The changing academic workplace

Andrew Harrison and Antonia Cairns

DEGW UK Ltd

Published in 2008 as part of 'Effective Spaces for Working in Higher and Further Education', a research study undertaken by DEGW on behalf of the University of Strathclyde and funded by the Scottish Funding Council.
The changing academic workplace.

Andrew Harrison and Antonia Cairns
DEGW UK Ltd
aharrison@degw.com
acairns@degw.com

INTRODUCTION

Changes in teaching methods, the nature of the curriculum, the size and composition of the student population and the impact of information technology across every facet of university life are all challenging the historic models of what a university is and how it sits within the fabric of the city or community within which it is located.

Approaches to learning in educational settings are changing. Traditional teacher-centred models, where good teaching is conceptualised as the passing on of sound academic, practical, or vocational knowledge, are being replaced with student-centred approaches which emphasize the construction of knowledge through shared situations. 1

The Scottish Funding Council’s *Spaces for Learning* (2006) report cited Barr and Tagg’s (1995) description of this as a shift from an ‘instruction paradigm’ to a ‘learning paradigm’ that has changed the role of the higher and further education institution from ‘a place of instruction’ to ‘a place to produce learning’, driven in part by educational requirements. The context of these changes is the shift to a knowledge-driven economy driving demand for a more qualified, highly skilled, creative and flexible workforce. There is less emphasis on factual knowledge, and more on the ability to think critically and solve complex problems. 2

Traditional understanding of facilities provision within campuses has generally focused on clear categories of space - departmental allocation, shared teaching facilities (the bookable pool), centralised functions (e.g. library, ICT, student union services, catering), residential and sports. Space utilisation studies tend to concentrate on teaching space, paying little attention to how library, ICT centres and social spaces are used. Yet the steady increase in these types of space reflects growing acknowledgement that the true value of education lies in discourse and that much of this discourse takes place informally.

New building types are emerging, designed primarily around patterns of human interaction rather than specific needs. Traditional categories of space are being abandoned as space becomes less specialised, boundaries blur and operating hours extend from core day towards 24hr/7day access. New space models are being developed which place a primary focus on providing spaces that enhance quality of life as much as on supporting the learning experience. 3

---

1 SFC 2006, p4.
2 Ibid, p 4
3 Harrison & Dugdale 2003
In recent years there has been increasing interest in the impact of the physical learning environment on the academic and financial performance of the institution. Organisations such as the Society for College and University Planners (SCUP), Association of University Directors of Estates (AUDE) and the Association of FE Facilities Professionals (APPA) all major on this theme in the conferences and publications.

In 2003 the UK Higher Education Space Management Group (SMG) was established by the UK HE Funding Councils to help higher education institutions to identify and implement best practice in the management of space.

In its 2005 report, *The costs of space*, the SMG constructed two different measures for the cost of an Higher Education Institution’s (HEI) non residential estate: *sustainable estate provision* and *total estate provision*. The sustainable estate provision is the expenditure per sqm required to maintain the non-residential estate in a good and fit purpose condition indefinitely and it includes operating costs such as energy, water and cleaning, maintenance and the cost of building depreciation including building replacement costs when they reach the end of their useful lives. The total estate provision also includes an estimate of the capital which is tied up in the buildings and the land beneath them. This measure takes into account all the explicit and implicit costs of using space and approximates to the rent that would be charged by a landlord.  

The authors evaluated each of these costs for HEIs across the UK. The average sustainable estate provision is £147.40 based on the 2002-2003 Estates Management Statistics data. The average total estate provision is £192.50 per sqm. The cost varies by type of space with research space averaging almost £250 per sqm, general teaching space £160 per sqm and teaching office space costing £139.10 per sqm. Based on this data the average total cost of provision for a typical academic office in the UK is likely to be in the region of £2000 - £2800 per year.

---

4 SMG 2005b, p.5  
5 SMG 2005b, p. 23
A significant part of most universities’ estates consists of academic and administrative offices. Ira Fink, a US university planning consultant, estimates that between 22% and 30% of non-residential space consists of offices. This estimate is supported by Stanford University’s Space Planning Guidelines which state that 22% of their 12 million sqft, 670 building estate consists of office space, compared with 14% for laboratories, 9% for libraries and 3% for classrooms.

Comparable UK figures are likely to be in the same range but may vary depending on the age and type of institution. Recent DEGW projects with UK universities have found the percentage of net usable space used for offices varying from 11.5% to over 28%.

The academic office has not changed in any fundamental way for well over a hundred years. It is a space for reflection, for concentrated working and for meeting with students and colleagues. It has also traditionally been a physical symbol of a person’s seniority within the academic community: the more senior one is within the Department or faculty, the larger and better equipped the office is likely to be. This paper will review the discussion of the role of academic offices in the academic space management literature and will demonstrate that academic and economic drivers in many institutions are, in fact, resulting in innovation in space use within both Departmental and research office space, creating more collaborative, affordable work environments.

The findings from the 2008 Scottish Funding Council funded research project into the Future Academic Office are discussed including the analysis of a series of UK case studies of open plan academic and administrative workplaces, the development of five workplace models and the creation of an academic workplace ‘toolkit’ to assist institutions with the development of appropriate and effective workplace strategies. The paper concludes with a brief discussion of the need for workplace change management strategies to oversee the social and cultural change process as the organization moves from an ‘old way of working’ to a ‘new way of working’, or at the very least from an old environment to a new environment.

**THE ACADEMIC OFFICE**

Fink (2005) notes that that despite the significance and importance of offices as a campus space use, the literature of higher education is nearly devoid of studies about offices. Offices as a place of work are important for individuals to be productive and for institutions to be successful to be successful. They are...."where university employees work, hang their pictures, make their calls, hold meetings, advise students, use their computers, conduct research and, in many cases, store the operational histories of their institution. It is where many, if not most, university employees spend their entire working day as well as their entire university career." 

The Space Management Group’s 2005 Review of Practice found that 79% of HEI’s undertook Space Utilisation surveys and 53% carried them out at least once or twice a year. However utilisation data are usually only collected for teaching spaces and sometimes only for pooled teaching spaces, followed by at least some of the specialist teaching spaces. Research space, libraries, catering facilities and technical, research and support offices is less often included in the surveys.

---

6 Fink 2005, p.2
7 Stanford n/d, p. 3
8 Source: DEGW unpublished research data 2006 - 2008
9 Fink, 2005, p.1
10 SMG 2005c, p. 22
Seventy-eight per cent of respondents to the SMG’s review of practice use space norms for allocating space, remodelling space and/or planning new or replacement space. More use them for planning new space than allocating or remodelling existing buildings.\textsuperscript{11}

Forty-seven per cent of respondents use space standards and generally these relate to office space. Examples of standards used by the respondents included the following:

- ‘Management offices 20 m\textsuperscript{2}, other single offices 9 m\textsuperscript{2}, other office space 7.5 m\textsuperscript{2}.’
- ‘Professors and heads of schools 20 m\textsuperscript{2}, other academic staff 15 m\textsuperscript{2}, support staff 8 m\textsuperscript{2}.’
- ‘10 m\textsuperscript{2} for non-academic and administrative staff and a standard computing area of 3.5 m\textsuperscript{2}.’
- [We] use a planning norm for office space of around 6-8 m\textsuperscript{2}.’
- [We have a] policy of providing not more than 10 m\textsuperscript{2} per FTE staff in new and replacement space.’
- ‘Offices 7 m\textsuperscript{2} and laboratories 3 m\textsuperscript{2} per workplace.’\textsuperscript{12}

The SMG’s report on the Impact on Space of Changes in Higher Education (2006) notes that the provision of academic office accommodation is a sensitive topic in most HEIs. In many pre-1992 universities offices were provided on the assumption that they would be used for tutorial teaching of perhaps two to four students at a time. The academic office was therefore a complex work environment: a private study space, a semi-public teaching space, a room for small staff meetings, and a space for the reception of professional visitors.\textsuperscript{13}

The report notes that the size of tutorial groups has increased in many institutions to 8 – 10 students and academic offices are often now too small to house them. The consequence is an increased demand for small and medium-sized seminar rooms. This new teaching space may be obtained by taking space from non-teaching functions, or by reconfiguring laboratories or workshops. However, the likelihood is that there will be some net expansion in overall space requirements in excess of that strictly called for by student numbers. Building configuration may prevent remodeling of office space to reduce the academic office size to take account of the changing use pattern and accommodate the additional requirement for seminar rooms.\textsuperscript{14}

An analysis of work activity in academic offices at the Department of Civil and Building Engineering at Loughborough University published in 2005 found that on average staff spend 30\% of their work time in their office, much of which is spent working on individual tasks.\textsuperscript{15}

![Figure Two: Activity in Academic Staff Offices](image)

**Figure Two. Activity in Academic Staff Offices. Source: Parkin et al, 2005.**

\textsuperscript{11} SMG 2005c, p.29
\textsuperscript{12} SMG 2005c, p.31
\textsuperscript{13} SMG 2006b, p. 11
\textsuperscript{14} SMG 2006b, p. 11
\textsuperscript{15} Parkin et al 2005, p. 7
This is consistent with findings in corporate work environments where utilization levels of 35-40% are common.

Demands for administrative space in higher education have grown. Examination of statistics from the Universities Statistical Record and the Higher Education Statistics Agency suggests that expenditure on administration and central services has grown from about 6% of total higher education spending in the early 1980s to about 13% today, reflecting the creation of essentially new functions such as quality assurance, marketing and external fundraising, and widening participation work; and the provision of a wider range of services in established areas such as finance, research administration, and student support of various kinds.\footnote{SMG 2006b, p. 13}

The SMG predicts that there is likely to be further growth in demand for administrative space. Students are becoming more demanding users of administrative services, a trend that may accelerate when variable tuition fees are introduced from 2006. Other administrative services related to more market-oriented higher education organizations will also demand more space.\footnote{SMG 2006b, p. 14}

The SMG also note that new buildings offer an opportunity to collocate administrative functions in ways that improve efficiency, offer an enhanced service to academic staff and students, and save space. In one case, a space reduction of about one-third was reported when a range of administrative functions were relocated from dispersed small offices to a single, large, open-plan office with an adjoining ‘one-stop shop’ for students.\footnote{SMG 2006b, p. 15}

The HEFCE Good Management Practice report on space management (University of Newcastle upon Tyne, 2002) noted that, in contrast typically to academic space management, administrative space was not subject to detailed review in order to create efficiency gains. There are, therefore, some efficiencies to be obtained from better use of administrative space, but these savings are likely to be offset by new administrative functions. The overall picture is likely to be one of slow expansion of administrative space.\footnote{SMG 2006b, p. 14}

While the provision of academic and administrative workplaces varies from university to university there are some common elements that will be recognisable within most universities. Academic departments often consist of rows of offices, teaching rooms and other support spaces arranged on either side of a central corridor or surrounding a central core. Social or interaction space for staff is often limited to a small tea point or kitchen area and many academics or administrative groups choose to have their own ‘unofficial’ coffee and tea facilities within their own space, despite the consequent health and safety issues.

The size of offices provided is generally based on an assessment of the work undertaken by the occupants and the rank or position of the person within the university hierarchy (Fink 2005). Large academic offices for Deans and Professors may contain a meeting table or soft seating area as well as the standard desk, filing cabinets and bookshelves. More junior staff members may have small individual offices or may share two or three person offices. Postgraduate research students may be allocated a desk in a shared research centre or in a postgraduate area within the Department.

Academic ‘office hours’ typically involves students queuing up in the corridor waiting to see their lecturers. The frequency of meeting varies considerably during the year, as at certain times the lecturer has to sign off course options or review progress etc. The unpredictability of whether students will turn up for their meetings means that it is considered more practical to hold the meetings in the academic’s office rather than elsewhere because the lecturer can get on with other tasks while waiting for students. Visits outside these hours may, or may not be welcomed, depending on the preferences of each staff member.
Administrative and clerical staff frequently share offices or may be in open plan areas. Administrative staff generally do not provide a reception or filtering function within Departments and access to academic staff is typically uncontrolled apart from at the level of the Dean or Head of Department where there may be an administrative office to get through first. Interaction between staff and individual students primarily occurs in the academic’s office.

Because the Departmental space is open to everyone all offices are kept locked when the occupants are absent. Staff occupying academic offices generally keep the doors closed while they are working to minimise disruption from passers by and if there are glass vision panels in the doors they are often covered over with paper or fabric to prevent anyone looking into the office. It should be noted that this practice is in breach of good practice relating to fire and safety regulations but it is almost universal in many HEIs.

This pattern of space use has a number of consequences.

- Buildings are often dark and uninviting – central corridors receive very little natural light
- There is very little choice in how or where staff work. The individual office is expected to provide suitable accommodation for individual work and research as well as tutorials and other meetings with both staff and students.
- Increasing use of two person shared offices is likely to increase levels of disruption and frustration with the work environment caused by visitors or telephone calls and internal circulation problems caused by the amount of furniture and ancillary equipment in such a restricted space.
- There is little opportunity for interaction/communication between staff within Departments
- Student/staff interaction is also sub-optimal. Students need to queue to see staff in their office and there are few opportunities for informal collaboration or interaction within the Departmental area.
- Larger offices containing meeting tables and/ or sofas are often unavailable for use by other staff who may require meeting space for larger groups
- Administrative staff may find it hard to know who present in the Department at any time
- Staff are placing themselves at risk by not being visible while in their office and by locking themselves into their office with students and other visitors.

INNOVATION IN THE ACADEMIC WORKPLACE

In *Promoting Space Efficiency*, the SMG related changes in space use in HEIs to trends in the corporate office sector. They noted that “many organisations have embarked on projects to increase space efficiency through strategies of reducing the average size of enclosed offices and desks in open plan areas, eliminating all solo offices and introducing office ‘hoteling’ for mobile staff. Much importance is also placed on reducing the space taken up by filing and document storage through the use of high density storage, efficient filing furniture, electronic filing and knowledge management. Some of these solutions are applicable to the HEI sector though not widely used as yet.”

They also noted that many HEIs, particularly those with a significant international status, now benchmark themselves against these other sectors rather than against each other and are moving away from ‘best in university class’ buildings. For instance, when delivering a scientific research building a university may benchmark itself against a leading private sector laboratory, and when delivering a faculty building it may look to review what it is providing against British Council for Offices fit-out guidelines.

---

20 DEGW 2005, pp 35 - 36
21 SMG 2006a, p. 9
22 SMG 2006a, p.11
One of the consequences of looking outward to best practice in other sectors has been that the trend for open-plan work environments, which has been seen in most other sectors for a number of other years, is slowly emerging in HE. To some extent this transition reflects build cost – due to expanding numbers, many universities can no longer afford to provide their staff with the large cellular offices that have until recently been prevalent in HE facilities. Perhaps more significantly, it also reflects a growing recognition of the importance of informal interaction and collaboration between researchers.

This development is most apparent in the work environments provided for research students. Previously these facilities have attempted to replicate the individual-centred workspace provided for academic staff. Whilst students have usually shared offices with several others, individual workstations have tended to be partitioned off from the room with high panels, to create cubicles. However, several institutions have moved away from this model, replacing cubicled facilities with more open, group-centred work settings.23

Parkin et al (2005) do sound a note of caution, however, suggesting that a work-space design that functions very well in one sector may not be appropriate for another. Even at the level of individual organisations in the same field, seemingly minor differences between their work-practices can mean that workspace requirements are quite different. They suggest that any workplace solution proposed should be evaluated in terms of resource efficiency, the satisfaction and performance of its occupants and the extent to which it communicates the organisation’s values.24

They also note that employees’ satisfaction with their workplace can have a significant impact on organisational churn – the rate at which workers and technology are relocated in the work environment in a given period. The work environment is one of the strongest influences on individuals’ decisions about whether to stay in a job, with several studies finding a correlation between satisfaction with the physical environment and job satisfaction. The benefits of increased performance can be equally tangible and Parkin et al cite Oseland’s 2001 assertion that achieving a 2-5% increase in employees’ performance can, in some cases, cover the entire cost of providing the workspace in the commercial sector.25

The development of new workplace solutions is often linked to major new building or refurbishment projects where the individual academic office may be replaced with a shared office for perhaps three to six staff.26 The SMG (2006) suggested that these shared offices need to be accompanied by a set of conveniently-located small and medium-sized rooms, which can be used for meetings and small-group teaching.

They suggested that this arrangement may be particularly appropriate when academic staff are out of their offices a great deal, for example because of high class-contact hours, visits to students on work placements, professional practice of various kinds, or specialist facility based research work. The acceptance of shared offices may be further enhanced if good common-room facilities are provided as part of the restructuring. A reception area with secretarial staff and other facilities may also be part of this redesign. They felt that this arrangement of space is likely to produce some net space savings, although if adequate teaching, meeting and support service space is also provided, the savings will normally be modest.27

Open-plan environments, where individual work areas are not separated by full height walls or partitions, may be most suited to people who are working as an interdependent team, or who are

---

23 Parkin et al 2005, p. 4
24 Parkin et al 2005, pp. 3-4
25 Parkin et al 2005, p. 3
26 SMG 2006b, p. 14
27 SMG 2006b, p. 13
working on similar projects. For these individuals it is useful to be able to have a high level of awareness of what their co-workers are doing so that they can share information and ideas, and coordinate their actions. Overhearing conversations can play an important role in this. The increased information flow that open team environments afford enables teams to produce higher quality work, and to make faster decisions than working in enclosed settings.\textsuperscript{28}

Parkins et al (2005) also note that open-plan work settings are also associated with increased noise and distraction – one of the main complaints that knowledge workers have with open-plan environments is of being distracted by their colleagues’ telephone calls and impromptu meetings. Exposure to noise from other people’s conversations has been found to impair performance on concentrated tasks such as reading. Consequently they felt that open-plan environments may not be so advantageous for people whose work involves the performance of individual, complex tasks.\textsuperscript{29}

In its 2006 review of 15 case studies of recent refurbishment, expansion, upgrading or new builds in higher education institutions the SMG stated that “reduction in ‘ownership’ of space is one of the keys to more flexible planning and the space efficiencies that brings. While acknowledging the strong sense of territory in academic departments, users need to be encouraged to appreciate that the move towards multidisciplinary courses, the increase in central booking of teaching space and the pervasiveness of information technology, will make it easier for rooms to be used for many different types of teaching and learning by several faculties. Generically designed rooms can easily be reassigned to different departments. Local amenity space for both staff and students, such as coffee shops, breakout areas and wireless-enabled computer zones, are examples of versatile spaces. Versatility may involve higher capital cost for more equipment or finishes, which must be justified by improved utilisation.”\textsuperscript{30} A number of the case studies included elements of open plan academic or administrative offices.

<table>
<thead>
<tr>
<th>Building</th>
<th>NUA per:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work surface</td>
</tr>
<tr>
<td>Nanoscience Research Centre</td>
<td>2.2</td>
</tr>
<tr>
<td>Michael A. Ashcroft Business School</td>
<td>1.4</td>
</tr>
<tr>
<td>St. Andrew’s</td>
<td>1.7</td>
</tr>
<tr>
<td>Central Side East</td>
<td>1.1</td>
</tr>
<tr>
<td>Malet Street</td>
<td>0.9</td>
</tr>
<tr>
<td>Sir Alexander Fleming Building</td>
<td>1.7</td>
</tr>
<tr>
<td>Foyle Arts Building (desk 1)</td>
<td>1.6</td>
</tr>
<tr>
<td>Foyle Arts Building (desk 2)</td>
<td>1.6</td>
</tr>
<tr>
<td>Clarendon Building (desk 1)</td>
<td>2.3</td>
</tr>
<tr>
<td>Clarendon Building (desk 2)</td>
<td>1.7</td>
</tr>
<tr>
<td>Clarendon Building (desk 3)</td>
<td>1.7</td>
</tr>
<tr>
<td>Chemistry Research Laboratory</td>
<td>2.6</td>
</tr>
<tr>
<td>Health and Wellbeing</td>
<td>1.8</td>
</tr>
<tr>
<td>J Block</td>
<td>1.5</td>
</tr>
<tr>
<td>Holgate Building</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Source: Calculations by A3HA from drawings with furniture layouts provided by estates departments.

FIGURE THREE. SPACE PER DESK IN 12 CASE STUDY BUILDINGS (M2 NUA). (SOURCE: SMG 2006A)

The Sir Alexander Fleming (SAF) building at Imperial College, London uses space saving methods such as multidisciplinary research labs and expandable seminar/teaching spaces to

\textsuperscript{28} Parkin et al, p.3
\textsuperscript{29} Parkin 2005, p. 3
\textsuperscript{30} SMG 2006a, p. 15
economise on space. Primary circulation space was used to create the ‘research forum’ which is an open plan research write-up and study space for postgraduate students.

Initially there was unease that there was so much open plan space for desk work, as well as about how the open laboratories would work. Some academic staff were against the openness because of concerns about confidentiality. Representations to the rector were made during the design process which resulted in an increase in enclosed offices and consequent air handling problems. However, since the building has opened there have been few problems with the open plan work areas.31

At the Sheffield Hallam Health and Wellbeing Building the estates department sought to create generic, adaptable office areas, able to accommodate a range of departments with the room for growth and change and bring together different disciplines in the staff offices. This led to the creation of cluster offices that generally accommodate between three and five members of staff.

Occupants were initially anxious about these shared offices, particularly because of noise issues, but post occupancy feedback has indicated that the shared offices have not been as problematic as anticipated because there are other areas in the building where it is possible to have privacy.32

Shared offices were also used in the refurbishment of the Owen Building at Sheffield Hallam which was completed in 2004. The space planning incorporated cluster arrangements for academic offices and multi-use teaching areas has helped to deliver greater space efficiency. Deep and narrow one/two-person offices have been replaced by wider five-person rooms, or shallower three-person rooms with small, quiet, bookable interview rooms beside them. It was estimated that this arrangement saved them one square metre per person or more, in more flexible and attractive spaces.33

The refurbishment of the Foyle Arts Building at the University of Ulster brought four disciplines together in the new Faculty of Arts, providing multifunctional space with the academic staff occupying open plan areas. Staff were positive about the open plan work areas. These have been successful in helping to create a suitable atmosphere for teaching and learning, and have not had the problems that people may have anticipated. Comments about the open plan work space included:

‘It’s OK to be creative. Creativity takes skill and application and (here this) becomes visible which generates collective energy.’

‘In separate offices you become very isolated. (Here) you see who’s about, it gives you a chance to speak to your colleagues, swap DVDs etc. It’s a good collegiate atmosphere.’

‘I don’t mind losing a square yard of space, because you can actually talk to people.’

‘We need to evolve ways to exploit the free flow of space (for) real serendipity.’ 34

---

31 SMG 2006a, p. 30
32 SMG 2006a, p. 38
33 SMG 2006a, p. 67
34 SMG 2006a, p. 53
One of the key objectives of the new Nanoscience Research Centre at Cambridge University was to foster interaction between researchers from various disciplines. The users wanted space where people doing individual, highly specialised work could interact and benefit from contact with others whose background disciplines might be different. Consequently the write-up area is open plan for most researchers, with some small offices for senior academics. The desks are large but the space is not over generous. There is also a small meeting/social space outside the access doors to the laboratories and clean rooms.\footnote{SMG 2006a, p. 59}

The 1999 refurbishment of the Clarendon and Student Services buildings at the University of Teesside, Middlesbrough provided offices and teaching space for the business school and for part of the school of social sciences and law. The former library, a largely open plan building, had been vacated and the building was refurbished to create the student support hub where the majority of staff work now in open plan office space. Staff offices are smaller in the Clarendon building than previously, and in the student centre are largely open plan.

The Michael A. Ashcroft Business School at Anglia Ruskin University, Chelmsford was completed in 2003. It is significantly smaller than the building it replaced but houses the same number of students with space for expansion available in the future. The building houses the business school. It is on five storeys and contains administrative offices for the business school, a small café and a larger refectory, with the general reception and information on the ground floor.

Academic and administrative staff, including the dean, work in open plan areas and the only assigned cellular office is belongs to the dean’s personal assistant. Provision is made for student and faculty meetings in small cellular spaces dividing the staff area from the primary circulation. Staff who require privacy or need to maintain concentration also use these. Student interviews must be pre-arranged and are carried out in these rooms. However, due to the popularity of the open ground floor refectory and coffee shop, student faculty meetings are often conducted there.

There was initially great resistance to the move to open plan among the faculty. Although there is still some resistance, the overall methodology and approach to working has changed and staff are beginning to accept the move. The dean helped make open plan a more acceptable working system by setting an example with his own workspace.\footnote{SMG 2006a, pp. 91 - 94}

<table>
<thead>
<tr>
<th>Case Study</th>
<th>Innovation in office accommodation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sir Alexander Fleming Building, Imperial College</td>
<td>Open plan write-up and study pace for postgraduate students in primary circulation</td>
</tr>
<tr>
<td>Health and Wellbeing Building, Sheffield Hallam University</td>
<td>Cluster offices for three to five members of staff</td>
</tr>
<tr>
<td>Owen Building, Sheffield Hallam University</td>
<td>Shared offices. Three or five-person rooms, with small, quiet, bookable interview rooms beside them</td>
</tr>
<tr>
<td>Foyle Building, University of Ulster</td>
<td>Academic staff in multifunctional open plan space</td>
</tr>
<tr>
<td>Nanoscience Research Centre, Cambridge University</td>
<td>Open plan write-up areas for researchers, small offices for senior researchers, meeting and social space outside laboratories</td>
</tr>
<tr>
<td>Clarendon and Student Services buildings, University of Teesside</td>
<td>Majority of staff in Student Services in open plan office space, smaller offices in Clarendon Building</td>
</tr>
<tr>
<td>Michael A. Ashcroft Business School, Anglia Ruskin University</td>
<td>All academic and administrative staff in open plan area, meeting and private workspace located adjacent to primary circulation, use of refectory for meetings</td>
</tr>
</tbody>
</table>

\textbf{FIGURE FOUR. SUMMARY OF OFFICE ELEMENTS OF SMG CASE STUDIES. SOURCE: SMG 2006A.}
The SMG noted that the case studies also demonstrated that the management of space plays a significant role in the success or otherwise, of the projects. Many of the case studies use open plan areas, especially for administrative staff, recognising that these are space efficient and reduce the cost of churn. Group rooms for academic offices are being adopted in some cases, to help integrate related disciplines, with an added advantage of opportunities for space saving. Reduction in solo offices does not always receive support from senior management, and is rarely popular with academics. It is more successful when carefully managed, as for example at Sheffield Hallam University, where users’ perceived difficulties were addressed and the advantages exploited.\(^37\)

Parkin et al (2005) looked at the performance of four group centred research environments where informal interaction and collaboration are viewed as key to innovation and knowledge production and researchers are collocated, sharing work settings in open-plan environments. These included Loughborough University’s ‘Research Club pilot’ at the Centre for Collaborative Research, the Systeems Engineering Innovation centre (SEIC) which is a collaboration between Loughborough University and BAE. The Freeman Centre at the University of Sussex (a collaboration between the Universities of Brighton and Sussex) and the Centre for Power Transmission and Motion Control (CPTMC) at Bath University.\(^38\)

There was widespread agreement among the researchers that informal interaction with their colleagues is extremely valuable for their research. A number of people at each of the research facilities identified the friendly atmosphere and the high level of interaction between occupants as one of the things they liked about their office. More senior researchers also suggested that having greater contact with their colleagues had fostered group cohesion. One researcher also noted that the open plan design of the workspace ‘helps people feel together’ which he felt is good for building trust and relationships, which in turn lays the groundwork for discussing ideas.\(^39\)

One of the researchers at Bath, however, reported that the design of the space interfered with the interaction because most of the desks in the research room faced the wall they found it difficult to tell whether it was a good time to initiate conversations with the colleagues. Other also thought they were now less likely to interact with their peers because they didn’t want to interrupt their colleague in order to have a discussion or to disrupt the concentration of those working nearby.\(^40\)

Spaces for holding meetings and discussions were valued across all the research environments although the collaborative space at the Research Club pilot was felt to be too large because most of their discussions only involved two or three researchers. Consequently the six person table was more often used for as an alternative work setting by individuals requiring additional desk space. The provision of settings for relaxation and informal socialization were highly valued by the researchers. Comfortable seating at coffee points are often used to hold informal meetings and discussions as well as when they wanted to take a rest from their work.\(^41\)

Most of the researchers who were interviewed said that the noise levels from people talking in their office were often quite high, and many said that, as a result, they found it difficult to concentrate on their work.

\footnotesize{\textit{You do chat more with people in this sort of environment, and it does cause a bit of tension because people need quiet when they’re studying and researching, but sometimes we need to talk as well.}}

\(^{37}\) SMG 2006a, p. 9  
\(^{38}\) Parkin et al 2005, p.12  
\(^{39}\) Parkin et al 2005, p. 18  
\(^{40}\) Parkin et al 2005, p. 19  
\(^{41}\) Parkin et al 2005, p. 19
(A researcher at the Freeman Centre)

*If you have to write a paper and to be focused on what you are writing it is probably not the best place*.

(A PhD student in the Research Club Pilot)

*Collective interaction is no use unless you've got something to interact about – that is to say, unless you've managed to research. Quiet reflection, contemplation, reading – the sort of things you need privacy for, not the opposite*.

(A Professor at the Freeman Centre)

Visual privacy was also an issue, with some researchers at each of the institutes complaining that it is difficult to concentrate when one can see others moving around. Researchers also preferred not to sit at desks that faced away from the room, as they disliked being over-looked as they worked.

Another aspect that the researchers disliked was being overheard whilst on the telephone and a number of researchers suggested that it would be useful to have portable telephones when they needed to hold a private telephone conversation.

Whilst most of the interviewees said that regulating their interaction with others was not a problem, some researchers, particularly the more senior ones at the Freeman Centre, said that they disliked being so readily accessible. For example, one professor said that because he works on a number of different projects, he is often interrupted by junior colleagues wanting to tell him about “every little detail about a project”.

A common practice, particularly among the PhD students, was that of wearing headphones as a means of signalling to others that they didn’t want to be engaged in discussion. At each of the institutions, some researchers come into work early, or stay late in order to work when there are fewer distractions. Others choose to work from home if they need to concentrate.

The study booths that were provided in several of the research centres were not frequently used for carrying out concentrated work because they were considered too small, had glaring artificial light or because it was impractical to move work from their own desk to the study booth. Another frequently reported problem with study booths was availability— a few researchers used the booths a lot because of privacy and noise issues which meant they were not available for use by the other researchers.

Most people at the Freeman Centre, as well as at SEIC and Bath University, said that in order to avoid disturbing their colleagues, they tend to hold only short conversations at their desk, moving longer conversations to meeting rooms or a social space. It was pointed out that an unfortunate consequence of relocating conversations is that one can lose the impromptu and informal character of the interaction. One researcher at the Freeman centre felt that some people did not respect their colleagues’ need for a quiet work environment, saying that a lot of people who work mainly from home have a tendency to come in only when they want to interact, and show little consideration for those people who are working.

---

42 Parkin et al 2005, p. 20
43 Parkin et al 2005, p. 20
44 Parkin et al 2005, p. 21
The researchers were generally favourable about the furnishing of their environment, saying that they liked working in an office that has new, comfortable furniture and bright decoration. Having access to windows was also valued – with most researchers preferring to work where they have a window view and good daylight.

Having ready access to their books and papers was important for some researchers and some were also concerned about the security of their belongings in the office, saying that although they liked to be able to store research materials on and around their desks, they were worried that others would have access to them.\textsuperscript{45}

Summarising the findings of their study, Parkin et al concluded that overall, the group centred research environments were viewed favourably by their occupants. The environments tended to be regarded more favourably by Ph.D. students than senior researchers, approximately half of these said they would still prefer to work in cellular offices.

It was suggested that one reason may be that the senior researchers are more likely to be disturbed by colleagues wanting to initiate conversations with them, since they tend to work on a number of projects, carrying out more supervisory roles than junior researchers. Furthermore, due to the workload of senior staff, the time lost due to such disturbances may be difficult to accommodate. These problems may be exacerbated by senior researchers tending not to adopt the junior researchers’ practice of wearing headphones to block out external noise, and also to signal to others that they do not wish to be disturbed.

Another contributing factor may be the role of prior experience. Junior researchers’ view of what constitutes an appropriate work environment may be open-minded, due to their lack of experience. Furthermore, since tend not to have worked in individual cellular offices – their experience of individual-centred research environments being confined to cubiced workstations in open-plan rooms, their satisfaction with open-plan, group-centred environments compared with that of senior staff, may in part be a reflection of the notion that you cannot miss what you’ve never had.\textsuperscript{46}

They concluded that the factors that researchers value most in a work environment are:
- Ability for informal and formal communication
- Privacy when performing concentrated tasks
- Acoustic privacy for meetings and telephone conversations with/ about students
- Visual privacy – researchers tended to dislike working where they could be overlooked by people working past
- Workplace that enabled them to limit their accessibility to others
- High quality ambient environment with adequate heating and ventilation
- Aesthetics – bright, contemporary decoration with modern, comfortable furniture
- Space to relax, eat and drink and reflect on their work away from their desk
- Access to book and files storage on or near their desk
- Individual space for displaying notes and other materials\textsuperscript{47}

The trend towards more open, collaborative work environments for academics is certainly not universally welcomed. In an article in the Times Higher Education Supplement titled ‘The open-plan office gives ‘infantilised’ staff the blues’ (26 September 2005) Anna Fazackerley suggested that “the growing trend of turfing academics out of private offices and into open-plan rooms with a call-centre ambience could seriously damage their sense of worth and their concentration.”.

\begin{footnotes}
\item[45] Parkin et al 2005, p. 22
\item[46] Parkin et al 2005, p. 22
\item[47] Parkin et al 2005, p. 24
\end{footnotes}
Fazackerley cited research by Brunel University’s School of Sport and Education that warned that open-plan offices *packed with desks* sends a damaging message to academics, suggesting that they can no longer be trusted to work alone. The researchers noted that there were often sound economic arguments behind such changes but also felt this delivered clear messages about how these institutions view their staff. “It is about infantilisation – it is like moving from a grown-up atmosphere to a classroom atmosphere.” The changing workplace was seen as symbolic of other profound changes at universities with academics having to become managers, excellent at teaching, research and administration.48

The language used in this article, in particular phrases such as ‘turfing academics out’, ‘call-centre ambience’, ‘packed with desks’ and ‘infantilisation’ clearly indicate the emotive nature of much of the discussion about changes in the academic workplace.

The Times Higher Education Supplement returned to the subject of the academic office in May 2006 in an article titled ‘Door slams shut on a room of one’s own’ The article stated that academics’ book-lined private offices are under threat as administrators try to cut costs by introducing open-plan layouts. Several examples of successful open plan environments were described but the author noted that the change in working practice can prove painful. Concerns from a number of academics about problems with confidentiality, document and book storage, communications and staff recruitment were described. One un-named Sheffield Hallam academic stated that the inevitable interruptions and distractions that are part of life in an open plan office were driving more academics to work from home. “It privatizes academic work. There can be a culture that active researchers are not seen much on university premises.”49

In 2007 Price and Fortune undertook a review of open academic working practice for Sheffield Hallam University. In this study Price and Fortune examined workplace designs in both commercial and academic environments. They noted there are a number of cases in the commercial world where open plan working environments have been shown “not only to be more efficient – to consume less physical resource per person accommodated – but also to be more effective with a significant difference in perceived productivity or occupant satisfaction and in some cases to tangible and intangible organizational outcomes.” They noted, however, that other studies have reported the opposite – increased stress and turnover and less saving of space than anticipated as utilization efficiency deteriorates.50

Price and Fortune reviewed a number of Higher Education open plan workplaces and undertook primary research on a number of Sheffield Hallam workplace projects across a number of Faculties and locations. Many of the findings from the case studies were positive with respondents reporting increased collaboration and interaction but there were significant issues linked to ownership of space and identity. Prince and Fortune felt that the traditional career path for academics may lead to a situation where dedicated space is considered part of the informal psychological contract between an individual member of staff and their university. There may also be a perception that office provision is part of the formal employment contract – Price and Fortune cite a UK red brick university where 79% of staff working in individual cellular offices reported that the provision of a cellular office formed part of their contract with the university although the HR Department at this university confirmed that no member of the University had such a clause in their contract.51

---

48 Fazacherley 2005
49 Thomson 2006.
51 Prince and Fortune, 2008, p.13
They found that the most negative reactions to open designs have come from administrative staff moved, without planning, into open spaces where furniture, particular storage units and screens, has been used to mark out particular territories – a tendency they see as almost inherent unless the local manager guards against it. Acoustic problems are made worse in this situation by the lack of visual contact which tends to result in greater awareness of other people working and the disruption that the conversations and other noise may be creating.\textsuperscript{52}

THE EFFECTIVE WORKING ENVIRONMENTS IN FURTHER AND HIGHER EDUCATION STUDY 2008

In January 2008 the Scottish Funding Council and the University of Strathclyde commissioned DEGW to undertake a research project exploring Effective Working Environments in Further and Higher Education. The scoping document for this study noted that HE appears to be one of the last places to adopt a more modern, flexible approach to working environments and that few, completed successful examples exist. The SFC also noted that Further Education institutions are already adopting more open working environments in new developments and they wanted to know whether these are working and whether the lessons learned can be applied to Higher Education.

The project sponsors felt that considerable benefits could be gained from modern academic workplaces in terms of sustainability, quality, cost and team working if they also cautioned that if they fail in effectiveness the consequences could also be severe.\textsuperscript{53}

At the heart of the SFC/Strathclyde study was a series of seven case studies of open plan workplaces in both Further and Higher Education across the UK.

1. **University of Dundee Queen Mother Building**  
New School of Computing building, completed 2005. 100 staff and research students accommodated in a number of flexible, open plan pods with senior staff offices and meeting rooms positioned between the pods.

2. **University of Abertay, Whitespace.**  
Completed in 2007, Whitespace is a refurbishment of a double height laboratory space into a new facility for working and learning, blurring the edges between education and professional practice for the Division of Computer Arts and Media as well as a number of other learning and commercial interests. The space contains work areas, collaboration space, incubator space for M.Sc. entrepreneurship students, a performance area and an immersive learning space.

3. **Queen Margaret University new campus.**  
New campus for 4000 students, 420 staff and approx. 80 research students. Workplace strategy included the provision of a separate academic building containing 5600 sqm workplace of which about 80% is open plan. Senior management retain owned offices, with general staff and research students in open plan space. Work rooms and quiet booths provided for concentrated working and small social hubs for breakout and informal meetings.

\textsuperscript{52} Price and Fortune, 2008, p. 24.  
\textsuperscript{53} University of Strathclyde, 2008, pp. 4-5
4. **Edinburgh’s Telford College new campus**
New campus in the City’s waterfront development bringing together three campuses, 20,000 students and 600 staff onto a single site. Goal was to ‘create a 30,000 sqm village under one roof.’ 85% of the 600 staff hot desk, 2 linear meters of storage provided per person, large social hubs provided for breakouts and meetings along with formal meeting rooms and student tutorial rooms. Technology and process to support mobile working also provided.

5. **University of Strathclyde, Lord Hope Building**
Refurbishment of 1200 sqm to create the Law School on a single floor in space formerly used as a store. Goal was to support a growth in research through the provision of a flexible, effective and supportive workplace that would also enhance external networking and the Department’s professional reputation. Three distinct open plan work areas created for support staff, visiting staff and research students with academic staff and the Law Clinic housed in cellular offices around the perimeter of the floor. High quality social area, meeting and quiet rooms, study pods and a reception area also provided.

6. **University of Loughborough, Civil and Building Engineering**
Refurbishment of a 1000 sqm floor of the building to create an open plan research hub and the construction of a new three story academic office building. The creation of the research hub was driven by the departmental remit of growing interdisciplinary practice and desire to increase interaction and generate a sense of community while supporting confidential activity and private scholarship. Small academic studies (10 sqm) provided along with informal open shared meeting areas. Large open plan research hub consisted of owned desks for RAs and ‘hot desks’ for research students.

7. **Sheffield Hallam University, Faculty of Health and Well-being.**
Refurbishment and extension of existing building completed in 2004. Creation of a state of the art teaching building for health studies accommodating 7000 students and around 250 staff. Aspiration to foster inter-professional teaching and research, change to a new integrated model and strengthen community focus. Group offices created for interdisciplinary teams with student contact handled through a ‘one stop shop’. Hot desks for part time staff, centralized filing and informal meeting space distributed around common stairwell areas and the café.

More detailed information on these case studies can be found in Appendix One of this paper and on the project website [www.exploreacademicworkplace.com](http://www.exploreacademicworkplace.com).
Key qualities of the workspace

As part of the case study process all staff based in the case study buildings were asked to complete a survey that asked them about the relative importance and performance of various aspects of their workplace. Thirteen key workplace aspects were included:

- A place to do concentrated work
- A place that supports quiet reflection and analysis
- A place that reflects the high value the institution places on you and your colleagues
- A place that gives staff a sense of belonging
- A place where you can share knowledge with colleagues
- A place that supports team working
- A place which helps you keep in touch with what is going on in the department
- A place which helps to attract and retain new staff
- A place that expresses the identity of department or faculty
- A place that supports cross-disciplinary working
- A place for mentoring (or being mentored by) colleagues
- A place for collaboration between your institution and industry/business
- A place that expresses the identity of the institution

Of the staff surveyed across the seven institutions, staff generally considered that the most important quality of the work environment is ‘a place to do concentrated work’. This is seen as a priority regardless of role or function and this finding was consistent across academic and non academic roles, although the importance rating attributed by non academic staff was slightly lower.

The second most important rated workplace quality by research active staff, lecturers, research associates and research students was ‘a place that supports quiet reflection and analysis’. This was not the case with non research active academic and administrative staff.

Within the academic community who were not research active, including a high rate of responses from the FE example, ‘a place which supports team working’ was considered the next most important quality.

All academic staff rated ‘a place where you can share knowledge with colleagues’ among the top 5 rated qualities of the 13 listed. The high importance of team working was also widely noted across non academic functions, rated in the top three desired workplace qualities across all other groups. These groups also rated the quality ‘a place to keep in touch with what is happening in the department’ within top five qualities.

Other workplace qualities rated as of high importance to all groups was the workspace as a ‘place that promotes sense of belonging’ and ‘that reflects the high value the institution places on you’.

Despite an increased emphasis on interaction and knowledge transfer working within the research community and the increased requirement for collaborative and interdisciplinary research (see Parkin et al, 2005, Oblinger 2006), research staff surveyed continued to rate most highly the importance of qualities of workspace associated with solo focused work.

From the analysis of the case studies a number of key themes emerged that should be carefully considered by any institution implementing more open workplace solutions.
Using the workplace as a catalyst for interaction and collaboration
At each of the case studies represented in the research, senior members of staff were interviewed to gain an understanding of the motivations for change in the design of their workspaces. Common to all of the projects was a driver to increase interaction and collaboration between staff, and to consider how the environment might be designed to catalyse and support these activities.

The reasons given for the importance of supporting interaction varied from project to project, but there were a number of clear and consistent themes. The first was to improve functional effectiveness of the department or institution through opening lines of communication. The second was to reflect the increased emphasis on collaboration, knowledge sharing and interdisciplinary working within academia and, in particular, research.

It was not just the senior staff leading change to the work environment who considered this to be an important aspect of the workplace. Staff at the case study projects validated these drivers from the user perspective in their survey returns. These indicated that research active staff rate the workspace supporting ‘knowledge sharing’ in the top 5 most important qualities of the workspace, while non research active staff (in particular survey returns in FE) rate both knowledge sharing and team working as high importance. For non academic staff, the importance of the workspace supporting wider awareness within the department or group was also noted in addition to that of team work and knowledge sharing.

“Having all the university in one campus is an ideal opportunity to foster interdisciplinary practice and collaboration” (Staff member QMU)

The case studies in this project were selected for their variety and they included examples of cellular academic offices, group offices and open plan areas.

At the Loughborough case study, the work environment was designed to encourage interaction through visual and physical connections between staff areas, using open lines of sight in particular in the large open plan research hub areas. It was hoped that this open-ness would support and foster knowledge transfer, in particular within the research staff, and would help to develop a stronger sense of community within the department. Survey comments from the research study were largely positive with regard to the performance of the workspace in these areas “It is more integrated and collaborative in deed; can meet and access people easily.” One researcher described the space as “a lot more sociable”, stating that the ability to chat and mix in the open plan areas in informal breakout spaces was particularly successful. Another researcher stated that he “felt connected to the work of the Department”. The workplace provides generous open spaces for interaction between researchers, staff and students and in staff clearly value these relaxed and informal meeting spaces.

However, not all staff agreed that the conditions were entirely supportive of interaction, in particular of ad-hoc conversation within the Research Hub areas.. Due to the focused nature of the work and people’s sensitivities to others needs for quiet in open plan, the space was described by some as “unnaturally” quiet.. One researcher based in the open plan commented “Working in such a vast open plan office means that people don't like talking for fear of disturbing other people” Those who had previously worked in the smaller pilot space were a little frustrated at the quiet atmosphere, aware of the effect this was having on their sense of community and enjoyment of the new workspace. Some staff spoke of a buzz and activity that picked up out of hours, when staff who stayed back felt more able to relax about generating more noise and discussion.
At Queen Margaret University, another example with large open plan areas, there was an aspiration to improve day to day effectiveness and communication through a more open and connected workspace. In some instances this has been achieved and staff commented: "We all sit closely together and can bounce ideas around as required". In particular business support and administrative functions noted improvement in this regard: "Co-location with another inter-dependent support department enabling a much higher level of service to be provided"

Some academic staff enjoyed the higher levels of interaction and visibility in the new workspace and the increased contact with people from other departments previously in dispersed locations: "I see more people from other departments. It's like a social club at times." Another member of the academic staff noted that it was a good thing to see more of colleagues from other departments "eventually this will lead to more collaborative working". However, as with the Loughborough example, while many were in agreement that increased interaction would be of benefit, there was some disagreement as to whether the workspace was a helping to facilitate this. Once again the reason cited was the quiet nature of the open plan space. There were a number of comments from academic and research staff who were concerned about this issue: "The lack of space to do this [collaboration] hinders discussion unless it is planned as everyone is aware that they are disturbing colleagues if they have a conversation anywhere around the work area"

There were two examples of open plan academic workspaces in the case studies where the space was not perceived as being 'too quiet' and in both cases the higher levels of interaction were catalysed by other factors within the workspace.

At ‘White Space’ at Abertay, the priority was to create an environment which fosters creativity, innovation and the exchange of knowledge and ideas between disciplines to support and sustain their ethos of collaborative working. The interaction and buzz within the environment is stimulated by the mix of users within this space and, critically, the inclusion of the student population alongside the staff population in open plan space. In essence Abertay functions as a ‘club environment’ with mobile working practices and a range of informal and flexible work spaces in which users can meet, share knowledge, exchange ideas and work in a collaborative manner. “It's a very inspiring and social space with interesting things happening all around.” Staff were very positive about the high levels of interaction between all occupants of this environment and the freedom and creativity that this was helping to generate and they see this space as one which responds well to their specific working needs: “The White Space concept is tailored to the collaborative way students work within these disciplines and the industry we work in”

Another case study which has catalysed higher interaction levels through a different approach is Edinburgh’s Telford College. With 80% of staff ‘hot desking’ the utilisation of the workspace is significantly higher than seen in most academic workspace. High levels of interaction is inevitable and the space has been designed to support this through high provision of informal and social meeting spaces. In going through this process of change there was hope that this would increase interaction, encourage collaborative working between subject areas and create a more collegiate culture. It was also felt that hot desking itself would lead to a greater mix by bringing staff previously based in group staff rooms “out of silos” and working in a new way. With generous informal areas and a lively atmosphere the workspace does support ad-hoc interaction and staff commented that this was working well: “Social intercourse is a big plus”.
However, despite the high levels of interaction, there were concerns however that the environment at Telford was not supporting the right kind of interaction and many staff felt that this was attributable to the impact of hot desking. Many staff felt the fostering of team spirit and sharing resources in teaching was important and expressed concerns that the displaced nature of mobile working does not encourage this: "The [hot desking in] open plan does not foster team identity as it is often impossible to find people as they don’t have a fixed location for working". In response to this the management have been considering the implementation of team home bases to help address this issue.

Several of the case study examples implemented smaller scale open environments, group offices or workspace clusters to increase interaction within smaller groups. These smaller group environments fostered knowledge sharing in a more ‘familial’ setting. The group office spaces seen in this research study did not seem to be having such a negative impact on interaction in the workspace as some larger scale open plan environments: "We chat together – it works well if you like this".

Although the workspace pods in the Queen Mother Buildings were still often quiet, they were not uncomfortably so, and staff appeared to enjoy the benefits of the more a more collegiate and communal working. “It’s good for knowledge sharing…there is usually someone around who can answer a question.” One academic member of staff suggested that it might have been beneficial to other members of staff if senior lecturers were also based in the pods: “Here, now, seniors have private offices. It would have been really interesting to be in a ‘pod’ with senior lecturer – osmotic. This is a missed opportunity, but culture is not there yet.”

At Sheffield Hallam University group offices were also used with inter-professional groupings within the offices to generate “different kinds of conversations”. Staff commented positively on the ability to share ideas and discussions with colleagues in same office. “Staff office accommodation is mixed so communication across discipline groups and areas of professional interest are encouraged and stimulated.”

Common to both these projects was an approach of encouraging interaction through exploiting connections between areas of the building and using the ‘circulation space as glue’

At the Queen Mother Building in Dundee, there was a belief within the School of Computing that interaction was vital “Creative ideas come from talk”. The building actively invites communication and collaboration between users with working and learning spaces open to a generous circulation which weaves past the pods to strategically placed printers and mailboxes. The intention was to create casual interaction whilst going about day to day work and feedback from staff suggests this is quite effective, with a member of the academic staff describing the building as a great tool which leads to introductions, connections and serendipity. “The interaction with students in ‘labs’ downstairs works well….you don’t have to go right into the space to interact: it’s easy to see and get attention without being intrusive. Upstairs as well, interaction becomes almost inevitable; it takes them half an hour to get out the building!” (Head of School)

In two of the case studies the challenges of increasing knowledge sharing and interaction within the academic group were looked at within the context of lecturers retaining cellular offices.

For academic staff at Loughborough a ‘combi office’ model was implemented in which in which smaller offices were created, freeing up space for informal and social areas outside of the offices. The goal was to allow interaction and knowledge exchange to occur more freely, while retaining offices to respond to issues of privacy and confidentiality.
A key issue was to convince staff that their workplace consisted of “more than just their personal cellular space”. The lecturers who now occupy the offices view the other informal spaces as an important and successful component of their overall working landscape: “The new build at Loughborough is great it’s a happier and more enjoyable place to work than it was in the old build where we were all locked away in our offices all day.” As noted before, the high provision of informal meeting space, as well as the open coffee and facility areas, have been particularly effective in encouraging staff to come out of their offices and talk.

At the Lord Hope building at the University of Strathclyde the Law School also hoped to improve interaction and encourage more collaborative working practices in particular to support their research activities. They considered themselves a ‘sociable department’, but their existing space and long corridors did not support this.

Central to the new concept was the inclusion of a large open social hub and glass frontages to the academic offices for increased visibility and connections between staff. The social space has been well received with one member of academic staff noting “The social space allows informal contact with all colleagues facilitating both collegiality and resolution of some administrative issues”. The glass frontages to offices have been less successful and, while some staff recognise that they serve a useful purpose, many staff noted that the extent of glass used was an issue: “It is not a good idea to have glass meeting rooms immediately next to glass offices - this is very distracting both for those in the meeting and the users of the offices”

Departmental drivers to increase interaction in all of these examples have resulted in higher levels of visibility, contact and exchange in particular between staff. The purpose of this increased contact was to encourage interaction between staff on a day to day basis. While some considered that there were benefits in terms of knowledge sharing, socialisation and increased effectiveness for business delivery, others noted that they were experiencing higher levels of interruptions from colleagues and that this was a negative outcome and it is here that the tension between collegiality and privacy is most clearly evident.

In summary the case studies have clearly shown that it is possible to create academic work areas which sustain higher levels of interaction. However this interaction may need to be catalysed by the introduction of another ‘agent’, such as a more mixed community of users, adopting mobile working practices or, in some instances, a more ‘events based’ approach to space use to foster the dialogue and interaction which cannot be stimulated by the creation of open space alone. The challenge is to recognise the tension that exists between interaction and the need for individual, concentrated working and to find an outcome that strikes the right balance for working ethos of the group.

“Many would not consider the workspace (in itself) as improvement but it is integrated with the bigger philosophy….on balance, life was easier before, but in terms the space, the experience and the general atmosphere that has been created, people are very positive” (staff member, White Space)

Supporting individual work
The ability to undertake individual, concentrated work and research is a core part of the academic work pattern. It is therefore imperative that the workplace supports academics to achieve this, limiting the amount of disruption from other staff and from students. The case studies varied in their ability to achieve this.

There are three key factors which can impact upon ability to concentrate on focused work in more open environments and it is the interplay of these which reflect the complexity of the issue. These factors are, noise (both excess of and absence of), interruptions (both from colleagues and students) and the human factor, namely our individual response to these conditions and their impact on our level of focus.

The human factor should not be underestimated. Some people can carry out focused work within noisy environments. In particular environments that offer anonymity, such as public cafes,
can provide spaces with a comfortable buzz of activity and minimal interruption that some find to be productive work spaces. Such people may find working in isolation less comfortable and may be inclined to use radio or television to generate background noise when working alone at home. Other people find concentrated work extremely hard in any condition other than that of absolute quiet, as was noted by Parkin et al (2006). It is this human factor which can make the design and planning of workspace particularly difficult in responding to differing needs for privacy, quiet, buzz or activity.

A research paper published by the American Society of Interior Designers (ASID) in 2006 identified that common sources of auditory annoyance within the workspace today include ringing telephones, PDA’s and mobile phones with audio alerts, conversations (either face to face or on the telephone), building noise, printers and computer or equipment noise. Similar issues to those noted above were raised by staff in many of the open plan work areas examined in the research, although specific staff concerns differed in response to varied acoustical conditions and the nature of the work undertaken. Interestingly, another issue raised by staff in the surveys related to the absence of noise in open plan, which was cited as a source of distraction by some users.

Four of the case studies included larger scale open plan work areas. It was observed and commented upon by staff that two of these examples were noisy and ‘buzzy' workspaces, while the other two were extremely quiet. All of these workspaces were occupied by a mix of academic and administrative staff, and three of the four case studies included research active academic staff. Noisy and quiet open plan examples generated quite different responses in terms their effectiveness in supporting concentration.

White Space at Abertay was considered, in part, a ‘performance space’ by those championing change to the environment. With teaching activities happening in the open space alongside work activities, this was one of the livelier and noisier open plan spaces visited with a noticeable abb and flow of student traffic through the course of a day. Here, the response to working in such a vibrant space was variable. One member of staff found noise levels “completely incompatible” with concentrated work, while others were more positive about the overall environment did not view the noise conditions to be quite so detrimental.

Another member of the teaching staff suggested that although this there were higher noise levels in White Space than many were accustomed to in their own work environments it was not as bad as others perceived it to be, causing ‘occasional concern’ and impacting only on ‘particular types of work’. As one academic commented in the staff survey: “Many visiting staff from other departments have commented they could not work in White Space, for the negative reasons mentioned - though I do not deem many of these issues critical myself, it is certainly a different experience to have to work in such an environment than it is to visit it.”

At Abertay, with the exception of the Research Room and a couple of private meeting rooms, there are no enclosed or private spaces to retreat to when staff want to engage in focused work, although, it is noticeable that there are periods of the day when the teaching activities are less dominant and the space has a quieter feel. Several members of staff commented that the lack of such quiet spaces was impacting upon where people chose to do certain types of more focused work:

‘There is a general lack of places to retreat to. People tend to work from home when they need to do reading or preparation’

‘Quiet areas are required within Whitespace - e.g. enclosed rooms where silence can be enforced! Open plan is good for mingling, but terrible for teaching or study’
Edinburgh’s Telford College also has a ‘buzzy’ feel within the workspace, in particular around the central hub areas where the social spaces are located. Many staff commented negatively on noise levels in the work area and the impact this has on their ability to complete particular types of work within that environment.

“It depends what I'm doing [but] if I need to really think about things, analyse things, or write complicated reports, it's just very, very difficult”.

“There is no real “quiet space” available to staff members who may feel the need of a few uninterrupted moments”.

Staff at Telford ‘hot desk’ and some staff found working in the periphery of the workspace suited their need for quiet or lessened interruption. “I move around a lot in my quest for a quiet space that I can work in”. Others were more innovative in their search for a quiet workplace, utilising other parts of the campus for concentrated working.

“I use empty classrooms where possible. They provide quiet environments with desk space. This option is minimised due to lack of availability and really should be provided as work spaces”.

In summary, in both of these case studies, which were noisy in nature, surveys highlighted that staff can find high noise to have a negative impact on their concentration levels at times where they need to undertake complex analytical work. Staff at both institutions suggested that it would be beneficial to create spaces of ‘retreat’ to within the work space and that the inclusion of these might alleviate many of their concerns.

However, both of these workplaces were successful at achieving ‘buzz’ in the workspace, although it was acknowledged that at times noise could become excessive. In other case studies, this level of background noise or ‘buzz’ has been more challenging to achieve than initially anticipated.

At Loughborough University, the open plan Research Hub had been designed as a more social and collaborative workspace. However, on occupation of the space, it was found to be quieter than expected. It seemed that the focused nature of research work and respect for others need for quiet led to an informal protocol of quiet in this workspace. One researcher commented “For an open plan office it is very quiet, it seemed unnaturally so to begin with. However the nature of the work requires a different sort of environment”.

Concerns about disruptive noise through discussions or telephone calls were less widespread than in other large open plan examples, with the workspace being both spaciously planned and providing ample informal space slightly removed form desk areas. A number of researchers did note that, at times, noise can have a negative impact on concentration, in particular when visitors come into the workspace and break the quiet protocols established by the staff based there: “[It is] sometimes difficult to concentrate when academics or students are frequently visiting the office and holding discussions”.

At Queen Margret University, the workspace was defined as a ‘quiet’ place before staff moved in. In consultation with staff, it was decided that noisy activities should happen away from the desk, keeping the main working areas more like a library, with ‘quiet protocols’ for their use. Staff are encouraged to converse away from desk areas and to use ‘social hubs’ to for informal or social discussion or quiet rooms for lengthy telephone calls which may disturb colleagues.
Staff at QMU only very recently moved into the space and it was clear that many had not adjusted easily to the new open plan. There were higher levels of dissatisfaction with noise, along with many other aspects of the new space “[there is a] lack of thinking space [a] lack of privacy [and] high background noise levels….can’t even take a phone call from your desk without disturbing someone”. However, not all staff at QMU agreed that there were, in fact, high background noise levels and several staff suggested that the root of the problem was a lack of background noise, resulting in heightened perception of noise and audibility of conversations.

The quietness of these environments is such that that in a post occupancy study carried out at Loughborough, one of the main complaints about noise in the new environment related to the fact that people were disturbed by the use of the hand dryers in the washrooms nearby. In an environment so quiet that these noises are intrusive, difficulties associated with audibility of conversation in the space are likely to be high. This, in turn, can impact negatively on concentration levels or individuals’ sense of privacy.

Both of the ‘quiet’ case studies described above had similar work environments in that they both avoided the use of high partitions or storage, with a view to creating improved visibility and interaction. QMU in particular adopted this approach “to avoid the pitfalls of cubicled office environments” in particular noise problems due to insensitivity to others’ needs, thought to be caused by low visibility in such environments.

Low screened environments do appear to support the enforcement of the quiet through increased awareness of others. One member of the academic staff at QMU commented that they would naturally be much noisier in the workspace, but that they quickly became aware of others annoyance and were trying to adjust their voice to a more acceptable level.

At the smaller group office case studies the impact of noise was less pronounced. The Queen Mother Building at Dundee was generally considered as quiet by staff although they did not seem inhibited about talking within the group setting in the same way as had been observed in the larger open plan spaces. However, in common with larger scale examples, there remain some issues around certain types of discussion in the open work areas, with some staff remarking that telephone calls and discussions are problematic and that there were not enough meeting rooms available for people to use for this purpose. At Dundee the group offices are larger with up to nine people based in the pods and in discussion with staff it appeared that the group size worked well, and allowed the group to develop their own protocols and manage noise more easily.

At Sheffield Hallam University a group office model is also used although the room sizes are smaller with three, five or seven people in a room and the smaller group sizes caused some difficulties for a few staff: “[it is] very difficult to think in a 3 person office, hence marking and planning activities have to be taken home in order to concentrate”. With limited access to quiet rooms within the work environment some staff commented, once again, that this forced them to take work home from time to time. Overall, staff at both these case studies seemed able to work effectively in the group office setting and concerns about noise, were not widespread.

It should be noted that the general environmental conditions of the building, including materials and method of construction, can also have significant implications on the level of noise and audibility in the workspace

The ASID paper identified two office design trends that have implications for noise control. The first is the construction or refurbishment of office space without acoustical ceilings, with the concrete sofit exposed either as part of the environmental strategy in the building or for aesthetic or design reasons. The second trend is the use of raised floors with under floor air distribution in naturally ventilated buildings. A lack of mechanically produced ‘white noise’ from building ventilation systems is a side effect, resulting in quieter buildings “making conversation and other incidental noise more pronounced”.

25
The emerging combination of flexible open plan space in sustainable, naturally ventilated buildings may require the introduction of some other acoustical strategies to address noise and audibility in the workspace. Four of the seven case studies had both exposed soffits and natural under floor ventilation and at one other case study the concrete ceiling was also unfinished. Each of these workplaces attracted comments from staff about audibility of conversation in the workspace: The most noticeable impact of the building acoustics was at Dundee where both factors were at play together with another acoustic factor peculiar to the architecture of the ‘pods’, creating an effect whereby sound is amplified and users found audible conversations happening some distance away from their workstations.

The ASID paper suggested that while confidential privacy in open environments is hard to achieve it can be practical and economical to achieve “non intrusive privacy” which would allow “a worker to continue to be productive and attentive to the task at hand despite the presence of background conversational noise”. It goes on to suggest increasing absorption (in particular around ceiling areas) and introducing masking of noise (electronic white noise) and introducing further blocking of noise through installation of partitions, screening and other breaks in the overall landscape. This suggestion could also be beneficial both in terms of noise and in helping to create an environment which is more human scale in nature.

The issue of acoustic performance is important, in particular if the effect of the “quiet” is to stifle the interaction which the more open environment was designed to stimulate. Researchers at Loughborough, for example, have picked up both on the issue and the resultant effect on ad-hoc interaction and were investigating options of introducing white noise into the space to help alleviate the ‘too quiet’ issue.

Of the two examples of quiet open plan, Loughborough Researchers’ have been working in their space now for a longer period than those at QMU, and the noise levels have gradually improved to a more comfortable level than initially experienced, although it has continued to be an issue. On balance, researchers’ satisfaction levels with their work environment at Loughborough were high and staff commented positively on the nature of the environments and its suitability for carrying out research work. Of all the open plan work spaces in this study, this space performed most highly on the key qualities highlighted by academic staff associated with individual working, including supporting concentrated work and quiet reflection and analysis.

In summary, where larger scale open plan environments are created and the conditions are felt to be ‘too quiet’ there are a number of measures which could be taken to reduce audibility and to gently increase buzz or background noise as suggested in the ASID study, so that the quiet nature of the space could become more comfortable for the users.

Cellular work spaces, owned and shared
The role of cellular individual work space continues a key component of the working landscape at the projects reviewed in the research. Three of the five case studies adopted a model where a number of cellular spaces were retained for general academic staff and five of the seven case studies retained offices for senior members of the institution management or for senior staff within department in question. Allocation of owned cellular space varied from a status-based allocation to a more function-based system based on need, such as differences in the levels of privacy required for academics who are student facing, as opposed to those who are not.
It remains the case that for many staff private enclosed work rooms are effective in supporting individual work of a more focused nature. Loughborough performed well in this regard, with the small cellular spaces providing well in respect of concentration, supporting reflection and analysis and achieving a good balance of privacy and collegiality. The offices in this example were small at around 10sqm, although this did not appear to concern the staff; “The individual office is carefully designed to make most use of very limited space” and many of the staff were delighted with the design of the offices which they describe as a “modern, personal, private study”. Academic staff responded positively to this model which they felt provided a “good balance on individual space and access to open spaces for collaboration” and despite their reduced size they expressed high levels of satisfaction with the offices which provide good levels of acoustic and visual privacy.

The Lord Hope building, at the University of Strathclyde also retained cellular space for academic staff. In this case the offices are larger but they include glass frontages which some staff feel has a detrimental effect with on concentration. While staff recognise that the amount of glass serves a useful purpose in terms of visibility and awareness, many noted that the extent of glass used was an issue: “Having glass walls undermines any real sense of privacy”

In a number of the case studies where individual cellular spaces were not provided, quiet rooms or booths were included for staff to use to undertake concentrated or quiet work away from the open plan space.

This approach was used widely at QMU with the provision of small quiet rooms and booths which were used for meetings and private or concentrated working. However, mobility (or lack of) can be a deterrent for the use of these spaces unless there are established patterns of working in this way. The success of these spaces is also dependant on the availability of appropriate technology to support mobile working. In Queen Margaret University the move to the new workspace was recent and not all of the technology required was in place at the time of the staff survey. Staff noted that while the rooms were useful in principle the lack of technology prevented them being used for the purpose they were intended. One staff member who had rated the performance of these spaces poorly went on to comment: “There are plenty of small rooms we can work in which I would find very useful, but there are no computers in them..... If these rooms had computers my answers to the above questions would be quite different”

There are other factors that can also undermine the use of such quiet rooms or booths. At Strathclyde, for example, the study booths were pod-shaped capsules with no outlook. The lack of technology and telephony in the pods, combined with unsuccessful design aspects resulted in some staff describing them as claustrophobic and hot and made them unpopular spaces to work in. The lack of vision panels also made them inappropriate for student meetings.

In terms of managing interruption, academic staff frequently mentioned the value of retreat space. Depending on the nature of the staff-student interface it varied across institutions as to whether the primary source of interruption came from the students or from colleagues. In some case studies the perceived lack of retreat space, either owned or shared, resulted in some staff working from home more often than they would prefer.

While the design and operation of some of the quiet rooms in the case studies caused problems, it is clear that when they are not provided on either an owned or a shared basis, staff note their absence and cite the difficulties that this causes for them. This suggests that quiet rooms or workplace areas will continue to be a key element of more open academic and administrative work environments and that the proximity of the quiet rooms to the primary workspace is likely to be a critical factor in their use, enabling occupants to determine availability and move location with minimal disruption to their work should the technology facilitate this.

Rethinking the staff – student interface.
The traditional academic environment tends to consist of open access corridors with individual academic staff offices along both sides. Access to staff is either ‘drop-in’ or during advertised
office hours. Moving to more open work environments means that this approach to staff –
student contact may no long be effective, either because of the disruption the meeting causes to
others or through the lack of a suitable meeting place.

Four of the case studies opted for changes to the student interface as part of the workplace
transformation process, moving from an ‘open door’ model to a ‘managed access’ model with
staff and student meetings arranged by an intermediary. Three remained open door in principle,
at least and these three case studies achieved the highest staff satisfaction scores for staff –
student interface, although the nature of the space in the three case studies is very different.

Some staff commented that easy student contact was fundamental to what they do within
teaching and that they considered this to be one of the things that attracted them to teaching in
the first instance.

In Abertay the door was left open to students from the department to those from other
departments as well as members of the public. In this case study, students and staff work
alongside one another in the open space and maintaining the open nature and ease of
communication between users is key to the philosophy of the space. The space is felt to foster
good professional relationships between staff and students, thereby allowing mentoring naturally
through working relations. Staff were positive about working in the exuberant creative
atmosphere of White Space and the professional nature of the student interaction which the
space facilitates:

“[there is a] sense of community between staff and students”

“Although I mostly arrange meetings with students via email, there is still a large proportion of
face to face/open door chats. Essentially if I am free, I can assist the student straight away - this
usually suits the student as it helps to resolve their issue on the spot - enabling them to return to
their studies.” (Abertay staff member)

“It’s a very inspiring and social space with interesting things happening all around.” (Abertay
staff member)

The level of student interruption in open access work areas can be reduced through the
adoption of clear use protocols and through the zoning of the space into clearly defined ‘work’
and ‘interaction’ areas. At Loughborough, for example, the students can come into the informal
meeting areas next to the offices to meet with staff. This area is part of the ‘work space’ and
houses lockable filing units owned by staff in the academic workspace but there is an
understanding among students that this area is staff workspace, and while it is okay to go there
to meet with staff, it is not okay just to go and ‘hang out’.

In Abertay, where staff and students co-habit in open plan space, an invisible territorial boundary
exists between the staff open plan desk area and other informal spaces which are more neutral
territory, and students often will speak to staff away from the desk areas rather than disturb them
in their workspace. During interviews staff emphasised that the boundary was not one enforced
by them, but students were inclined, in the same way as staff working in open plan, to be
sensitive for others need to work without interruptions.

In four of the case studies (QMU, Telford, Strathclyde and SHU) a secure workspace area was
created where students are not generally permitted access. In each instance management felt
that this model was preferable in order to support the transition to open plan and that a positive
effect of this would be that staff would experience less interruption from students, and that the
students would become less dependant on academic support.

In all of these case studies contact between staff and students is arranged through an
intermediary at a reception desk or by telephone or e-mail. Although staff at some of these
examples did note that there were lessened interruptions as a result of this approach, many staff
felt that this could lead to a deterioration of staff student relations. As a result, these examples were rated as performing less well overall at supporting the student staff interface.

“The electronic barrier between students and staff is convenient at times - say when doing marking - but overall is not a good way of fostering good relationships” (Telford)

Students cannot easily find you/contact you and though fully open door policy is perhaps too much our new system mitigates against student staff contact. (QMU)

The college now supplies a perfect situation for retreating from students but, as a teacher, I would have thought most staff would want to have contact with students! (Telford)

At Sheffield Hallam University, this managed access model has been in place for five years and staff were more positive about the benefits of this approach than at other examples where the change to access had been more recent.

Staff at all most of the case studies recognized there were some benefits to the managed access model although reservations about the appropriateness of this remain:

“I do not feel that student access to staff is necessarily restricted in any way by the swipe-card system. In fact, I would have no time whatever to do other work if students could knock on my door freely” (Strathclyde)

“I like the policy on student access at SHU, it means I can get on with my work.” (SHU)

Another issue related to managed access models is the location for student staff meetings. In several of the case studies the number of rooms designated for this purpose were reported by staff as being low, relative to the numbers of staff and students wanting to use them. In some cases there were further meeting rooms in the workspace but these rooms were within the secure area where student access is not permitted. These issues were causing frustration with staff due to the difficulties of locating appropriate spaces to meet students and the disruption this was caused to their working day:

“There is a shortage of rooms to meet them in, which all get booked up, so you end up having discussions in non-private areas if they are comfortable with that, or else they have to wait until a room becomes available which is not always the same day (Telford)

“This I feel is such an important part of my work and one that I have no provision other than to meet a student at reception and then walk the corridors to find an empty classroom. Surgeries work for informal contact but don’t always give the confidentiality that students might look for” (QMU)

“the range [of meeting spaces] is excellent, but availability and access very poor at times.” (SHU)

At QMU in particular, where the move had occurred recently, staff had not yet established the most successful method for making contact and were finding the process of arranging contact times and locations to meet a student and then looking for a space to meet, particularly difficult.

In some case studies, staff are frustrated by a booking system resulting in rooms being heavily booked that they were seldom available at short notice. In others the lack of booking system was causing problems when a confidential meeting was required.

“The ad-hoc booking system is not yet working efficiently, so most meetings and supervisions happen by either going to the coffee area (not confidential) or wandering around together looking for an empty room which may be booked for a lecture within the meeting time. This is very inconvenient, looks incompetent, and does not help staff to support or mentor students” (QMC)
Dislocation of staff student meeting space from the workspace can also be problematic for staff. Some teaching staff commented that should a student fail to turn up for a meeting with staff it results in wasted time for the staff as well as disruption associated with moving a distance away from your workspace.

As stated previously, Loughborough continues to provide individual offices for some academic staff and these were rated very highly by staff for their ability to have confidential meetings with other staff and students. Although the offices were small, they still comfortably accommodated one-to-one student staff meetings in a setting which was private, both visually and acoustically. A small vision panel to the side of the doors provided awareness of who is in or out, but did not compromise privacy. Informal meeting spaces were also provided outside of the offices, which provide an area for students to carry out some work while waiting for staff. Staff also used these spaces for meeting with students as well as each other.

The suitability of the types of meeting rooms provided is also important. At the Strathclyde case study staff reported that there is sufficient meeting space available, with students allowed accompanied access into the workspace areas to meet with staff. However both the meeting rooms and the private offices have glass entirely glass frontages which has been found to be unsuitable for meeting with students who may be upset due to personal problems. The space has a number of smaller pods which some staff commented would be ideal for this use were it not for the fact that they have no glass at all, and are therefore equally inappropriate for one to one discussions between staff and students.

Many of these issues could be addressed though an adequate provision of suitably designed, meeting spaces in proximity to, or within, the workspace. In the case studies where the tutorials happened within departmental meeting space the disruption to work and booking issues seemed to lessen (Dundee and Abertay) although there remained issues about the overall level of provision. A mixture of bookable and non-bookable rooms could be beneficial and would be more functionally effective if informal meeting spaces are also provided nearby, allowing staff and students to select the setting most appropriate to the nature of the discussion.

ONE SIZE DOES NOT FIT ALL.

Within corporate organizations workplace strategies generally based on an understanding of the work activities that take place within each department or work group. Interviews, workshops and quantitative methods such as observational studies and questionnaires are used to define typical work activities for each job role within the organisations and these are grouped into generalized work styles that are accommodated in a range of work settings within the office building. As work becomes more mobile in many organizations the workplace strategy is becoming broader, considering both physical and virtual work settings within the building and across the distributed workplace – work wherever and when it takes place.

It is likely that some of the workplace-related problems that are experienced by academic and administrative staff both in conventional academic environments and in more open, collaborative environments are the result of the wide variety or work activities and work style within the same job category. Stating the obvious, all academics do not work in the same way! The amount and nature of teaching, research and administrative work undertaken by academic staff varies widely between and within Institutions and Departments. Work patterns are also affected by a wide range of other individual factors including domestic situation and property prices. Is there, for example, space and privacy available to allow working from home and are the academic’s research collaborators based locally or elsewhere, requiring virtual interaction by email or videoconference rather than face-to-face?

The profiles below are based on academics currently working in UK and Australian universities. It is clear that these individuals are likely to have very different expectations about their
workplace and very different requirements in terms of accessibility, privacy and interaction with colleagues and students. The challenge when developing academic workplace strategies is to take account of this wide level of individual variability while still achieving organizational goals for efficient, effective and expressive workplaces that support the academic and business activities of the institution.

Example academic profiles.

Profile 1. Lecturer who doesn’t have a home office or computer at home because he prefers to work at the university. The office is used extensively to read, write papers, mark essays and meet with students and colleagues.

Profile 2. Lecturer who lives 200 miles from the university but has a flat nearby. Works at home on Monday and then drives to the university on Monday evening. Works at the university from Tuesday to Thursday with the primary activity during this time being meetings in her assigned office. The office is also used for administrative tasks and to store books but most concentrated tasks are done at home on Mondays and Fridays.

Profile 3. Lecturer who is also research director of a major international research project. His office is used for concentrated working, emails, web based video conferencing and for meeting with individual students but most of his time when he is at the university is spent with the members of his research team in the research laboratory. One week in four he is based in the facilities of one of the other research partners.

Profile 4. Lecturer who lives near the university but prefers to work from home. His office at the university is generally only used for student office hours and as a base when he has to be in the Department to attend meetings. Research is either carried out at the university library or other national collections or at home.

FIGURE FIVE. FOUR EXAMPLES OF ACADEMIC WORK PATTERNS. SOURCE: DEGW 2006

DEVELOPING APPROPRIATE WORKPLACE SOLUTIONS

Developing an appropriate workplace strategy for an academic department or group of Departments must be a collaborative process involving representatives from across the Departments involved, lead by a project champion responsible for the delivery of the project. Consultation must take place within the business context of what is achievable and affordable within the building concerned.

Workplace solutions can be broadly categorized as:
- individual cellular office
- combi office (smaller owned enclosed spaces)
- group room
- Shared work area or open plan.

Workplace solutions are likely to be hybrid, combining elements of some or all of these workplace types in a single area, allowing departments to provide a rich ‘landscape’ of work settings to meet the needs of everyone in the Department.
**Individual Cellular Offices.**

Some universities may feel that it is most appropriate to continue to provide individual offices for academic staff.

Stanford University, for example, provides a range of space standards and room layouts for each level of seniority. Deans and Vice presidents, for example, are entitled to 240 sqft (approx. 24 sqm) which includes a desk, bookshelves and a meeting table for six people. Full-time academic staff are allocated approximately 160 sqft offices (approx. 16 sqm) which includes a desk and a meeting area for two to three people.

Visiting scholars, visiting faculty and research associates are generally assigned shared office space with two individuals housed in one 160 sqft office (approx. 16 sqm) or they may be given 80sqft (approx. 8 sqm) cubicles in an open plan layout. The Guidelines also note that "cubicles are the exception rather than the norm at Stanford, but they are successfully used in a range of office environments and we expect to see more of them in use at Stanford over time."

Cubicles typically consist of an individual desk surrounded on three sides by partitions that can vary greatly in height from just above the height of the desk to almost the full height of the room. The Stanford guidelines note that cubicle environments can have the benefit of being more open, airy and light, and can make more efficient use of space. Such environments are particularly conducive to team-oriented office groupings Cubicle environments work best when they contain adequate numbers of conference and small group meetings spaces, for confidential conversations and/or group tasks.

Some space efficiencies can still be achieved by creating open plan administrative areas and by moving towards the use of smaller, standard sized offices rather than offices based on seniority within the Department. An individual office size of 9 sqm has been used as the basic module by a number of institutions.

**Combi offices**

Combi offices were initially developed in Scandinavia in the 1970s. The combi principle gives people the privacy of their own space: wider but still highly specialised areas emerge off the individual cells for the small specialised group; opening from this group of spaces is the more public realm of the organisation in general, its internal streets and the gathering places like the restaurant.

The principle is that folk should have a wide range of places in which to think and work, that the organisation will get the most out of its employees if they are given a congenial and varied workplace and there is a great deal to be gained in encouraging casual social contacts between them.

Combi offices are generally smaller than typical individual offices with 6sqm - 9sqm being typical. The individual spaces are designed to be highly connected to the surrounding space, often with sliding glazed doors that can open fully so that it is possible to work within the space while still being able to interact with people using the shared facilities. If an individual wants to work on concentrated tasks or take confidential calls the door can be closed.

While the combi offices provide a place of private retreat they are small enough to encourage academics to use the other shared work settings such as comfortable seating or meeting tables provided in adjacent areas. Combi office solutions may require less space than conventional enclosed offices but they may have a higher initial cost because of the amount of enclosure, the ventilation requirements of the enclosed spaces and the need to provide acoustic privacy between the individual spaces.

---

54 Stanford University, n/d, pp. 8 -11
55 Stanford University, n/d, p. 13
56 Miles 1995
Shared work areas
The drive for increased space efficiency or growth pressures within a department often leads to increased sharing of offices - an additional desk is placed within existing offices or a new project is planned using standard two person offices throughout the space, apart from professors and other senior academic staff. As stated previously in this document two person offices have a number of significant disadvantages; in particular the disruption caused by telephone calls or student and staff meetings within the space.

Four to six person offices may provide a more effective shared option allowing flexibility of furniture configuration and the possibility of some provision of alternative work settings within the space. Larger shared rooms may provide more opportunities for additional shared work settings or additional document storage. They may be particularly suitable for research teams working on related projects.

The Freeman Centre at the University of Sussex completed in 2003, integrated two research groups from different locations, environments & cultures. The goal of the project was to support long-term collaborative projects and encourage interactive working methods. The new research centre includes a wide range of shared formal and informal work settings, a café and business lounge and there was a shift from cellular to more open accommodation with a larger proportion of shared space. The implemented scheme provided approximately 9.5sqm per person NOA including ancillary meeting and storage areas.

The workplace concept consists of ‘owned’ homes bases plus team and organisational shared spaces. Students do not have access to staff areas. Tutorials and other meetings with students are either held in bookable small meeting rooms or in the café and informal meeting areas in the

Workplace clubs for mobile academics

In some circumstance it may be possible to create workplaces including non-territorial space, also some times called hot-desking. This may be particularly appropriate for groups who are frequently away from the Department, perhaps supervising students on placement or working predominantly in laboratories, studios or other specialist facilities. In this type of workplace a range of work settings are provided to support the group but spaces are not assigned to individuals who are frequently away form the space. Thus the space may be able to support a larger number of people than the number of actual workstations provided.

In the first example below a 120 sqm NUA space is use to create a centrally located, highly visible and accessible space for the senior management team of a College. The Club-like working environment supports up to 10 people, including a small reception area which is staffed during core hours.
Larger configurations of workplace ‘clubs’ may also be possible. The concept shown below is a 372 sqm club to support a group of up to 50 mobile academics who frequently work from home plus administrative staff.

The Work Club relies on home working being pro-actively supported by it’s academic institution. All settings are shared by the occupants.

Mobile IT and telephony would need to be in place and a programme of change management would ideally need to be carried out prior to and during implementation.

The implementation of this type of shared workplace represents a major cultural shift for most academic departments and considerable involvement of staff in the development of the brief for the space and the support services will be required to make the solution workable.
From the Effective Working Environments case studies described previously in this paper the research team developed five workplace models that they felt would meet the needs of academic and administrative staff with varied work patterns. These workplace models can be described as: studies, quarters, clusters, hubs and clubs.

**Studies**: Small private work rooms to support individualistic work with a central zone used for informal and social interaction, meeting space and common facilities.

**Quarters**: Small group workspace areas for a community of people. The workspace is for a small group of around 5-7 people, and provides a ‘family’ environment with shared private work rooms and quiet retreat areas.

**Clusters**: Open and flexible workspaces areas which encourage an activity based approach to space use and encourages interaction and mix amongst the users of the space. This is likely to consist of semi-open workspaces which area flexible in nature and allows the users to define the use of the space through their occupation and activates.

**Hubs**: open plan workspace which can support collaborative and team based working. Efficient space which allows for a high provision of shared work areas. Efficient planning of hub areas can provide benefits through more shared space and are also likely result in high visibility of occupants and awareness of others.

**Clubs**: a range of work settings are provided for use in an activity based way rather than based on ownership of particular spaces. This may suit mobile staff that are autonomous but benefit from networking with peers and colleagues.

Each of these models was rated by the research team in terms of its ability to provide privacy and to support concentrated individual work, team or group work and informal interaction. The ability to increase densities within the space or to reconfigure the space to support changing requirements as well as relative construction costs were also assessed.

More detailed descriptions and illustrations of each of these models can be found in the Appendix Two of this paper.
Studies score well in terms of the privacy and the support of concentrated working but poorly for the support of team working and informal interaction. Study environments also tend to be inflexible over time and more expensive to construct because of the number of internal walls and the services implications of the divided space.

Quarters support individual, concentrated work in small group areas but are less suitable for team or group working – the spaces are suited more for companionship and informal interaction rather than collaboration. Zoning of the space and the provision of owned, individual work settings makes it more difficult to increase densities or reconfigure the work environment.

Clusters support collaborative working and informal interaction most effectively through the provision of work setting clusters, with individual, concentrated working being best supported in small study enclosures throughout the space. Increased densities can be supported through the use of shared work areas and the introduction of touch-down work settings.

Hubs also support collaborative and team-based working most effectively through work setting clusters and a generous provision of shared work areas and social settings. Good design and the landscaping of the environment are necessary to avoid noise and negative perceptions of ‘traditional’ open plan work environments.

Clubs provide a range of work settings able to support both individual and collaborative working for a more mobile population of academic and administrative staff who are willing to adopt mobile working practices. The predominance of shared work settings makes the environment well suited for handling increased densities or reconfiguration as the occupancy requirements change.
IMPLEMENTING THE NEW WORKPLACE SOLUTION

An important step in the implementation process is the development of a change management strategy for the project, to oversee the social and cultural change process as the organization moves from an ‘old way of working’ to a ‘new way of working’, or at the very least from an old environment to a new environment. Until recently these strategies focused on assisting organizations to deal with change relating to the physical environment and new working patterns resulting from it. Now, as organizations seek to implement hybrid working environments involving both physical elements and the introduction of new systems and technologies, the combined impacts of space, technology and social organizational changes have to be considered.

The authors of the 2003 HEFCE Good Management Practice Project on the Development of a methodology for Systematic Change Management to Enhance Organisational Efficiency and Effectiveness (generally shortened to Effecting Changing in HE) reviewed the change management literature. They concluded that “reading much of the management literature would suggest that change can be a planned and orderly process – if only the right rules and procedures are followed. In reality change, and especially large scale change, defies logical rules and simple management actions. Complexity theory and a view of organisations as complex adaptive systems, attempts to consider some of the realities and arguably provides the best model for change in a HE setting". 57

In chaos and complexity theory, formulated in the 1990s, organizations are typically viewed as complex adaptive systems and effects of change difficult to predict. The emphasis of change interventions is therefore on creating the conditions for beneficial change to occur. 58

As Stacey (1996) puts it:

Most textbooks focus heavily on techniques and procedures for long-term planning, on the needs for visions and missions, on the importance and the means of securing strongly shared cultures, on the equation of success with consensus, consistency, uniformity and order. [However, in complex environments] the real management task is that of coping with and even using unpredictability, clashing counter-cultures, disensus, contention, conflict, and inconsistency. In short the tasks that justifies the existence of all managers has to do with instability, irregularity, difference and disorder. 59

The Effecting Change in HE research team developed a generalized change model based that drew on complexity theory and the tools and processes developed for many of the other approaches as well. 60 The IDEAL model of change management suggests that you start by looking at the external Influences, then make some key Decisions, Enable the change to take place, and support those responsible for Achieving the change. All this requires Leadership. Two additional factors are important at all stages of the process: culture and communication.

---

57 HEFCE 2003, p.27
58 HEFCE 2003, p. 29
59 HEFCE 2003, p.40
60 HEFCE 2003, p. 29
The authors recognize that this is an idealised model of change (hence the name). In reality:

- Change is complex with the various stages in the cycle interrelated. In any change process there needs to be constant reference back and forwards between the different stages in the cycle.
- It is often hard to say where one stage of the cycle ends and another begins.
- Managers are rarely afforded the luxury to sit and plan change in this manner.
- Different people may have different responsibilities for different stages.
- Other activities outside of those directly affected by the change will have an impact – change does not occur in isolation.
- The resources (time, financial, human etc.) are rarely sufficient to allow unfettered application of the cycle.
- Complex changes require alternative perspectives and approaches\(^\text{61}\)

They also noted that it is much easier to effect change if there is already a climate of change (one where change is expected and a natural part of the way in which the organisation works) and if past changes have been broadly positively received. In many areas a climate of change already exists and it can be controlling the pace of change which is important. In others getting any form of change accepted can present a major hurdle. \(^\text{62}\)

Workplace change management can be defined as a structured programme of interventions, activities and communications developed to encourage and support appropriate input and involvement in the design process from staff, as well as facilitate the smooth and natural transition to the associated new working environments and new ways of working. It differs from business process re-engineering in that it importantly focuses on the people aspects of the workplace change, and on the emotional reaction to such changes. This is therefore a more complex and subtle area of change that demands a more empathetic and consultative approach. \(^\text{63}\)

A successful and long-term transition can be achieved only through the active involvement and participation of the people involved in the change. The imposition of change is most likely to be unsuccessful, either given lip service but, ultimately, ignored (often referred to as ‘the pocket veto’) or actively ‘sabotaged’ through (covert) actions that actively discourage the success of the project.

It is necessary to determine the appropriate level of user involvement and to establish at what point in the life of the workplace project it is most appropriate to utilize which change management intervention and communication tool. There are a number of diagnostic exercises that can help with this decision process. It can, for example, be extremely useful to understand who within the organization has influence and whether they support the project cause. There is a need, perhaps, in the initial stages of the change process to concentrate on those people who have influence, but may not be enthusiastic or positive about the objectives of the project. \(^\text{64}\)

A stakeholder map can also be very useful in the early stages of the communication programme as this will help focus on which individuals and groups require what type of information and what their main source of interest is. In essence, this is about creating a structured chart of how best to communicate what to whom, how and when.

\(^{61}\) HEFCE 2003, pp. 30 - 31
\(^{62}\) HEFCE 2003, p. 102
\(^{63}\) Harrison et al 2004, p. 96
\(^{64}\) Harrison et al 2004, p. 97
Ensuring that people feel they have the information they need at the time they need it is only part of the process of creating a workplace and culture that has a real sense of ownership. Participation, collaboration and consultation form key planks of the workplace change programme.

Where there are user groups within a change programme, it is also necessary to carefully define the exact nature of their function. Are the user groups decision-making bodies or are they consultative groups that will provide a ‘temperature test’ of the views of the organization to the decision makers? Are the groups there to review options or is their responsibility to create them?

The role of the user groups needs to be made clear at the outset to both manage the expectations of the groups and therefore ensure their ongoing enthusiasm, sincerity and continued participation. It is all too easy to open the door to consultation, viewpoints and opinions, but people will understandably expect feedback from this, and to deliver nothing in return is one of the fastest ways of creating cynicism, frustration and even aggression.

This understanding is also crucial in the post implementation phase of a new workspace and working practices. The expectations of people will have been raised substantially though a collaborative and consultative project approach will have listened to their views and seen associated recommendations implemented. The infrastructure support services now in place for the new business environment and culture will themselves have to match their provision with the renewed expectation.

It is also important to realize that there are different approaches to change and that these approaches may be appropriate at different stages of a workplace change project, or may be appropriate for different staff groups within the university. The figure below describes four different approaches to change that may be applicable to workplace change projects.

<table>
<thead>
<tr>
<th>Exploring</th>
<th>Creating</th>
<th>Building</th>
<th>Investigating</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Embracing discovery</strong></td>
<td><strong>Embracing the vision</strong></td>
<td><strong>Embracing the process</strong></td>
<td><strong>Embracing the evidence</strong></td>
</tr>
<tr>
<td>• Shared risk taking</td>
<td>• Importance of co-creation,</td>
<td>• Systematic or modular approach to change</td>
<td>• Use of precedent to justify the change</td>
</tr>
<tr>
<td>• Revolutionary rather than evolutionary change</td>
<td>• Celebration of journey as much as the destination</td>
<td>• Co-operation and interaction between sub-projects</td>
<td>• Wide consultation</td>
</tr>
<tr>
<td>• Prepared for failure/mistakes</td>
<td>• Hands-on involvement in process</td>
<td>• Risk assessments before the change begins</td>
<td>• Controlled experimentation</td>
</tr>
<tr>
<td></td>
<td>• ‘Emphasis is on the result, clean up the studio later’</td>
<td></td>
<td>• Measurement of results at each stage</td>
</tr>
</tbody>
</table>

**FIGURE TWELVE. APPROACHES TO CHANGE. SOURCE: DEGW, 2008 (A)**
The change management approach developed for a workplace project should reflect the diversity of the stakeholders and should be broad enough to allow everyone in the Department or Faculty concerned to engage in the process in some way.

The diagram below suggests a number of indicative change strategies related to the four approaches to change outlined in the diagram above. The same core change tools of interviews, focus groups, surveys, websites, visits and workplace pilots can be used in different proportions or ways depending on the priorities of a particular project or the degree of cultural change required to adopt new working practices and new spaces.

![Diagram: Indicative Change Strategies]

*FIGURE THIRTEEN. INDICATIVE CHANGE STRATEGIES. SOURCE: DEGW, 2008 (A)*

With the right levels of consultation, collaboration and communication, a real sense of change ownership can be achieved, and this creates a much more successful and long-term implementation. A potentially substantial input to this can be through the experience of a pilot, or trial of the new work environment by parts of the Faculty or Department. This has the benefits of involving people at a very real level piloting all the different elements involved in the project.

It also provides a good opportunity to gather vital information and feedback and to modify and adapt the workplace concept and space to ensure that the final ‘roll-out’ solution is as effective as possible. If the pilot is run successfully this should also help to create internal ‘ambassadors for change’, whose enthusiasm for the project will have an importance that far outweighs that of the project team and sponsors who will be perceived as having a vested interest in getting the change implemented.\(^{65}\)

---

\(^{65}\) Harrison et al 2004, p. 99
The Effective Working Environments in Further and Higher Education project has developed a process and toolkit to support institutions seeking to implement new work environments for academic and/or administrative staff. The ‘Explore It’ process, described in more detail on the project website www.exploreacademicworkplace.com, can be applied at a strategic, institution-wide level or to support an individual workplace or new building project.

FIGURE FOURTEEN. ‘EXPLORE IT’ PROCESS FOR WORKPLACE DESIGN. SOURCE: DEGW, 2008 (B)

The ‘Working Landscape’ Model

- **Hubs**: Hub workspaces are larger open plan work environments to support team working, mentoring and awareness of others, visibility and connectivity.
- **Clusters**: Group-centered workspaces for clusters of staff with common interests or identities. This environment can support collaborative working on various scales.
- **Quarters**: Small private family workspaces for around 6 people. These environments can support the building of relationships and provide companionship and privacy.
- **Studies**: Small private offices to support individual work and private meetings with lounge areas for more informal discussions.
- **Clubs**: Clubs provide a non-territorial workspace to connect with colleagues and peers while working autonomously, enabled by mobile technology and working practices.
- **Innovation Hubs**: Flexible spaces for collaborative working on learning and research activities or other group-based innovative work.
- **Teaching & Learning Spaces**: Generalized or specialized learning spaces, also formal meeting spaces, innovation or event space.
- **Event Spaces**: Event and conference spaces centres at your own or other institutions and commercial conference facilities.
- **Other Sites**: Other learning institutions, academic or commercial partnerships, professional consultancy work or working within the community.
- **Community**: Working in other public or community spaces such as libraries, cafes or arts centres.
- **Home**: Working at home in private study, kitchen table or other areas.
- **Specialist**: Laboratories, studios or other distinct specialist/technical workspace areas.
This framework contains all five workplace models that may be appropriate for different elements of a Department, Faculty or Institution as well as the range of other work environments within the institution or within the surrounding community that make up the total working landscape for academic and administrative staff in Higher Education.

CONCLUSIONS.

This paper has reviewed the literature on the academic workplace and has explored a number of case UK case studies of innovative working environments in academic and administrative work areas. While the case studies were generally found to work well it is clear that there are a number of key issues that must be thought through very carefully for each project if it is to succeed in providing a high quality, effective workplace that supports staff work activities and also provides a high quality experience for students and other workplace visitors. The provision of space for individual work is a critical issue for academic staff and, if staff do not have individual enclosed offices, it is imperative that there are sufficient other quiet spaces nearby for staff to move to if they need to concentrate or hold confidential meetings with students or other colleagues.

The open workplaces have been successful in encouraging interaction and collaboration and this was felt by many of the people to be a great benefit. However this openness also brings with it the potential for disruption through noise and unplanned/ unwanted meetings. Zoning of the space to separate noisy activities from quiet ones and the development of shared protocols for behaviours in the space can avoid many of the potential problems of open plan spaces. Indeed several of the case studies had problems in the opposite direction - they were felt to be too quiet, to the extent that any conversation in the space was felt to be potentially disruptive. In these cases the choice of materials in the work area and the absence of background noise from mechanical ventilation systems contributed to the situation.

Access to staff by students is a key issue that should be explored as part of any academic workplace project. Continued open door access by students was favoured by most staff but was difficult to achieve in open plan areas without increased disruption to other staff. Two of the case studies did manage this through the adoption of use protocols that created ‘invisible walls’ between work and meeting areas that they did not cross without reason. Once again the provision of both enclosed and informal open meeting areas near the workplace will allow both staff and students to select appropriate meeting environments for the type of interaction they want to have.

The case studies from the project have clearly shown that it is possible to create more open work environments that both support institutional requirements for increased space efficiency and provide work environments that can support both individual and collaborative working as well as the requirements for student pastoral care. They also demonstrated the importance of high quality design and furniture and appropriate technology to support the adaptability and flexibility needed to make these work environments work effectively.

There are some clear lessons to be learned from the case studies in terms of the messages and values which the workspace can convey to its occupants. Spatial responses which are seen to be more practicable or effective in approach can be less successful in implementation if the response fails to reflect the ethos of the occupants and the values of staff to the institution. At those workspaces where people are most satisfied and feel most effective, they recognise and acknowledge that the design of the workplace reflects the positive value that the institution or organisation places on them.
This relationship is only partly attributable to the design, space planning and other practical issues of the functionality of the space. The workplace is a mirror to the values of the organisation and in effect these people are not saying “the design of the space makes me feel valued” but rather “I feel valued by my organisation / institution and the design of the environment is a reflection of that”. If it remains as critical to the success of the learning institutions to attract and retain staff it is vital that institutions develop their understanding of the values and messages that will achieve success in the workplace.

The case studies have also very clearly demonstrated the need for active consultation and engagement in the development of the workplace strategy for the Department or institution. The models and tools provided in the ‘Explore It’ toolkit created by this research project provide a framework within which institutions can explore options to respond to the issues within a spatial framework which should be practically achievable for many institutions. It is hoped that this process will allow organisations and users to articulate the important messages they need to hear and to encourage a ‘user focused’ approach to creating innovative, enjoyable workplaces.

The five workplace models described in the Effective Working Environments study provide a range of workplace options that provide varying amounts of private and collaborative work space within a Departmental area to support different work patterns. These models also vary considerably in terms of their construction costs and their ability to support higher densities of occupation over time.

An appropriate workplace solution should be developed based on an in-depth understanding of the work activities of the people involved in the workplace projects and a change management strategy should be developed to ensure that their views are heard and that, wherever possible, are incorporated into the workplace design.

It is important to note that workplace strategies are developed within a specific organizational and financial context. Increasing financial constraints on many institutions means that difficult decisions about the future use of their estate will have to be made if the institution is to remain financially viable and provide a high quality learning experience for students, resulting in the rationalization of the campus including the possible disposal of buildings and intensification of space use in others.

The implementation of new ways of working for academic and administrative staff may result in significant space savings for the HEI and, if implemented correctly, still provide effective work environments to support the teaching, research and administrative tasks being undertaken and provide pleasant and welcoming environments for staff and students alike.
References

ASID


DEGW


DEGW

Changing Boundaries, NCSL, Nottingham, 2008 (a)

DEGW

Effective Working Environments in Further and Higher Education, project website downloadable resources., 2008 (b)

Fazacherley, A.


Fink, I.


Harrison, A. and Dugdale, S.


Harrison, A. et al


HEFCE

Effecting Change in HE. Effecting change. luton.ac.uk/approaches_to_change/. 2003

HEFCE

Designing Spaces for Effective Learning: a guide to 21st century learning space design. HEFCE, 2006

Miles, H.


Oblinger, D.


Parkin, J. et al

Research Environments for Higher Education, Department of Civil and Building Engineering and Human Sciences, Loughborough University, 2005

Price, I and Fortune, J.

Open plan and academe: pre and post hoc conversations. Unpublished research paper, Facilities management Graduate Centre, Sheffield Hallam University, 2008.

SFC

Spaces for learning: a review of learning spaces in further and higher education, SFC, 2006

SMG

UK Higher Education Space Management Project: Drivers of the size of the HE Estate, Space Management Group, 2005 (a)

SMG

UK Higher Education Space Management Project: The cost of space report, Space Management Group, 2005 ((b)
SMG  UK Higher Education Space Management Project: Review of Practice report, Space Management Group, 2005 (c)

SMG  UK Higher Education Space Management Project: Promoting space efficiency in building design, Space Management Group, 2006 (a)

SMG  UK Higher Education Space Management Project: Impact on space of future changes in higher education, Space Management Group, 2006 (b)

Stanford University  Stanford University Space Planning Guidelines, Stanford University, California. n/d.


Appendix One.

CASE STUDIES FROM THE EFFECTIVE WORKING ENVIRONMENTS IN FURTHER AND HIGHER EDUCATION STUDY 2008.
University of Dundee, Queen Mother Building

This Queen Mother Building at the University of Dundee is a new £6.25 million three-storey building for the School of Computing completed in 2005. The School of Computing is an interdisciplinary research active school with the four main research strands: interactive systems design, assistive and healthcare technologies, space technology centre & computational systems. The Head of School described a "culture of creativity" that surrounds this research, encouraging growth and discovery of new ideas and from diverse sources. As such the building was designed to encourage mix between diverse users with minimal boundaries: staff, students of all ages, visitors, research partners, consultants and members of the community openly encouraged into this friendly building which challenges the traditional approach to learning and working spaces.

The architectural form of the building evolved from a simple bubble diagram of circular ‘pods’ of open working and learning spaces grouped around a central service area. On the ground floor, of the building one side is open computer labs interspersed with informal breakout spaces and on the other side are more public spaces, a lecture theatre, seminar rooms and a vending area, all off a high atrium space which they refer to as the 'street'.

The workspace upstairs follows the same model with open pods for groups of academic and research staff interspersed with lecturer’s offices and bound together by open circulation routes. The concept was to create flexible open plan workspaces which would be visible and easily accessible and yet sheltered and human scale. The open research labs or ‘clusters’ accommodate up to 9 staff and with reasonable occupancy the space was quiet. Many of the pods have their own informal meeting areas and there are a number of shared meeting rooms and offices. The workspace areas are furnished in a basic and functional way with higher specification in public and learning areas. There are a number of strategically places printers and mailboxes along the circulation to create casual interaction whilst going about day to day work.

There is 24 hour access to the building with swipe card entry to workspace out with core teaching hours. The open research labs were provided with additional security, a mesh which could close off the research pods at night to secure research materials if required. Even with open workspace areas for many staff, they were keen to maintain a consciously open door policy to retain informal relationships between staff and students. The result is a combination of open work areas and open student access to the work areas reflecting a high degree of trust.
Edinburgh’s Telford College

This project involved the construction of a new campus in the city’s Waterfront development. Completed in 2006 this college provides accommodation for over 20,000 students and 600 staff who had previously been dispersed over 4 locations with an overall vision for the campus to create “a 30,000 sqm village under one roof” all sharing resources and learning experiences. The focus campus design was to make learning more fun, accessible and inclusive, blurring boundaries between formal teaching and social learning. The collegiality of the concept carries though to the design of the workspace which would become a more social and open plan community of staff with shared resources for all mobile working practices:

In terms of workspace the project comprises of a 3,000 sqm an open plan wireless working community. Around 80% of staff at Telford are nomadic (have no assigned desk) and these staff are a mixture of full time and part time staff, both teaching and support. The remaining 20% have assigned desks, with ownership based upon a functional ‘need’ for being based in a fixed location, rather than job title of hierarchy. At Telford College even the Principal ‘hot desks’ leading by example and describing the project as a ‘huge change and huge opportunity’. By taking these steps to get staff “out of silos and away from their comfort zones” it was hoped that this would encourage collaborative working between subject areas and a more collegiate culture.

The ranges of work settings provided include, flexible desks, owned desks, a large informal social and collaborative space and private meeting rooms. The workspace is open with very low levels of enclosure and glazed frontages, facilitating immediate and easy access to colleagues with high levels of visibility. The spaces for interaction between staff are both formal and informal, although the most popular and extensive are the large informal social spaces provided on both levels which are vibrant workspaces used for working, meetings and social activities through out the day. Tea and coffee facilities are provided in these areas, which are furnished in a more informal way.

Technology is pervasive and mobile, with working enabled by wireless across whole campus and workspace with VOIP telephony and mobile handsets, PDA’s and laptops are available for use by staff on demand. Resources are centrally assigned and shared with the provision of centralised printing & copying facilities, stationary storage and a concierge facility to help with management of space. Personal storage provision is low, limited to 2 linear meters per person of personal lockable storage, and working in proximity to that storage is not always be possible.

The workspace areas are ‘staff only’ and are closed to students. There is a buffer zone at the entrance to the workspace supported by a front desk service for arranging student staff meetings.

The spaces for interaction between staff and students are formal with private rooms for one to one discussion between staff and students and although there are informal spaces provided in other areas of the building and used for staff student meetings.

Image 3: informal meeting hub, downstairs
Image 4: a hot desking work space
Queen Margaret University, Edinburgh

This project involved the construction of new purpose build campus at Craighall, relocating staff and students from accommodation at 3 other sites. Completed in 2007 the new campus provides accommodation for over 420 staff and 4000 students. It was the first new university campus to be built in Scotland for over 30 years and has become an exemplar project for the sector in terms of its environmental sustainability and overall approach to space usage. The University comprises of 4 schools; School of Health Sciences, School of Social Sciences, Media and Communication, School of Business and Enterprise and School of Drama and Creative Industries plus a number of research centres. The vision for this project was to achieve integration of staff and students, to promote interdisciplinary curriculum and research, support the growing commercialisation of a small dynamic institution and to provide a smaller and more flexible solution which would accommodate growth & change. The main Campus building was conceived as three distinct areas; flexible and specialist teaching spaces, secure working spaces (academic building) and at the heart of the building a large open learning resource area at the base of an atrium.

The workspace is primarily located in the ‘academic building’ providing space for 420 staff including senior management, academic staff, support staff and researchers, plus up to 80 post graduate research students. This provides owned ‘open plan’ settings for almost all staff; teaching, research and support staff, with smaller desks for PhD students. There are owned offices for a small group of senior management and small number of staff are located in other areas of the campus buildings. There are bookable work rooms and booths (around 1 room per 10 staff overall) for periods of quiet work and private meeting rooms for internal or visitor meetings interspersed with informal social / breakout areas. The workspace areas are ‘staff only’ and are closed to students. Access is managed through the School Office. Staff student meeting areas are loosely defined, and although a small number of private rooms are available, staff are encouraged to hold meetings with students in a range of open settings within the café or library, or to make use of formal teaching rooms as an alternative to private meeting rooms. Resources, such as copy & print areas and reference storage are centralised as is the School administration.

In the workspace areas staff sit in departments clustered around the ‘social spaces’. The working landscape is generally low level although screening and storage provided some shelter when seated and low to mid level storage units divide the bays of open space. The noise levels in the academic open work areas are extremely low (library like) to and in the absence of background noise informal discussion in open plan is limited. Staff are encouraged to use the informal and social space for discussion to respect others need for quiet in the workspace. The workspace is light and airy, the planning is spacious and the density comfortable. The quality of the furniture and finish is modern and functional although at the time of the visit the building and workspace areas are still being completed in terms of fittings and fixtures and other ‘finishing touches’. The technology is pervasive with the use of thin client technology, the use of wireless and VOIP although mobility is limited as laptops, PDA’s and mobile telephony are not widely used.
University of Strathclyde, Law School (Lord Hope Building)

This project involved the refurbishment 1200 sqm of space on a single floor of the Lord Hope building formerly used as a store into a workspace ‘The Law School’, a large department within the Faculty of Law and Arts. The School has a strong income generating arm and a good reputation in both teaching and research and this project presented an opportunity to build a facility which would help to maintain their professional reputation by providing a “state of the art workspace which is aligned with corporate legal offices” The project involved the collocation of 2 arms of the department and would catalyze organisational change, integrating two working cultures and harmonizing working practices and delivery. The vision for the project was to support this integration through a more open and collegiate environment and collaborative working practices, in particular for research benefits. The workspace was to become a showcase for the department fitting of the reputation and values which would help them attract high quality staff.

The space provides a range of settings including glass fronted offices for academic staff and open plan settings for part time academic staff, administrators, support staff and research students. There is a hierarchy of settings with some larger sheltered (but open) desks with high walls between providing a good area for personal workspace and displaying of associated work materials, through to more conventionally sized and grouped ‘open plan’ settings clustered in pairs. There are 2 large formal meeting rooms and a number of small capsule shaped work booths, referred to by staff as the ‘pods’. Both the offices and the meeting rooms have completely glazed frontages and allowing high visibility in and between staff. Informal meeting space is provided in pockets throughout the open areas as well as in a larger high quality ‘social hub’. This space was felt to be of vital importance to the whole concept and is used for staff breaks and informal meetings, promoting good social and professional interaction and supporting more collegiality within the group. There is a front desk function for students, central teaching rooms and the Law Clinic, a facility which provides free legal advice and support to the local community. In total the workspace accommodates 26 Academic staff, 5 Admin staff, 10 office support staff and up to a dozen research students in a spacious and comfortable workspace with good work surface areas and ample storage. The space and finish is high quality and professional which gives a positive impression to students, colleagues and visitors.

Technology is pervasive and mobile, but the equipment is less so: wireless is used, but not with the extensive laptop / PDA usage and the telephony is fixed. There are some shared resources such as copiers and printers but there is a culture of ownership by groups, reinforced by 3 separate open plan areas. The storage and reference remains largely paper based and provision for paper storage is high with the staff remaining ‘wedded to books’, although there has been a slight shift towards less paper and more electronic reference. The workspace areas are staff only and are closed to students except when accompanied into the space for tutorials or meetings with staff which are held in the offices or meeting rooms. There is a front desk at the entrance with support staff as intermediaries, handling course queries as well as co-coordinating appointments.
The project involved the extension and refurbishment of an existing 2 storey building accommodating the department of Civil & Building Engineering. The project department outgrowing their accommodation in which they have been housed the department since the 1970s a period of significant growth and success in both teaching and research. The growth had resulted in a displacement of staff with dispersed working locations and untapped synergies within a department keen to grow inter-professional research practice in research and teaching. Having established that the current environment was felt to be inhibiting casual and planned interaction between staff, it was key to their vision for the refurbished and extended workspace to encourage greater innovation and collaboration, whilst continuing to support individual scholarship and pastoral care. This opportunity for collaboration was seen as particularly vital to the research activities and continued success and reputation of the department in this regard.

The project involved the refurbishment of one floor of the existing building into 1000sqm open plan ‘research hub’ plus a 1760sqm 3 storey new build of academic office accommodation. The primary focus of the project was the creation of a new work environment which was better suited to “modern academic working practices” and would address issues of workspace shortage and dispersed locations and to get people working collaboratively and in a more enjoyable environment. Each academic office floor has 20 small offices or ‘studies’ on the perimeter with open informal common space and services in the centre where the atrium links the new build links to the refurbished building. The small offices can accommodate discussion between 2 or 3 people, but staff are encourages to make use of the comfortable informal spaces outside of the offices for many of their discussions. The ‘academic’ areas are open access for students although this is managed by protocols, and this supports the staff student interface allowing them to continue to operate a more or less open door approach but with lessened student interruptions.

The ‘research hub’ is open plan with low screens and clusters of owned workstations for contract researchers, while the PhD’s and engineering doctorate students’ ‘hot desk’ with a choice of larger desks, carrels and touchdown areas. This is an open and low level working landscape with minimal screens and barriers. The planning of the open plan space is generous as with the ‘academic’ side of the building there are ample informal meeting areas throughout the space and formal meeting rooms on each floor. There is a good allocation of personal storage across all settings whether open or enclosed. This was viewed as a critical factor in continuing to support academic working practices. The resource model is predominantly shared in the provision of centralised copy and print facilities, and tea and coffee points.

In total this provides a workspace for 58 academic teaching staff, 11 support staff, 30 to 40 contract researchers and 100 PhD’s and engineering doctorate students. The overall environment is pleasant and well designed, a light and airy space, with spacious comfortable planning and high quality finish, specification and furniture.
Case Study, Sheffield Hallam University, Faculty of Health and Wellbeing

This project involved the refurbishment and the extension of an existing building to provide a central hub of teaching accommodation which in turn would support over 7000 students and around 250 of the 600 staff based at the Faculty of Health and Wellbeing. The briefing for this building commenced in response to the growing success of the then School of Health had been experiencing a period of sustained growth in staff and student numbers, and later restructuring to a faculty model during the briefing process brought the School of Social Care into the staff body requiring further integration and change. In this building there is a strong focus on learning spaces to support their ethos, centred on creating graduates who are ‘fit for purpose’ and ready to work as professionals in the health and social care industries. They develop these skills through hands on learning approach accessing facilities including clinical suites, ward areas, operating theatres, virtual veins, digital x-ray suites and a midwifery room with birthing mannequin. There are 253 of the faculty staff based at this building, a mixture of academics, researchers, technicians and administrators.

In terms of the workspaces areas at Health and Wellbeing the focus was on supporting the interdisciplinary practice of the Faculty by providing flexible and adaptable workspaces which could accommodate the dynamic changes that occur in this sector. The approach taken was to ‘engineer’ inter disciplinary collaboration by creating group offices of ‘inter professional’ teams. The result is model based around a range of small group of offices for staff, configured in clusters of 3, 5 and 7, which facilitate and nurture these ‘inter professional’ relationships within small family units. Each office is lockable and storage is provided within the office rooms for that group of staff. Staff who are based at the facility less than 2 days a week ‘hot desk’. Although the staff are based in group offices there is not high visibility between the workspaces with central corridors and 3 distinct legs or workspace causing many other barriers to connections between staff, the environment is heavily reliant on the wide stairwell to connect staff. There are some small kitchens near to the working areas but they poorly used with staff preferring to use café space for breaks or social meetings. There are a limited number of individual offices for supervisory managers and senior management staff.

The workspace areas are secure with finger pad security and are inaccessible to students which they hoped would provide a work environment which would be relaxed and quiet and through lessened student interruption promote more collegiality between staff. Student meetings now take place in informal settings, wide open stairwells with informal meeting and breakout areas and the central café space. Private meeting or confidential tutoring continues to be supported through a number of book-able meeting spaces which are also used for staff meetings. Student contact is managed through central administration with a front desk area on the entrance level. This front desk services for students (one stop shop) is supported by a back of house provision for administrative and student support for the whole faculty based in 2 larger ‘open plan’ work areas with centralised filing in faculty office areas providing an opportunity to improve the service for students through centralised support and improved team working across the business services.

Image 11: informal meeting space  Image 12: academic office
University of Abertay, White Space

This case study is on the working environment provided at ‘White Space’ at the University of Abertay in Dundee, completed and opened in 2007. The project involved the refurbishment of a large double height space formerly used as engineering labs into a new facility for working and learning in a ‘real life’ setting. The workspace accommodates the Division of Computer Arts and Media as well as a number of other related interests from the learning and commercial sector and draws together Computer Arts students, PhD students, and lecturers, together with business people, broadcasters and artists, in-house graphics and digital media teams. The University has an emerging philosophy for teaching, learning and research which focuses on the added value that can be gained through interdisciplinary working. The priority for this facility was to create an environment which fosters the exchange of knowledge and ideas between diverse disciplines. The facility incorporates state of the art facilities including a TV/Virtual Reality Studio Work space, audio studio and associated edit gallery and a video conference suite. White Space was described as a ‘real life’ working environment which supports situated learning by providing a much more realistic experience of project work and the industry thereby building the confidence, skills and experiences of their students growing into more successful graduates.

White spaces are a large open plan space, which provides working areas for staff, students and commercial users, including a business incubator for MSc entrepreneurship students and a small team of staff focused on commercialisation and knowledge transfer activities. The workstation areas are in proximity to formal and informal teaching settings within the space, which are used for individual and group learning activities, tutorials and crits. Initially there were no formal divides between the staff and student workspace areas although over time there has been a gradual accumulation of banners, flags and furniture items which re-enforce a territorial threshold of the staff work areas. In this area ‘back of house’ the workstations are spaciously planned with low screening and a good provision of storage near to the desks the desks are owned and protocols about space use and tidiness are more relaxed.

Within the open plan spaces there is a generous provision of informal meeting spaces which are used for all aspects of working and learning in a more informal and relaxed setting. None of the whitespace meeting areas are bookable by any formal method, allowing use to be determined by the occupants throughout the day. Staff and student meetings are held in these areas as well are meetings with external visitors, and tutorials, peer to peer or student to staff. There is one private meeting room provided in a mezzanine area of the workspace. The only working area which is private is the multi occupant research room which provides a base for a number of researchers again across mixed disciplines related to White Space activities and interests. This room is secure and quiet and has private meeting space meeting room associated with it. This environment is vibrant and buzzy, with a continual hub of activity generated by learning and teaching activities, conversations and the comings and goings of the users. Whitespace also extends a welcome to others by providing its own ‘front door’ which remains open not only to users from the University, but to members of the public, to ensure that mix between disciplines and other interests in sustained. Security within the space has been addresses through CCTV.
Appendix Two: Workplace models

Reflecting the exploratory nature of the research and toolkit we have provided some ‘models’ or conceptual representations of workspaces. The models provide a structure or ‘straw man’ to use to facilitate discussions on the opportunities for the workspace. As conceptual models, they are designed to provoke discussion not determine solutions.

Model 1: Studies

The Studies Model is one which is focused on supporting individual work which is predominantly concentrated in nature, whilst responding to drivers to increase knowledge sharing by providing a more collaborative informal meeting space area.

**Concept:** Small private work rooms to support individual focused work with a central zone used for informal and social interaction, meeting space and common facilities.

**Scenario:** Private studies are owned by the majority of staff in this model with a lesser number of team based staff located in open plan clusters. Student or visitor access to space governed by protocols

**Benefits:** Good for supporting individual concentrated work, supports high levels of privacy. Central space outside of offices can increase informal and social interaction, which may help support knowledge sharing

**Challenges:** Poor for team working and has limitations in terms of flexibility and opportunities to increase density in response to growth.

**Watch points:** Challenges in achieving overall density targets may result in loss of some common informal meeting areas, which could result in ‘no gain’ change in terms of collaborative working or working environment
**Model 2: Quarters**

The Quarters model can support individual work in a familial group setting. The difference between a group model and a familial model is that the family unit is designed for collocation of individuals for companionship and interaction, rather than for collaborative or group work.

**Concept:** Familial workspace areas for a small groups of around 4-7 people, these provide a family environment with house rules, identity and shared use of private work rooms, retreat areas or other ‘family’ spaces.

**Scenario:** In this model a family of people work together in group rooms which are private, secure and owned. The ‘family’ co-habit the space, and share use its facilities. When they want to interact socially with a wider group they come out of their ‘Quarters’ unit into a central ‘Hall’ area.

**Benefits:** Familial scale allows for development of house rules within the group for managing noise. Can be beneficial for team or cross disciplinary groups in promoting interaction and knowledge sharing within group.

**Challenges:** Shared spaces in the family units may become colonised or poorly managed. Potential for ‘cliques’ to develop. Quiet rooms require mobile technology and telephony to be fully effective.

**Watch points:** While common ‘hall’ space is important for wider mix, careful planning, design and structure would be required to sustain interest in use and to stimulate interaction.
**Model 3: Clusters**

The Clusters Model is about creating semi open, flexible workspaces which support collaborative working between small to medium sized groups of staff and encourages interaction and mix amongst the users of the space, staff, students and visitors.

**Concept:** Clusters are flexible group work spaces for teams of 6 to 12 people who have common work interests and identity combined with generous circulation and gathering space, of benefit for interaction within and between groups.

**Scenario:** groups of staff work within semi open-plan pods of workspace and share quiet rooms with adjacent groups. Potential to achieve balance of interaction and privacy: doors open encourages mix while doors closed enables security out of hours or privacy at key times.

**Benefits:** Good for growing a more collegiate culture or collaborative working practices. A generous foyer area and ‘open doors’ will encourage ad-hoc interaction and accommodate growth and change.

**Challenges:** Less defined public / private threshold may result in more interaction but also more noise or interruption. Closed doors could also present challenges (see Quarters)

**Watch points:** requires IT and telephony to support mobile working. Open space alone can not facilitate collaborative working.
**Model 4: Hub**

The Hub environment is an open plan work space with a generous provision of shared work areas, collaborative and social settings. The open nature and high levels of visibility would suit groups who would like to promote collaborative working or team based activities.

**Concept:** Hub workspace is an open plan workspace which can support collaborative and team based working. For teams of 12 and upwards with high emphasis on providing a range of work spaces to support collaborative work.

**Scenario:** all staff in this model are based in an open plan work space with high visibility and awareness of others. They would be able to access a shared meeting and quiet spaces to support a range of work activities.

**Benefits:** Good for supporting collaborative or team based working practices which are communicative in nature. Flexibility to adapt to team groupings enabled by larger scale of space.

**Challenges:** Noise in open work areas can be challenging for those involved in focused work. Large open plan environments can be perceived negatively and require careful design to ‘landscape’ space, to break down the scale and to reflect identity.

**Watch points:** more open workspaces require more ‘design’ to achieve successful outcome. Use design of space and quality of finish to reflect value. IT and telephony to support mobile working.
Model 5: Club

The Workspace Club Model provides a range of work settings for use in an activity based way. It can therefore respond to the often conflicting desire to support individual concentrated work and increase knowledge sharing and collaborative working practices. It achieves this though offering a choice about where to work.

**Concept:** The Club Model provides a range of work settings in a non territorial environment. The club may be public / invited access or private to its community of users.

**Scenario:** Within this model some staff would be ‘nomadic’, choosing a workspace to suit their activities. Others would be ‘residents’ with owned workstations. There are a wide range of spaces to interact and network with other staff in the club, and a choice of working in more public or private areas.

**Benefits:** Good for mobile staff who are often in other work locations. Can support a disparate community or network of people who can to come together to share knowledge. Efficient use of space for mobile staff.

**Challenges:** Suitability of the model is dependant on higher mobility and autonomy. Space requires ongoing management. Access to storage of personal files requires consideration.

**Watch points:** Club workspaces are successful as an element of the overall landscape. Gains in space efficiency can be offset by an investment in change, IT, management of the space, and ‘high value’ investment in quality of space.