

Space, place and the virtual university: the virtual university is the university-made concrete

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Introduction: the vision of a virtual university

With the rapidly increasing sophistication, and decreasing cost, of virtual courses, the hegemony provided by geography has disappeared. With increasing numbers of 'on-campus' students enrolling in their institution's virtual courses on the Internet, the move towards courses offered by other institutions is only a 'mouse click' away. This is true whether the 'other' institution is located in Djibouti or is part of a multi-campus system such as in California or New York. [1]

The virtual university has emerged as a potent vision for the future of higher education, utilizing new information and communication technologies (ICTs) to radically restructure higher-educational provision. What is envisaged in this scenario is a 'university without walls'. Freed from the confines of the campus and its region, the university becomes a 'virtual' institution: in terms of teaching and learning, it consists of little more than global connections of potential students (recruitment), learners and teachers (students and staff), employers (the careers function) and alumni; in terms of the institution's research mission it joins a complex web of researchers, research funders and research users, all held together by sophisticated ICT applications. The vision is one of flexible ever-changing organizations for knowledge creation and distribution. The university as an institution appears to dissolve.

This agenda has implications for the whole university. With regard to a university's pedagogic role, it envisions the separation or unbundling of development of course materials (packaging), the assembly of students (recruitment), the provision of learning and the assessment of competencies. With this unbundling, the university ceases to be an end-to-end supplier of the higher-education process and may undertake one or more these roles, with other organizations undertaking complementary functions. The university, then, becomes far more externally oriented, an intermediary on the global stage, acting as collaborator, client, contractor and broker of higher-education services. Of course, the extent of unbundling varies for different sub-markets, being greater in postgraduate,

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vocational and lifelong learning markets than in the undergraduate 'rite of passage' market.

In terms of research, the vision is one in which research teams cross disciplinary, institutional and national boundaries. In part this arises from the growth of 'big science' with its huge research teams and massive resource requirements, but it also builds on disciplinary traditions in all subject areas. More significantly, research increasingly involves working much more closely with users in what has been called "the new production of knowledge" [2].

The administration of the university, too, is transformed in the visions of the virtual university. At the heart of this change is the provision of comprehensive information systems to support teaching and research networks. More significantly there is shift from an administrative culture to a culture of professionally supported academic self management.

This vision certainly has a widespread appeal to a range of stakeholders in higher education. As Gladieux and Swail [3] put it,

...today's expanding, interactive computer networks possess a power, promise and allure that institutions, governments, corporations, the non-profit sector and students are responding to in unprecedented ways. (see also [4])

The purpose in this chapter is to probe a little more deeply into some of the drivers behind this vision of the virtual university, and to explore some of the practical implications of ICT-based initiatives in real universities. Our aim is, in part, simply to puncture some of the cyber hyperbole — what has been called cyperbole — surrounding higher education. But we also want to suggest that the route towards the virtual university is not as simple as is often presented and that, when the weary travellers arrive at their destination, the 'actually existing' virtual university may not bear much resemblance to the vision. We conclude with some more practical policy observations.

The drivers of change

What is driving the rapid diffusion of this vision? First and most significantly, the shift from elite to mass higher education taking the form of increasingly large proportions of 18–20 year-olds going on from secondary education to higher education. This phenomenon, observed around the globe, has not been accompanied by a proportional increase in the funding of higher education. This has led to a declining amount of resources per student and a concomitant search by higher educational institutions (HEIs) for efficiency gains. New ICT systems hold out the promise of such gains, allowing the efforts of teachers, researchers and administrators to be spread across ever larger bodies of students, allowing lucrative niche markets (e.g. overseas students and mature students) to be cost-effectively reached and to drive internal efficiency through more streamlined workflows and administrative processes.

Further, the virtual university is seen as a strategy for coping with the increasingly diverse student body. As higher education has expanded it has moved beyond an exclusive focus on the single, middle-class 18–24 year-olds, engaged in the traditional rite of passage, to encompass other social groups engaged in lifelong learning [5]. Few of the new groups entering higher education find it affordable or easy to relocate to a traditional campus university for 3 or 4 years. Thus an increasingly heterogeneous student body requires new forms of marketing, support and monitoring. Here too, the virtual university holds the hope of being able to provide new forms of higher education more suited to the needs of non-traditional students.

The shift from an elite to a mass higher-education system has also meant that, increasingly, learners are recruited actively rather than selected passively. Here the virtual university is seen as a tool for expanding the recruitment options of the university, both geographically into new and lucrative overseas markets, and in terms of new social groups in the domestic market.

Further, students are seen increasingly not just as clients of the university but also as a resource for the institution. For example, in terms of regional engagement (e.g. student community action), and as alumni who may be persuaded to help to fund the institution and who can provide valuable contacts for research and recruitment, as well as openings for new graduates. Institutions are therefore adopting a more institutional approach to their students. The virtual university, from this point of view, proposes the tools required to organize and maximize this new resource.

Finally, students are seen increasingly as discerning clients with a wide experience of ICT from the world of private services and from the spread of these technologies in the home and workplace. The amount spent per head on installation of ICT is reflected in many of the influential university rankings, which shape the choices of potential students. Here too the virtual university and the provision of online materials is widely seen as 'helpful' to the image and recruitment appeal of the institution.

The virtual university is also seen as a means of responding to a further set of pressures. Foremost among these are the external pressures, applied by national governments and funding agencies for quality assurance and accountability for earmarked funding. Here the virtual university is seen as having the capability to provide statistics and support for the claims of universities in the face of demands for accountability. For example, the ill-fated U.K. MAC (Management and Administrative Computing) initiative, a tailored information system for universities, was driven substantially by the demands of government agencies for fuller statistical reporting of university activities [6].

Further pressures concern the increasing demand for universities to show greater responsiveness to the needs of business in the community [7]. These pressures operate in each of the spheres of activity of the university: for example, in terms of more rapid curriculum development to meet the emerging demands from employers or the demand for more policy-relevant research. More significantly, however, these demands also imply the bringing together of teaching, research and cultural activities as national and regional economic and social development strategies increasingly look to the university as a key player and

demand a coherent institutional response. Here the promise of the virtual university is that, with the use of ICTs, the university can interact smoothly with the whole range of regional stakeholders. What is more, ICTs can enable the disparate activities of the university to be drawn together and the institution can 'speak as one' in its interaction with other agencies.

Finally, there is increasing tension between the demands of teaching and research on the staff of the university. In this respect the application of ICT is widely seen as offering the possibility for underpinning a new division of labour within the university, shifting much of the routine work of academic staff on to the technology and administrative system, thereby freeing up time for higher-prestige research work.

We would be very wary of accepting any of these claims at face value. For example, there is very little hard evidence of major cost saving associated with the provision of ICT-based higher education [3,4,8]. What is more, studies show that online distance education is dominated by those who already have some university education and is concentrated overwhelmingly on narrow vocationally oriented courses rather than on attracting new entrants to higher education. As Robin Mason [9] has put it, "although the rhetoric of virtual education is that it will extend to the disadvantaged, the remote, the housebound and the unemployed, those who are signing up for virtual education are the advantaged, the upwardly mobile, the 'over-employed'...and the well educated". The use of ICTs with students and alumni is un-proven and whatever the image benefits of ICTs, studies tend to show that students' relationships with the technology are more complex than is often supposed by institutional managers.

To summarize, then, the virtual university promises to provide the capacity for HEIs to respond to and manage the range of pressures and tensions which characterize their current position. With the aid of ICTs, it is suggested, the university can respond simultaneously to new global markets, meet the requirement of increasingly onerous national regulation and audit, and meet the demand for new local engagement requirements, forces that might otherwise pull it apart. We are frankly sceptical about these claims: along with John Seely Brown and Paul Duguid we suspect that "the idea of the virtual university...both underestimates how universities as institutions work and over estimates what communications technologies do" ([10], see also [11]). Nevertheless, these claims have underpinned an expanding programme of initiatives, programmes and projects within traditional universities as they have sought to explore the ideal of the virtual university.

The traditional university and the virtual university

The most celebrated (or perhaps feared) examples of progress towards the vision of the virtual university are new, 'for-profit' institutions, mainly in the United States. The University of Phoenix or Jones International University, for example, are often held up as exemplars. The significance of these 'new' institutions, however, lies not in their direct impact: they actually provide a tiny, although growing, proportion of higher education in the United States. Rather, their

implication is primarily indirect, operating through the perceived threat to established HEIs in terms of their markets for students, and in terms of their demonstration effect. They have thus added a new impetus and urgency to the body of experimentation and innovation with the use of ICTs within existing institutions. For example, a recent Committee Vice-Chancellors Principals (CVCP)-funded survey found that 41% of U.K. universities saw ICT as critical for future development, and a further 38% had ICT 'high on the agenda' [4,8]. It is in this traditional higher-education sector that we would argue that the most quantitatively significant moves towards the virtual university are to be found — what we might call 'brownfield', rather than greenfield, sites.

This situation raises the question of how do the customs and practices of teaching, learning, research and administration within the traditional university interact with the requirements of the virtual university? The traditional university is conventionally, if mythically, thought of as a band of scholars coming together to create, maintain and disseminate of knowledge, governed by a more or less collegiate model of organization, based around a complex structure of committees and with a high degree of individual and departmental autonomy. In this sense 'the university' as an institution tends to lack a clear identity, primarily existing in the heads of people who constitute it and in a myriad of locally negotiated practices and interactions. The central social role of the traditional university has been to provide a place -based rite of passage for entry into middle-class professions through its undergraduate, vocational and extra-mural provision, together with the provision of ideas-driven 'academic' research. In institutional terms, it has thus been described as an exemplar of a 'loosely coupled system' characterized by a lack of clearly articulated policy and weak control over the implementation of policy [12]. The traditional university as an institution, we might say, often appears to be only virtually present. The traditional university has, however, proven to be both highly flexible and responsive, in particular to financial incentives from government, *and* highly rigid and resistant to changes which threaten its autonomy.

Our research, funded under the U.K. Economic and Social Research Council's (ESRC) Virtual Society? programme, has focused on the strategies, initiatives and programmes, within traditional universities, designed to move towards the goal of the virtual university. The project team included, as well as the authors, Neil Pollock, Kevin Robins, David Charles and Frank Webster. We have drawn freely on their work here (which we gratefully acknowledge), although any errors of fact or interpretation are, of course our own. Our central concern has been with the implications of these strategies for the institutional form and identity of the university and its relationship to space and place. We focused on three institutions in the North East of England. The approach we adopted was in-depth case studies of particular programmes, projects and initiatives, using interviews, participant and non-participant observation, focus groups and documentary analysis. Our work focused on three institutions (we also undertook some interviews with the local region of the Open University, but we do not report on these here):

- at Newcastle University we focused on the implementation of a Finance and Human Resources devolved management-information system (MAIS);

- at Sunderland University we focused on the work of the Learning and Development Services (LDS); and
- at the University of Northumbria we studied a programme on 'Excellence in the use of C&IT' concerned with flexible use of resource-based learning including a number of centrally co-ordinated course-based experiments.

These institutions vary widely across many dimensions, for example, in terms of their missions, resource base, recruitment, course profiles, etc. All, however, have been traditionally mainly focused around one or a few campus sites, mainly serving the domestic market for undergraduate teaching and learning. Although they also vary in terms of their organizational cultures and structures, they all have (and value) a significant, although varying, degree of autonomy for departments, faculties and individual members of staff. To this extent, then, they can all be regarded as being, in some sense, traditional universities.

Realizing the vision?

Throughout our fieldwork we found no sign of the break up of the traditional university. Rather, the traditional university and the virtual university exist in a tense relationship. What we found was that, in each case, the implementation of the new ICTs appeared to require a *re-institutionalization* of the university, often as a more corporate body with more explicit goals, roles, identities, rules and operating procedures. In practice, the moves towards the virtual university seemed to be associated with demands for a far more 'concrete' organization than the traditional university.

For example, one of the universities we studied was in the process of installing a new management-information system. For the Pro-Vice Chancellor in charge of the project, at least, the principal aim of the project is explicitly to 'bind together a decentralized organization'. The implementation team, made up of university staff and specialist consultants, met with the 'faculty support teams' and representatives of the departments that are going to pilot the new system to discuss 'workflow process diagrams' of the new processes.

In the meetings that we observed, it became clear that there is more than one way, in current practice, that a particular step in the process can be handled. If the issue cannot be resolved one way or another, the consultant leading the meeting identifies the issue as 'a matter for policy', a matter on which a definitive ruling must be given by the university centrally. As these meetings progressed around the departments of the university, so the log of 'matters for policy', and thus the demand for policy decisions, grew.

What seems to be happening here, as the computer system is rolled-out through the university, is more than a mere standardization of working practices and clarification of roles. Rather, the roll-out of the system generates a constant flow of demands for 'policy'. The process not only sees the 'tightening up' of roles and procedures, but it also demands a tightening up of policy that will apply not locally, but across the university, in effect calling the university into being as a far more corporate institution. This demand for policy, to the extent that it is met,

calls for a different and more corporate centre to the university, one capable not just of implementing policy but of making it and making it explicit.

This account may make it seem as though the progress of the virtual university is assured. However, this was by no means a straightforward process. Electronically supported processes in the teaching and administrative spheres were certainly not displacing traditional ways of doing things (even where this was what was intended at the start of the process). Rather, the outcomes were often a matter of the new virtual and the old traditional notions of the university co-existing in a tense relationship. Critical to this hybrid of old and new ways of doing things was the inter-mediation role undertaken by key members of staff at the interface between old and new ways. Often these members of staff had to face in two directions at once. On the one hand, they were obliged to translate, we might even say perform, the traditional university to the virtual institution, and on the other hand, they had to perform the virtual university to the traditional university. For example, administrative staff in departments who were actually operating with the management-information system had to interpret or translate their department (with its local specificity) into the standardized framework of the new information system (and the system designers), *and* translate the outputs of the system back to the academic staff in their departments (and their established, time-honoured practices). In general, this task, although initially onerous, was possible. However, where conflict arose between the demands of the system and the demands of the department, ingenious 'workarounds' had to be laboriously constructed. Interestingly, this 'boundary work', to the extent that it was successful, enabled the system designers to feel that the system, intended in part to change the working practices in the departments, was operating effectively, while enabling departments and their academic staff to minimize the degree to which they actually had to change their working practices.

This almost benign state was by no means typical, but represented only one mode of co-existence between the old and the new. What became apparent was the extent to which many of the initiatives and projects which we studied *presupposed* structures, roles, responsibilities and processes in the university that simply were not there, or that were not capable of supporting the functions which the new virtual university projects expected of them. For example, in one of the sites we studied, there were no procedures for the validation of online courses. Further, it was unclear in some cases whether a course which had been 'put online' would require re-validation or not (i.e. was it a new course or not?). Indeed, at some points in the discussions we observed, it became apparent that there was some ambiguity about what a course, one of the most taken-for-granted categories of the university, actually *is*.

Much of the work undertaken by those building the virtual university, then, was a rather desperate attempt to construct the institutional settings (roles and responsibilities, structures and agencies, categories and classifications) necessary for the technology to operate in. In almost all cases, this work constituted a far greater proportion of the workload than was expected at the outset of the project or initiative. As one senior manager put it to us:

Actually, the thing that trips it up isn't that the technology doesn't work, it's trying to recreate the organization so we can usefully apply the technology rather than just crippling it to do things the way we did them before.
(Interview, 12 March 1999)

The (re)building of the institution and the rolling out of technological systems, it seems, necessarily proceed together.

What happened where such institution building was not undertaken or was not successful? A number of the projects which we studied, and which were unsuccessful in re-engineering the institution around them, stalled [13]. Without strong institutional bonds to maintain the commitment of all the necessary actors (students, teachers, assessors, validation agencies, librarians, partner institutions, etc.) projects seemed to fall apart. We might then conclude that bottom-up initiatives tend to fade away when they are not mainstreamed and systemized (i.e. when whole change processes are not managed).

One final point that arises from our fieldwork needs to be made, a point about the questions of space and place and which concerns the changing attitudes and relationships between the ICT projects and the campus location of the institutions. In much of the rhetoric and, indeed, in the plans and proposals which secured funding for these projects, notions of the university campus figured as a barrier that ICT could enable the institution to overcome or transcend. Indeed, this capacity to 'escape' the confines place and enter a (potentially) global space is, of course, a recurrent theme within the technological discourse [14]. Yet when attempts were made to operationalize this transcendence, for example through the provision of totally remote Internet-based courses, there was often a rapid re-evaluation of this position.

What became apparent when courses were abstracted from the campus setting was the considerable volume of 'work' which the campus discretely undertakes for the institution. For example, the campus constitutes a large and very concrete symbol of the university, its durability and reliability. When courses are abstracted from this (in most cases literally) concrete setting, the issue of how else the these qualities might be symbolized comes to the fore. In one site an online course had been developed and was being marketed externally. The technical requirements for the student were simply a user name and password to access the learning materials. The course designers felt, however, that this ran the risk of appearing *too* virtual. That is to say, that a mere user name and password could not symbolize to the student the true value of the course and the work that went into its production, and, behind that, the institution itself with its quality systems. Thus considerable effort was undertaken to package these simple pieces of data in a physical (concrete) format; a floppy disk with a carefully designed wrapper, centrally featuring the university logo. This was to make the student feel that they were being given something in return for their fees, and that this something would adequately symbolize the qualities of the university, features that are symbolized traditionally by the sheer presence of the University campus. In practice, all of this work was seeking to compensate for the lack of the physical campus. Rather than meet the costs of seeking to compensate for the lack of a

campus, projects and initiatives are increasingly seeking to develop more hybrid forms of provision which combine on-campus and off-campus elements.

Conclusions

What are the implications of the fieldwork reported above for university policy? What is clear is that the institutional implications of the virtual university are complex. The forces are both centrifugal and centripetal. The roll-out of the very systems necessary for traditional universities to join the flexible, ever-mutating, world that threatens to tear them apart is also stimulating demands for an increasingly corporate form of university organization. As traditional universities seek to respond to the threat of an e-commerce-based vertical market place for students, learning materials and knowledge products, managed by non-university 'infomediaries', they are increasingly forced to make more explicit both their policies and procedures. The virtual university, then, is perhaps paradoxically a much more 'concrete', perhaps even less 'virtual', institution than its traditional counterpart.

This process extends well beyond the technology systems (the standardization of data types and communication protocols) and into the core of the university as an institution, bringing established categories, identities, roles and responsibilities into doubt. In short, the virtual university requires the active re-institutionalization of the university. For this reason we suggest that the myriad of short-term initiatives supporting *ad hoc* projects is not the way to build virtual universities. Such a fragmented and piecemeal approach, although going with the grain of much university tradition, is prone to failure. Rather, higher-education policy needs to pay much more attention to policy formation and implementation and to capacity building, internally, across institutions and in terms of stronger engagement with technology vendors and other partners.

Internal capacity building implies a key role for *strategic* research at the university centre to support initiatives to counter forces for fragmentation. The lessons of local (individual, departmental) experimentation need to be learned and absorbed by the institution and incorporated into policy. Centrally located *operational* teams are required to link libraries, academic computing services, student administration, teaching and assessment specialists. Such teams will need to incorporate project-management skills, content experts, designers, assessment experts and marketers as well as traditional faculty.

Externally, capacity building implies a key role for national funding bodies to create common service platform for all HEIs (an infrastructure of wires, content and people). Improved linkage to the 'knowledge economy' constituencies of research and development, industry, international trade, employment and social inclusion agencies will also be required. Collective action by HEIs can help them to achieve the sheer scale required to manage the relationship with technology suppliers ("supping with the devil with a long spoon").

Further, in terms of space and place, the "hegemony of geography" may appear to have disappeared with other institutions being one "click away" (to

return to the quotation from Tom Abeles [1] with which we started), but the reality is more complex. The single- or multi-site campus should not be seen only as a barrier to be overcome, but should also be seen as a significant resource, a platform on which to build hybrid provision.

To what extent are these strictures compatible with the traditional goals and structures of the university? There are clear conflicts here. As Massey and Zemsky [15] have argued, "IT's true Gordian knot is the trade-off between faculty control and educational cost". What we would suggest, then, is that on the one hand the virtual university as an electronic sheltered workshop or boutique business, in which ICTs are used to enhance faculty autonomy, is high unlikely as a route forward for mainstream higher education — the costs of such a system are simply unsupportable. On the other hand, the move to a more corporate and standardized virtual university runs the risk of, as Phil Agre [16] puts it, "standardising the wrong things".

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