

## THE ROLE OF VIRTUAL LEARNING ENVIRONMENTS IN DELIVERING MASS HIGHER EDUCATION IN THE UK.

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The system of higher education in the UK has been subject to a rapid expansion in the last two decades with the ultimate goal of increasing the participation rate to 50% of the relevant population by 2010. Such 'massification' of higher education has been facilitated, in part, by a concomitant move towards modularization, semesterisation and the development of new forms of computer-communicated learning. The role of the VLE in shaping the new learning experiences in such a massified system is explored and some cautions are drawn regarding the possibility of using a 'quick technological fix' to the problems of expanding a higher education system which has experienced a diminishing unit of resource.

### 1 The move from an elite to a massified system of higher education in the UK.

The most seminal postwar report into British higher education is that written by Lionel Robbins in 1962.[14] At that time, only 4.6% of the relevant age cohort experienced higher education. However, Robbins produced convincing evidence that suggested that a large pool of potential talent in British society could benefit from the experience of higher education without 'more meaning worse', a constant fear echoed by those on the political right. The Robbins Report was, however, backed by a broad political consensus and a programme of university expansion was initiated which has continued, in various forms, to the present day. Not only were the existing universities to expand their intakes but new universities were created. Some of the Colleges of Advanced Technology were translated into universities and new 'greenfield' site universities were constructed. The expansion programme was given a further impetus by the creation of some 30 polytechnics in 1969 from former regional colleges of commerce, technology, and art and design. The polytechnics eventually matured into institutions capable of awarding their own degrees and pioneered new vocational degrees such as business studies, pharmacy and estate management. The polytechnics then absorbed former monotechnic institutions by taking over responsibility for teacher education and eventually much of nurse education. In 1992, they were allowed to call themselves 'universities' which they were in all but name and the new universities were encouraged to continue with rapid expansion plans. The age participation rate for students entering higher education is now of the order of 32% but with an official target of expansion to 50% by the end of the decade with much of the expansion being provided in the newer university sector.

The impact of educational systems upon social mobility was first noted by Turner [15] who drew a distinction between *sponsored* and *contest* mobility. In *sponsored* mobility an elite is selected through a variety of examinations which allocate pupils to differing educational routes – in the UK case, grammar schools for approximately 20% of the population and secondary modern schools for most of the remainder. Once having been selected in this way, failure rates once in higher education were typically low. In the *contest* system, much more attuned to American democratic ideals, all are encouraged to participate in higher education even though it is acknowledged that many will fail. Students are encouraged then to find courses or vocational outlets more in keeping with their potential. Both systems are wasteful of talent, the British by 'locking out talent' at an early stage and the American by high failure rates in the first year of higher education. The British higher education system may be characterized as moving from sponsored to contest system (or from an elite to a massified system) whilst still clinging to the values and beliefs inherent in an elite system of education (exemplified by the gold standard of the honours degree and its classification system, reflecting Platonic concepts of men of gold, silver and brass.)

The most recent phase of expansion has been in the decade during the 1990s in which as student numbers rose by 88%, the money spent by government fell by 37% [16] The British system is consequently now showing signs of strain in the face of an under-funded expansion in the which the 'unit of resource' for each individual student has been progressively eroded over time. Massification has been intensified as

particular subjects, such as business, have absorbed approximately 10,000 extra students (whilst science, engineering and technology lost about 14,000 students). The large business schools in the new universities are now recruiting 700-800 students per year which is starting to approach the numbers experienced by large, continental universities.

There are currently indications that the process of under-funded expansion is now putting the system as a whole in a position of financial crisis. The sector as a whole went into a deficit of £50.6m in 2000/2001 and similar deficits are anticipated in 2001/2002 [9]. The tuition fees paid by students was changed from a system of grants to loans in 1997 with the result that in 2002, the typical student was graduating with debts of over £10,000 [13]. Recent surveys of student finances show that, increasingly, students are taking part-time jobs to help to finance their university students. The authoritative survey by Callender and Kemp [3] shows that 87% students had been experienced financial difficulties and 62% students had worked during the academic year 1998/99 to support themselves.

Many universities in the UK have modularised and semesterised their courses, ostensibly to aid credit transfer between institutions amongst other reasons. These processes may well have helped institutions to cope with under-funded expansion, although the reasons advanced for modularization were often couched in terms of pedagogy rather than financial expediency. Dickens[5] does note that 'modularisation is the vehicle which most HEIs have adopted to accommodate the demands of mass higher education'. However, the typical university course, certainly as offered in the new universities, was typically five subjects studied in an academic year. With modularization, a common pattern was to study eight modules a year divided equally between each of two systems (equating to four subjects a year). This presented university managers with an unprecedented opportunity to conserve resources as a cohort of students that might have needed five FTE staff to teach them during the academic year now only needed four. Assessment, it was argued, would now be more widely distributed throughout the academic year but the total burden of assessment has probably increased over the academic year as assessments are set in eight modules rather than in five subjects. The semesterised pattern also means that when assessments are made at the end of the academic year, an undue burden is placed upon staff to complete assessments in the very short period of time available at the completion of the second semester.

The system of modularisation and semesterisation is now deeply entrenched in the university system and students who are fed 'bite-size' units now appear to be at ease with the system, particularly as the whole philosophy has spread to the 'A'-level examinations as well. However, there are some critics who argue that the effects of modularisation, whether intended or not, can encourage a mechanical, even passive approach to learning, as students accumulate the credits with less regard for the substance of the material studied [6]. Miller [11] posits a convincing argument that discredited Skinnerian principles of programmed learning deriving from a behaviourist position now infuse a massified system of higher education:

'Students may be encouraged to develop instrumental learning strategies, claiming learning credits in the same way that Skinner's pigeons were conditioned to acquire their grain'

Government financial planning to expand higher education still further is still at the stage of formulation. However it is recognised that to increase participation rates still further, much of the planned expansion is likely to be concentrated amongst non-traditional students. One indication of the thinking of the DfES is that research is only now being commissioned which will compare the costs of distance learning, part-time study, work-based and other types of courses and the costs of teaching different types of students. [9]. It is with this context in mind, that we now explore the widespread introduction of VLEs (Virtual Learning Environments) into the British higher educational system. It seems likely that rapid developments in technology will be seen by some educational policy makers as one way, amongst others, to alleviate the funding gaps already in evidence and to finance future expansion at the lowest possible cost.

## 2 An evaluation of Virtual Learning Environments

Virtual Learning Environments (VLEs) are learning management software systems that synthesise the functionality of computer-mediated communications software (email, bulletin boards, newsgroups etc.) and on-line methods of delivering course materials such as the WWW.[2] The elements making up a typical VLE would be comprised of:

Noticeboard; course outline; email; conferencing tools; classlist and student homepages, metadata (for categorizing and searching objects); assignments; assessments; synchronous collaboration tools; multimedia resources; file upload area; a calendar; search tools; bookmarking; a navigation model

Evidently, with regard to the student experience of ICT before encountering a VLE, many of these elements will already be familiar (such as email, bulletin boards and chatrooms, search engines, bookmarking). Some of these resources represent easy access to materials which could be supplied in printed form (course outline, assignments, assessments). However, the innovative features of a VLE (to which we will return) are the conferencing tools which provide the means for students to engage in collaborative exchange about topics on the course.

It has been argued that there are 'clear and immediate benefits of these systems to students and teachers alike that concord with the recommendations of the Dearing Report [4] regarding C&IT use.' These include [10]:

1. Flexibility of time and space
2. Coping with increased student numbers
3. Sharing and re-use of resources
4. Collaborative work
5. Student-centred learning
6. Reducing the administrative burden
7. Staff development [11]

Of the items specified above, two in particular stand-out as distinctive and potentially exciting attributes of VLEs i.e. collaborative work and student-centred learning but it may be that it these aspects of VLEs that initially might prove to be the most problematic. Many students could, and no doubt do, approach a VLE in a non-interactive way insofar as it provides easy access to a range of accessible materials organised by tutors for their navigation of the module. The more interactive modes exploit the potential of VLEs much more fully and exemplify the philosophy of the 'conversational framework' model associated with Laurillard [7]. Such a framework presents us with a methodology not only of teaching and learning but also of the evaluation of a VLE itself. Briefly, the stages involved are:

- Teacher presents conception
- Student presents conception
- Teacher sets up micro world
- Student interacts with micro world
- Tutor provides feedback to the student
- Student modifies actions

The advantages associated with such a model is to facilitate 'deep learning' rather than 'surface learning' approaches to course materials [1]. However, the extent to which is possible does depend upon the extent to which a VLE is integrated into the conventional teaching environment. As Mason [10] points out, there are three basic models of existing on-line courses:

- Content+Support Model relatively static information e.g. web package
- Wrap-around model (50%) course materials wrapped around by activities such as on-line discussions
- Integrated model The course is defined by collaborative activities, discussions and joint assignments.

Mackie and Beeby [8] report on their experiences of using the Blackboard Virtual Learning Environment with 136 groups of 1<sup>st</sup> year students (750 students) on an Organisation Studies module run at Bristol Business School. Student groups could allocate themselves to one of three groups using differing amounts of CSCL i.e. Traditional (24%), Supplementary (76%) and Virtual (0). The 'nil' category for virtual is perhaps understandable in the context of first year students, still finding their way and establishing their own face-to-face social interactions in a large, first year intake. On the completion of the module, 80% students had never used the discussion Board, 76% had never used the Virtual chatroom and 72% had never used file exchange. Moreover, two thirds of the groups in the Supplementary option had reverted to Traditional by the end of the assignment, thus reversing the 1:3 proportion seen at the start of the study.

These findings are interesting but best explained by a comment made by a student that '...[the VLE] does not serve much of a purpose as most of our access is through the UWE and, if we are all here, we might as well meet' [8]. A similar observation has been noted by the authors who have found that students when being taught to use the VLE could not initially see the point when the person with whom they wished to communicate was sitting next to them!

### **3 Do VLEs always realize their potential?**

This concluding section indicates some of the concerns that need to be expressed concerning the hope that new technologies may present some of the solutions to the pedagogic and financial problems which ensue from a massified higher education system.

#### *VLEs do not represent a technological fix*

Whilst appearing to be a solution to problems of massification and under-funded expansion, the evidence does not point to the fact that 'humanware' can be replaced by 'software'. Rather VLEs and other CSCL technologies if used as an adjunct can be a valuable adjunct to conventional tutorial methods, enhancing but not replacing the normal sources of tutorial support (One sees parallels here with the early days of word-processing where the new technology enabled one to write better documents – but initially *increased* the amount of time spent on their preparation)

#### *Some VLEs may actually encourage surface learning rather than deep learning*

It is not surprising in a more consumerist culture in which students pay their own fees that a more instrumental approach to learning may be more evident. In these circumstances (and given the increasing propensity of students to appear to be part-time students as well as part-time employees) then a VLE represents a way of skimming and accessing source material without the frustrations associated with conventional searches and researches.

#### *Only some groups may exploit the full potential of VLEs*

It would be possible to hypothesise that some groups of students (but not all) would derive maximum benefits. These groups would include postgraduate students (geographically dispersed but with need for greater intellectual engagement), Work-Based Learning (WBL) students (geographically distant from their HEI), *some* part-time students (such as on some CPD type courses). However, this would not *numerically* give the release from the pressures of massification generated by recent (and projected) expansion.

#### *The logistics have to be carefully thought through*

Unless students have fast access from their own domiciles and/or places of work, then some of the perceived benefits may be more perceived than real. It is possible that in the event of a system crash or other malfunction you suddenly have 'not one but 700-800 dissatisfied customers'. Students in smaller groups may well have become habituated to the hand-out of printed material and the argument that if students are provided with their own softcopy from which they can print out their own material effectively transfers the costs from the HEI to its own, already fee-paying students.

#### 4 Conclusions

There may well be implicit assumptions in the minds of some educational policy makers that problems of under-funded expansion (in the past) and future expansion of higher education provision can be alleviated, at least in part by the use of CSCL and VLE environments. It is acknowledged that plans for future expansion will cater for groups who have not been traditional users of higher education and technological solutions to problems of access are likely to figure prominently. The argument in this paper is that simplistic 'technological fixes' are best avoided. The pedagogic benefits associated with VLEs are best realised when balanced with traditional teaching methodologies but here it is critical that access is facilitated, particularly from outside the sponsoring institution, if full use is to be made of the VLE.. A more careful evaluation is needed of the costs and actual (rather than potential) benefits of VLEs in order to ensure that they do realize the potential that has been forecast for them.

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