orients the University's institutional structure and directs its social articulation effectively controlling both research and teaching.

Whether the outcomes of such a process of direct state intervention will be as apocalyptic for the University as some commentators (such as Readings, 1996, and Lucas, 1996) claim can only be ascertained from a more distant historical vantage point. However, our view is that we should not under estimate the educational value of the approaches to learning and assessment adopted by the EEI even while the extent to which it was of any significance in developing an 'enterprise culture' in Scotland remains very much open to question (Fraser of Allander Institute, 2001).

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The Idea of the 'Entrepreneurial' University

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Introduction

In considering universities and entrepreneurship, there are at least two quite different perspectives that one can take. One perspective is to look at universities as entrepreneurial organisations and the other is to examine the role of universities in promoting entrepreneurship. The first perspective draws on organisational, economic and cultural theory and the latter on educational theory and practice. Of the four presentations at the seminar, two looked at each perspective. This paper is in a sense most closely linked to Cook's presentation on Isis Innovation Ltd[3] in that it explores the concept of universities as entrepreneurial organisations. Isis Innovation Ltd is an example of the kind of 'expanded developmental periphery' that Clark (1998) deems to be a feature of an entrepreneurial university. There are links to the other papers also. Hayward[4] wrestles with definitional issues and that is also part of the discussion contained in this paper. Mason[5], in his discussion of designing entrepreneurship education courses exemplifies the role of the academic entrepreneur. Indeed it would be difficult to imagine entrepreneurship being taught with any level of authenticity by someone who was not entrepreneurial. Both Hayward and Mason, in their presentations, mentioned the work of Strathclyde University in establishing entrepreneurship as an elective subject of study for undergraduates. Strathclyde was one of the universities identified by Clark as an entrepreneurial university and its practice may be seen to link the two perspectives to the extent that promoting entrepreneurship among students is in itself an entrepreneurial practice. It was Clark's work that sparked my interest in

[3] This is a reference to another paper presented at the seminar from which this paper is drawn but which is not present in the current publication.
[4] The paper by Hayward and Sundnes in this volume is a development of the paper presented at the original seminar.
[5] Again another paper presented at the original seminar.

entrepreneurial universities. His work, the work of those who support his analysis and prescription, and the work of his critics form one thread running through this paper.

The term entrepreneurial university has been used descriptively, analytically, and prescriptively. The first part of the paper will explore the meanings and use of the term and its relationship to other terms such as the innovative university, the adaptive university and to academic capitalism. This section will also trace the emergence of the term, especially in the context of the neo-liberalism of the 1980s. The main part of the paper is an attempt to relate recent, general economic and management theory to academic entrepreneurship. The concluding section identifies issues for both academics and university managers.

What is an Entrepreneurial University?

Entrepreneurialism in universities is seen as a response to a number of factors facing universities in the final quarter of the twentieth century. Lockwood and Davies (1985) used the language of systems theory to characterise the environment facing universities at the time of writing as turbulent and uncertain. This was echoed 15 years later by Barnett (2000), who describes the era in which universities now operate as one of supercomplexity. Some of the specific challenges faced by universities are demographic changes, economic changes, the impact of new knowledge, the reduction of professional hegemony, increased accountability and managerialism, increased economic instrumentalism in the proposed outputs of universities, and a shift to markets as allocative mechanisms (Kogan and Hannay; 2000); reduced per-capita student funding accompanied by increased accountability mechanisms for both teaching and research (Scott; 1995, p82); an increasing demand for university places and increasing demand for university research from both the public and private sectors not matched by increases in public funding (Blight et al: 2000, p96).

The approach of the entrepreneurial university to such external pressures has been to 'raise external earnings and to stress links with industry/commerce/the community…' (Palfreyman, 1989, p207). Here arises the first confusion or at least overlap between the concept of the entrepreneurial university and the innovative university. It was announced in Oxford Blueprint (University of Oxford, 2001) that Oxford was named the UK's most innovative university. The criteria on which this judgement was made were based on the number and value of university spin out companies, the strength of the university's links with companies, both local and international, innovation education, student liaison schemes and the value of the university's intellectual property portfolio. The features of the innovative university appear to be very close to the features of the entrepreneurial university.

There is also in much of the writing on the entrepreneurial university that appears to assume that entrepreneurial universities are relatively recent developments. Palfreyman (2001) points out that the Oxford University Press, surely one of the first spin-out companies, has an annual turnover of £250 million and provides £25 million per year profits to the University of Oxford. This is a long established example of a university acting in an entrepreneurial manner. Using university residential facilities to host conferences during vacations also has a long history. Although entrepreneurial activities have long been a feature of university management, until recently the scale of such activities has been peripheral. Now there is a general consensus that such activities need to expand.

Subotsky analyses the wider implications of the entrepreneurial university as involving;

- 'the commodification of knowledge and the shift towards "Mode 2" knowledge
- research increasingly funded by non-statutory, private commissioned sources
- new forms of quality and evaluation, including performance indicators
- the emphasis on science and technology fields rather than non-commercialisable research

- technology transfer through business-university research partnerships, consortia and specialist units, leading to proprietary intellectual rights
- the fragmentation of teaching and research.' (Subotsky, 1999, p413)

The effects of the change in the role of knowledge in the economy have been analysed by a number of commentators such as Reich (1991), Gibbons et al (1994) and Robertson (1999). Reich characterised knowledge workers as 'symbolic analysts'. Such workers are those that universities ought to be striving to produce but are not necessarily achieving on the out-turn. Gibbons and his colleagues identified a need in the global economy for a new kind of knowledge produced in partnership with a variety of interested parties rather than produced and retained in the academy. Robertson relates academic capitalism (a phrase introduced by Slaughter and Leslie, 1997) to the emergence of the knowledge economy in which 'knowledge becomes a commodity with an exchange value (as distinct from a use value) and can be bought and sold (Lyotard, 1984, p4). A brief reflection on the purpose of copyrights and patents will convince one that again this is not novel except perhaps in scale.

To the terms entrepreneurial and innovative university Sporn adds another term, the adaptive university (Sporn, 1999). Like many other commentators and researchers into higher education in the late twentieth century, Sporn was attempting to find out how universities adapted to the turbulent changes in the environment in which they operate. She conducted an international, comparative research study into three European and three United States universities in which she attempted to identify the sources of adaptation in universities and the processes through which adaptation occurs. She broadly concurs with Clark's (1998) analysis but suggests that taking an innovative and entrepreneurial approach is just one aspect of successful adaptation. Indeed she lists it as the third of seven 'propositions for a theory of adaptation' (Sporn, 1999, p269). Thus the innovative university, the entrepreneurial university, and the adaptive university are overlapping but not identical constructs.

Clark (1998), in his study of five European universities, identified five elements of an entrepreneurial university.. These five elements are:

- A 'strengthened steering core' which 'must embrace both central managerial groups and academic departments.' (emphasis in original)
- An 'expanded developmental periphery', e.g. 'outward reaching research centres'.
- A 'diversified funding base' especially 'third-stream income' (i.e. income other than mainline government funding or research council funds). This could include royalty income, alumni fund raising, funds from industry and charities. These funds provide income which can be used at the institution's discretion.
- A 'stimulated academic heartland' which 'accepts a modified belief system'. A key task here is 'reconciling new managerial values with traditional academic ones'. This is a core concern of Clark's. His research project, over a number of years and papers, has been to explore how, in loosely coupled organisations, central managers can be more proactive in taking control of the direction of the university as a whole whilst preserving the important traditions of academic freedom. He sees stimulating the academics to engage in entrepreneurial as well as traditional activities as central to this imperative.
- An 'integrated entrepreneurial culture'. This follows on from the point above. Setting a climate in which entrepreneurialism is embraced at all levels in the university is seen by Clark to be important in addressing the issue of under-funding from state sources. (pp 5 – 8)

Most of those writing on the entrepreneurial university do so quite uncritically. I use the term uncritically in two senses here. Firstly, with the exception of Slaughter and Leslie, they fail to consider the downside of universities acting entrepreneurially. But more seriously from a definitional point of view, most of the writers on entrepreneurialism consider the term to be unproblematic in its meaning. Now they almost all identify features of entrepreneurship from empirical studies of universities and thus provide definitions through use and example. What they fail to do is to relate definitions of

academic entrepreneurship to meanings ascribed in the wider economics and management literature from whence the term originated.

There is a sense in which the concept of the entrepreneurial university has developed a symbolic political use. One can see reflections of what Edelman (1977) wrote that 'One aspect of symbolic political language is the condensation symbol, which evokes the emotions associated with the situation' The term entrepreneurial university is sometimes used in this political sense to invoke the image and emotions surrounding an institution that is going places and is at the cutting edge. A wide range of meanings is condensed into a single term. Williams (1976) calls such terms 'keywords' and suggests that such words connect 'particular uses, similarities, dissimilarities and changes in the way they are understood'. Stone (1988) provides the most cogent account of this way of using terms. She writes:

> A symbol is anything that stands for something else. Its meaning depends on how people interpret it, use it, or respond to it…The meaning of a symbol is not intrinsic to it, but is invested by the people who use it. In that sense symbols are collectively created. Any good symbolic device, one that works to capture the imagination, also shapes our perceptions and suspends scepticism, at least temporarily. These effects are what make symbols political devices. They are means of influence and control, even though it is often hard to tell with symbols who is influencing whom. (p108)

One sometimes gets the impression when reading texts on the entrepreneurial university that there is an underlying political, sometimes even evangelical, subtext. The attraction of the subtext to hard-pressed university managers is easy to appreciate. During the period when funding of universities was the remit of the University Grants Committee, universities were funded to do what they did, and what universities did was not openly

debated and when it was vagueness and ambiguity of answers was the norm. The past twenty years have seen an enormous move away from this position. Funding was scrutinised and related to outcomes, either in terms of research publications, or student numbers. The value of major units of funding was cut in real terms and there was an encouragement to use business practices. Adopting both the discourse and practice of the entrepreneurial university allowed institutions to argue that they were being business-like and also provided them with resources to replace those no longer provided from the public purse. However, to what extent are the practices adopted by universities, entrepreneurial rather than simply being examples of sound, general management? This depends upon the ways one views the meaning of the term entrepreneurial and I would argue for the adoption of meanings from outside education rather than defining entrepreneurial in a self-referential manner. In the next section, I explore the use of the term entrepreneurial in wider economic and management literature.

The Entrepreneur, Entrepreneurship and the Academy

In this section I review recent work by two writers on entrepreneurship, both of whom I feel offer key insights into both the economic and management aspects of entrepreneurship and enable us to relate academic entrepreneurship to its roots in economic and business theory.

Birkinshaw (2000) cites the earliest economist to use the term entrepreneur as Cantillon (1755) who described the entrepreneur as a specialised bearer of risk. The entrepreneur bears the financial risk of organising the factors of production prior to introducing products to the market and having only a possibility of recouping the initial investment. This is an inappropriate definition for individual universities who are, in the main, risk averse, at least in the financial sense. It may be an appropriate way to view public funding of research in the university system, since by its investment in 'blue skies'

research the government is underwriting risk that would be privatised to commercial companies if they had to carry out or fund the research from their own resources.

Chaston's (2000) earliest definition comes from another French economist, Say, who defined an entrepreneur as 'an individual who shifts resources from an area of low productivity into an area of higher productivity and greater yield.' P1. Chaston rightly dismisses this definition as simply describing good management practice.

From two French writers, from whom we might appropriately expect a definition of the entrepreneur, both Chaston and Birkinshaw identify a German-American as making the next major contribution to defining entrepreneurship and the entrepreneur. Schumpeter (1934) defined 'entrepreneurship [as] a meta-economic event typically associated with the impact of a major change such as the introduction of a new technology into an industrial sector. Managers continue to use traditional, conventional approaches in those situations where demand is stable and perceived customer needs are clearly understood. In contrast entrepreneurship is the process most likely to prevail in those circumstances where markets are in disequilibrium and customers have needs which are not being met by existing suppliers.' (Chaston, 2000, p1). Birkinshaw interprets Schumpeter rather differently suggesting that entrepreneurship is the process through which the system is thrown into disequilibrium rather than a response to disequilibrium. Birkinshaw also points out that Schumpeter distinguishes between entrepreneurship and the entrepreneur. The former describes the process. The latter is the agent who carries out the process who can be an independent operator or an employee of an organisation. An individual can operate in an entrepreneur in some circumstances and as a conventional manager in others.

Schumpeter's perspectives shed some light on entrepreneurial processes in higher education. Clearly there are parts of the higher education system where processes are stable, the needs of students are well understood and can be satisfied by long standing

methods. Conventional management and teaching processes meet these needs. Other aspects of the system are clearly turbulent. Traditional responses are inappropriate and ineffective. Innovative responses and processes are required. The role of the manager or academic as entrepreneur is brought into play. Clark (1998) identified an entrepreneurial culture being embraced throughout the system as a feature of entrepreneurial universities. My own research (Finlay, forthcoming) in one of the universities studied by Clark, suggests that it is not the case that all academics or academic managers, even in a university characterised by Clark as entrepreneurial, are, or require to be, entrepreneurial. This is supported by Schumpeter. Provided there is sufficient entrepreneurial activity at the margin to deal with the turbulent environment, not all academics or academic managers need to be entrepreneurial. Universities, like all large organisations, support a variety of internal cultures. The entrepreneurial culture is just one of these.

The other interpretation of Schumpeter is that of entrepreneurship being the cause of disequilibrium also has parallels in the academy. Kuhn (1962) distinguishes between normal science and paradigm shifts in theoretical perspectives. Schumpeter's entrepreneur is akin to the paradigm-shifting scientist. Given the rare occurrence of paradigm shifting science, this interpretation seems a little extreme. There are many examples of normal science being exploited entrepreneurially.

Entrepreneurial activity then is more than simply good management but not as rare as paradigm shifting science. Chaston develops a definition of entrepreneurship that can easily be developed and applied to higher education. He defines entrepreneurship as;

> The behaviour exhibited by an individual and/or organisation which adopts a philosophy of challenging established market conventions during the process of developing new solutions. (p7)

I would adapt this a little to make it apply more easily to higher education. For universities entrepreneurship is the behaviour exhibited by an individual and/or institution which adopts a philosophy of challenging established conventions during the process of developing new solutions and converts these solutions into resource generation opportunities for the institution and/or the individual.

Generating novel solutions or perspectives has been the traditional domain of academics in universities. These solutions or perspectives have then been shared with students through teaching and through peers in academic journals. There have been periods when going beyond these boundaries, far from being encouraged, have led to censure or disapproval. For example, A.J.P. Taylor's forays into the media, in an attempt to popularise historical research and in the process generate additional personal resources, were frowned upon by several colleagues.

The real impetus for entrepreneurial behaviour from academics, has been the need to replace state funding with resources from other sources. It is for this reason that I include the italicised clause in my definition above. Entrepreneurial academics and institutions are those who convert the knowledge that they generate into resources. This can be done in a variety of ways such as creating spin-out companies, negotiating advantageous royalty agreements with commercial companies, delivering leading-edge continuing professional development seminars, selling campus facilities for conferences, and engaging in innovative, development fund raising. Contracts may be concluded in ways that benefit both the institution and the academic or team of academics who are involved. A minority of academics become millionaires through this process whilst their institutions gain welcome additional income.

Chaston took a marketing approach to entrepreneurship. In contrast Birkinshaw (2000) took an organisational theory approach studying entrepreneurship in multinational firms. He defined such firms as 'inter-organisational networks' (p70). Universities can also be

seen as inter-organisational networks. Clark (1998) saw the relationship between the central academic administration of the university and the academic faculties, schools or departments as an important feature in the creation of the entrepreneurial university. Birkinshaw, like Chaston, follows Schumpeter in distinguishing normal management, even in innovative departments such as research and development departments in companies, from entrepreneurial processes. According to Birkinshaw, 'Entrepreneurship suggests… a predisposition towards proactive and risk-taking behaviour; use of resources beyond the individual's direct control; or [quoting Damanpour, 1991, p561], a clear departure from existing practices' (p17).

Birkinshaw then identifies two models of corporate entrepreneurship from the literature. Focused corporate entrepreneurship involves a separation of normal management and entrepreneurial processes with the latter being located in specialist units. This corresponds to what Clark (1998) identified as 'an expanded developmental periphery'. These are outward focused (in business terms, market focused) research units which seek to capitalise on university generated knowledge. The second model identified by Birkinshaw is dispersed corporate entrepreneurship. The basic premise of this model is that all members of the company have the ability to be entrepreneurial. Entrepreneurship and normal management may occur simultaneously. This corresponds to Clark's 'integrated entrepreneurial culture' that aspiring entrepreneurial universities seek to develop throughout their organisations. One recognised disadvantage of the dispersed model is that normal management activities can drive out entrepreneurship because they are more clearly defined and more easily coped with.

Both of these models place an obligation on the central university administration to create the conditions in which entrepreneurship can flourish. The implications of this for both academics and their managers are discussed in the next section.

Entrepreneurship, Academics and University Managers

In this concluding section I attempt to relate the entrepreneurship writing from higher education management theorists and from general management theorists, to practices in universities. I include findings from a recent study I conducted into the views of academics working in a university identified by Clark (1998) as being entrepreneurial.

The first point I'd like to make is that entrepreneurial activity, although identified by many of the writers above as being important, is relatively rare even in the business sector. Entrepreneurial activities, certainly successful ones, receive publicity. It may sometimes seem that much of the public relations output of universities concerns initiatives that may be termed entrepreneurial. However, when the scale and depth of penetration of entrepreneurial activities is examined they are seen to be significant yet marginal activities. I use marginal here in the economic sense. Entrepreneurial activities can have a significant effect on the financial strength of universities because the extra income they generate can far exceed the costs they incur. They may not, however, involve large numbers of staff. Cook's paper on Isis Innovation Ltd. identified an organisation having a significant impact yet involving a relatively small proportion of Oxford University's academic staff. In my own research in Strathclyde University all my respondents agreed that they were aware of entrepreneurial activities undertaken in their department or Faculty, yet all were also engaged only in what they termed core-funded activities. One respondent identified examples of entrepreneurialism as 'hot spots' rather than 'a general climate'. This is not restricted to universities. Birkinshaw reported a case study of an initiative undertaken by the subsidiary of a multinational company. He then pointed out that although academic researchers have identified a range of such case studies, when related to the number of subsidiary companies that are devoid of such examples, one can assert that such initiatives are relatively rare.

The work of Birkinshaw (2000) highlights the need for entrepreneurial activity to sit alongside normal management, and in universities, normal academic, practices. Some knowledge created in universities will be exploited in an entrepreneurial manner. Other knowledge generated from academic activity will be exploited in traditional academic ways by being disseminated in academic and professional journals and through teaching. One of my Strathclyde respondents reported that her Faculty 'has moved strongly [towards] a very dynamic entrepreneurial culture and is also pushing to bring [the Faculty] up to an acceptable academic level [through] things like RAE and so on. This reflects a twin track approach of entrepreneurial activity supporting, and being supported by normal academic activity.

Universities contain multiple cultures. Normal academic processes can and indeed need to coexist with entrepreneurial practices. It is important that all the appropriate cultures within universities are supported and that those who do not engage in entrepreneurial activities receive encouragement and support for that which they bring to the academy. Another of my respondents commented on the culture of change that is intrinsic to entrepreneurialism in the following way.

> 'We are being told that for all organisations the way forward is to embrace change. My comment would simply be that it is far easier for some people than it is for others. Some people welcome change and embrace it and others find it difficult and don't like it…. I suspect it is true that those who are more successful are those who can embrace change…Whether that's a good thing is a different issue. I'm not sure, for example that students are looking for change. What they are looking for is good quality teaching and well-designed courses of relevance. Change often brings money in the door or initiatives often bring money in the door. That's not the same as being an excellent university. There may be links; there may not.'

Although this view may be termed conservative, it is not subversive and represents a legitimate culture within universities of those who uphold certain traditions. Such cultures need to coexist with entrepreneurial cultures without being allowed to stifle the latter.

Birkinshaw (2000) and Tierney (1999) both suggest that senior or central management teams can have an effect on initiatives undertaken at the subsidiary level, by creating appropriate structures or cultures. According to Birkinshaw different structures can facilitate different kinds of entrepreneurial activity and discourage others. High levels of autonomy, specialized resources, high normative integration and high inter-unit communication generally facilitate entrepreneurship (p31). Tierney emphasizes encouraging risk taking by not sanctioning those who occasionally foul up. Mistakes and journeys down dead ends are the partner of successful entrepreneurial initiatives.

There can be a down side to entrepreneurial activity, particularly that which involves a close relationship with business. Traditionally, academics were respected because their freedom from pressure from interest groups permitted them to advise impartially on the subjects of their research. There is now a suspicion, for which there is mainly anecdotal evidence, that findings may be contaminated by pressure from funders. This has caused such concern that some learned journals are refusing to publish the findings of research funded by business. Whilst this may not have an adverse fiscal effect, given the funds available from business, it can have a deleterious effect on the core mission of the university. Tierney (1999) suggests that three questions are asked as decisions about engaging in new activities are made. These questions are:

- 'Are the institution and its employees better off because of what we have decided?
- Are the students better served by the decisions we have just made?
- Have we enhanced the environment for teaching, learning, and research by what we have just done.' (p147)

Focusing on these questions should keep the university on track.

Conclusions

Several theorists of university management have asserted that universities either have or need to become more entrepreneurial in order to adapt to the changes in the environment that have occurred during the past twenty years. I have summarised some of this writing. I have also suggested that whilst some of this writing validly and reliably represents the situation facing universities, it is deficient in that it has failed to review wider academic work on entrepreneurship contained mainly in business and economic texts. I have sought to address this by relating recent academic work on general entrepreneurship to that on entrepreneurial universities. My general conclusion is that whilst the generation of entrepreneurial activity is important to universities in the early twenty first century, it is only one appropriate culture to be nurtured within universities. It is possible, and desirable for an entrepreneurial culture to be developed alongside the traditional cultures within universities. Normal academic practices need to be developed alongside entrepreneurial practices. It would be inappropriate to consider entrepreneurship as the silver bullet attacking the complex changes facing universities.

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University-industry research links: case studies in England and China

Su-Ann Oh

Research on university collaboration with industry has tended to focus on structural and systemic issues such as link formation and management (Reed, 1991; Ding 1994), and models of collaboration (Li et al, 1990; McKinsey and Co, 1991). These studies have identified differences in the orientation of academics and industrial partners and recommended the need for further co-operation and 're-orientation' of attitudes. This paper, on the other hand, reports findings from a doctoral research project that examined academics' perspectives regarding collaboration with industry. The aim of the project was to explore

- academics' views in relation to the politico-ideological dimension of university-industry collaboration,
- the impact of collaboration on the institutional, cultural and social structure of universities as institutions and vice versa, and
- the academic identity and group dynamics that were affected and/or engendered as a result of university-industry links in China and Britain.

Clarification of Terms

A loose definition of industrial links in both universities is used in this paper as the academics interviewed had different definitions. The main focus of the study was on research sponsored by commercial organisations, although other external organisations were included where appropriate. In British universities, this type of work is referred to as 'work for outside bodies' and includes private and public sector organisations, and charities. In China, external organisations include 'society enterprises' (*shehui qiye*), state-owned enterprises (*guoyin qiye*), province-owned enterprises and foreign companies. This type of collaboration is referred to as horizontal links (*hengxian lianxi*).

Why England and China?

In China, the market system was introduced as a way of distributing goods and resources in 1978. Its effects have spread to all sectors of society, not least the higher education sector. Commentators have looked into the effects of the market on higher education and have argued that there has in fact been a 'marketisation' of higher education (Yin and White, 1994; Bai, 1998, Williams, et al, 1997) which has been accelerated by the abolition of job allocation and the fall in recurrent income (brought about by inflation). How are academics responding to the incursion of the market into the university domain? Specifically, how are Chinese academics responding to market-driven research and collaboration?

With respect to university-industry collaboration, the literature on this phenomenon has grown in China. However, much of it has been concerned with promoting collaboration (Li et al, 1990, Liu, 1985) and less of it on the impact of university-industry on academic work and relations.

English universities, on the other hand, exist in a relatively stable and established market-based economy. However, universities in both countries are dealing with similar external demands - generating income as a result of funding cuts, the need to become more relevant to the 'real world' and coping with change from a central system to what appears to be a 'quasi-market' system (Le Grand and Bartlett, 1993). A comparison between these two systems enables us to explore the views of both sets of academics with respect to the wider context: political environment, economic situation, cultural norms, academic traditions and attitudes towards universities and academics.

B University, the British university, and, C University, the Chinese university have a similar subject base - they are both science and engineering universities with an emphasis on application. Both occupy prestigious positions in their respective countries.

Undoubtedly, the two universities have different institutional structures and cultures. The absolute funding figures of both institutions are vastly different. Although C University is much larger than B University, it only received about a fifth of the funding that B University received in 1997. B University is registered as a charity, and this limits the nature of its entrepreneurial activities - it is unable to charge profits on research activities. Universities are not registered as charities in China C. Therefore, the activities undertaken by C University are not restricted. In addition, its workshops and university-owned enterprises are exempt from tax. However, it has difficulty charging overheads or profits on horizontal links because of the highly unregulated and competitive nature of the industry research market.

There is a parallel Party structure in the administration of universities, and issues such as academic freedom and autonomy are subject to strong political control (Lo, 1991; Agelasto, 1995). At B University, there is less of a dichotomy between administrative and academic functions, and academics face fewer political restrictions regarding academic freedom and autonomy.

These institutional differences highlight the structural and cultural issues associated with industrial collaboration. The decisions that academics face when confronted with the cultural-value norms of two different institutions – those of their own universities and those of external organisations – may be contrasted in context.

Research strategy

The data is drawn from semi-structured interviews with 40 academics in the two universities between 1998 and 1999. The interviews were divided into three sections:

- Situating the respondent in the general context of their professional life – questions about their academic unit, the types of industrial collaboration they were involved in, their research and teaching commitments.

- Descriptions of work undertaken for industry – the nature, process and outcomes, and a comparison with research sponsored by other agencies; the impact of such work on teaching and research, reward structures and decision-making within the academic unit. Academics who were not involved in industrial research were asked to describe the reasons for this and how they perceived the impact non-participation might have had on their own work and position.

- Locating the interviewee in the social and professional framework of the academic unit - their personal motivation as academics, their preferences in work-related tasks and the groups they identified with in their academic unit and university.

The interviews were supplemented with observational studies, document reviews and data collected from informants/friends.

China: the Politico-Ideological Dimension

In China, the government's underlying reasons for promoting links between higher education and industry are to reduce public spending on higher education and to enhance economic development. This type of economic development via scientific and technological advancement is framed in the rhetoric of Maoist and Marxist ideology.

Mao's policy on theoretical and practical work in the 1950s and 1960s was motivated by ideological, political and economic considerations. At the epistemological level, Mao believed that 'the acquisition of true knowledge presupposes constant interaction between theory and practice', and required the nurturing of the 'fully developed human being' (Löfstedt, 1980, p47). He also wanted to resolve the divide between the intellectuals and manual labourers that was entrenched in educational philosophy and wider social beliefs so as to integrate proletarian politics and productive labour.

Although the current policies on collaboration between enterprises and universities no longer emphasise the inculcation of 'correct' attitudes toward manual labour, the discourse

on higher education and industry still centres on notions of the 'fully developed human being'. However, the characteristics required of this 'human being' are now based on a different economic system. The combination of practical and theoretical work is to accelerate technology transfer and to produce a skilled and 'quality talented workforce' (*suzhi rencai*) to serve the needs of the 'socialist market' economy. There is no equivalent word for *suzhi* in English. It encompasses a variety of factors, and commentators do not agree as to what these factors are. In the context of higher education, it is argued that the natural and social sciences should combine to 'cultivate' scientific personnel of a high standard (*peiyang chu gao suzhi de keji rencai*) with all-round capabilities (*duoyuanhua*) (Chen et al, 1998). Chinese enterprises view this question in a different light, their idea of *suzhi* revolves around notions of responsibility and the ability to work independently and systematically (Chen et al, 1998).

The essential elements of the debate centre on the combination of theoretical, personal and practical knowledge. Yet, this is often impossible, as the requirements of theory as institutionalised in higher education are often opposed to those of practical knowledge, roughly translated as the needs of the workplace. The findings reported below show that these may not be compatible where it concerns doctoral research. In other research on English language courses in Chinese universities, it was found that the importance of practical work and the 'vocationalisation' of subjects was displacing in-depth theoretical knowledge (Liu, 1998).

Marxist theory is used to justify the economic reforms required for 'socialist market' development. In March 1978, Deng Xiaoping declared at the first National Science Conference that 'there is an intimate relationship between scientific research and the development of both organisational form and society's mode of production'. In 1985, the State Education Commission used the slogan 'economic construction should depend on scientific research, and scientific research should serve economic construction' (p5) to encourage higher education institutions to contribute to the economy through technological work. The phrase 'economic construction' has two functions: it serves to link present economic reforms to pre-1978 discourse on nation and economy building by

invoking the terms used by Mao and by echoing Marxist discourse on science and technology. It reinforces economic development via technology transfer as the purpose of higher education and subsumes the purpose of universities and the role of academics under the dual goals of social and economic development. The role that academics and universities have in this schema is threefold:

- to train the appropriate personnel/workforce,
- to conduct research which will advance technology and production, and
- to carry out the transfer of these technologies to production units.

To this effect, the Chinese government has sanctioned and actively promoted such activities within higher education institutions. This has occurred alongside the 'marketisation' of higher education (Yin and White, 1994) - the re-orientation of the higher education structure, finance and curriculum towards market processes and outcomes. In many disciplines, teaching and research are being geared towards the needs of labour markets (Agelasto, 1998; Williams et al. 1997) and industrial markets (Yin and White, 1994). Universities have been encouraged to take on teaching, research and production (*jiaoyanchan*) as their core activities (Law, 1995).

Horizontal Research and the Purpose of Higher Education

Although C University took on industrial collaboration wholeheartedly, the findings show that in an effort to become a more commercially-driven, market-oriented institution, it was faced with the dilemma of maintaining its philosophical underpinnings as an 'academic' institution (the pursuit of scholarship and education) and serving the modernisation needs of the country at the same time.

Confucian notions of service to society and nation-building featured strongly in the speech of the Chinese academics interviewed. Many of them believed that they would be able to push China towards modernisation and development through technological transfer and collaboration with industry. Respondents asserted that due to the unique nature of China's economic development, there was a need for universities to fill the gap

left by domestic enterprises which are unable to carry out technology transfer on their own. Academics and their counterparts in university enterprises spoke with pride about the work they had done for government departments and enterprises. To a limited degree, they felt that they were able to act as advisors to the government and its agencies. This has also been documented in the case of intellectuals (Goldman and Cheek, 1987; Mok, 2000).

However, some of them reported being involved in highly applied and developmental industrial research, which did not, to their mind, add to the country's technological advancement or to their own development as scholars. Some respondents were worried about the low standard of applied research being commissioned and conducted at the university.

Furthermore, there was an underlying concern that the proportion of applied research was increasing and slowly outstripping basic research. Administrators perceived academics to be working on more projects with an emphasis on applied research than on basic research. According to the then head of the Science and Technology division (which administers all things associated with research), two thirds of the research projects in the university were funded by the State and one third was funded by enterprises (state-owned and privately owned). The majority of projects funded by the State were for basic research, and almost all projects funded by enterprises were for applied work. This proportion varied between departments: the more applied departments had a higher proportion of horizontal research than the less applied ones. However, he predicted that, in the future, horizontal projects would represent half of all research projects.

On the whole, administrators and academics in administrative positions were concerned with the fall in basic research in the university because basic research was seen as an investment in the knowledge base. Also, conducting basic research was viewed as a defining characteristic of a prestigious university.

The administrators spoke about this issue in terms of the actions of individual academics rather than the ideological and structural problems of academics working with enterprises. Thus, the university and its departments devised incentive and disincentive systems to encourage academics to undertake basic research to counterbalance their horizontal research activities. These included using promotion as an incentive to encourage younger academics to concentrate on basic research. This had a limited effect though, as academics who devote themselves to raising their personal income may not mind that they will not be promoted. In addition, opportunities for promotion were not applicable to those who were already professors and those who were not interested in climbing the academic ladder.

Department heads also devised ways of working around the problem based on the workload (*gongzuoliang*) undertaken by each academic. The workload of an academic post consists of teaching, administration and research. In one Engineering department, thirty-two hours of class teaching counted as one quarter of the workload. If an academic had four courses of thirty-two hours each, then s/he would have fulfilled the workload, solely through teaching. Taking on administrative work counted as half a workload; research activity was measured by the amount of funding that one obtained and this was differentiated by funding source. For government-sponsored projects, known as vertical projects, 200 000 RMB counted as a full workload; the amount was double that for horizontal projects - 400 000 RMB. The reason for this discrepancy was that the department was trying to encourage its academics to undertake more State-funded projects.

Besides individual incentive systems, the university also devised an institution-wide mechanism to address what it perceived to be the imbalance in basic and applied research. It established a university science fund (*xiaonei kexue zijin*) to supplement basic research. This was financed by administrative fees that were charged to horizontal project funding. However, there was conflict and suspicion among staff regarding the apportionment of these funds.

It is undeniable that the proportion of applied research being conducted was increasing without a corresponding increase in basic research. However, administrators and academics alike were optimistic that when China reached an advanced stage in its economic development, the university would no longer have to rely on enterprises for funding research as there would be other sources of funding for basic research, specifically the State. However, there is no guarantee that this will occur. As the university and its departments increase the proportion of their research funds from horizontal projects, the government might reduce its provision of research funds. Whether it will return to supplying funds for basic research in the future, once economic development has advanced far enough, is uncertain. The university did not seem to have implemented any policies with regards to the perceived fall in the quality of applied research.

Doctoral Education: Practice v Theory

Doctoral students were caught in the middle of these tensions. Most of the applied research projects obtained by the academics were undertaken by their doctoral students. Some of the academics complained that their students were unwilling to conduct such research or that they were not competent enough to do so. As the criteria for gaining a doctorate are based on theory, originality and innovation, it is unsurprising that doctoral students were not always willing to undertake applied horizontal research.

In fact, some of the academics interviewed felt that the aims of doctoral research *should* be compatible with those of commercial research. In explaining this, they used rhetoric that blended Mao's exhortation of combining theory and practice, the Confucian principle of 'service to society', and the Dengist call for generalist talent (*rencai*). They felt that these were inextricably linked to the educational purpose of the university. One Professor in Management believed that changes in educational ideology were occurring. He asserted that the type of talented people required by the planned economy no longer applied to the new socialist market conditions. The debate was one of wide-ranging competence versus specialisation. According to him, the highly specialised worker of the planned economy would not be able to adapt to the changes in the market, and to the

broader-based demands of companies. Consequently, he believed that the university should keep up with what is happening in the market and society at large, so as to prepare students for potential changes in the market. Furthermore, he pointed out that the personal qualities of a graduate required by the socialist market economy are different from those required by the planned economy. In his view, the emphasis had shifted from uniformity and conformity to diversity and individuality. Many respondents had a similar view, they believed that the university needed to be in constant contact with industry, the economy and society so as to arm graduates with the knowledge, skills and personality traits required.

To this end, many believed that an added advantage of collaboration with enterprises was that it enabled them to build up a pool of enterprises where students could be trained in practical work. In fact, some Engineering departments had designed coursework so that students undertook practical work half of the time, and theoretical work during the other half.

Despite the belief in the necessity to provide both theoretical and practical training, it was recognised that this was not always feasible in a doctoral programme. Academics' views on this issue varied, and in many cases, according to their discipline. Those in applied/vocational disciplines such as Architecture, Management and Engineering were more likely to say that there was a need to design the curriculum to match the needs of the economy. On the other hand, academics in the pure sciences were less likely to think this way.

Some of the respondents asserted that these academics were more interested in completing the research than in training their doctoral students. Whether this is the case, many academics believed that there was a need to equip their (doctoral) students with the skills and experience that enterprises required. Some asserted that the acquisition of these skills should be incorporated into the doctoral programme. The question, here, is whether research commissioned by enterprises is appropriate work for a doctoral programme. This

would depend on two things: what a doctoral programme should consist of and what type of research is being commissioned.

Britain: Wealth Creation and Industrial Relevance

Like the Chinese government, the British government's focus is on reducing the financial burden of supporting students and research, and on ensuring that universities contribute to 'wealth creation'. In the 1980s, a plethora of government papers was published stressing the advantages of close academic-industry liaison. The 1985 White Paper on British Higher Education (Cm. 9524, 1985) and the 1985 Green Paper both stressed that universities should be relevant to the economy. In July 1987, the Advisory Board for the Research Councils report, *A Strategy for the Science Base* (Cm. 2250, 1987) announced that there was insufficient money to finance full-scale research in all universities, and that industry should help to decide research priorities. There was a strong emphasis on the exploitation of research to reduce the gap between science and business. The term 'creation of wealth' was used explicitly in the 1993 White Paper on science, engineering and technology (Cm 2250, 1993).

'Wealth creation' is defined in terms of the interests of the private sector. The aims of science and technology are to be decided upon in consultation with 'those responsible for industrial and commercial decisions' (Cm 2250, 1993, para. 1.16). Similarly, the report of the Council for Industry and Higher Education (CIHE) (1987) interpreted the needs of the 'economy' as those of 'industry' and advocated that students should have more industry-related training. This suggests that the purpose of science and technology as a whole, and that of universities providing wider social goods and needs, is being reduced to goods that will enhance the 'wealth' of commercial organisations.

Following the 1993 White Paper, the Technology Foresight Programme was set up. Its purpose was to identify the likely social and economic needs of the future, and the developments in science, engineering technology and infrastructure needed to address these (DTI, 1995). Many of the projects were set up with an emphasis on joint funding

between research councils and industry in university research projects. For example, in the Cooperative Awards in Science and Engineering (CASE) studentships, LINK collaboration research, and 'Realising Our Potential' Awards (ROPA), applicants have to show support from industry in one form or another.

Undoubtedly, there has been an increase in the amount of collaboration as universities attempt to supplement their falling government funding. In fact, in 1994, the proportion of research in higher education being funded by business enterprises (51%) exceeded that of government-funded research (32%) (Annual Abstract of Statistics, 1997).

Academics and 'Knowledge'

Academics at B University reported that industrial relevance had become an important factor in the research council application process. Research councils require proposals to be relevant to industry in some form, either through evidence of industrial application or direct support (for example: contacts, letters of support, funding, equipment) in both non-specific grants and joint industry and research council projects (such as LINK and CASE). In the latter projects, there is an express requirement that the work is useful to the industrial sponsor/partner.

As a result, some academics reported feeling compelled to direct their research into areas with (potential) industrial applications; they were angry and frustrated at having to justify their research on the grounds of industrial relevance. First, their anger stemmed from their belief that the research councils should be funding basic research. Otherwise, there would be no difference between research undertaken for industry and that awarded by the research councils.

Second, they explained this as an attempt by the government to control the type of research being undertaken in the higher education sector. In addition, they perceived it as a way of undermining their standing as professional 'knowledge-seekers'.

The difficulties academics faced in applying for research council funding (the need to show industrial relevance and competition against other applicants) made many look toward industry for funding basic and applied research. What seemed puzzling, at first, was how they were able to obtain industrial funding when they had not been able to show the research councils that their work was relevant to industrial concerns. In addition, how did this help them to secure basic research funding?

It appeared that academics who were able to obtain industrial funding were those who had previously had a substantial amount of industrial support. They saw industrial funding, not so much as an alternative, but as an eminently accessible source of funding. They had cultivated good relationships with certain industrial sponsors, and were able to obtain funding without having to go through the usual channels. For example, half of the research undertaken by one Professor of Chemistry, was funded by the Engineering and Physical Sciences Research Council (EPSRC) and the university, and the other half by industry. The industry-sponsored component of his research portfolio consisted wholly of direct industrial projects. He and several other academics reported finding it easier to go through industrial contacts than through research councils because there was less competition. Many of them reported taking on industry-oriented projects funded directly by a company for the possibility of securing future industrial support for basic research. They also used extra funds from those projects to fund their own (basic) research projects.

With the exception of those in purely theoretical fields (pure Mathematics, for example) where funding agencies recognise that research in these fields was very unlikely to attract funding from industry, academics whose research did not fall into the categories mentioned in the previous paragraph reported that both research councils and direct industrial funding were difficult to obtain.

With regards to research council and industrial funding, academics perceived that industry was now the driving force behind research, scholarship and the pursuit of knowledge. One academic asserted that this way of thinking was false and that the pursuit

of what type of knowledge should actually be determined by academics because they have a longer-term view of what type of 'knowledge' is worthwhile. He asserted that industry did not always know what was best; and did not trust it to take responsibility for safeguarding the longer-term purpose of research. Like their Chinese counterparts, academics at B University were concerned about the balance of applied and basic research being conducted in the university. One respondent remarked that the exigencies of financial survival meant that the university had to resign itself to a less-than-satisfactory proportion of basic research.

Those who believed that it was worthwhile for universities to be involved in both applied and fundamental research were more likely to explain this in pragmatic terms. Fundamental research was useful for building one's research reputation, and applied research was beneficial for obtaining and maintaining links with industry for resources.

Although the academics interviewed recognised that commercial sponsors were mainly interested in sponsoring research for applied purposes, they were unhappy about how their autonomy was being restricted. They complained about having to 'work to order', attending meetings and doing the associated paperwork. Why did they feel this way? Dearlove (1997) likens academic work to 'a kind of self-regulated, pre-Fordist, craft activity' which is 'ill-defined, open-ended, and without predictable outcomes' (p57). Accordingly, many academics subscribe to the belief that this 'kind of creativity […] cannot be commanded by an academic master, still less delivered to a management order' (p57). Consequently, the changes in the research process (shorter time span, extra administrative work, the uncertainties of working with companies and, the need to 'deliver' something 'concrete') generated by the control mechanisms of industrial partners caused academics anxiety over their ability to control their own research. This change has been described in Marxist terms, as the 'proletarianisation' of the academic workforce (Dearlove, 1994; Smyth, 1995). This term is not wholly appropriate with respect to academics who are white collar professionals employed in the public sector. I believe it is best used in the context of the loss of control over one's own labour. 'Proletarianisation' in the academic world is the corollary of 'professionalisation'. The

extent to which academic work is seen as having become 'proletarianised' has been discussed by many (see Dearlove, 1997) and these authors have pointed to the indicators of this phenomenon as: the reduction of control over student enrolment, the emphasis on vocational skills in the curriculum, and the appointment of 'managers' in the university. I propose that collaborative industrial research is another indicator.

How Changes in the Research Process affected Educational Aims

The nature of industrial research is greatly influenced by the production cycle. One Professor in Engineering described how industry is now developing designs and products in a shorter time period than before. In turn, research has to be completed in a shorter time period. The effect of this on doctoral research is twofold. Firstly, firms will only fund research for the period of time which fits into their production cycle. Consequently, those doctoral students who are (part) funded by firms face uncertainty about the future of their research funding since their work is only being supported temporarily (usually for one year) over a three-year doctoral programme. Secondly, it means that the 'educational' or 'training' aspect of doctoral work may be sacrificed in the interests of 'deliverables'. In a doctoral programme, exploration and originality are the criteria that have to be fulfilled for a student to demonstrate competence in research. When asked how short-term industrial contracts affected the educational experience of doctoral students, a Professor in Engineering replied that

> …it doesn't allow them the luxury of having the time to think, of exploring new concepts, of thinking of something different, and different ways to solve a problem. They are faced with tasks one after another and this is not helping people in expanding their intellectual horizon. They become simply tools for achieving a goal.
>
> Professor in Engineering

Comparing the Two Universities

What is the Purpose of Research conducted in Universities?

Despite the different political natures of the governments in both countries, both assert that the purpose of university collaboration with industry is intimately connected to economic development, whether through 'modernisation' or the 'creation of wealth'. Economic development in this context is intimately linked to increasing the capabilities of industry and private enterprise. The role higher education institutions play in this is by conducting 'appropriate' research, facilitating technology transfer and equipping students with the skills required by industry.

The ideological element was given greater emphasis in the Chinese university. Chinese academics and administrators alike referred positively to the need to contribute to modernisation via technological advancement and transfer, whereas their British counterparts were more critical and sceptical about these policies. In fact, they felt constrained and frustrated by joint government-industry aims especially where it concerned research council funding.

In the course of the interviews, issues relating to the purpose of research and education in higher education emerged. First, it seemed that there was a tension in how research could serve industrial concerns and expand a field of knowledge at the same time. Second, how does the university reconcile the different requirements of industry and its doctoral programmes? Commentators have been concerned with the narrowing of the definition and purpose of 'knowledge' in higher education. O'Hear (1988) and Barnett (1994) believe that higher education and knowledge should encompass more than 'skills', 'competence', 'outcomes' and 'capability' (Barnett, 1994) and the preparation of graduates with transferable skills for industry. Walford (1991) warns that the privatisation of the university will shift the emphasis to more short-term, skill-specific training required by employers. In fact, the findings of this research show that industry-sponsored research has started to influence the *nature* of doctoral programmes in B University. At C University, it is the *content* of the doctoral programme that has been influenced.

Control of Research?

The findings show that academics are negotiating new social relations with groups which have control over their work. Academics in both universities reported that external agencies were now exerting more control over the direction of research and the research process. The difference was that only British academics reported feeling frustrated by research council funding requirements. This was because the British government has translated its policy through concrete measures - the insistence on joint industrial research funding and wealth creation as a criteria for research council funding. The Chinese government, on the other hand, has relied more on discourse and rhetoric.

Although more control was exerted in the British case through research council funding, this did help to safeguard the interests of the university. Joint research schemes were set up in such a way that they protect the interests of doctoral students. However, since there was no such initiative at the State level in China, the interests of doctoral students were not always taken into consideration.

Another structural arrangement that helped to protect the British universities was the agreement that they have established amongst themselves regarding the charging of overheads. They were therefore in a better bargaining position than their Chinese counterparts when it came to negotiating with commercial sponsors.

Universities and Industry: processes

Despite the administrative changes which had been implemented, there still had not been a reconciliation between academic ‘values’ and the place industrial applied research occupied in the academic research agenda in both universities. This was evident in the conflicting comments of academics and administrators and the various incentive and disincentive systems set up. It is possible that the administration in both universities was worried that having a concrete policy might be taken to mean that they had accepted industrial research links as a fundamental part of their purpose and work. This lack of

clarity resulted in confusion and uncertainty among staff members, as well as increased difficulty in managing and regulating link activities between academics and industry. This has often been described as an obstacle to increased and more successful collaboration between industry and higher education (Botham and Eadie,1997; Parker, 1990, in the case of England, Li et al, 1990; Liu, 1985 on Chinese collaborative links). However, the findings suggest that the issue is not simply a matter of 'obstacles' but one of ideology and philosophy, or 'values' as argued by Tasker and Packham (1993). It is a clear indicator of the internal struggle higher education institutions face to retain their 'academic values' while attempting to address the exigencies of their financial situation. The difficulty here would be maintaining a balance in 'academic values' and incorporating meaningful industrial collaboration with respect to research and doctoral training

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The fundamental questions that have emerged from the research are not new. What is the prime role of universities in society? Is there a universal purpose of higher education or is that linked to the economic and political environment? Other questions which are more specific to that of university-industry collaboration are: what constitutes the role of academics in relation to industrial research? Is it possible to reconcile doctoral research with industrial requirements?

The implications of this research are less abstract. Different agencies have a role to play in promoting good quality research sponsored by commercial organisations and conducted in universities. First, concrete government practices regarding research funding which safeguard the interests of universities and doctoral students ensure that all those involved are protected. Second, inter-university collaboration setting out and abiding by a set of agreed terms between individual universities and industrial partners will give institutions more negotiating power – cooperation as opposed to competition. Third, individual institutions have to make their stance on industrial collaboration clearer and design appropriate institutional structures and cultural settings which reflect it.

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