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Tertiary Education Infrastructure in the United Kingdom

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**PEB** Exchange Programme on Educational Building

## TERTIARY EDUCATION INFRASTRUCTURE IN THE UNITED KINGDOM

Infrastructure for tertiary education is currently the object of attention in the United Kingdom. Presented here are four articles that describe recent planning and research regarding facilities for UK universities and colleges of higher education. They cover a case study in planning a sustainable business school building, research on the impact facilities play when students choose a university, a report on the cost and need to modernise teaching and learning infrastructure, and finally a project on effective space management to improve use of space and resources.

## ACCOMMODATING CHANGE: A CASE STUDY IN PLANNING A SUSTAINABLE NEW BUSINESS SCHOOL BUILDING

> *"Buildings and the built environment play a major role in the human impact on the natural environment and on the quality of life; a sustainable design integrates consideration of resource and energy efficiency, healthy buildings and materials, ecologically and socially sensitive land use, and an aesthetic sensitivity that inspires, affirms and ennobles; a sustainable design can significantly reduce adverse human impacts on the natural environment while simultaneously improving quality of life and economic well being."* (UIA/AIA World Congress of Architects, 1993)
>
> *"There is an imperative to identify and implement workplace strategies that alleviate the pressures organisations are facing as they struggle to be more competitive. In this shift, the workplace becomes a dynamic tool for supporting and even stimulating new ways of working, rather than a fixed asset whose performance is assessed primarily in terms of … money."* (Becker and Steele, 1995)

## Introduction

Physical estate costs – capital and recurrent – are usually the second largest organisational expense after staffing for higher education, which is a major and multi-million pound industry in many countries. In a four-year period (1993-96), for example, 239 major building project costs were initiated within higher education in the United Kingdom at a cost of GBP 1.6 billion (National Audit Office, 1998). Running costs, particularly of older buildings, can be high. In the developed world, buildings account for up to 50% of overall energy consumption in terms of their construction and space and water heating, cooling, lighting and use of appliances (Wigginton and Harris, forthcoming). Universities seek to grow and thrive in an increasingly competitive environment, and many espouse social and environmental responsibility. Yet it appears that comparatively little attention has been paid in higher education either to reducing the environmental impact of building design, or in considering the relationship between interior workplace design and knowledge creation, management and productivity in order to maximise the use of a scarce and valuable resource.

This paper provides a case study of the planning of an GBP 11.5 million new building for the Open University Business School, United Kingdom (OUBS). Construction (by John Sisk and Son Ltd) was completed for occupation in October 2001. When agreement was reached to commission a new building, the university had ambitious objectives to ensure an energy-conscious building that would also break the paradigm of traditional university working methods. Thus the university looked to the architects – Jestico + Whiles – to provide an innovative solution to both the design of the building itself and the internal space planning and challenged the business school to consider its ways of working. The author has been the project leader within OUBS.

## Context

Although the Open University (OU) is committed to distance learning, and has only a small number of postgraduates on campus, it has a sizeable physical estate. The main campus has been constructed since 1969 on a largely greenfield site in Milton Keynes, surrounded by parkland on two sides. The university also operates in 15 regional locations in the United Kingdom, and in Brussels and has two large warehouses close to Milton Keynes. Over 3 000 staff work at the Milton Keynes campus. The campus itself is not architecturally distinguished; it is composed mainly of two- and three-storey brick-built

conventional office blocks with a high proportion of single or double occupancy partitioned offices. Handling growth has always been problematic, with accommodation consistently lagging behind demand. The business school previously occupied two smaller buildings on different parts of the campus. The cost of "churn" – changing accommodation to meet new requirements – was considerable. The new building was planned for 350 staff, around 100 of whom are academics – the OU being rather different in staff mix from other universities. The site for the new building was formerly a meadow, outside the main university ring road, on a site of potential archaeological interest (Roman and medieval remains of the former Walton village, wiped out in the 13th century plague). The medieval "ridge and furrows" are still very evident on the meadows on which the building is sited; apart from regular hay-cutting, the site was undisturbed for centuries and had well-established hedgerows, a pond with protected newts and a badger set. The building is however now a prominent feature on one of the approach roads, and is visually linked to the three original buildings on the site, the 12th century church, former rectory and 17th century Walton Hall.

The business school (http://www.oubs.open.ac.uk) offers a range of courses, including undergraduate business and law, and a Certificate, Diploma and MBA. It currently has a turnover of GBP 35 million, and 25 000 students in the United Kingdom, and 30 countries worldwide. It has Association of Masters of Business Administration (AMBA) and European Quality Improvement System (EQUIS) accreditation.

## Overall design

The 5 340 m² building has been designed as three-storey, with a core and four "splayed" wings. Access to the building is through one entrance, via a reception area. The core is the shared community area, with most of the meeting rooms and all of the services; no-one will be further than 30 meters from a copier, a kitchen or the toilet. This central provision is designed to promote a flow from the wings into the core to encourage interaction. The core itself is spacious, and as well as meeting rooms of all sizes, there is a café area (with touchdown computer facilities) and plenty of "serendipity" space for casual meetings. The wing spaces are untrammelled open spaces, designed to provide as much flexibility as possible.

## Building design

One of the aspirations for the building was to achieve a "very good" BREEAM rating. BREEAM (the Building Research Establishment Environmental Assessment Method for new offices) seeks to minimise the adverse effects of new buildings on the environment at a global and local scale, whilst promoting healthy indoor conditions for the occupants. The environmental implications are assessed at the design stage and compared with good practice by independent assessors. The building has achieved an "excellent" rating. The design team has taken the environmental approach to the building's design very seriously.

- The workspaces have been orientated east/west to maximise the aspect of the surrounding landscape and optimise passive solar gain, whilst limiting unwanted solar glare.

- The workspaces provide flexible, naturally ventilated and lit space, which can accommodate open group working, or be partitioned into individually serviced areas.

- Servicing the workspaces is based on the use of the Termodeck system of closely controlled ventilation, which is highly energy efficient. Fresh air is introduced into the space at high level, and is tempered on its path through voids set into the concrete floor slab. It can be heated in winter and cooled passively in summertime through its contact with the concrete slab, which can have been night heated or cooled. No perimeter heating is thus necessary in the workspaces, due to the low heat losses and heat recovery. Windows are still openable to allow local "fine tuning" of environmental conditions by the occupants.

- There are high levels of insulation, including triple glazed windows, with an integral blind and a "blanket" of insulation round the building.

- There is a high level of natural daylight, which reduces the need for artificial light; the lighting system is computer controlled, which allows daylight responsive dimming, absence detection and monitoring. Central controls can be overridden by occupants via their desk PC.

- Water conservation measures have been installed, including rainwater collection and reuse (toilet flushing), and water monitoring.

- Where possible, materials have been selected on the basis of an environmental assessment of overall global impact. For example, sustainable timber has been used for part of the external cladding, derived from managed forests, whose growth helps the absorption of carbon dioxide.

- The landscape design preserves the site's medieval principle of ridge and furrow meadowscape. The concept of the landscape design is to extend the principles of the building into the site layout, enhancing the setting of the building. The intention is to have a "natural" landscape rather than an imposed "corporate" landscape; thus, there will be a continuation of the centuries-old tradition of a managed meadow, augmented by indigenous species tree planting and complemented by artwork, see Figure 1. Considerable attention has been given to conserving the habitats of the indigenous rare newt population. (Landscape architects: J&L Gibbons).

- Transport issues have been considered; the university has a green transport plan which aims to reduce the number of staff travelling by car to the site. Cyclists have been provided with lockable bike buildings, and with showers and changing facilities.

## Internal space planning

In parallel to the external building design process, the internal space planning has grappled with the issue of how to make the space more productive. The school wanted to use the move to the building to think about how to develop a livelier and more effective learning community, and to use changed working practices to underpin its ambitious strategy of growth. It wanted to reduce the cost associated with "churn" changes, and be able to accommodate growth and project work easily. In addition, there was a strong imperative to drive down costs through understanding the key elements in the school's value chain. These aspirations are common to many organisations; British Airways, for example, has invested GBP 200 million in its London Waterside head-quarters "as a way of enhancing profitability and ensuring the sustained success of the airline in the 21st century" (British Airways, 1998, p. 2). They use the mantras of new office design in their literature: the building is seen as "a catalyst for change" providing "a creative and stimulating 'people focused' workplace that is friendly, informal and less hierarchical" (British Airways, 1998).

As a management faculty, OUBS naturally turned to the research literature and expected to benchmark. However, there is a relatively narrow body of literature directly concerned with workplace planning, and a smaller body of research on productivity; the literature on the interplay between organisational strategy and internal design is limited, and there is little direct mention of spatial issues in the burgeoning literature on knowledge management. Benchmarking visits were made to a number of other business schools, and to UK commercial organisations that were recognised as innovative (*e.g.* BA Waterside, Boots, Addison Wesley Longman, Microsoft); the latter proved more useful.

The work of Francis Duffy of DEGW (Duffy, 1997) has been widely influential. He argues a holistic case for considering workspaces based on what he terms two iron laws: the need to remain competitive through simultaneously driving down occupancy costs and using "the physical environment to attract, retain, stimulate and inform the increasingly valuable people who work for them" (Duffy in Clements-Croome, 2000, p. 329).

The most recent University Estates plan (Open University, 1998) notes that the main campus is characteristic of an office environment, with related research and development facilities, with the current office space utilisation rate of approximately 10.4 m² per employee. This is in line with the recommended national allowance of 9.3-11.6 m². The plan recognised that "distance working" impacts on future accommodation requirements; an institutional homeworking policy has been in gestation for over three years.

The plan argued in several ways for improved space utilisation on campus, including a move towards more open plan space, to be achieved through the removal of existing walls, increased sharing of cellular offices and hot-desking/sharing of workstations for staff who are in the office a small proportion of the time. In addition, the plan sought to avoid "tailor made" accommodation by creating flexible space, capable of being altered to accommodate new uses.

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**Figure 1** A "montage" photo of the new building



OUBS
Offices VIII

A survey of usage showed that academic workstations were occupied less than 44% of the time (which accords with industry research) but that there was a resistance to change, with a reluctance to move from individual office accommodation. Some of the open-ended comments make interesting reading. Academics recorded the diversity of their working practice – "my pattern is one of cyclical rather than consistent usage" – and raised status issues: "it would give the wrong signal for a professor not to have his own office". There was a call for more storage, and the need for more IT hardware (scanners, specialist printers, etc). The interplay between working at the institution and working at home was seen as problematic: "by not supplying us with individual offices, we are driven off the premises to work"; "I cannot stress too strongly the importance of my personal office to my effectiveness at work" whilst there was a call for the university to clarify its support on homeworking: "the OU will need to improve its support for those of us working at home. There is an expectation that my employer should provide acceptable working conditions or compensate for (not doing so) *e.g.* paying for phone rental." On the other hand, there was also recognition of the desirability of better co-location of teams and more interaction.

In sum, however, the survey showed under-utilisation of expensive space, but with little insight from occupants about the cost of space, and an apparently inexorable rise in the espoused need for (and cost of) more space and equipment. During this period, the business school introduced a policy that provided IT equipment not only on campus, but also (on demand) at home, together with reimbursement for telephone costs for those choosing to work at home, and loan laptops for mobile workers. Flexible working appeared to add cost.

## Duffy's design logic of new offices

Francis Duffy has developed a powerful and extensively used matrix model (Duffy, 1997) examining the design logic of what he calls "the new office". The axes are based on autonomy of control of work processes, and need for interactivity. He argues that there are four major organisational types, shown in Figure 2. These types are illustrated in typical layouts in Figure 3.

- The "hive" (low autonomy, low interaction): individual workers involved in individual, routine processing with little interaction with others. As routines become automated and are often exported to cheaper locations (*e.g.* the Far East), hive offices are declining; however, there are notable new examples such as call centres.
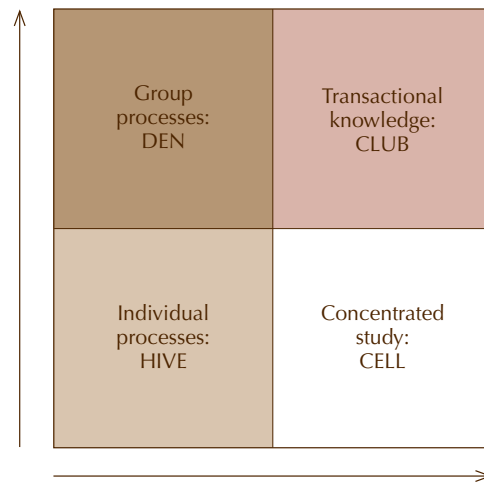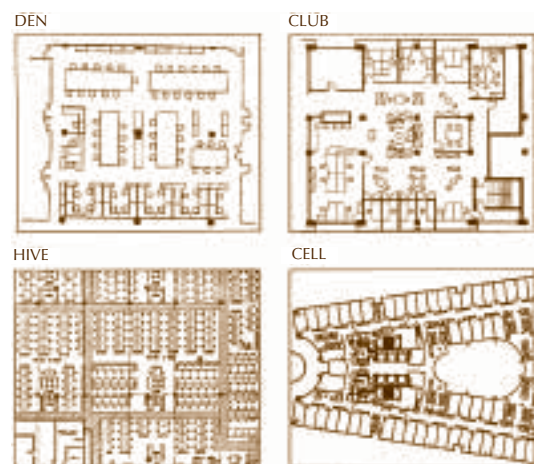
The design logic of the new office (Duffy, 1997, p. 61)

Space planning in relation to Duffy's model (de Grey, 1998)



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- The "den" (low autonomy, increased interaction) is demonstrated through open-plan, interactive team working areas, such as design offices.

- The "cell" (high autonomy, low interaction) is typically seen in professional offices such as law firms and academic offices.

- The "club" (high autonomy, high interaction) represents the move towards more complex forms of working involving transactional knowledge; this maps onto more effective knowledge management.

## Space planning in relation to Duffy's model

An exploration of OUBS functional needs reframed the debate. It became clear that all categories of staff had

similar needs at different times: for quiet concentrated work, for small and large team interactive work, for meetings, for social interaction, for various kinds of IT support. Research shows that interactivity and serendipitous meetings foster innovation. All staff were concerned about environmental features, wanting an "acoustically comfortable" environment, with individual control over heating and lighting. Overlaying these aspirations were fears, primarily of a "covert" management agenda to force everyone into open plan offices. There were significant concerns about status, largely voiced by academic-related staff, that academics would continue to have the choice offices despite using them least and having the most choice over work patterns.

An unplanned but highly useful side effect of having part of the school located in two temporary buildings was the opportunity to pilot different ways of working, particularly for academic related staff, and enable discussion about best methods of working. Thus, it was possible to provide customised plans for different teams:

- the "hive": the school's call centre, clustered with a central focus;

- the "den": the operational unit dealing with special schemes as a large interactive working area, with screens "sculpting" individual space;

- a mix of "cell" and "den": programme offices, with directors retaining single occupancy offices, with the agreement that they can be used by others when unoccupied;

- the "club": informal meeting areas and teamworking "incubation" areas.

Very few people have single occupancy offices or "pods": the dean, directors and professors. All other staff have their own workstations in team groups, with privacy derived from moveable screens.

There was a carefully orchestrated set of briefings and consultation meetings with all staff over the two-year planning period, including "open" question and answer sessions with the architects and landscape designers, and at least two meetings between the architects, internal project team and space planners with each discipline/ team within the school, along with several iterations on space plans with the head of each team, who consulted widely. The process raised questions about who the client group was, and how decisions were taken; the University Project Board (chaired by the secretary) and internal project team maintained a consistently robust line related to criteria outlined earlier for space planning

to assist interactivity, productivity and minimise the cost of "churn".

The most challenging part of designing layouts for the new building was for academics, who were little affected by the temporary moves described above. Many remain unconvinced that the mix of "pods" and spaces sculpted by screens will give them the acoustic privacy they want, and are particularly concerned about the lack of fixed shelving. Storage of material is part of the emerging document management strategy. IT solutions will be utilised to store the majority of documents, with individuals having personal storage units by their workstations, shared team storage close by and "deep storage" facilities available in the building. A filing survey showed that over 600 meters of filing was disposed of during the move. It is expected that it will take at least a year into occupation for teams to work out how to use the team workspaces and the interactive core to best effect, and to "bed in" the document management change policies. It is also expected that individuals' patterns of work will be more transparent, and hence peer pressure will influence more effective use of space.

## Conclusion

The building has recently been occupied, and like all new buildings "snagging" is underway to sort out teething issues. It has already shown its environmental sustainability through the achievement of the BREEAM rating. The temperature control, acoustic comfort and pleasure for occupants in being close to a natural landscape are being tested during occupancy.

A planned post-occupancy evaluation throughout the first year of occupation will show whether the workspace planning works well – if the different mix (core and workspace/ shared and personal) does indeed create a more productive environment, which uses space effectively, and whether "churn" can be managed cost-effectively. It will take time to embed the culture shift for individuals from thinking of "my office" to "what do I want to do today, with whom, with what tools and where".

The user project leadership has demonstrated to the author the importance of the physical estate financially, environmentally and as a "dynamic tool for supporting and stimulating new ways of working" (Becker and Steele, 1995) and the need to manage it carefully. It has also emphasised the role of a generalist administrator in handling a major change project, particularly in "holding the ring" with school colleagues, and representing user

views tenaciously with the wider stakeholders involved in the project, including the institutional estates function and the architects. It has proved important to develop and implement parallel effective policies on teleworking, office protocols, document management and overall facilities management.

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# THE IMPACT OF FACILITIES ON STUDENT CHOICE OF UNIVERSITY

How much do facilities and locational factors influence the decisions undergraduates make when choosing where to study? For many institutions, these factors, where provided to a high standard, are perceived as having an important influence. The Facilities Management Forum HIGHER EDUCATION, an independent group of universities and colleges in the United Kingdom, co-ordinated and serviced by the Facilities Management Graduate Centre, commissioned research to determine the impact of facilities factors on student choice. Presented here are the research methods, some general observations, and findings related to accommodation factors and to teaching and learning facilities.

## Research methods

The research centred on a questionnaire based survey of first-year students carried out in 2000 and 2001 at 12 tertiary institutions in the United Kingdom. Twelve questioning modules were included, among them type of university, reputation of town/city, accommodation, learning facilities, university security, transport, social facilities, sporting facilities, childcare facilities and university environment. A total of 87 closed questions sought rankings of importance on a standard five point scale defined as "essential", "important", "neither important nor unimportant", "unimportant" and "not important at all". Ratings of 4 or above are considered as "highly important" (see Table 1). Before the closed questions two open-ended questions asked students to list up to three reasons why they chose a particular university and three reasons why they did not choose an alternative institution (see Table 2).

| Table 1   Average ratings of 4 or higher | | | | |
|---|---|---|---|---|
| **Item** | **2000 average** | **2000 ranking** | **2001 average** | **2001 ranking** |
| • Had the course you wanted | 4.84 | 1 | 4.80 | 1 |
| • Availability of computers | 4.48 | 2 | 4.41 | 2 |
| • Quality of library facilities (*e.g.* availability of books, journals, CD-ROMs, information technology) | 4.47 | 3 | 4.41 | 3 |
| • University had a good teaching reputation | 4.35 | 4 | 4.29 | 4 |
| • Availability of "quiet" areas (*e.g.* library, study rooms) | 4.23 | 5 | 4.22 | 5 |
| • Availability of areas for self-study (*e.g.* group work areas) | 4.16 | 6 | 4.21 | 6 |
| • Quality of public transport in the city/town | 4.07 | 7 | 4.13 | 7 |
| • A friendly attitude towards students | 4.05 | 8 | 4.04 | 8 |
| • Prices at the catering outlets | 4.01 | 9 | 4.00 | 13 |
| • Cleanliness of the accommodation | 4.00 | 10 | *3.92* | *15* |
| • Quality of the university grounds | 4.00 | 11 | *3.94* | *18* |
| • Availability of university-owned accommodation | 4.00 | 12 | 4.00 | 14 |
| • Quality of lecture theatre facilities | *3.90* | *18* | 4.03 | 9 |
| • Quality of bars on campus | *3.90* | *19* | 4.01 | 11 |
| • Union social facilities | *3.92* | *17* | 4.01 | 12 |
| • Diversity/range of shops at the university (*e.g.* banks, bookshop, travel agents, food) | *3.95* | *15* | 4.01 | 10 |

| Table 2   Open-ended items cited by at least 3% of respondents | | |
| --- | --- | --- |
| **Reasons for choosing university** | **2000 average** | **2001 average** |
| • Course / subject | 22.2% | 20% |
| • Reputation of course / department / school / university / league tables | 18.2% | 18% |
| • Convenient location / proximity to home | 10.4% | 10.5% |
| • Location | 6.7% | 7% |
| • Facilities resources | 6% | 5% |
| **Reasons for deciding against alternative institutions** | | |
| • Course not suitable (in some way or other) | 20.5% | 13.5% |
| • Quality / standards / reputation / league tables[1] | 9% | 8% |
| • Did not get grades / no offers, etc. | 5.5% | 6% |
| • Distance too far | 10.5% | 12% |
| • Location | 7.5% | 7.5% |
| • Didn't like area / place / city, unfriendly, etc. | 5% | 5.5% |

1. Various newspapers publish league tables of universities. They rate universities on a set of criteria, such as the average A-level scores of the entering students, the ratio of applications to places, the staff-student ratio, research quality as assessed by the government Research Assessment Exercise, teaching quality as measured by the Quality Assurance Agency, percentage of first class degrees, the employment rate of leaving students, etc. The outcomes from these criteria are assigned weightings, summed up, and ranked in a league table.

It should be kept in mind that in the United Kingdom, higher education students pay tuition fees. The university market is very competitive and increasingly driven towards a "customer service" model.

## General observations

Each participating institution has its own unique profile of importance ratings. However, certain patterns can be identified. Groups of institutions with wider facilities management appeal do not correlate with university type, *i.e.* profiles cut across wider groupings such as "old universities" and "new universities". Instead, there are clear groups where facilities are rated highly (indicated by a large number of facilities factors rated 4+) and those that are relatively "facilities-independent" (small number of 4+ factors).

Apart from the number one item, "course", there is no consistent ranking throughout all institutions. The "availability of computers" is universally one of the top three items, sometimes relegated to third place by the "availability of library facilities" and in one instance by the university's teaching reputation. "Quality of library facilities" reaches the top three in all but two instances: one case is the institution where "teaching reputation" scored as particularly important, the other one where (by a statistically insignificant margin) the importance of library facilities was edged into fifth place by the "cleanliness of the accommodation".

There is evidence that where the estate has been treated as a strategic asset it figures more highly in students' perceived reasons for choosing a particular location. This is not necessarily a description of an objective reality. It is quite plausible that respondents to the questionnaires attached greater notional importance to factors which they perceived as being better supplied. On the other hand, it can also be argued that dissatisfaction with a particular service or product might lead to greater attention to this factor and hence higher importance ratings.

An attractive physical environment enhances the "student experience".

## Findings related to accommodation factors and to learning and teaching facilities

**Accommodation factors** tend to follow provision. The importance of "availability of university-owned accommodation" was, hardly surprisingly, significantly lowest for three institutions where "proximity to home" was significantly more important. These institutions also had higher proportions of mature students. The "availability of self-catering accommodation" was rated significantly lowest in a collegiate institution (where basically all first-year students live in catered halls anyway), and high in three institutions that have gone to pains to arrange it.

The message seems to be that where higher-quality arrangements are made, they are perceived as such and become differentiating factors. Catered halls were of significantly higher importance in the institutions which provide them. In two of the three, where en-suite facilities are provided, they were rated not only significantly more important but actually in the 4+ list; a stark contrast to most other

accommodation ratings, which in general did not show this as an important factor. The same institutions receive significantly higher importance ratings for "IT in bedrooms", "telephones in the accommodation", "cleanliness" and "cost", factors where the population breaks down into two groups, one of which rates accommodation factors generally significantly higher than the other. The higher-scoring quartet are the same institutions that receive the higher number of 4+ scores overall. With various slight differences of emphasis, the same group generally receive higher ratings on other factors relating to accommodation.

Generally all questions relating to **learning and teaching facilities**, especially library facilities and the availability of computers, receive high importance ratings throughout. Again two groups exist, showing to varying extents significant differences on most aspects except the "availability of quiet areas for study". Interestingly the groups are not the same as those for accommodation. The institutions whose research reputation was most significantly rated as important tend to receive lower significance ratings for the importance of teaching accommodation and library facilities. In general, importance ratings seem to coincide with the researchers' impressions of aspects of physical quality gained during benchmarking visits, though it has to be emphasised that no rigorous verification has been attempted. In general, higher quality environments do seem to have an impact on choice; a conclusion that may also lead to problems of expectation, if impressions gained during recruitment are not matched by subsequent reality.

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# TEACHING AND LEARNING INFRASTRUCTURE IN HIGHER EDUCATION

A recent report by JM Consulting for the Higher Education Funding Council for England (HEFCE) analyses the cost of bringing teaching infrastructure up to date. The report estimates that "over the long term institutions should be investing approximately 4% of their insured asset value on an annual basis to allow for the necessary renewal and replacement of buildings and equipment." It points out that while the UK has invested about GBP 4 billion in the past ten to 15 years on higher education capital, most of this went on research infrastructure and only 35% was attributable to teaching use. The underspend in teaching facilities is thought to be as much as GBP 5 billion.

The report reviewed requirements for infrastructure for teaching and learning in UK universities and colleges of higher education. It noted a number of factors driving change in teaching, including:

- past and projected growth in student numbers, and the diversity and breadth of the student population;

- the rise of new subjects, *e.g.* the non-medical health professions, media and creative arts;

- developing regimes of quality assurance, and the quest for quality enhancement;

- changes in schools and in the expectations and abilities of students entering higher education;

- information and communications technologies;

- increasing interest and demands by employers, the professions and other stakeholders about the qualities and characteristics they expect of graduates.

The report looks at a range of types of teaching and learning spaces including classrooms, laboratories, pastoral and support space, learning resources such as libraries, and social space. It does not cover student residences. There are currently almost 2 million students in higher education in the United Kingdom.



**Figure 1**

Higher education students by level and mode
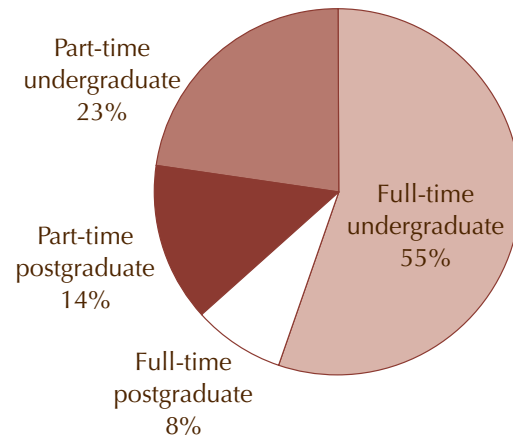
Although the student profile is changing – with more part-time students, more distance learners and mature students, and a growing international market – the report's authors believe that there will continue to be a need for a higher education estate of good quality, technologically up-to-date and fit for purpose.

In addition to the need to provide GBP 5 billion for remedial investment in existing infrastructure, the report recommends that government needs to clarify and support the responsibility of institutions for planning and investing to maintain their own physical infrastructure. As part of this, institutions should be required to assess their own infrastructure needs and to prepare an asset management strategy, including a five-year plan for remedial investment in generic and teaching infrastructure, clearly linked to their estate and teaching and learning strategies. Finally the report recommends that up to GBP 100 million be set aside for a fund for projects for advanced facilities to improve UK capability in e-learning and for widening participation.

Teaching and learning infrastructure in higher education *(publication June 2002/31) is available on http://www.hefce.ac.uk*

*Source:* VC-Net 28 (June 2002) and HEFCE.

# SPACE MANAGEMENT IN HIGHER EDUCATION

*This project was one of a number making up the Higher Education Funding Council for England (HEFCE) Good Management Practice (GMP) programme. It was jointly funded by Newcastle University and HEFCE.*

*Further details of the GMP Programme are available at http://www.hefce.ac.uk/pubs/hefce/2002/02_27.htm*

Space is typically the second highest revenue expense for higher education institutions. Reflection on how to manage space better has developed during the 1990s, in response to growth in the sector, pressure of student numbers and increased research activity all of which are taking place at a time of growing scrutiny of performance.

The aim of the project was to improve space use by identifying and implementing effective space analysis and allocation techniques by developing a rationale for space allocation. This necessitated recognising and tackling some deeply-held beliefs about space and its management. The full report is available from http://estates.ncl.ac.uk/documents/manpract/index.php

Despite a decade of attention, progress in improving efficiency has been slow. Awareness of space costs is poor and the potential for savings not well understood. Although some good techniques for space management exist, lack of top management support has meant that they have not been used to full effect.

Too often space is seen as a "free good" which at best does nothing to encourage effective use, and at worst encourages departments and faculties to acquire and hold more space than they need. Space management needs reliable data and sophisticated analysis, and a champion within the institution to push for change.

Amongst the items in a space management "toolkit" are:
- space data systems, audit and data analysis;
- space allocation according to accepted standards or by agreement with users;
- central timetabling of some proportion of spaces available to the institution;
- surveys of actual space use;
- the possibility to reconfigure space;
- a charging system that provides incentives for users to optimise space use;
- innovation in ways of using space;



The Student Union Building at the University of Newcastle upon Tyne
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- benchmarking against comparable institutions in order to encourage improved performance;
- the development of performance indicators.

Some form of space "charging" or cost attribution is used in about one quarter of the institutions contacted during the project. The underlying principle is that the operating costs of individual buildings or parts of buildings are charged to the department, school or faculty which is occupying them. A sophisticated understanding of costs and a detailed management information system are required to attribute costs fairly. However for such a system to be fully effective it would be necessary for there to be an effective market for space in which the users would have some choice over which buildings they chose to occupy. This is rarely the case and in those circumstances the administrative costs of collecting information are usually seen as prohibitive if full benefits cannot be recouped. Nevertheless developing awareness of the relative cost of different spaces is valuable in itself, and charging is generally seen as a disincentive to requests for more space, and sometimes leads to departments giving up space they no longer need.

The report looks at each of the elements in the "toolkit" in detail and concludes with a set of guidelines intended to be used as a basis for policy across the sector. The guidelines take the form of principles and recommended decision-making structures. They do not provide detailed methodologies for calculating space requirements but are expected to raise the status of space management and to encourage managers to tackle "cultural" issues and the need to modernise systems.

The report concludes that all university staff need to be aware that space is an expensive resource. The benefits from changes in space management policy and processes can be maximised by a programme of change management designed to engage staff commitment to efficient and effective space use. A management structure led by a senior institutional manager should be responsible for developing and implementing policy, in consultation with staff at all levels.