



## Notes on the audit of HE institutions: Embedding Learning Technologies (JCALT 2001)

### 1. Introduction and methodology

This audit study was carried out by key contacts at 25 UK HEIs over two months during the year 2000. The methodology for auditing was designed to ensure the involvement of key stakeholders not only in the data collection process but also in interpreting and making sense of the overall findings. As explained in the Notes for Auditors, our aim was *'to provide tools which are useful in raising the level of institutional debate about learning technology development, deployment and support, and about the staff who are involved in these processes. We hope the audit will be an intervention in the life of your institution as well as a data collection exercise.'* The methodology and findings of the audit have been reported in greater detail elsewhere (Beetham et al 2000).

Candidate factors were selected from: an existing matrix developed by the TLTP3 TALENT project (TALENT 1999); the outcomes of a national workshop for on embedding learning technologies strategically (EFFECTS 2000); and a review of the literature on institutional embedding of learning technologies (Higher Education Quality Council 1994, Wright and O'Neil, 1995, Ford *et al* 1996, Bates 1997, Davis 1997, Somekh *et al* 1997, Lueddeke 1998, Taylor 1998, Hart *et al* 1999, McNaught 2000). These fitted well into the three broad areas of institutional focus identified: culture, infrastructure and expertise.

The consultation and briefing process with institutional auditors was used to refine these factors and to arrive at a list of indicators that could be used to assess institutional status with respect to each factor. In the final audit tool, each indicator took the form of a positive statement about the institution, with which auditors indicated their agreement on a scale of one to five. The decision to use only positive statements was taken in part for ease of data analysis and in part because negative statements were judged 'too subjective' in our briefing workshops and were thought likely to arouse suspicion or disagreement among staff.

### 2. Some findings on the audit process

At post-audit focus groups, auditors were extremely positive about the impact of the audit process. A common response was that the audit had *'helped to clarify people's thinking'*, for example about the range of activities involved in effective use of learning technologies, or about the kinds of decision that need to be taken. Two auditors noted that the audit had helped the learning technologies unit become better integrated into, and more proactive within, the institution, while others found that it had helped bring people together in new ways, raise issues on relevant committees, or introduce new ideas for promoting change. The impact seemed to have been enhanced by the audit coming at the same time as the finalisation of learning and teaching strategies, which had led to an increased focus on institutional accountability.

On the other hand the actual data collection process had taken longer than anticipated and auditors expressed varying degrees of confidence in their results. The most confident had made use of existing institutional research such as the findings of staff surveys, and believed their responses to be representative. Most of the rest believed that they had presented a reasonably accurate picture of their central service teams but that the situation in departments was *'complex and diverse'*. Here it was *'impossible to do any kind of definitive survey'* due to lack of information or indifference/hostility to *'anything which comes from the Centre'*. Many auditors felt that the process revealed how little was known about learning technology related activities taking place in different parts of their institutions, and how poorly information was coordinated.

In addition to evaluating the key institutional indicators, auditors were asked to draw or describe the relationships among all the units, committees and institutional posts with responsibilities relating to learning technology use. On a separate matrix they were asked to indicate which person, committee, body or institutional process was responsible for decision making in each of the key areas identified. The level of detail given by auditors was extremely variable, as were the precise management structures of their

institutions, but this variability was difficult to interpret. No clear patterns emerged from the data such as would allow a classification of different institutional 'models' for strategic planning or coordination.

### 3. Some findings from the data on institutional factors

**Common features** across many or all institutions included the following.

- Devolution of budgets to schools and faculties for most learning and teaching related issues
- Policies and strategies determined centrally but interpreted by local budget holders through their own processes of planning and resource allocation
- A corresponding potential for conflict between central and local priorities at the level of planning and resource allocation
- Clearer responsibility for overall policy and strategy (generally under the aegis of identified individuals or committees) than for planning, coordination and management of the same agendas.
- A range of central services with overlapping responsibilities for learning technologies, e.g. educational/academic/learning and teaching development, library/learning resources/learning support, computing /information/technical services, quality assurance, personnel/staff development.
- A similar picture for central committees with overlapping strategic remits for learning technologies and related issues
- Recent change in the area of learning and teaching management, with the creation of new posts (typically at PVC/DVC/VP level) and committees (typically just below the Academic Board/Senate level), moving towards a single strategic vision for learning and teaching.
- New roles for academic staff in departments with specific (full or part time) remits for learning and teaching and/or learning technologies (e.g. teaching fellows, learning and teaching representatives, change agents, secondees etc).
- Ongoing integration of technical networks and systems, which has led to:
- Recent restructuring of central services along new lines, often relating to new technical/administrative arrangements (e.g. merging of computing and library services; MLE development; merging of student tracking, course administration and MIS)
- Extensive restructuring among learning technology units themselves, with often negative impact on strategic continuity, the momentum for change, staff confidence and retention within the unit, and the ability of academic staff to identify relevant resources
- Responsibility for student ICT skills increasingly devolved to schools/departments and programme teams, though usually within an overarching strategy or framework and with individual student access to central support (e.g. help desks, drop-in sessions).
- A lack of any central strategy on or support for research into learning and teaching; no mechanisms for using the outcomes of research and evaluation to inform strategic decision-making.

For a **comparative analysis** it was decided to consider features of managerial procedure and practice, as indicated in auditors' comments and descriptions, rather than models of institutional decision-making processes which were extremely difficult to classify. The five highest and five lowest scoring institutions according to the key indicators were compared, taking 'staff use of learning technologies' as the most representative overall measure – and noting that this measure was significantly correlated with scores on eight of the other measures. The features noted below were not necessarily common across all of the low scoring or high scoring institutions, but may be indicative of particular areas of weakness and strength respectively. Auditors themselves identified these features as having a significant impact on their institution's ability to make effective use of learning technologies.

Some features of the **lowest scoring** (five) institutions:

- Departments sometimes had a great deal of autonomy in a highly decentralised structure, with no attempt to address competing central/local priorities at the level of planning and resource allocation.
- Historically, learning and teaching tended not to have been a priority (all of these were pre-1992 institutions). Often there was no clear centre for learning and teaching/educational development or this was very recently established.

- Institutions described difficulties in driving strategies through because there was no critical mass of learning technology experts among academic staff or managers. This did not necessarily mean that there was no learning technology research or development activity, but where this did take place it seemed to be in a separate centre without clear links back into departments.
- Key management and coordination functions with respect to learning technologies were often delegated to new posts or committees, whose incumbents had yet to 'prove' themselves within the institutional culture (and in some cases were not yet even in post).
- There were fewer identified staff with specific responsibilities for learning technologies and their structural location sometimes seemed to isolate them from other learning and teaching staff (e.g. in information services, computing services, the registry).
- Committee structures were often complex and committee culture conservative. One may hypothesise that this would militate against flexible management, effective coordination and responsiveness to new agendas.

These features may be correlative without being causative: in other words there may be complex historical factors at work in pre-1992 institutions which are responsible for all of these features, including the relatively poor environment for uptake of learning technologies.

Some features of the **highest scoring** (five) institutions

- Institutions which scored highly tended to identify the processes by which the levels of strategic planning were linked and implemented, rather than simply to indicate who was responsible at each level. It may be the nature of these processes, rather than any structural features, which determines the degree of institutional success in planning for learning technologies.
- Gaps between central strategy and local implementation had been bridged through the development of faculty (or school) learning and teaching teams or committees, which included academics and academic managers (HoDs) alongside learning support professionals and/or representatives of central services (e.g. library, computing services and learning support).
- Links were also provided by individual 'brokers' (typically members of academic staff) who acted in one direction as advocates, change agents and gateways to the various support services on behalf of their department, and in the other direction as representatives of their department's specific needs in the strategic planning process. These systems were (becoming) formalised across the institution.
- Specific new initiatives were undertaken in response to new agendas such as the e-university, open and distance learning, lifelong learning or the use of managed learning environments. These initiatives tended to be headed up by senior staff with academic and institutional credibility (several institutions noted this fact as important).
- Decision making tended to be integrated across different levels of the institution, rather than strategic decisions being taken centrally and implemented locally. For example, Directors of Central Services might have a role in supporting local planning and implementation, or departmental learning and teaching representatives might have input to infrastructure developments and resource priorities.
- Central services were expected to respond strategically to needs identified by schools and departments.
- Internal communication was actively prioritised, along with building external networks and partnerships.
- The majority of learning technology specialist staff were located centrally alongside other learning and teaching services, but links were also built with faculties/departments through specific projects; secondment of academic staff; or allocation of learning technology staff to specific departments for some portion of their time.
- The central learning technology unit (or equivalent) had a clear coordinating role across the institution with respect to learning technology development, support and use.

- Learning and teaching champions were identified in departments as well as in central service teams. Individuals were given opportunities to pursue their own development agendas e.g. through project funding and secondments.
- Educational research was supported.
- Staff expertise was shared by a number of means such as seminars, annual conferences, awaydays, mailing lists and internal newsletters.
- Explicit links were established between pedagogic experts and technical support staff e.g. in central service teams and local learning centres.
- Staff with responsibility for developing the staff and student desktop, standard applications and network infrastructure worked closely with staff responsible for staff and student ICT skills.
- There were mechanisms for departments, schools and/or individuals to identify their own staff development needs in relation to technology use.
- External funding opportunities were identified and internal projects were centrally coordinated to ensure a fit with institutional strategic priorities
- Policy and vision tended to be informed by user groups of *interested* staff as well as committees of *representative* staff. Major projects and infrastructure initiatives (e.g. the implementation of a new managed learning environment) had spawned ad hoc new user groups, implying a relatively flexible structure for decision making and consultation.

#### 4. Some findings from focus groups

Following the analysis of audit data, institutional auditors were invited to further focus groups to help the process of qualitative analysis. From suggestions in the audit data, seven **strategies for development** were proposed. There was general consensus that these represented distinctly different institutional approaches to embedding learning technologies, but that they were not mutually exclusive. The most successful institutions, according to the measures given above, had followed more than one of these strategies in parallel:

***academic staff secondment***, with a focus on developing academic staff skills (and hence the academic curriculum) through short-term secondments to central units where they receive targeted support to develop their own interests and expertise. The success of this approach depends on these staff returning to their original departments where they act as resources and change agents for others.

***coordination/brokerage***, with a specialist learning technologies team acting as brokers, facilitators and coordinators of local activities. The central team may act as gatekeepers to specific kinds of expertise and support but ideally also as 'knowledge managers', building networks to share information and expertise.

***updating professional expertise***, with a focus on developing the skills of central services staff (e.g. staff development, computer services, learning and teaching development, library, media services, learning skills support). The relationship between central services and departments remains one of client service, but staff are able to offer new forms of service for a more technology-based learning environment.

***supporting materials production***, with central unit(s) providing specialist materials development services (e.g. web-based, multimedia, audio-visual) to academic staff and departments as clients. Here the focus is usually on high production values. Products may be marketed externally to the institution.

***small-scale development projects***, with specific priorities identified for funding. Resources are either distributed across departments or made available for bidding to undertake specific learning and teaching development projects. These resources may include buy-out for academic secondment and/or the support of specialist learning technology staff.

*cultural initiatives*, with an institution-wide focus on a specific new agenda (such as student centred learning, open and distance learning, the virtual campus). Overall mission, planning, budgeting and coordination tend to be under the aegis of a specific senior member of staff who is closely identified with the initiative and helps to secure the support of middle management.

*infrastructure initiatives*, with a major investment in networking, software, hardware, buildings and/or facilities, or integration of systems. To ensure effective use of the new facilities, there may be a concerted programme of staff development, targeted development funding and/or the employment of new support staff.

It was noted that all of these strategies depended on the support of expert learning technologies staff, though the specific skills mix required of these staff varied.

Institutional auditors also explored the idea that effective institutional strategies were those that empowered individual members of staff to pursue learning and teaching development and to act as change agents in their own context of work. An **empowering institution** was felt to be one that:

- ◆ Had a central vision but allowed for local planning and processes
- ◆ Achieved coordination without territoriality
- ◆ Had strategies for recruiting, developing and rewarding expertise in learning technologies
- ◆ Offered status, credibility and recognition to staff involved in learning and teaching development
- ◆ Integrated support systems for student skills, staff skills, the development of learning resources and the development of the learning environment infrastructure
- ◆ Secure resources for innovations projects as well as for reflection on practice and continuing professional development
- ◆ Learned strategically from local evaluation & development projects
- ◆ Promoted the building of internal and external networks

## 5. Recommendations

As a result of the audit process and analysis, and again in consultation with the institutional auditors and other sector champions, the audit team made the following recommendations to institutions, based on findings in each of the key areas of investigation.

### 5.1 Changing organisational cultures

1. Learning and teaching development must be prioritised in the resource planning cycle and in academic career progression. A high proportion of audited institutions (91%) had in place initiatives to promote learning and teaching development, but only 29% had secure budgets devoted to it in the longer term and only 14% made learning and teaching record central to academic appointments and appraisals..

2. There need to be mechanisms ensuring that central policy is coordinated with local priorities and practices, with accountability and communication in both directions. Again, most institutions reported a strong mission focus on learning and teaching excellence (69%) and/or a central learning technologies initiative (86%), but less than 10% that staff in departments were expected actively to contribute to the scholarship of teaching or that departments were making a concerted effort to integrate learning technologies into their programmes.

3. Departments can be encouraged to demonstrate pedagogical research/scholarship of teaching as well as subject-specific research if they are effectively supported through both a specialist central research and development unit, and targeted support for individual staff.

4. Departments and faculties must be involved in and take ownership of the process of change. Encouraging a shared agenda without top-down intervention means promoting arrangements such as secondments, cross-department mentoring, information-sharing forums, internal publications and discussion lists, networks of departmental representatives, teaching fellowships, internal partnerships and collaborations.

5. Teaching and learning innovation continues to be focused at the project level with multi-role teams working for relatively short-term, local outcomes. This has generally been a successful approach in the early and middle stages of institutional change, and managers should review a range of opportunities for introducing this mode of working. Project management skills should be encouraged among a wide range of staff, and flexible appraisal/reward systems developed so that these teams can be judged according to their outcomes.

6. Completely different strategic approaches are required for 'mainstreaming' or 'scaling up' project based initiatives, however. This phase of organisational change is focused on consolidation, embedding and institutional adaptation. It depends on:

- ◆ learning technology specialists being supported to work at a strategic level across institutional boundaries
- ◆ senior managers working collaboratively on learning technology issues, and in an informed way (see 'development for senior managers' below)
- ◆ closing the loop of policy, planning and resource allocation
- ◆ integration of technical, administrative and human systems, but
- ◆ flexibility within systems for continuous innovation and change
- ◆ central brokerage, coordination and mission but
- ◆ local ownership, planning and implementation
- ◆ effective recognition and reward systems for all categories of staff

7. Managers should work actively to identify and share examples of good practice in learning technology management, within and beyond the institution. Examples might include:

- ◆ where ICT management is proactive in encouraging learning and teaching innovation
- ◆ where academic innovators and learners themselves are actively involved in decisions making (e.g. on learning and teaching strategy, infrastructure development)
- ◆ where central and local decision making processes are mutually informed and accountable
- ◆ where multi-role project teams are managed in a flexible and effective way (e.g. shared management, matrix management, appraisal by outcomes)

8. A range of credible strategies are needed for recognising and rewarding staff involved in teaching innovation, including changes to structures for appraisal, progression and promotion as well as smaller scale incentives such as one-off project funding. These strategies should be available as widely as possible, including to staff not in traditional academic posts.

9. Encourage collaboration between learning technology researchers/developers and educational researcher/developers, working with other institutions if necessary, given the evidence that these two forms of expertise are often located in different sites and that a synergy between the two is necessary if learning technologies are to be used effectively for enhanced student learning.

## **5.2 Infrastructure development**

1. A central learning technology team must have a clear coordinating role with respect to staff in multiple locations and roles. These are likely to include: librarians, computing services staff, learning skills professionals, learning resource managers, educational developers and researchers, technical developers and

researchers, academic innovators, project managers and team leaders. Duplication of effort is to some extent inevitable as technologies impact more widely on the learning environment, but is currently at a wasteful level.

2. However, coordination should focus on knowledge management and brokerage rather than centralised control. The aim is to provide a two-way flow of information, in order to provide both a one-stop shop for learning and teaching staff in one direction, and a coherent strategic vision in the other. Institutional research and needs analysis should form an explicit part of the central team's role and they should be involved in strategic decision making wherever learning technologies are involved.

3. There is evidence that learning technology work is devolving away from central service teams as the focus moves to integration of learning technologies into curricula and pedagogical cultures. Academics and learning support professionals in departments are now extensively involved in learning technology work, but are vulnerable to isolation from colleagues with similar experiences, and from central strategic drivers. Particular efforts should be made to identify, involve and support them.

4. There is an urgent need for institutions to close the loop between central strategies on learning technologies and local action planning/resource allocation, with effective communication and accountability in both directions. Systems need to be integrated but in a way which allows maximum flexibility for individuals, departments and teams to translate strategies effectively into their own contexts. Loose accountability procedures focusing on outcomes rather than processes can support local good practice and innovation.

5. Routine use of learning technologies across all programmes of study is associated with changes to curriculum planning, e.g. module documentation, and internal QA processes to take into account programmes delivered or assessed wholly or partly through the use of new technologies.

6. Institutions which have not already done so should recognise that there has been a shift of emphasis in the learning technology use, away from the development of specialist educational software (computer assisted learning) and towards the use of a generic tools such as computer mediated communications, computer assisted assessment, within a managed learning environment. Much of this use is anticipated to take place in fairly 'traditional' face to face contexts. There needs to be correspondingly greater investment in:

- ◆ development of integrated learning environments and systems, informed by the needs of learners and learning & teaching staff
- ◆ support for curriculum development (especially in departments and programmes) to ensure effective educational use of the new learning environments
- ◆ support and facilities for staff and student access to resources, both centrally and in departments and programmes
- ◆ opportunity for student data systems to be integrated into learning and teaching, e.g. through the development of progress files or learning records
- ◆ integration of learning technologies for enhanced face to face learning into the actual learning spaces of the institution (e.g. networked computers, data projectors, electronic whiteboards, videoconferencing facilities)
- ◆ adaptation of learning spaces and maintenance of new facilities to ensure maximum access

7. The investment priority at most institutions will be the development of a managed learning environment, integrating learning and teaching applications with other systems such as libraries, student records, (HE)MIS, intranets etc. Only 24% of institutions currently have a managed learning environment (August 2000). Most are also moving towards campus-wide computer mediated communications and computer assisted assessment systems, and access to computer-based learning resources across subject areas.

8. Institutions should put in place mechanisms for ensuring that the experience of learners, and of staff working directly to improve student learning, are taken into account in all major investments in technical infrastructure, central administrative systems, facilities and learning spaces.

### 5.3 Resources and support

1. Local (departmental) development projects should be funded on the principle of 'letting many flowers bloom', recognising that a relatively small level of funding can help to build a critical mass of innovators in departments. Learning technology specialists must be involved in decisions over how this funding is allocated, and there should be mechanisms for evaluation and dissemination of outcomes.

2. A longer view should also be taken, however, when putting in place funding for learning technology development and use. Short-term initiatives will not attract committed staff with valuable skills. For academic staff, full-time secondments to learning technology teams for a period of at least a semester are extremely effective; for learning technology specialist staff it is important to look at long-term projects and sources of funding with the possibility of progression built in.

3. Support for learning technologies needs to include all of:

- ◆ support for teaching staff in embedding the use of learning technologies (educational/curriculum development)
- ◆ support for students accessing and using learning technologies (e.g. information literacy skills) both centrally and in departments/programmes
- ◆ technical support of systems, hardware and software
- ◆ support for the development of new learning materials and applications.

Only four institutions audited (19%) provided this full range of support. Institutions which scored highly on the audit of Key Factors also provided academic support for learning technology research and development.

### 5.4 Staff ICT skills

1. All institutions should now be providing opportunities for academic staff to acquire integrated technical and pedagogical skills for embedding learning technologies. Providers of these opportunities should be considering how they can be formally recognised.

2. Institutions should consider putting in place formal mechanisms to monitor staff ICT skills, both generally and on an individual, per-role basis (e.g. as part of staff appraisal). Training needs analysis should take account of the different needs of the different groups of staff identified in the study (see the Mapping Roles audit tool).

3. Learning technology staff needed to undertake continuous professional development to remain competent in a rapidly changing area of expertise. Their most urgent requirement is 'keeping abreast of current developments in learning technologies', which demands:

- ◆ Time, especially for self-directed and peer learning
- ◆ Opportunities to share expertise with colleagues in other institutions
- ◆ External training and development opportunities, recognising that the staff involved will cascade new skills to other staff through their own involvement in staff/educational development

4. In recruiting and developing learning technology staff, it should be recognised that their role also involves many non-technical skills including:

- ◆ educational (e.g. curriculum development and educational design);

- ◆ interpersonal/communicative (e.g. facilitation, negotiation, needs analysis, building bridges);
- ◆ strategic (e.g. promoting change, working within academic cultures, working across structures and boundaries);
- ◆ academic (e.g. research and development, evaluation, dissemination)
- ◆ project managerial (e.g. financial planning, coordination, securing resources, overcoming problems, exploiting opportunities)
- ◆ informational (e.g. online information management, brokerage, building contacts)

5. Senior managers themselves need regular updating on ICT and on learning and teaching development, but this should focus on strategic issues and priorities rather than technical skills. In particular, teaching and learning managers need regular access to and communication with senior management teams if strategic and operational activities are to be knit together.

6. Staff and educational development are essential activities, particularly in times of external pressure and institutional change. Individuals and units responsible for these activities should be protected as far as possible to get on with their job at critical times such as restructuring.

7. Appropriate development opportunities for academic staff and established professionals incorporate new competences into their existing professional roles, e.g. through tailored in-house workshops on learning technology use (especially for learning and teaching staff) and external conferences or briefings provided by their professional bodies. These should be actively promoted and supported, particularly where professional accreditation is available.

8. Development opportunities should be provided to departments and teams as well as individuals, recognising the value of peer-learning and multi-role working.

9. Explore mechanisms for supporting the institutional learning and teaching community to develop its collective expertise, for example through:

- ◆ email lists and bulletin boards
- ◆ workshops and awaydays
- ◆ a newsletter
- ◆ mentoring and co-mentoring across departments and teams
- ◆ a knowledge network, directory of expertise or 'skill shop'

10. As recruitment and retention of learning technology staff is an area of current and growing concern, a clear management responsibility should be identified for the continuing professional or career development of learning technology staff. These staff should be a priority concern in the writing of the institutional human resource strategy, as recommended in the HEFCE Consultation Paper (see particularly points 9a, b, d and e).

11. Appropriate mechanisms should be explored for ensuring that learning technology staff have protected time for professional development, including self-directed and peer learning and opportunities to pursue academic study where appropriate. Other suitable arrangements might include

- ◆ mentoring by members of the educational/staff development team, academic innovators and/or change agents seasoned in the politics of the institution
- ◆ support for research and publications where appropriate

- ◆ support to join the ILT or other suitable professional body, and to build a portfolio of CPD evidence
- ◆ opportunities for collaborative work in multi-role 'learning teams'
- ◆ a role on institutional committees and working parties where appropriate

12. The grading and job descriptions of learning technology staff should as far as possible recognise the wide range of skills required and the strategic significance of these roles for the future of the institution. Human Resource managers should work together to develop a consistent framework for job gradings, contracts, job descriptions and salary levels across the institution.

13. Consider credible incentives for staff moving into or remaining in learning technology roles, for example:

- ◆ access to similar reward and recognition processes as academic staff (e.g. based on learning and teaching innovation and outcomes)
- ◆ academic participation and the freedom to pursue research
- ◆ autonomy and ownership of development projects
- ◆ intellectual and creative fulfilment: a holistic approach to development rather than providing a 'service' at a particular point in the development cycle
- ◆ direct involvement with the learning and teaching process (intrinsic rewards of feedback from staff and students)
- ◆ scope for personal development and lifelong learning
- ◆ creative engagement with and exploration of new technologies

14. Consider ways of minimising the disincentives for staff moving into or remaining in learning technology roles, for example

- ◆ overwork, lack of support and juggling of multiple tasks
- ◆ lack of job security and uncertainty of career progression
- ◆ constant organisational restructuring and change

## 5.6 Student ICT skills

1. Student ICT skills fall into two categories: generic and subject specific. It is recommended that institutions consider a central approach to generic skills, including appraisal, monitoring and accreditation, in consultation with academic staff in departments as to likely in-course needs, and with graduate employers as to likely future needs.

2. In keeping with the general trend of embedding learning technologies into subject areas, discipline-specific and professional ICT skills should also be embedded into courses of study. Module, course and programme leaders should therefore be required to address ICT skills in course planning, and must have local support available both for their own curriculum development activities (e.g. integrating skills assessment where appropriate) and to ensure students have functional access to the technologies involved.