

## Appendix C

### Qualitative Data Analysis

#### Introduction

A survey was conducted by the University of Birmingham as part of a JISC project to examine the ways in which learning technologies are influencing the design of physical learning spaces in post-16 education institutions. This report provides a summary of the qualitative data that was collected from this survey. The analysis of this data had the following aims:

- To understand the kinds of learning technologies that are used and how institutions are using them to enhance the learning and teaching experience
- To examine how this use of learning technologies has influenced the design and development of learning spaces within these institutions
- To explore the vision that institutions have for the innovative use of learning technologies and spaces over the next 5 years, to understand how future developments may impact upon learning and teaching practices and experiences

The following report has two sections. The first provides a summary of the findings from an analysis of the qualitative data, the second section presents the main conclusions that can be drawn from this analysis. The project methodology is described in appendix B.

#### Summary Findings

*The Questions* - This section summarises the findings from the qualitative data provided in response to following questions:

- Question B4: Describe the committee/management structures that are in place for the strategic planning and management of learning and teaching spaces at your institution.
- Question C1: Current Position: Please give an estimate of the number of rooms, in each category, that currently have or are used with the following facilities.
- Question C2: The Future: Please give an estimate of the number of rooms, in each category, that will have or will be used with the following facilities by 2008.
- Question C3: If any learning technologies are used to support students off-campus, please specify here
- Question D1: Does your institution have a vision for the innovative use of learning technologies over the next 5 years?
- Question E1: Please give an example of innovative use of learning space that has been used to enhance learning at your institution. Please outline what has worked and what has not worked in your experience.

- Question E2: What assumptions should we challenge in the design of learning spaces for the future?

#### **Question B4:**

*Describe the committee/management structures that are in place for the strategic planning and management of learning and teaching spaces at your institution.*

The following analysis discusses the different kinds of management and committee structures that are in place for the strategic planning and management of learning and teaching spaces at post-16 education institutions. A total of 86 out of 87 institutions responded to this question.

This open-ended question enabled institutions to describe the management/committee structure in their own terms. The appendix of the survey gave examples of an FE and HE committee structure (the latter being based on the Committee structure at the University of Birmingham) to guide institutions in completing the question if they needed it (see appendix of this report). Responses suggested that there are a wide range of different departments, committees, and groups of staff that are involved in some way within these structures. Furthermore, these structures vary in terms of the many different ways that such departments, committees and groups report to each other.

This analysis will firstly explore the wide range of departments or groups that are involved in FE and HE management/committee structures. It will then examine the ways in which these management/committee structures operate by exploring how these departments or groups report to each other.

#### *Analysis of structure: departments, groups and committees*

Survey responses suggest that there are two significant ways in which institutions have outlined their particular management/committee structure. Firstly, some institutions have given detailed structures, explaining the specific departments (such as Estates and IT) that are involved in the strategic planning and management of learning and teaching spaces. Secondly, some institutions have provided a combination of descriptions that provide a general overview of their structure, including some specific details about the departments that are involved. However, in many of these examples of general management/committee structures, some departments are not mentioned specifically. Thus, the eSpaces Project Team has drawn upon their particular experiences of strategic planning and management at the University of Birmingham to analyse and interpret this data. A small number of institutions have provided vague information or nothing at all.

Although there may be similarities between institutions in terms of the ways that they have described their management/committee structures, the complex variations that have emerged from the analysis suggest that these responses are institution-specific. Thus, further investigations would be required to explain the descriptions that institutions have given in response to this question to clarify, for example, the specific function of each department/group, and what particular kinds of job roles are involved within these departments/groups.

#### *2.2.2 Detailed management/committee structures*

The majority of institutions provided a detailed description of their management/committee structures and reported a wide range of different departments/groups involved within them. Most of these institutions reported having Senior Management Teams involved in the planning and

management of their learning and teaching spaces. Some institutions reported having individuals such as Vice Chancellors, Pro Vice Chancellors and Principals, and groups such as College Management Teams and Board of Governors involved in some way within their Senior Management Teams.

Many of these institutions also reported having Estates Teams or Management as part of their management/committee structure. Some institutions did not report having Estates Teams as part of this structure, but reported having Space Management Teams instead. Given that these two teams are likely to be involved in the management, design or planning of new or existing buildings and spaces in some way, it would seem that for these institutions at least, 'Space Management' fulfils a similar function to Estates Teams within other institutions. However, three institutions have reported that both Estates and Space Management Teams are part of their management/committee structure. This may suggest, therefore, that these teams may have different definitions and functions depending upon the institution and further research would be needed to clarify this.

Although IT departments were not mentioned specifically in some institutions, many responses indicate that these departments are integral to their management/committee structures. For example, many institutions who provided detailed descriptions of their structures also reported significant involvement from Heads of specific departments within their institution. For example, these structures specify having Heads of Academic Departments or Centres, Heads of Support Departments, Heads of Faculty, Quality Improvement and Academic Administration and Finance. Similarly, Directors of Operations, Media Services, Information Services, and Academic Planning are involved in some way in the planning and management of learning spaces at a number of institutions. Based on our understanding of management/committee structures at the University of Birmingham, and from recent site visits across the UK, IT departments are likely to be more pervasive than responses would suggest and may be an integral part of 'Support Departments', 'Information Services' or 'Operations'. Similarly, Senior Management Teams are likely to include departments such as IT and Library Services.

Some institutions (most notably universities) have Teaching and Learning Committees, Units or Policy Groups involved in the strategic planning and management of learning spaces. Similarly, some institutions reported having Course Management Teams involved. These teams are responsible for timetabling and curriculum management, including support for these roles.

Other departments that have been reported in some institutions include Business Management Groups, Teaching Facilities Management Groups, Media Services, Quality Improvement Committees and Security.

### ***General Structures***

A significant number of institutions provided more general descriptions of their management/committee structure. For example, some of these institutions reported having 'Heads of Departments', but did not specify what these departments might be. Similarly, descriptions such as 'Heads of Section', 'Departments', 'Various sub-committees' and 'Strategy Management Groups' fail to indicate the kinds of representatives, job roles or particular departments are involved within these descriptions.

Some of these institutions have also included some specific descriptions of departments involved within their management/committee structure. Where this detail is present, Senior Management and Estates Teams are most commonly involved.

### ***Analysis of structure: report mechanisms***

The majority of institutions indicate that there are multiple layers to their management/committee structures, whereby some departments feed directly into others during the process of planning and managing learning spaces at the institution. Institutions have provided detailed text descriptions of the ways in which their departments feed into or report to the Senior Management Team. For example, one FE institution reports that:

Estates Management is part of the responsibilities of the Business Services Director. Individual members of staff, Curriculum Managers and Leadership groups can and do raise issues for consideration. The Director would then manage these issues and where necessary, bring this to the attention of the Senior Management Team.

Similarly;

Property Services Committee of Governors reporting to the Main Board. This includes the Director of Resources, Estates Manager, Principal and 3 other Governors. The day-to-day management is entirely driven by the Estates Manager.

These descriptions suggest that each department is not only responsible for specific tasks within the management/committee structure, but is also responsible to other specific groups within it. The first quote describes how individual members of staff, Curriculum Managers and Leadership groups can raise issues for consideration by the Director of Business Services, who is responsible for bringing important issues to the attention of the Senior Management Team. The second quote also suggests that departments within this particular structure serve two closely related, but different functions at the institution. That is, this institution indicates a reporting structure whereby those responsible for the day to day operation of learning spaces are involved with those who are responsible for the strategic planning of such spaces. This can also be seen to operate in other institutions where departments such as the Senior Management Team, Academic Board or College Executive operate at a strategic level, and departments such as Estates, Information Services and School Representatives have ‘operational responsibilities’.

### **Questions C1 and C2**

***C1. Current Position: Please give an estimate of the number of rooms, in each category, that currently have or are used with the following facilities***

***C2. The Future: Please give an estimate of the number of rooms, in each category, that will have or will be used with the following facilities by 2008.***

Questions C1 and C2 have the same aims and will therefore be discussed together.

The analysis of these questions includes a brief review of the quantitative data that institutions provided in order to contextualise the qualitative data (‘further comments’) that institutions gave in response to these questions.

The two key aims of this analysis are as follows:

1. To determine the number of institutions who did and did not fill in questions C1 and C2
2. To examine why these institutions were unable to provide responses to either of these questions from an analysis of the qualitative data provided.

To gain insights into why some institutions have refrained from answering questions C1 and C2, this analysis also explores responses to question D1, which asked institutions to describe their vision for innovative use of learning technologies over the next 5 years. Although D1 relates to 'vision' rather than actual use, some institutions have provided useful insights into why they have been unable, for example, to complete question C2.

### **Background information: Some quantitative findings**

Institutions were firstly requested to fill in a table (see table 1, Appendix) for questions C1 and C2, and were then given the opportunity to make further comments about these questions if they so wished. The same table was used for both questions. C1 requested institutions to complete the table to provide an estimate of the number of rooms, in each category, that are *currently* used with the specified facilities. C2 requested institutions to fill this table in to indicate the number of rooms, in each category, that will be used with the specified facilities by 2008.

79 out of 87 institutions answered question C1 and 57 out of 87 institutions answered question C2. Thus, the majority (91%) of respondents answered question C1 and over half of respondents answered question C2 (66%). Only 8 institutions did not respond to question C1 (9%), although a significantly greater number did not respond to question C2 (n=30/34%).

Some institutions (C1: n=11, C2: n=12) responded to both questions, but did not complete a significant number of the categories provided (over 50% of the tables left uncompleted). These categories were either left blank or were marked 'zero'. Analysis of these particular responses suggests that the random distribution of completed categories across each table indicates that these institutions found some categories irrelevant, rather than failing to finish completing the question per se. Uncompleted categories may be irrelevant due to factors such as:

- The information was simply not available at the time of completing the survey.
- The size of the institution may determine the kinds of spaces and technologies used and we cannot assume that all institutions have the same rooms and thus the presence of technologies in these rooms. For example, smaller institutions may not have large lecture rooms or the provision of computers for student use within student accommodation.
- The type of institution may also determine the kinds of spaces and technologies used. For example, some specialist colleges such as the Royal College of Music may not require computer labs when a significant proportion of their teaching is practically-based (i.e. solo and ensemble instrumental and singing tuition).
- Uncertainty about funding streams

The next section will further examine why institutions did not respond to question C2.

### **Analysis of qualitative data**

The comments that institutions provided to questions C1 and C2 and the qualitative data that they provided in question D1 were analysed to determine why some institutions failed to respond to questions C1 and C2. 3 institutions gave no reason for not responding to question C1, and 2 institutions gave no reason for not answering question C2.

From an analysis of the qualitative data, 5 themes were identified as reasons why institutions did not respond to either question:

***i. Future predictions***

Survey responses suggest that one of the reasons that some institutions were unable to answer question C2 was because they were unable or did not wish to predict levels of provision by 2008. For example, a Further Education institution suggested that in the light of problems with space utilisation, there was ‘no other solution’ but to ‘rebuild the college’ and thus, did not wish to predict future levels of provision at this stage. Two other Further Education institutions were unable ‘to guess’ what facilities would be used in which rooms 2008 and three Universities were unable to ‘estimate’ or comment on this provision at this time. Respondents from another university also suggested that they were unable to obtain the relevant information.

***ii. Learning, Teaching and Estates Strategy developments***

Survey responses also suggested that some institutions were unable to answer question C2 due to their involvement in restructuring or revising their learning and teaching strategies, which would have a direct impact on the kinds of facilities and rooms that would be in operation by 2008. For example, a Further Education institution stated that:

We are in the process of a major restructure and hence completing this section would be meaningless at this point in time due to the reassessment of the entire estates strategy.
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Two similar institutions were also unable to address this question due to current revisions and developments in their IT and Property strategies. A university who responded to the survey suggested that ‘it is impossible to project this [information] at this time’ due to developing their teaching and learning space management strategy for November 2005.

***iii. New Buildings***

Some institutions stated that they were unable to fill in either question C1 or C2 due to new building work in progress or plans to move into new buildings elsewhere. For example, one university suggested that there is a ‘new development opening in 2007’, creating uncertainty as to the number of teaching rooms this institution will have by 2008. Another university also suggested that a ‘new build planned for September 2006 – mixture of classrooms and offices – currently not detailed’, made it difficult to provide the information requested in the survey.

Other institutions suggested that their institution is ‘likely to merge and the site will be sold off’ or they are ‘currently preparing to move to a brand new campus in December 2005’ and thus, any data provided relates to this new location rather than existing buildings and facilities.

***iv. Investing in the future***

Some institutions described how investments in learning technologies and teaching rooms would continue until 2008 or beyond, but failed to provide any details about the kinds of technologies they might use by this time. However, this information provides useful insights into potential areas of innovation in some institutions. For example, a Further Education institution suggested that ‘investment in technologies and spaces will continue’ and indicated that Interactive Whiteboards and data projectors may be introduced to ‘all classrooms’ by 2008. Similarly, another FE institution suggested that ‘most permanent classrooms will be networked with computers and data projectors’.

#### *v. Off campus delivery*

One FE institution suggested that they were unable to complete question C2 as 40% of their course delivery is ‘off campus in the workplace, community and outreach centres’, indicating that different kinds of delivery determine the relevance of such questions for some institutions.

#### **Summary of comments to question C3: If any learning technologies are used to support students off-campus, please specify here**

Survey participants were asked if their institution used any learning technologies to support their students off-campus. The analysis below draws together the key themes that have emerged from these responses. 14 institutions stated that they do not use learning technologies to support students in this way.

#### **Virtual Learning Environments**

The use of a Virtual Learning Environment (VLE) to support students off-campus is significant amongst the different types of post-16 institutions who responded. Some institutions did not specify which VLE they were using, although responses indicate that Blackboard and WebCT were most commonly used. Other VLEs used by institutions include Learnwise, Firstclass, Moodle, and StudyNet. Institutions use VLEs for a variety of different purposes. The sub-sections below describe the different facilities within these VLEs that institutions use to support their students.

##### *i. Course materials*

Many institutions provide access to handouts, lecture notes, PowerPoint presentations and course materials through their VLE to support students off-campus, on placements and those on distance-learning courses. Some institutions make library catalogue and electronic journal facilities accessible via their VLE.

##### *ii. Self-assessment tools*

Assessment tools (such as QuestionMark Perception) are used for formative assessment, and sometimes summative assessment, purposes in various courses across campuses, and are also available off-campus through institutional VLEs.

##### *iii. Communication tools*

VLE communication tools are also used. For example, some institutions use the chat room facility for ‘collaborative learning’. Communication tools such as the discussion forum are also used by some institutions to encourage group work.

#### ***iv. Multi-media***

Some institutions provide access to relevant video clips through the VLE to support students during their studies. One university also provides 'streaming video' as well as course materials, practical demonstrations, tutorial sessions, discussion forums and online assessments to support students.

#### ***v. Online support***

Some institutions provide online support for students off-campus such as online academic support materials, which are described as 'a programme to aid appropriate referencing assignments'. Career development materials and technical support is also available online at some institutions and a pilot study designed to aid student retention at one institution is currently investigating the use of email to alert students to support materials.

#### ***vi. Other resources***

One institution provides crosswords for students within Blackboard and students at one university can also submit their coursework online via the VLE.

### **Mobile Technologies**

#### ***i. Laptops***

Some institutions provide students with laptops for use off-campus and to enable them to access the intranet and Internet to support their studies. Some institutions also provide laptops to students with special needs such as those with dyslexia, ALS (Amyotrophic Lateral Sclerosis) [<http://www.alsa.org>], general information on accessibility can be found at <http://www.dur.ac.uk/alert/>.

#### ***ii. Learning Buses***

Students from two institutions (a FE and HE institution) have access to laptops via a Learning Bus. At the FE institution, a local learning bus is equipped with 20 networked laptops that serve 'an extensive range of community partners and sites'. At the HE institution, the Department of Life Long Learning also has a learning bus that is equipped with laptops, which travels to remote communities to teach part-time students.

#### ***iii. PDAs***

Two institutions provide students with Personal Digital Assistants for off-campus use. One of these institutions uses PDAs to link up to internal student tracking systems and the other institution has piloted the use of PDAs for initial Teacher Training.

#### ***iv. Mobile phones***

One university is considering extending its pilot study of using email to provide motivational messages to include the use of text messaging (and voice mail). Another university uses mobile phones and SMS text messaging to communicate with students off-campus.

#### ***v. Digital Cameras***

Some institutions provide digital cameras (and Global positioning systems) for student field trips or for use in other off-campus locations.

### **Off-Campus Learning Centres**

One FE institution has 'Outreach Centres' which are networked either with broadband Internet access or with a direct link to the college network. Another FE institution has ICT centres in the community, although no further detail is provided. Students at one university are supported off-campus with its 'Medi-CAL Unit Resource Centre'. This facility is only available to students in Medicine. Another HE institution has 2 computer rooms situated in halls of residence for student use.

### **Video Conferencing**

Through an initiative sponsored by the Department for Employment and Learning, one university has been able to provide video-conference and IT lab services in the FE and Health sectors in support of off-campus course delivery.

Some institutions also have video conference studios available to support courses and to link their campus to students in different parts of the country.

### **CDROMs/DVDs**

One FE institution has experimented with distance learning by using internally produced learning materials that are distributed via CDROMs. Some HE institutions also provide students on distance postgraduate courses with DVDs of lecture content or use DVDs to provide students with course information where the institutional VLE has not yet been utilised sufficiently across campus to support them.

### **Summary of comments to question D1:**

*Does your institution have a vision for the innovative use of learning technologies over the next 5 years?*

The majority of FE and HE institutions who responded to the survey outline a vision for the innovative use of learning technologies and spaces over the next 5 years. The following analysis suggests that there are 6 key themes that characterise the visions of those institutions who responded.

#### ***Increasing facilities/provision of technologies in teaching rooms***

Many of the institutions who responded to question D1 describe a vision for increasing the use of technologies such as data projectors, Interactive WhiteBoards and personal response systems in their teaching rooms across campus to support different learning and teaching activities. The use of mobile technologies such as PDAs and laptops and wireless networks are also part of this 5-year vision for many institutions. Finally, some institutions suggest that the need to expand or increase their use of learning technologies overall is integral to their vision for the next 5 years and beyond.

#### ***The introduction and development of VLEs for learning and teaching***

The intention of implementing a VLE, developing the quality and content within it, or expanding VLE access to students and staff is significant amongst those institutions who responded to the survey. For many institutions that already have VLEs, their vision involves expanding access to it and/or increasing student usage.

### ***Improving learning opportunities and flexibility***

Several institutions suggest that increasing the opportunity for flexible student learning is an important part of their vision over the next 5 years. For example, one institution suggests that ‘flexibility is the key to supporting students’ learning’ and that ‘technology will be an important component in producing [this] flexibility’. Other institutions describe how this flexibility will enable staff to accommodate ‘learner needs’ more effectively than previously and provide a means of widening participation to include learners with special needs or who possess specialist skills in need of further development.

Some institutions describe how they intend to encourage a ‘blended learning’ approach where technologies are incorporated with more traditional methods of learning. For example, one university intends to pursue a blended approach to learning by providing ‘new enhancements to traditional teaching by equipping teaching spaces with supporting hardware such as tablets, personal response systems... and extending the use of the Web’.

Some institutions indicate that an important part of their vision is to ensure that pedagogy, not technology, should lead the way with any new initiatives. For example, one university suggests that whilst ‘technologies can play a key role in the delivery of learning and teaching, and enhancing the student experience’, pedagogy rather than technology must lead the way.

### ***Revising or developing learning and teaching strategies for the support of technology-enhanced learning and spaces.***

Some institutions were unable to describe a vision for the innovative use of specific learning technologies over the next 5 years due to the need to revise or develop their learning and teaching/e-learning strategies. Some institutions revise their strategies annually or are revising them in the light of other developments and are therefore unable to provide any details of their vision for the next few years (See question C1 and 2: 2.3.4ii).

### ***Off-site access to learning resources***

Providing opportunities for students and staff to gain access to learning resources and materials off-campus is another vision held by a small number of institutions.

### ***Staff development***

A small number of institutions also suggest that part of their vision over the next 5 years is to provide ‘further staff development to embed ILT within mainstream programmes of study’. This vision includes, for example, further development work and associated staff development opportunities whereby staff will be able to enhance their lectures ‘through the inclusion of video clips and other features that create rich learning resources’.

### **Summary of comments to question E1:**

**Please give an example of innovative use of learning space that has been used to enhance learning at your institution. Please outline what has worked and what has not worked in your experience.**

The summary below discusses the key themes that have emerged from responses to question E1, which requested institutions to describe their innovations under two headings: what kinds of innovations worked and what kinds of innovations did not work in their experience.

## **What has worked**

### **i. Flexible learning spaces**

#### *a. Collaborative and student centred learning*

Designing flexible learning spaces that encourage collaborative learning amongst students is considered to be a key factor in enhancing student understanding, interest and motivation in their chosen subject area. Many institutions who responded to the survey describe how flexible learning space designs have encouraged collaborative learning approaches, and in doing so, show how room layout and resources can impact upon student learning.

Some institutions have, in recent years, seen the creation of classroom suites that can be divided up with the use of partitioning or opened out for activities such as exams. This approach to learning space design has also been adopted in some lecture theatres and Performing Arts facilities-where smaller dance studios can be opened out into one large space when required. The use of plasma screens in teaching spaces has also allowed greater flexibility in that they allow for 'different applications', although these applications are not defined. Other equipment such as the use of projectors and laptops have proved successful in that they can be taken into teaching spaces that do not currently have them.

Comments to question E1 suggest that some institutions are also considering ways in which traditional settings might be used in novel ways to accommodate different learning styles and changing modes of study. Student computer rooms have traditionally been rather noisy open areas which are 'not conducive for learning or study'. These spaces are therefore used for emailing rather than for writing essays and so on. Although the configuration of these spaces are currently being investigated and revised in some institutions, a number of activities have recently took place to utilise this open space more effectively. In one institution, for example, a live chat seminar session was set up by a lecturer between students and an author in another country. Prior to the 'chat' session, students had to read the author's work, post their own work onto discussion boards and prepare questions for the author, all of which encouraged peer/collaborative learning. Student feedback suggests that this exercise was a 'stimulating' and 'rewarding' experience. Students felt a greater sense of ownership in jointly constructing with the lecturer the framework for a dialogue with the author. With the 'prohibitive expense' of inviting overseas speakers to one-off lectures at UK institutions, staff and students can both benefit from using the technology to interact with each other and discuss ideas. These discussions can also encourage students to be more reflective about their work.

#### *b. Independent learning*

As well as encouraging students to work in groups, the use of learning technologies have enabled students to work independently and have led to better utilisation of learning spaces in some institutions. For example, one FE institution has introduced wireless technology and provided laptops to both students and staff. This provision has enabled more flexible use of rooms as laptops are easily moved from one area to another. This institution also suggests that as well as improved utilisation of space, it is able to meet the suggested ‘student to machine ratio’ more easily.

## **ii. Enhancing the student learning experience**

Enhancing the student learning experience through the use of learning technologies and flexible learning spaces is another theme to emerge from survey responses. More specifically, the integration of innovative learning technologies with traditional and flexible/technology-enhanced learning spaces has provided a means of preparing students for their future professional roles in more practical ways. Examples include introducing wireless computers in practical pharmacy teaching by integrating innovative information technology with traditional, laboratory based chemistry teaching. Students at one university also have access to an ‘industry-like’ studio for the electronic recording of music. This studio was designed by a specialist company and simulates the provision of an industry standard recording studio and associated learning experiences. This learning space and technology has therefore enhanced students’ learning opportunities from an early stage within ‘industry standard’ environments.

### **a. Students with special needs**

Flexible learning spaces and technologies have proved very useful in meeting some of the needs of students with disabilities or special learning needs. For example, some institutions provide a wide variety of different study environments, including some specialist facilities such as assistive technology for disability support. In addition to this provision, the introduction of online assessment has been particularly useful to dyslexic students. Feedback has described how the format of the exam is adaptable and thus able to suit students’ specific needs.

## **What has not worked**

### **i. Shared learning spaces**

The ability to easily reconfigure the seating arrangement of large classrooms for various purposes and the ability to shift the seating arrangement from lecture mode to collaborative group work during a class session are desired attributes of new classroom facilities’ (Brown and Lippincott 2003: 15).
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As Brown and Lippincott suggest above, flexible learning spaces that enable seating arrangements and facilities to be easily reconfigured is a ‘desirable attribute’ in the modern classroom. However, survey responses suggest that some institutions have encountered a number of problems pertaining to the design and use of shared learning spaces. In particular, these problems seem to arise from the ways in which open access spaces are used by students and staff in these institutions. A key factor exacerbating problems such as noise and disruption within these spaces is the attempt by these institutions to combine staff-facilitated/led teaching activities with general student access at the same time.

One university, for example, encountered problems managing the ‘boundaries of space’ in open access areas. The University suggested that there are significant drawbacks in terms of noise or ‘unwanted intrusions’ from other users during teaching activities and that access should be limited

to these spaces whilst these activities are taking place. This suggestion, however, seems contradictory to the concept of an 'open access' facility and questions the possibility of a truly 'flexible' learning space.

Learning spaces therefore need to be flexible enough to provide different 'zones' or areas for different kinds of work. One institution suggested that the partitioning of large learning spaces has not worked due to distracting noise levels. Other institutions have provided different spaces for different kinds of work. Students and staff can choose to work in areas designated for large group work where noise is not limited, or in quieter areas such as the Learning Resource Centre.

Survey responses also outline problems associated with open access computer suites/laboratories. It has been suggested that the current 'flexible' use of such facilities 'may not be sustainable solution'. Institutions have noted that open access to computer laboratories are likely to become 'a major problem' as students who wish to use the online resources for revision purposes are having to give way to staff and students who book these spaces for online examinations. They have also noted that dedicated computer laboratories have not been as successful as having a few PCs installed in each learning space as the laboratories are frequently booked for teaching activities.

## **ii. Technical support and training**

Survey responses indicate that the use of learning technologies can only succeed if there is sufficient support and training for staff. The use of laptops in classrooms at one institution has not been adopted well by staff and students due to a 'lack of good learning materials' and teacher confidence in using this technology. Another institution (FE) also highlights how staff engagement with using learning technologies to support their teaching activities depends in part upon whether or not the technology has been set up properly in the first place.

In addition to adequate training and support issues, one FE institution indicates that ICT-driven learning and teaching fails to meet student needs. This comment is not surprising in the context of recent literature (Gorard and Selwyn 1999, Wheeler et al., 2000), which argues that effective learning is possible with a technology-supported approach rather than one which is technology-driven (see also question D1: 2.5.3).

## **iii. Isolating technology from learning**

How can the CITs be effectively integrated into the on-campus environment to enhance existing approaches to teaching and learning? (Jamieson 2000: 2).
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One way in which learning technologies can be effectively integrated into the on-campus environment to enhance teaching and learning practices is to provide easy-to-access, centralised facilities. Some institutions have begun to centralise their PC open access areas to improve student access and have found that these central facilities are much more heavily used than less centralised spaces. Furthermore, the location of these central learning spaces means that students are near other facilities such as the main teaching block, students' union, and catering outlets.

Another finding is that reserving computer classrooms for the occasional delivery of e-learning rather than being an integral part of student learning does not always work. Institutions have suggested that using computer classrooms in this way gives out the message that e-learning and computer use is separate from 'normal' learning.

#### iv. Physical comfort

Designers attuned to the influence of the motivational dimensions of learning spaces are beginning to point out that wall and floor surfaces in learning spaces need to be pleasing to the eye as well as functional (Chism 2002: 10).

Another factor impacting upon the effective utilisation of space and technology by students and staff has been the physical comfort and surroundings of these spaces. Institutions have suggested, for example, that ‘it is important to create a suitable ambience’ in learning spaces. Spaces that did not work well were due to their small size and cramped locations. Factors such as heating and natural light provision also need to be considered carefully. For example, automatic lighting has not worked in one institution, as the lights switched off if students sat still.

#### **Summary of comments to question E2:**

##### *What assumptions should we challenge in the design of learning spaces for the future?*

Survey responses indicate that there are many different assumptions that should be challenged when designing learning spaces for the future. In order to make sense of the range of different responses to this question, the following analysis has identified three closely related themes or categories of assumptions that institutions suggest should be challenged:

#### **Learning and Teaching**

The rise in the use of learning technologies and their impact upon the way that learning spaces are being developed and used in post-16 education institutions are leading practitioners to challenge the assumptions underpinning traditional approaches to learning and teaching. Survey responses suggest that ‘one-size-fits-all’ approach to learning and teaching needs to be challenged and that we cannot ‘rely upon current models for understanding how students work and learn’. More specifically, institutions have questioned the notion that teaching is ‘about gathering lots of students together and talking at them’ such as in a traditional lecture-style format. Learning and teaching processes may be subject to change in the light of new innovations and the spaces within which students are taught need to be considered carefully. In particular, ‘flexibility’ in room design is a prerequisite in creating different ‘learning experiences’.

Institutions also challenge the assumption that ‘all learners learn the same way and all teachers teach the same way’. Thus, the assumption that learning and interaction only needs to ‘take place face to face’ and that ‘the roles, activities and professional development needs of lecturers will remain constant’ is being scrutinised.

Survey responses suggest that in addition to challenging the assumption of ‘one size fits all’, institutions should also challenge the notion that ‘learners require the same type of accommodation throughout their programme’. That is, we cannot assume that the needs of learners will remain the same over time as they develop different skills and undertake different tasks during their course. Again, institutions have suggested that designing flexible learning spaces is necessary in meeting these needs.

#### **The design and use of learning spaces**

Survey responses have suggested that learning spaces should be designed to be as flexible as possible to accommodate attempts to 'blend' technology with 'traditional learning and teaching practices' and all assumptions about learning and teaching that 'restrict flexibility' should be challenged.

As in questions D1 and E1, survey responses to this question have also suggested that the design of space needs to be 'pedagogy-driven' rather than 'technology-driven'. One FE institution highlighted, for example, the need to resolve 'a perceived tension between 'space efficiency, flexibility, and what makes a 'good' learning environment'. This 'tension' is elaborated further by other institutions who responded to the survey, who question the assumption that 'space has a single use', or that 'the use of a single location is acceptable'. There is a need for 'more accessible learning areas across campus with IT technology', rather than relying upon traditional classroom designs to deliver teaching activities.

Some institutions, however, question these assumptions that the provision of new learning spaces should take the place of more traditional classroom formats. These institutions suggest that we should challenge the idea that the large lecture theatre model is no longer needed. There will still be the need for fixed lecture theatres, although more flexible spaces are also needed and library spaces need to be carefully planned in terms of size and facilities if e-learning approaches are adopted.

The need to carefully plan flexible learning spaces has led some institutions to challenge assumptions about the design and layout of these spaces. For example, some institutions question the notion of separating workshop and computer areas, suggesting that the two should be combined. That is, institutions need 'multipurpose space rather than compartmentalising'. However, other universities argue that there can be problems with noise in open-plan multipurpose spaces and we should therefore challenge the idea that 'new buildings must be open plan'. The practicality of open-space designs and in particular, the practicality of using partitioning to provide 'flexibility' due to problems with acoustics and noise needs to be challenged.

### **The 'real' versus 'virtual' campus: looking to the future**

Survey responses also questioned assumptions about the future of post-16 education in the context of technological developments and their impact upon learning and teaching practices within these institutions. Although institutions suggested that it is 'difficult to predict the effect of e-learning' in the future, other institutions suggest that the idea that 'everything will be different in 10 years' needs to be questioned. It has also been suggested that we should challenge the assumption that as more resources become available online and remotely, students will no longer see the need to visit campus sites. That is, we cannot assume that face to face teaching will not continue, despite technological advances.

Some institutions, however, suggest that we should challenge the assumption that learning and teaching will remain the same at all. They question the assumption that technology itself will look the same in the future as it does today and whether or not learning will take place in an institution or serve a different purpose entirely. Other institutions also question the idea that students will continue to come onto campus and work in the same ways in the future as they do now. As well as questioning assumptions about student learning, one university also challenged the idea that academic staff will still perform most teaching, research and administration work in face-to-face meetings on-campus.

## **Space Management**

In addition to questioning assumptions that focus on learning and teaching issues, three institutions suggested that we should consider how the design and use of learning spaces are managed. These institutions suggest that we should challenge traditional management/administration and operational structures in the design and servicing of learning spaces by exploring new models of service provision. For example, the design and use of flexible space is only possible if there is flexible 'technical infrastructure and support' in place.

## **Finance**

Two institutions suggested that it is important to ask if the appropriate funding is available and if costs are 'realistic' in designing learning spaces. The assumption that e-learning will drive down the costs of teaching, and that the development of such initiatives can be 'done on the cheap' must be challenged.

## **Conclusions**

This report begins with an analysis of the committee/management structures that are in place for the strategic planning and management of learning and teaching spaces in FE and HE institutions. The analysis has suggested that there are many different, and sometimes complex, kinds of management/committee structures that are in place for the strategic planning and management of learning and teaching spaces in post-16 education institutions. This complexity may be shaped in part by the variety of different departments that are involved in these structures, and the way in which such departments report to each other.

The analysis has shown that institutions outline their particular management/committee structure in one of two key ways. The majority of institutions have provided detailed structures, specifying the particular departments involved. A significant number of institutions have provided a more general description of their management/committee structure. From an analysis of these two different kinds of descriptions, some common themes have emerged. Many of these institutions have reported having Senior Management Teams involved in the strategic planning and management of learning spaces. Similarly, Estates Teams are also reported to play a role within many of these structures. Some institutions have reported having 'Heads' of departments or services involved. Institutions who provided specific detail about these 'Heads' suggest that Academic and Support Departments, Faculty, Quality Improvement, Information and Media Services are all represented within some institutional management/committee structures.

Finally, the analysis of question B4 has also shown that the majority of institutions have multiple layers to their structures, whereby some departments report to others in the process of planning and managing learning spaces. These reporting mechanisms indicate a reporting structure whereby those who are responsible for the operational management of learning spaces liaise and report to those who are responsible for the strategic development of these spaces at some institutions.

The analysis of questions C1 and C2 has suggested that most FE and HE institutions who responded to the survey currently have or plan to introduce areas of innovation into a range of different learning spaces to support learning and teaching practices at these institutions. A significant number of institutions (n=30/87:36%), however, refrained from answering question C2, which aimed to understand what kinds of facilities and technologies may be used in specific learning

spaces in these institutions by 2008. An analysis of comments to these questions suggests that these institutions were unable to provide detailed information or any information at all about their future plans for 5 key reasons. Firstly, institutions were unable to answer question C2 because they were unable or did not wish to predict levels of provision in the context of a lack of relevant information or current problems with learning space utilisation. Secondly, some of these institutions were in the process of restructuring or revising their learning and teaching strategies, which would have a direct impact on the kinds of facilities and rooms that would be in operation by 2008. Thirdly, new building work or plans to move into new buildings elsewhere made some institutions unable to respond to this question. Some of these institutions also refrained from specifying their plans over the next 3 years by indicating very generally that investment in technologies and learning spaces would continue. Finally, these responses suggested that different kinds of delivery (for example, off-campus delivery) may determine the relevance of this question to some institutions.

Survey participants were also asked if their institution used any learning technologies to support their students off-campus (question C3). The analysis has shown that 5 key themes that have emerged from these survey responses. Survey responses indicate that the use of a Virtual Learning Environment (VLE) to support students off-campus is significant at many institutions. These responses suggest that course materials, self-assessment and communication tools, multi-media and online support are all provided via institutional VLEs to support students off-campus. Responses also indicate that mobile technologies such as laptops, PDAs and mobile phones are used by many institutions to support students in this way. Thirdly, off-campus learning centres are provided by some institutions to support students. These include 'outreach centres' with Internet access, ICT centres in the community and computer rooms situated in student halls of residence. Some institutions also provide students with video-conference studios and IT lab services to support off-campus course delivery. In doing so, students are able to link to their campus or to tutors and visiting speakers overseas. Finally, some institutions have experimented with CDROMS to support their distance learners. CDROMs/DVDs have been used, for example, to provide distance postgraduate courses with lecture content and course information.

The analysis above also provides a summary of the different themes that have emerged from survey responses which have described institutional visions for the innovative use of learning technologies over the next 5 years (question D1). Many institutions have described a vision for increasing facilities such as data projectors, Interactive WhiteBoards and Personal Response Systems in their teaching rooms across campus. Some institutions have also described how the use of mobile technologies such as PDAs, wireless networks and laptops may be introduced to enhance learning and teaching. In addition to these specific technologies, some institutions have suggested that the need to expand existing resources overall is an important part of their vision.

The analysis suggests that the implementation and/or development of a VLE, including expanding access to students, is an important vision for many institutions who responded to question D1. The use of a VLE and other technologies such as wireless technology are also seen by some institutions as a means of increasing flexible learning opportunities for students. Indeed, technologies are perceived as a means of widening participation by enabling institutions to deliver learning 'any time, anywhere'. Part of this flexible provision, is the aim to provide a more 'blended approach' to learning, whereby students can incorporate e-learning materials from many sources with more traditional forms of delivery. For some institutions, a key element in the successful delivery of such initiatives is to maintain a pedagogy-driven rather than technology-driven approach.

Like responses to question C2, some institutions were unable to provide any details about their vision over the next 5 years due to the need to revise or develop their learning and teaching strategies. These institutions suggested that these strategies would have significant implications for the ways in which technologies would be used to support learning and teaching and study spaces.

Finally, a small number of institutions suggested that providing opportunities for staff and students to access materials off-campus was an important vision for them over the next 5 years. Similarly, further staff development was important to some institutions in order to embed technology effectively into the mainstream curriculum and to enhance the learning and teaching experience.

Question E1 requested examples of innovative uses of learning spaces that have enhanced learning and teaching in FE and HE institutions. Institutions were requested to describe their innovations under two headings: what kinds of innovations worked and what kinds of innovations did not work in their experience. Two key themes emerged from an analysis of what innovations worked in these institutions and four key themes emerged from an analysis of what did not work. Firstly, survey responses suggested that flexible learning spaces can encourage collaborative and independent student learning by enabling students to interact and share ideas through group-based activities and online resources. Mobile technologies such as laptops and projects have also proved useful in that staff and students can use these facilities in different learning spaces and configurations.

Learning technologies such as video conferencing and discussion boards or 'chat rooms' can also help overcome practical problems such as providing students with access to international speakers and experts in their field of study that would not otherwise be possible. Furthermore, learning spaces and technologies designed to provide students with practical examples and demonstrations relating to their area of study have enhanced the learning experience by enabling students to gain a greater understanding of the profession they seek to enter after graduation. Flexible learning spaces and technologies have also proved very useful in supporting students with disabilities or special learning needs.

Survey responses also suggest, however, that there can be problems with flexible learning spaces and technologies. Although the ability to easily reconfigure seating arrangements in classrooms are immensely useful for group work, some institutions draw attention to problems specifically relating to open access areas where boundaries are more difficult to manage when users undertake different teaching and learning activities. More specifically, there appear to be significant drawbacks in allowing staff-led/facilitated groups and individual users to occupy the same areas, even if partitioning is available to reduce noise and distraction. Survey responses suggest that learning spaces need to be flexible enough to enable different kinds of work to take place and may require different 'zones' rather than just the partitioning of space.

Institutions also suggest that the effective and confident use of learning technologies requires sufficient support and training for staff. These technologies should also be used as a support to learning and teaching activities, rather than the driving force for any such activity. Finally, survey responses suggest that flexible learning spaces and technologies need to be easy to access by all students and staff. Institutions such as the University of Reading have found that centralised open access areas are more heavily used than more isolated clusters. In addition to location, institutions have also suggested that physical comfort, heating, lighting and size of learning spaces all impact on the learning and teaching experience.

The analysis above also provides a summary of the different assumptions that survey respondents suggested should be challenged in the design of learning spaces for the future (question E2). Institutions suggested that traditional approaches to learning and teaching, and the spaces in which these activities take place, need to be challenged. Within the context of new technological innovations and a diversifying student population, some institutions suggest that a 'one-size-fits-all' approach is inadequate in meeting the needs of students today and in the future. 'Flexibility' is therefore considered central to the design and use of learning spaces to enable students and staff to meet their learning and teaching objectives.

Survey responses have also suggested that the design of learning spaces needs to be pedagogically-driven rather than technology-driven. Future learning spaces must accommodate a 'blend' of traditional and modern approaches to learning and teaching and spaces that are only suitable for one purpose need to be challenged. However, some institutions point out that the provision of new learning spaces and different styles of learning and teaching should not replace traditional methods of delivery (such as lectures). Furthermore, in designing flexible learning spaces, some institutions have questioned the effectiveness of 'multipurpose' open spaces in the light of noise and acoustic problems.

Finally, institutions raise questions about the extent to which staff and students will need formal teaching spaces in the future, with the development of online and remote learning. On the one hand, some institutions have suggested that we cannot assume that face-to-face teaching on-campus will be redundant in the future, despite technological developments enabling students to study elsewhere. On the other hand, it has been suggested by other institutions that we should challenge the assumption that anything within post-16 education will look or be the same in the future.

### **References and Further Reading**

ALERT, accessibility in learning environments and related technologies - <http://www.dur.ac.uk/alert/>

Amyotrophic Lateral Sclerosis Association - <http://www.als.org>