Back to the Future: the higher education curriculum in the 21st century

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ABSTRACT   *This paper begins by reviewing some of the dramatic changes which have been taking place in higher education in recent years and which are disrupting the traditional identities of place, of time and of the scholarly and student communities. These are producing for the 21st century a higher education system which operates under a greater variety of conditions than ever before (part-time/full-time, work-based/institution-based, face-to-face/ delivered at a distance, etc.) and which brings with it a student experience and an informal curriculum, which are both changed and increasingly diverse. The paper then looks more specifically at the competing epistemologies which are struggling to shape the formal undergraduate curriculum of the 21st century: the deconstruction of the subject, as reflected in, for example, the modularisation of the curriculum; the cross-curricular 'key' skills movement; the learning through experience movement and the shift of the seat of learning outside the academy; the profoundly disruptive potential of web-based learning. It observes too, however, the continuing power of the subject as a form of academic and organisational identity and the way in which the current dynamics of the research assessment exercise, the Quality Assurance Agency subject review process and even the Higher Education Funding Council's strategy for teaching and learning are working to reinforce the subject as the unit of organisation in higher education. It is this that prompts the hint in the title that the future may contain elements of familiarity as well as radical change.*

INTRODUCTION: ON FORECASTING

> We are on an irreversible path towards ... something—but all that could change. (Attributed to Dan Quayle)

I lack, I am afraid, either crystal ball or the gift of prophecy, but I observe that these deficiencies have proved no deterrent to other fin de siècle soothsayers and that, indeed, only a very small portion of futurology actually involves making predictions about the future. Even weather 'forecasts' seem to consist very largely of accounts of what the weather has been like in different parts of the country over the last 12 hours and what is happening currently (cut to camera with view across the roof-tops of Aberdeen) across the nation. Computerised images then allow us to see what might happen if (as much as what will happen

when) the weather systems take a particular course across the land. So, much forecasting is little more than up to the minute description of what is happening at the moment linked with some modest projection of these events into a future (which could well turn out otherwise). This is the first logic of prediction.

The second logic of prediction, especially applicable in the social context, is that of the self-fulfilling prophecy. If the fashion columns predict that men or women will be wearing black plastic bags next season (and the industry simultaneously ensures that the shops are full of garments constructed out of black plastic bags), then there is a good chance that plastic bags will indeed be the fashion item of the season. If the financial pundits predict a sharp increase in the price of utilities, then the rush of people buying utilities in an attempt to benefit from the increase will very probably drive up the price in the way which was predicted. Indeed, so powerful is this dynamic that we have to be cautious in the educational context not to fall victim to the use of such predictions to induce compliance to a particular programme or policy independently of any merit which may lie in it or any real coercive force which may lie behind it. There may be some inevitabilities in the forces which shape the natural world, but there are few such in the social world or, more particularly, in the world of educational policy, and we must always be ready to respond to dire predictions of what will happen with the personal and political will to determine 'not while I'm around to stop it, it won't!'.

Thus predictions about the future have a third logic: they are commonly offered in a cautionary spirit: this will happen … if … or unless … . They are thus designed to be self-defeating. The success of the 'prediction' is not in its proving to be correct, but in its capacity to galvanise people into action to prevent it from being fulfilled.

I shall eschew in what follows any attempt at self-fulfilling prophecy or, indeed, long-term prediction. I shall observe some current trends and developments which seem to me to have enough mileage in them to suggest that they will continue to impinge on the higher education curriculum in the coming decade and longer unless we actively seek to reverse them. First, however, a few observations on the context of teaching and learning in higher education.

THE DECONSTRUCTION OF 'THE UNIVERSITY'

The first point I want to observe is the radically changing nature of higher education in the UK in the last 20 years of the twentieth century. These changes are significant, I suggest, not just because they provide a changing context for the higher education curriculum, but because in the broader sense of the term, which includes all that is learned by the students, not merely that which is planned by their teachers, they change the curriculum itself.

Over the last two decades almost every one of the boundaries which gave definition to a university and to students' experience of it have been removed.

- *The identity of place* has been challenged by the acquisition by some universities of up to 12 or 15 new institutions and new sites scattered

over a region extending 40 or 50 miles from the central institution; by the rapid development by traditional universities of distance or distributed learning systems and also of franchising, validation and accreditation, which enable a student to study for a degree of University *X* at an FE college in the region, at a higher education institution overseas or at a computer at home. (One US HE provider operates under the slogan 'Let's get the cost of real estate out of education!'; Marchese, 1998.) In the professional fields in particular the development of work placements, work-based learning, school-based teacher education and clinical attachments have extended the HE learning environment from the university into the working environment. Widespread access to Email has rendered the face-to-face contact between student and supervisor in the university and even visits to the library a rare rather than a routine part of the experience. 'The distinction between "distance education" and regular instruction—even the relevance of distance and other spatiotemporal markers as the key distinction between different types of teaching or different categories of student—is beginning to disappear' (Burbules & Callister, 1999, p. 1).

- *The identity of time*—the idea of a tightly contained academic year of intense interaction broken by long periods of separation, or even of a day in which teaching was largely confined to a period between 9.00 and 5.00—has been broken by demands for part-time evening courses, short courses, day seminars at the weekend and summer schools as well as the need in, for example, health-related subjects and teacher training for years which match the schedules of hospitals and schools and give time for extended practical experience.
- *The identity of the scholarly community* has been extremely difficult to sustain as HE institutions have grown exponentially, spread, as I have already indicated, to multiple sites, relied more heavily on part-time and short-term contract staff and entered into all sorts of partnerships in teaching with practitioners in the workplace.
- *The identity of the student community* has similarly been rendered more diffuse as it has become larger and topographically more dispersed and as students arrive on campus (if they come at all) at different times of the day and year, are largely non-resident, represent a wider span of ages and cultural backgrounds than every before and combine part-time work with study.

The disintegration and diversity which follow from these and other changes in higher education have led some commentators to write of 'the post-modern university', characterised by Smith and Webster in terms of 'a multiplicity of differences':

… different academics pursuing different knowledges, different teams of

researchers combining and recombining to investigate shifting topics, different sorts of students following different courses, with different modes of study and different concerns among themselves, different employment arrangements for different types of staff—difference everywhere in this the postmodern, flexible, accommodating university. (Smith & Webster, 1997, p. 104)

The current pressures to extend still further the numbers participating in higher education (up to 50% of the age cohort, urged the prime minister at the 1999 Labour Party conference), to extend access to sections of the population who are under-represented, to maximise the use of new technologies, to link higher education more closely to employment and to meet the needs of students to combine study with earning money—all of these suggest that the trends I observe here will continue to bear upon the character of higher education well into the 21st century.

Thus students' experience of 'university life' and the kind of learning which takes place outside the official curriculum between registration and the award of the degree is very different from the kind of experience available in a traditional university setting (and perhaps largely protected in, for example, Oxford and Cambridge), which was characterised by a relatively intimate and tightly defined academic community of staff and students, a concentrated academic year during which all students might be expected to be in attendance and a narrowly bound physical setting (Cambridge undergraduates, for example, are still expected to live within 3 miles of Great St Mary's Church, though even Cambridge has found itself 'deeming' the most unlikely locations to lie 'within the precincts of the University'). HE offers and will offer new curricular opportunities: in the interplay between academic study and wider working and life experience; in the rich variety of people that a modern day student will encounter (though perhaps with less opportunity to develop relationships through extended and close proximity); in mobility between different academic and learning communities (through for example Erasmus schemes or, more mundanely, credit transfer); in encounters with teachers from a variety of working and professional as well as academic backgrounds. But it will offer less of the intense admixture of close relationships, partying, sport, politics and artistic activity in an intimate community which was available to (though of course not always availed by) a traditional university undergraduate community. I do not conclude here that the wider curriculum on offer to a contemporary undergraduate is an inferior one, simply that: in the majority of HE contexts it is a different one from that was offered traditionally (and still is in some cases) in a close residential university; that across the HE sector it is an increasingly diverse one; that it will become even more varied as the trends I have observed continue to impact on students' lives.

Many of these changes are reflected too in the formal curriculum of the university, and it is to these that I now turn.

THE CONSTRUCTION AND ORGANISATION OF KNOWLEDGE IN THE UNIVERSITY CURRICULUM

> Knowledge as we have known it in the academy, is coming to an end.
> (Griffin, 1997, p. 3)

The higher education curriculum has become the site for a fascinating clash of epistemologies as well as values and educational and other priorities. Some see this as threatening 'a crisis arguably more serious than those of finance, organisation and structure' (Griffin, 1997, p. 3); some as an 'incoherence' which can be addressed only by (God help us!) a 'Higher Education Curriculum and Assessment Council' (Barnett, 1997). We are faced with some very practical as well as philosophically grounded questions as to what selection of knowledge should be represented in the university and how that should be constructed (epistemologically and from the perspective of learners). These in turn raise questions as to how this knowledge should be organised (institutionally and from the perspective of teachers) so as to provide most effectively the teaching and learning which that structure should support. Not only are these extremely interesting questions in their own right, but there is a real opportunity for those who engage with them to affect the outcomes, since, unlike the school curriculum, which has been rested almost entirely into the hands of our political masters and mistresses, the university curriculum remains for the moment pluralistic and (with the important exception of courses carrying, for example, professional accreditation) self-determined at institutional level, though the demand for the 'benchmarking' of degrees—not to mention Barnett's bizarre enthusiasm for a Higher Education Curriculum and Assessment Council—poses a serious threat to this autonomy.

I shall here consider five contemporary competing epistemological pressures on the higher education curriculum, suggesting that the future of the higher education curriculum will hang significantly on the way in which this competition is resolved:

- the deconstruction of the subject, as reflected in, for example, the modularisation of the curriculum;
- the cross-curricular 'key' skills movement;
- the learning through experience movement and the shift of the seat of learning outside the academy;
- the anarchic potential of web-based learning; and
- the reaffirmation of the subject as the academic and organisational identity.

THE DECONSTRUCTION OF THE SUBJECT

Traditional subject identities received a major challenge with the establishment of the 1960s generation of universities—the new campus universities which included the University of East Anglia (UEA), York, Warwick, Sussex, Lan-

caster and Stirling—several of which chose to package knowledge in new ways, typically creating interdisciplinary schools or faculties. UEA, for example, was founded on units which included environmental sciences, European studies and English and American studies (development studies was another to emerge at an early stage), all of which have survived to the present day. Some of these organisational units established a national and international identity (environmental sciences is the most successful example) and the institutional trappings of learned societies, journals and annual conferences which established them as subjects in their own right (though we shall see below that even after 30 years they have had only limited success in this respect). Similarly, in terms of internal relationships within universities they rapidly began to behave like conventional subject departments with the traditional means to maintain boundaries and discourage the permeability of staff, students or resources through them. Some universities, like Sussex, tried to safeguard against this tendency by building in a complex structure of dual identity for staff and students of subject departments and schools of study (though I believe this has recently been under review).

However, a more radical challenge to the identity of the subjects of the traditional higher education curriculum came in the late 1980s and early 1990s with the modularisation of the higher education curriculum in all but a handful of universities, the consequences of which will continue to impact on the higher education curriculum well into the next century. In a 1994 report to the Committee of Vice Chancellors and Principals (CVCP) Williams and Fry captured something of the import of this change:

> The creation of small units of knowledge and the almost infinite number of ways in which they can be assembled encourages analysis of the scope and nature of knowledge in any discipline, its relationship to other disciplines and sub-disciplines, and the way in which this knowledge can best be acquired and its levels of attainment assessed. However, once knowledge has been deconstructed in this way the essential arbitrariness of the degree qualification becomes apparent. (Williams & Fry, 1994, p. 71)

Part of the rationale for modularisation was that it facilitated more flexible patterns of study, allowing students to accumulate 'credit' for courses successfully completed over a period of time which suited their personal circumstances and, by extension, to assemble credit for modules taken at different institutions. There are then three ingredients to this disassembly of traditional patterns of learning supported by the 'credit' revolution:

- the taking apart of traditional subjects as the *epistemological* units of study;
- the taking apart of the three year undergraduate course as the *chronological* unit of study; and
- the taking apart of the single university as the *topographical* location of the unit of study.

An HEQC report on 'credit accumulation and transfer' offered an accurate perception of the radical implications of the shift in the direction of 'a credit culture'. This would involve, it argued, a shift in taxonomies of knowledge, a rewriting of the undergraduate curriculum and 'the reconstruction of the institution itself' (Higher Education Quality Council, 1994, p. 316).

In principle at least, the modularisation of the units of learning in higher education opens opportunities for the expression of two different educational principles. First it renders possible a more student-centred curriculum, i.e. (within certain bounds) it allows students to assemble a degree programme which fits their interests and aspirations. A university may not have thought of offering a degree in, say, Victorian studies, but a student might assemble one by a judicious selection of ingredients from history, history of art, literature and, perhaps, even history of science. A student may want a strong European flavour to a degree in law and may do so not only by selecting from the components on offer in law, but mixing these with some European politics, language and economics.

But the same organisational structure can also satisfy a different social imperative—the expectation (which I observe rather than entirely endorse here) that university programmes might serve more directly the needs of employers. My own university was approached recently by a major computing and information systems company. They wanted a degree programme which would prepare students for a management role in their European-based organisation. Our modularised programme enabled us to assemble a tailored degree which included elements of our existing programmes in information systems, management and European languages, a programme which crossed the boundaries of not only three subject departments but also three nascent faculty structures.

But if modularisation empowers students in the construction of the knowledge with which they will engage, its effects on staff are not always so positive. UEA colleagues Tony Rich and Clive Scott describe how 'one of the general features of the modularization/semesterization process is a feeling of alienation or dispossession (among staff), a feeling shared by external examiners' (Rich & Scott, 1997, p. 76).

I would not wish to exaggerate the flexibility which the modularised structure within my own university offers: others will no doubt offer more. A number of very different considerations continue to restrict the flexibility on offer to students. These include:

- the need to fulfil the requirements of professional bodies for the accreditation of programmes as a professional qualification;
- the desire to build consecutiveness and progression into the study of a particular subject, and hence the need to make the study of *x* a prerequisite of the study of *y*; and
- the desire of heads of departments to protect income streams and hence their inclination to place disincentives and barriers in the way of student choice.

These three concerns are perhaps felt most sharply by subject departments, whereas the commitment to flexibility and student choice is sometimes strongest at the centre, which places an interesting tension at the heart of university management and decision making.

THE FOCUS ON KEY SKILLS

A second current of change in higher education runs across the first and adds to the disturbance of the nature and role of the traditional subject and its institutionalised expression in the department. This is the demand for what have variously been identified as transferable skills, cross-curricular skills, core skills and key skills, a groping after language which reflects the conceptual mud in which the debate has been bogged down for over a decade. However, the National Committee of Enquiry into Higher Education Report (better known as the Dearing Report) published in 1997 has given some authority both to the language of 'key skills' and the identity of these 'skills' (however inappropriate some of us may feel the language of skill may be to some of the things which are referred to). Dearing proposed:

> Although it may be argued that to devote time to the development of skills is a diversion from a student's main studies, and that the potential list of skills becomes so long that it is self-defeating, we believe that four skills are key to the future success of graduates whatever they intend to do in later life. These four are:
>
> - communication skills;
> - numeracy;
> - the use of information technology;
> - learning how to learn.
>
> … We believe that these key skills are relevant throughout life, not simply in employment … . All institutions of higher education should aim for student achievement in key skills … to become an outcome of all programmes. (para. 9.17 and 9.25)

Notwithstanding Dearing's observation of the wider application of these skills, the terms of reference for the Committee explicitly link the issues of skills development and employment: 'learning should be increasingly responsive to employment needs and include the development of general skills, widely valued in employment' (National Committee of Enquiry into Higher Education, 1997, para. 9.1). The recent history of government policy in this area shows clearly that this agenda for change has arisen largely out of a social and political concern for the nation's economic competitiveness and the view that this will rely heavily on the engagement of the skills of its workforce; more particularly, in a world in which economic progress depends heavily on the information industry, on the skills of its graduate workforce. It is hence an agenda which has been largely mediated through the Employment sector of the contemporary

Department of Education and Employment and its antecedents as the Department for Employment and the Manpower Services Commission. Its major initiative was in the form of its Enterprise in Higher Education programme which ran between 1988 and 1996, but it continues to promote these changes in higher education through, for example, its Higher Education Development funds. The Quality Assurance Agency is steadily raising its expectations in terms of explicit reference to these skills in teaching programmes and, again, this agenda looks set to be a driving force on curriculum change well into the next century.

There are several different ingredients to this particular curriculum agenda, some of which are perhaps more readily acceptable to traditional academics than others. These include:

- an attempt to draw attention to and develop some of the more generic capacities which underlie traditional university education (e.g. critical thinking and problem solving) and which are prominent in what employers expect or are looking for in a graduate employee;
- a fresh emphasis on what might be called the interpersonal dimensions of working in an academic as well as an employment context (e.g. on team working and oral as well as written communication and presentational skills and the development of personal confidence in social situations);
- an understanding of 'the world of work', of the way businesses function and of how knowledge can be applied in these settings (which leads of course to pressure for the inclusion of work experience as part of undergraduate programmes; see below); and
- the establishment of basic skills which, it is claimed, many of today's entrants to higher education lack (numeracy and basic writing skills as well as competence in the use of information technology).

These pressures for change disturb the traditional university curriculum in several different ways.

First, they appear to offer a different philosophical orientation for its purposes. They suggest that its rationale is derived significantly from the needs of the national economy as defined by employers rather than for example from some ideal of a liberal education enjoyed for its own sake or as an expression of a set of scholarly values constructed independently of any notion of economic functionality. As a recent Committee of Vice Chancellors and Principals (1999) paper on *Higher Education in the 21st Century: some possible futures* observed:

> The expansion of public funding has not taken place on the basis of cultivating young minds for their own sake. Rather it has taken place on the basis of promoting societal, and not individual, values. Universities have been given a mission … (which) is quite clear; it is to aid economic competitiveness and promote social inclusion. (para. 14)

(The reference to social inclusion here is New Labour's addition to what was

previously a mainstream Thatcher/Major agenda.) How far these principles of economic competitiveness and liberal education are really in opposition to each other (and whether indeed the curriculum of the universities has ever stood so entirely independent of the employment requirements of the upper middle classes) are matters for interesting and important debate (see Bridges, 1992); important not least because the philosophical argument is material to the acceptability or otherwise of these developments to many academics.

Secondly, these pressures relating to key skills and 'employability' raise questions, at least, as to whether the traditional subject department offers the best context for the 'delivery' of these skills in the curriculum. Universities are faced with choices as to whether they see some or all of these skills as most effectively taught or developed as part of an integrated subject programme (and by the usual subject teachers) or as something apart from the subject teaching in specialised 'key skills' programmes with perhaps specialist instruction/training in, for example, team working, communication skills or information technology. On a third model which we are trialling at UEA the role of the institution is to identify the skills which students are recommended to acquire, to identify the range of opportunities which are available inside and outside the subject curriculum for their acquisition and to provide support for the students in the process of their development, leaving responsibility with the student for the means of their acquisition (see Hodgkinson, 1996, for an evaluation of these approaches).

Different means for the development of such skills have of course different resource implications. If a university decides that they should be taught outside subject departments, then resources will shift from those departments and a new type of university teacher will emerge more akin to those who operate in the field of skills training than to traditional research-based teaching. If they are to be taught inside the departments, then this will require the development of new capacities among traditional teaching staff and new approaches (new for some universities anyway) to their teaching.

Thirdly, in terms of the different kinds of disruption to the traditional university curriculum implied by the key skills agenda, this places a new emphasis on a different kind of knowledge—crudely (and this is an oversimplification) it shifts the balance from understanding to skill, from knowing that to knowing how—and more particularly to the application of knowledge in a social context (and in so doing raises of course complex questions about its assessment). In a more detailed discussion I would wish to challenge every one of these polarities (see Bridges, 1993), but they are, nevertheless, a significant part of the contemporary discourse and I believe that they do reflect at least a shift of emphasis. Thus the language of competence and capability enters the higher education frame, not just in the context of explicitly vocationally oriented courses but as an ingredient of traditional 'academic' programmes. In this way the very epistemological foundations of higher education are once again disturbed, and we are forced to ask 'what is the nature of the knowledge in which we are dealing?'.

LEARNING FROM EXPERIENCE

It is easy to see how these pressures lead to a third set of changes both in the epistemological stuff of higher education and in the organisational requirements for engagement with it; changes which place experiential, including workplace, learning in the university curriculum, which as a result take the student out of the precincts of the university into the outside world and which consequently engage a different set of people in the service of teaching undergraduate students. Those of us in teacher education have seen this most vividly expressed in 'school-based teacher education' but this is paralleled in perhaps less draconian forms in many subject areas. The traditional knowledge of the university was articulated in very explicit forms, and indeed this very capacity to articulate it in publications and lectures, to surface the implicit, to make public the mysteries was among the most admired of academic characteristics; the new status given to experiential learning leaves universities in a somewhat ambivalent stance in relation to this articulation, so that, for example, while recognising that knowledge is often gained from experience in a form which remains tacit, universities (mine anyway) still insist on assessing it on the basis of some form of articulation of what has been learned (e.g. through 'a reflective log').

The development of experiential, including workplace, learning as part of the university curriculum challenges the role of academics as the constructors and guardians of a specialised form of articulated knowledge, which, as I have argued, is now at least partially mixed with a more tacit kind of knowledge derived not from book learning but from experience. Insofar as universities recognise and acknowledge (accredit) knowledge derived from outside the academy they threaten their own privileged position of authority in its construction. As Scott has observed:

> It is no longer clear that universities, as currently (or foreseeably) constructed, are best able to generate and manipulate these new forms of socially distributed knowledge ... . Knowledge is no longer privileged, in the sense that its reproduction is restricted to an academic (and social?) caste. (Scott, 1997a, p. 42)

On some analyses, then, we are observing a shift of focus from the formal knowledge production, which are disembedded from 'local contexts of interaction' (Giddens, 1990, p. 21) and dominated by closed academic communities, to locally centred, contextually applied, transdisciplinary, highly reflexive, experience-based knowledge: 'an open system in which "producers", "users", "brokers" and others mingle promiscuously' (Scott, 1997b, p. 22, but see also Gibbons *et al*., 1994). This is a shift which represents a serious challenge to the traditional modus operandi of the university and its monopoly as a primary producer of knowledge.

Interestingly, perhaps, it is on the whole the subject departments which are among the more recent additions to the ranks of the universities (education, management, social work and nursing and midwifery, for example) which are

most advanced in grappling with these phenomena, although Gibbon's account, which is based on an examination of developments in the scientific community, suggests that they are changes to which longer established disciplines will need to accommodate.

The incorporation of experience-based (including work-based) learning as part of the university curriculum, like the other changes I have described, raises organisational as well as epistemological questions. To what extent is this experience integrated with, or separate from, mainstream teaching? How far can it take the place of other forms of learning, and at what price? How is quality assured in off-campus provision (a key issue in the development of, for example, school-based teacher education)? What is the status of the off-campus mentors of this experience and how are they rewarded? How far can the standard university timetable be adjusted to facilitate this kind of learning? These and many other questions await a satisfactory answer in the 21st century.

THE WEB-BASED CURRICULUM

Here I take a deep breath, for while I am entirely persuaded that the developments in information technology which have been the most dramatic cultural product of the last two decades will have dizzying impact on every aspect of education in the next century, the precise nature of that impact is very difficult to predict. Of course some of the most obvious effects of the new technologies are on the channels of learning which it makes available, on its geographical reach and on the flexibility provided by the asynchronous character of learning. As Burbules and Callister (1999, p. 2) argue, these changes themselves constitute curriculum changes, because 'Teaching is not just a delivery system—in pedagogy, form reshapes content'. But what, more particularly, is its impact going to be on the higher education curriculum and the knowledge out of which it is constructed? Let me pick out a small number of what seem to me to be significant effects.

- The combination of vast arenas of data on the web, increasingly sophisticated search engines and accelerated delivery systems all readily accessible to anyone with a PC will totally undermine the continuing dominance of a curriculum which provides for the transmission of knowledge and demands its replacement by a curriculum which supports its distillation, analysis, ordering and manipulation. Given the total lack of any quality control or scholarly screening of the stuff that is available on the net, it will place greater onus than ever on students' capacity to read this material critically and to assess its reliability for themselves.
- As still and moving images and sound become much more readily and speedily accessible on the web, the heavy emphasis in the traditional curriculum on words and figures will be extended to include the handling of multimedia resources and the presentation of work, not just in the

written essay but in the multimedia formats that all sorts of contexts of working life will expect as standard.

- Conventional patterns of linearity in the reading and representation of knowledge—driven hitherto by the technology and sequence of the book and miniaturised in the form of the essay—will be replaced or extended by representations which allow mutiple connections and layering of content in both the forms in which it is accessed and in the forms in which it is represented.
- Individual learners will thus be located at the centre of a multi-layered, multimedia, multi-dimensional learning environment through which they have the power to construct their own learning; in other words an environment ideally designed to support the kind of constructivist approach to learning, and with it the individualised curriculum which is so strongly favoured in contemporary educational psychology. The technology will allow for all sorts of interaction between learners, scholars and researchers and between them and the professional and lay public which cross every institutional, social and national boundary. The community of learners is thus transformed, and the experience of learning will allow extended opportunities for collaborations in the construction of knowledge.

Burbules and Callister paint a picture which includes most of these ingredients when they describe how:

Increasingly, the Internet is a *working space* within which knowledge can be co-constructed, negotiated and revised over time; where disparate students from diverse locations and backgrounds, even internationally, can engage one another in learning activities; where collaborative projects can be developed; where communities of inquiry can grow and thrive; and where simulations, models and visually based projects can be created that allow real interactions within vivid and complex environments that span sensory experiences ... . Such activities are not just supplements to the classroom experience; they are unique and irreplaceable learning opportunities themselves; and *often they exist only online, not in 'real' classrooms*. (Burbules & Callister, 1999, p. 10)

The picture that is before us (present with us in many respects but only fragmentarily realised in higher education) is one of enormous richness and opportunities for learning, for the transformation both of our engagement with knowledge and of the knowledge with which we engage; all of this, however, in a context which will seriously challenge the traditional authority of the universities in the definition and construction of this knowledge and in its role of gate-keeper of its validation, distribution and access.

The curriculum of advanced study will thus slip inexorably from the hands of the institutions founded to be its curators. The university will quickly become

neither the locus of the higher education curriculum nor its determinant, for the net will extend the possibilities for learning wildly beyond the means of any individual institution and into all sorts of 'learning organisations', private as well as public. It is difficult to imagine that in these circumstances the university sector as we know it will be able to justify its monopoly of degree awarding powers, particularly if it tries to exercise this monopoly to protect its privileged position with relation to the provision of teaching and learning.

But if this much is fairly predictable, there must be a great deal more, given the potential for change in the new technologies, which we can barely imagine.

THE REAFFIRMATION OF THE TRADITIONAL SUBJECT

My discussion so far has suggested some radical and far-reaching assaults on the traditional nature, structure and organisation of knowledge in (and increasingly around) the university, though the extent to which these developments have impacted so far on the higher education system varies enormously across the UK. Nowhere perhaps is the impact as far-reaching yet as my analysis might suggest, but then I am supposed to be looking into the future.

But *plus ça change*, as they warn, *plus c'est la même chose* and perhaps we should observe, alongside these forces for change, some very powerful dynamics which continue to operate in support of something like the traditional subjects as both the dominant structures in the university curriculum as students encounter it and the dominant form of organisation of the university.

Two of the most powerful imperatives bearing on the university sector today are provided by the Research Assessment Exercise (RAE) and the Quality Assurance Agency's (QAA) Subject Review process. The RAE directly affects the resources available to the university and the Subject Review process has bearing on the allocation of extra student numbers (and, with these, income) to university departments. Both of these devices affect the resources indirectly because they are public and publicised measures of the quality of the work of the universities, and, hence, affect those universities' ability to attract home students, to attract overseas students, to attract research investment from sources other than the Higher Education Funding Council or to attract interest from the business and private sector.

So it becomes important to ask what forms of knowledge and what structures for the organisation of knowledge do these powerful systems support.

The short answer to this question is that they very largely reinforce the traditional subjects; they certainly fail to grapple with the kind of deconstruction of the subject portrayed earlier in this paper. In the case of the RAE two examples from my own university (though they are not unique to the UEA) will illustrate this effect. The interdisciplinary School of Development Studies includes economists, agriculturists, social anthropologists and human and physical geographers (some of whom are also to be found in the School of Environmental Sciences), but Development Studies does not of course feature

as an RAE unit of assessment, so our 'Development' people have had until very recently to present themselves for RAE purposes as 'geographers' and to be judged on the criteria defined by conventional geographers and appropriate to their view of *their* subject. Until recently, our historians were to be found across at least four schools in the university: in European Studies, in Social Sciences, in World Art and Museology and in English and American Studies, as well as the Centre for East Anglia Studies. Some of them rapidly determined, however, that if they were to achieve their highest potential in the RAE they had better organise themselves differently. Against considerable resistance from those in the university who remained attached to the interdisciplinary principles on which it was founded (to whom, however, the historians insisted that history was itself an interdisciplinary practice), they pulled out from three interdisciplinary schools and established themselves first as a Centre for Historical Studies and then fairly rapidly as a School of History in its own right (though those in American Studies and in World Art chose to stay where they were).

On a wider stage, the concerns implicit in my selection of examples have been expressed by, for example, the Science and Technology Committee of the House of Commons in its *Report on the Implications of the Dearing Report for the Structure and Funding of University Research* (House of Commons Science and Technology Committee, 1998), which observed that 'there was little confidence that research spanning the boundaries of traditional disciplines had been adequately recognised' (p. xxx). It quotes with approval this description of the problem provided to it by Professor May of the Royal Academy of Engineering:

> If I can quote an area ... that of sensors technology, one is talking about technologies from perhaps some six or seven different subject areas being applied in perhaps a dozen more. At the moment the Research Assessment Exercise requires that it be reported separately in chemistry, in physics, in electronics, in computer studies and so on. It is virtually impossible to find a mechanism at the moment for presenting the sum total of that research and having it assessed. (*ibid.*, p. xxxi)

So the report concludes that:

> Such is the importance of HEFCE funding to the financial viability of research activities that the prospect, or indeed even a concern, that multi-disciplinary research will not produce the same level of reward from the RAE as single discipline research of the same standard, must discourage multi-disciplinary projects. (*ibid.*, p. xxxi)

The most recent guidance on procedures for the 2001 RAE exhorts panels to give proper recognition to interdisciplinary research, but the framing structures are still essentially subject based and certainly fail to engage with more deeply embedded multidisciplinary organisational structures in higher education, let alone the sort of deconstruction of knowledge indicated above.

It is not just in the research field that these subject categories are reinforced. The QAA has taken up the Dearing Report's concern (National Committee of Enquiry into Higher Education, 1997, p. 154) with the standards—some would say 'standardisation'—of degrees and is set to operate similarly to reinforce traditional subject patterns. The first three areas selected for 'benchmarking' of standards were history, chemistry and law, among the most solidly established of the academic subjects. A glance at the list of 'subject areas for QAA work on benchmarking' (Quality Assurance Agency, 1998, pp. 22–23) reinforces this picture with a pretty familiar and established range of subject headings.

The Higher Education Funding Council, similarly, looks set to back the subject as the unit for academic development as far as teaching is concerned. A recent *Times Higher Education Supplement* report explained that HEFCE's new strategy for teaching aims to recognise that good teaching in one subject may have little in common with good teaching in another. Cliff Allan, policy principal at HEFCE is reported as saying:

> We believe that there is a lot of evidence to suggest many academics look first to their own discipline for good practice in teaching and learning. It is sensible therefore to develop a major infrastructure for the subjects to improve teaching. (*Times Higher Education Supplement*, 1998)

HEFCE is in the process of establishing subject-based 'centres of teaching expertise' across the UK which will carry out and promote research into innovations in teaching and take responsibility for sharing expertise. 'Above all they would encourage change at the subject level, said Mr Allan' (Utley, 1998, p. 1).

The pressures towards the reaffirmation of the subject took an ironic turn in the recent experience of the Open University, which has finally agreed to offer named degrees (e.g. BA in History or BSc in Social Sciences) in an effort to protect its position in the part-time and mature student market (*Times Higher Education Supplement*, 1998, p. 4). The move is explicitly explained by reference to student demands prompted in turn by their experience of what employers seemed to value. Never mind your 'key skills', let's see a good solid recognisable university *subject* on the CV!

Add to all this the power of professional bodies representing, for example, law, medicine, architecture, engineering and the conditions for the accreditation of other degrees in, for example, nursing, education, social work and mix in too the influence of established academic organisations like the Historical Association (note 'The History in Universities Defence Group'!), the Royal Society of Chemistry, the Royal Geographical Society and one can see an organised force dedicated to resistance to many of the changes that I have described earlier. Becher (1989) has provided a compelling account of these 'academic tribes and their territories' which describes the predominance of discipline loyalties over other, including institutional, loyalties and the way in which these academic tribes gang up on other tribes if they seem to be

threatening their territory. Interdisciplinarity, he argues, can only be a series of one-off collaborations, a temporary conjunction.

The 'subject' looks set to defend its place in the university curriculum for some years to come. In this respect the near future, at least, may not look so radically different from the past.

CONCLUSION

This has been primarily an attempt to understand and interpret what I experience as the highly contested arena of the university curriculum, an arena in which different epistemological constructs of the kind of learning which should be taking place in higher education seem to make competing demands not just on the content of that curriculum but on its organisation and upon the institutional structures which support it. I acknowledge too, however, that the organisational structures of the university sometimes place limits on its epistemological adventurousness. As Scott has explained:

> The epistemology of the modern university does not determine its sociology; nor the other way round. Rather their relationship, and of the other elements, is one of dynamic reflexivity. (Scott, 1997a, p. 37)

How do we organise ourselves to respond to the university curriculum of the 21st century? We are faced with a string of practical organisational issues which reflect exactly the kind of epistemological claims on our curriculum which I have indicated in this paper. Do we need a separate 'skills centre' managed outside and independently of the established schools? If we are clustering our schools of study organisationally, what groupings make sense in terms of their potential to create intellectual synergy, their potential to meet new market demands, their intelligibility to students? How far can we advance or defend the 'traditional' (for us) interdisciplinary structure of our schools? How flexible can we be in our modularised programmes and how compatible with this flexibility is our defence and presentation of 'quality' in QAA terms? Even more challengingly, how do we reorganise ourselves in terms of the skills mix of our staff, the cost structure of our teaching programmes, the stocking and equipping of our 'on line library', the design of multi-media programmes and the marketing of these programmes to a global community to meet the challenge of web-based learning?

Finally, how do we manage all of this when, in truth, we may confidently predict some radical changes ahead but only guess at the form in which they will be realised?

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