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OPEN PLAN AND ACADEME: PRE- AND POST-HOC CONVERSATIONS

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ABSTRACT

There now exists a strong body of evidence that creative workplaces can, in certain circumstances, exert beneficial influences on organisational cultures and outputs. Academia tends to resist such spaces and faculty buildings. The reasons are explored but the reactions of staff are not found to be different from those reported in the literature on general creative spaces. The success or failure of team oriented workspaces is in large part a socially constructed perception influenced by the manner of implementation and management. As elsewhere new workplaces are about new conversations. The cases studied lead to a model of the tensions inherent in workplace redesign.

KEYWORDS: workplaces, academia, change, case study

INTRODUCTION

The term ‘open-plan’ covers a considerable range of workplace designs from the rectilinear grids of high walled ‘Dilbert’ cubicles to a variety of more creative, flexible spaces. There are cases where the latter at least 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. Other studies report the opposite; increased stress and turnover and less saving of space than anticipated as utilization efficiency deteriorates. (references below). For many office based workers in the UK the *'State Of The Office'* (Nathan and Doyle, 2002) remains poor. The potential contribution to business outcomes is not appreciated by the management concerned. People simply settle into their workplace. Most office buildings remain inefficiently occupied; at a direct cost to the economy of several billion pounds (Bootle and Kalyan, 2002).

Bootle and Kalyan contrasted average occupation densities of 15 m² or more Net Internal Area² (NIA) per full time staff member (FTE) working from an office with the upper

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quartile of UK corporate offices. Those achieve densities of 10 to 12.5 m² per FTE; a figure which unpublished data held by FMGC suggest is conservative even in head office environments. Equivalent data in university environments are harder to come by. The sector as a whole suffers from the prevailing FM, and property supply industry, emphasis on measuring cost per unit area of space rather than seeking evidence of effectiveness and outputs. Current research in FMGC (Matzdorf and Price, in progress) is seeking to overcome this barrier by applying Lean Asset™ (Price, 2007) to benchmarking comparable departments. The concept derives from an argument that businesses of various types need to consider what is produced from the space they utilise rather than simply what is consumed to provide that space. Occupation densities and user satisfaction provide such measures (Pinder and Price, 2005) and universities or particular departments can also be compared on the income they generate per unit area of NIA³. Preliminary data suggest that even Business Schools, which tend to earn higher incomes per m² than more space consuming subject areas do not achieve overall occupation efficiencies approaching those of the best corporate or governmental office buildings. To date 20m² per FTE⁴ is a good relative figure. At least part of the explanation is likely to result from the persistence in academic departments with cellular office designs and a high proportion of individual offices.

The current study sets out to examine why that relative inefficiency might exist and to see whether it is inevitable, or indeed justifiable. We begin by examining the general literature on workplace designs and productivity then summarise otherwise unpublished research in HE environments drawn from dissertations by MBA students working in FM at various universities. We then test examples of more innovative space use in academic and non academic environments within one institution, Sheffield Hallam University (SHU).

The study was commissioned by the university's own Facilities Directorate and was intended to inform the future development of space management practice within the institution. It was however a condition of the study that it be conducted with due academic independence and rigour and be submitted for publication via peer review. The university has achieved a reputation within the sector for efficient space utilisation (Anon, 2006). Research into undergraduates' choice of where to study (Price et al. 2004) suggests factors related to SHU have a higher than usual impact on that choice and income per m² calculations (Pinder and Price 2005) also reveal a performance that is 'better' than many other comparable 'new' universities. This study seeks to contrast its space provision with what is revealed from research in other 'knowledge-based' organisations.

² It is important to consider buildings as a whole to include shared areas, meeting spaces and other amenities, rather than to look at templates for individual workstations.

³ Data Envelope Analysis is used to allow a weighting to different income streams.

⁴ Excluding centrally timetabled space

LITERATURE REVIEW

What is open plan?

Surprisingly there is no absolute consensus in the literature as to where the boundary should be drawn between enclosed or cellular offices and ‘open plans’. The term also gets used to cover a wide variety of designs and desking arrangements. Most researchers would not however regard an office layout in which a small number of people share one enclosed space as an open plan *per se*.

Individual enclosed workplaces have a long history in, for example, monastic cells, or the rooms provided for scholars in Oxbridge colleges. The rise of the cellular office in purpose built blocks for government agencies or corporate headquarters is however largely a postwar phenomenon (Becker and Sims, 2001) and building designs of the time tended to accommodate the demand by long narrow floor plates amenable to central corridors and partitions (Eley and Marmot, 1995). A large number of the UK’s university buildings date from the expansion of educational provision which began in the 1960s (Judt, 2005) and their floor plates do tend to match. Eley and Marmot do not specifically designate a transition from cellular to open plan but do distinguish the squarer floor plates associated with open plan or combi⁵ layouts. Van der Voort (2003) endeavoured to be more precise suggesting limits of 3 and 12 work stations for cellular and shared offices respectively restricting the term open plan to arrangements of 13 or more work stations.

Figure 1 View of typical Burolandschaft Office (Sundstrom, 1986). Note the desk and chairs for visitors



Figure 2.6. A typical Burolandschaft. Source: Photograph courtesy of Frank J. Carberry, managing director, Office Landscape Users Group, Philadelphia.

⁵ The Combi concept in which small individual spaces surround a common shared space originated in a movement for workplace democracy in Scandinavia. Its first advocates suggested an equal allocation of space for all office workers and a move away from the hierarchical allocation which had come to dominate cellular designs.

The leading US centre for workplace research, Cornell University's International Workplace Studies Program, adopts a broadly similar classification but distinguishes different open plan designs; high partition cubicles (the classic Dilbert design), low partition grids (typically based on repeated blocks of 4 L shaped workstations) and team orientated spaces which depart in various ways from the straight line models.

In both the USA and the UK the cellular office came to be a symbol of status or organizational power (Vischer, 2005) with nuances that were often finely drawn and rigidly enforced. An early challenge to such post war cellular designs arose with the *Burolandschaft* movement of the 1960s which sought to introduce openness and landscaping. Despite such a claim a striking feature of such designs is that the desk, or at least the executive desk, is treated as a station which visitors would approach. The signs can be overt (Figure 1). Privacy crept back in and the 'organic landscape' evolved to the rectilinear open plan (Sundstrom, 1986). The combi office, a series of equally sized cells spaced around a shared core area, was originally introduced in Scandinavia as an early exercise in workplace democracy (Van der Voordt, 2003) and status free space. Whether that goal was ever fully achieved is not clear. North Americans tend to refer to the combi design as a caves and commons arrangement (after Steele, 1983). Early examples of combi or caves and commons designs were being used in the late 70s and early 80s however cost pressures and standard systems furniture forced most open plan arrangements into cubicles or grids. The arrival of PCs gave further impetus to L shaped desks to accommodate monitors; a need that is now diminishing, and contributing to 'legacy space' with the advent of flat screens and laptops.

In summary therefore any debate on open plans needs to recognize their typology. The term covers a variety of designs and literature often ignores the fact generalizing from studies conducted on one particular design or without specifying the design elements. Academics from other disciplines have been known to seize upon such studies as evidence that "open plan does not work".

Sociological aspects of workplaces

The arrangement of buildings and their interior spaces to serve as symbols of power and status may have deep historic roots in palaces and fortifications. Anthropological evidence from a transition from hunting and gathering to pastoralism among the Kalahari 'bushmen' has claimed to see a parallel increase in enclosed, territorial, space (cited in Hurst 1995) as if with possessions comes an instinctive desire to screen them. Offices, some would argue, continued that tradition. Equally historical architecture confirms the role of common spaces, the agora, great hall, market or forum where at least the members of a society who had sufficient power could mingle and interact. The rise of combi or open designs saw some moves to at least reduce the physical expression of power, at least among the workforce of a particular company. Critical theorists have sought to interpret such moves as a response to market forces with more democratic workplaces interpreted as a response to the laws of supply and demand in the labour market for skilled knowledge workers (Baldry, 1999) and seen the adoption of uniform designs as another form of managerialism and overt control of the workforce. Academic social theorists who make such claims do tend to use them to legitimize their own defence of an individual

office if only as a justifiable weapon in a supposed class struggle. Alternatively some organizations have seen 'expressive' open workplaces, and even, *space by need not status*, as a positive cultural lever to attract the staff they seek and foster greater agility. In some cases the policy can extend to allocating larger work surfaces, and even assigned upper floors, with better views, to administrative personnel who are likely to spend more time at their desk. The argument between those who would see such developments in a positive light and the critics ultimately becomes epistemological and axiological even though, curiously, both proponents and critics of the managerial use of space as a lever could be said to be implicitly agreeing that it is a lever. Less extremely spaces and symbols have been seen as a manifestation of organizational culture (Schein, 1999) and as impositions of solutions without regard to the organizational context, hence Cairns and Beech's (1999) "*organisational flexibility or individual straight jacket*".

Instances of deliberately status free space are still the exception (Vischer, 2005). It is still common, even where supposedly uniform open designs have been adopted to see those with more power exercising more choice over space, rearranging furniture to recreate personal enclosures, or colonizing meeting rooms for private use (Nathan and Doyle, 2002). For post-modern scholars and critical theorists space is part of the interplay of discourses of power in organizations. Even the architectural pioneers of modern office designs (e.g. Duffy, 1998) have tended to produce space models linking space to job type and in the process are arguably reinforcing distinctions of power and autonomy. The architect / designer is the expert who knows best after a rational analysis of the problem, or an implicit understanding of the clients unspoken objectives. Those calling for greater involvement of the user in the design process (Horgen et al'; 1999; Vischer, 2005;) remain the exception.

Facilities Management professionals, trained to deal in the concrete realities of buildings, furniture and projects can find such considerations and the reactions of users as, at best, an irritant, and at worse a major obstacle which they perceive needs overcoming. Balanced examinations of what are frequently polarized discussions are hard to find, hence the importance of in depth work by Donald (1994). He interviewed FMs and users over a period of 18 months in three different corporate offices in South West London, each of which had seen major relocation projects and concluded:

Analysis of the interviews revealed a set of beliefs held by facilities management teams that shaped their decision making about the office. These beliefs resulted in them being less responsive to the dynamic and organic qualities of the organisation and worker's requirements.

Donald was surprised to find individual occupiers reporting low levels of change when the FM departments reported delivering major changes; i.e. relocation projects. His interpretation was FM responding to 'extrinsic' or top down change while occupiers tended to respond to smaller 'intrinsic' or bottom-up changes⁶. For the FM community

The term flexibility was most frequently used in reference to externally imposed changes in size and structure of the group or organization. The interviews revealed that the ability to respond to extrinsic

⁶ Though Donald may have underestimated the planning needed by FM for even a small change.

pressures was valued and resources were devoted to creating or facilitating it. Intrinsic pressures on the other hand tended to be considered unimportant or ignored. In some cases intrinsic pressure generated requests for change (*which*) were positively resisted by facilities management. One way of resisting intrinsic pressure was to create an environment, or management or organizational mechanism that was inflexible, so that mobility and change resulting from intrinsic pressures were inhibited.

Facilities managers were perceived to be intent on delivering planned designs as functioning on day 1, whether the business need had changed or not:

However, most of the facilities management teams, believed this to be the perfect if not the only appropriate design solution, and continued to spend effort and time trying to achieve it. In a sense their attempts were directed towards making the future office a reflection of a past solution.

As one FM put it:

This is a marvellous new place. You get people changing things, sticking balloons up and so forth, and it lowers the whole tone. This is personally offensive to me having put so much work into it.

In one of the three organizations the situation reached the point of imposed clean desk policies with "senior managerial" inspections after working hours and

The facilities manager needing to go around the building looking to see if there were indentations on the carpet in the office that might indicate that something had been moved.

The work concluded with a comment that was ahead of it's time

It is evident from the research here that while the actual physical characteristics of the environment are of great importance, no matter how good they are, the rules and processes of their management can prevent them fulfilling their potential. This has been a relatively exploratory study of these processes. Further empirical research is required to understand them more fully.

Workplace objectives

Absent from Donald's research, and many other studies, is a consideration of the business rationale behind a new workspace. In one of the first comprehensive studies of new 'open' workplaces Becker et al. (1994) distinguished cases that were primarily business driven (i.e. they were designed to achieve a business result) from those that were primarily cost driven (i.e. they were unlikely to have happened without a pressure to reduce cost by increasing occupation density). They found a very significant and large, positive difference in the average satisfaction with the result in the former as opposed to the latter and a greater commitment to involving users in the process of workplace development versus selling them a template solution. They also speculated that the cost driven solutions would prove to be less self sustaining because of a need to either correct mistakes in the implementation or because of user reactions (such as colonising space for new cellular offices) once the change was over and the cost pressure was reduced.

The theme of business pull or cost push appears in other studies of successful new workplaces especially two reviews of central government experience in Canada (La Framboise et al., 2003) and the UK (Allen et al., 2004). Both stress the involvement of users in the process of creating new spaces and the Canadian study in particular emphasizes the importance of early and clear communication to counter the inevitable rumour mills. A second series of case studies conducted by the Cornell workplace

programme (Becker and Sims, 2001) makes the same point and correlates more creative designs with business intent rather than simply an FM solution.

For them the primary (not only) value of the office is as a:

A place for face to face interaction: a place to meet co-workers and managers, to inspire, coach, be motivated, share information, debate goals and objectives, socialize, make friends and so on. It is as much or more a social setting as it is a refuge or technical or information centre."

Not all "open" environments actually enhance awareness. The stereotypical grid of cubicles separated by panels of various heights can actually interfere with visual awareness, while doing nothing to compensate for the lack of acoustic privacy. Short interaction diminishes and people moderate behaviour because they do not feel comfortable 'looking over the wall'. They lack access to visual clues as to appropriate behaviour. For Becker and Sims the greater contribution to "*social capital*" comes from "*team oriented bull pens or pods*"; a conclusion they support with surveys, interviews and observational evidence. Their subject companies were dotcoms in the first wave of the e-bubble, a selection which may or may not be typical. With less caution than some commentators would accept Becker and Sims conclude that

The more open the "open" plan office environment, the more conducive it is to overall work effectiveness, when communication and interaction are critical elements of the work process. Few jobs or professions don't qualify.

By more open they are arguing for 'pods and bull pens' and against cubicles

With few exceptions it is easier to control unwanted distractions and interruptions and noise is typically less of an issue. In reviewing the case for the closed office, it is worth keeping in mind that the comparison those in closed offices typically make is with a high panelled cubicle, not team oriented bullpens or pods. The age profile of those in closed offices was older, ranging from the late thirties into the forties and fifties compared to the twenties and early thirties for most of our respondents in the open type environments. As becomes evident below, distinguishing between the different types of open environments **and considering age** is critical.

They also emphasise the importance, if possible, for getting beyond survey data in evaluating different workplaces:

In summary, though the survey results show very little difference between office types with regard to team-based organizational outcomes, the interview data suggest that more open offices do a better job of fostering comfort with team members, informal communication and cohesiveness than do partitioned environments. Repeatedly, people commented that the ability to have a quick informal conversation increased their knowledge and understanding of other team members, and contributed significantly to their effectiveness. This was supported by the observational data that showed more interactions of shorter duration in team-oriented offices. . **On most measures, the most common and stereotypical open plan environment, high-walled cubicles, performed the poorest and was least liked** (*emphasis added*) Somewhat surprisingly, one-person closed offices, often seen as the Shangri-la of office designs, were not universally viewed as the best or most effective work environment. Age is likely to influence this view.

The critique of cubicles and standard templates surfaces more strongly in Becker's (2004) book⁷: an argument for team orientated community spaces, perhaps dispersed across a

⁷ as does his frustration that they are still so prevalent

wider floor plate and separated by various hubs or magnets. Now that we no longer need L-shaped spaces to accommodate large computer monitors it is even easier in practice to create such zones while still achieving higher than average occupation density. In Becker's words (2004):

Like water flowing down hill a well designed building can make interaction easier or more difficult requiring more or less employee effort

or

There is nothing wrong with adopting a workspace strategy that saves money. But better yet, why not create workspace that reduces the amount of real estate required; inspires and motivates employees; improves communication and teamwork; generates free positive publicity; and does all this while increasing flexibility.

The point about different reactions to new workplaces according to age has not been considered in other studies. Aronoff and Kaplan (1995) do however draw a parallel with the introduction of electric power into manufacturing plants early in the 20th Century. They argue that it took some 20 years before the widespread adoption of the distributed designs that electricity enabled with factory operators clinging to the arrangements that had become necessary when power was distributed by shafts powered from central steam engines (or earlier water power). In similar vein they suggest a generation of senior staff who have spent large parts of a career working in traditional cellular offices may have more problem adapting to newer designs.

Counter arguments

A counter to Becker's draws on continental and especially Dutch examples (Van der Voordt's (2003). Van der Voordt found little or no evidence in open plans for improvements in user satisfaction, but was studying relatively typical rectilinear design rather than the more creative, chaotic spaces featured in Becker's examples. Van der Voordt's preference appears to be for the 'Combi' office. Whether there are national cultural differences at work is not known though van Veel and Vos (2001), arguing a sceptical case against 'funky' offices, introduce the surprising claim that only 3.6% of Dutch workers socialise with colleagues after work to argue against a need for greater work-place socialisation

When implementing or discussing work place change it is not uncommon to encounter statements such as "*research has shown open plans don't work*". Protagonists of that view are prone to cite (Kupritz, 1998) who found that privacy problems were found to be perceived very negatively in two engineering departments or Brennan et al.'s (2002) claim to have found evidence to favour "traditional" as opposed to "open" office design. Occupants reported increased physical stress, poorer team member relations, concerns at confidentiality and perceptions of lower perceived performance. Both studies researched rectilinear cubicle designs, with cubicle size, in the Kupritz example allocated by status. Brennan et al.'s longitudinal study of a move to the latter highlighted significant dissatisfaction with what on examination turns out to be cubicles either for 4 or 10 plus

arranged in a classic rectilinear pattern (over ordered). The research did not appear to examine the change management process but implies an imposed solution⁸.

A wider evidence based argument stems from the North American work of BOSTI⁹ Associates (Brill et al., 2000) who claim a 30-year history of continuous innovation in workplace planning and design, and has pioneered in the application of innovative workplace solutions and high-performance design to support the new forms of work. Based on “*empirical, quantitative analyses of data from some 13,000 people in 40 business units between 1994 and 2000, all gathered during BOSTI's research-based client engagements*” they claim to “*call into question many of our most cherished assumptions about design of today's and tomorrow's workplaces.*” They find the “*two most powerful design determinants of productivity and satisfaction*” to be “*the near-universal needs for distraction-free work and for learning-laden informal interactions*” but cite a preference in their survey evidence for cellular offices to guarantee the former. What is unclear is whether they are reflecting the views of managers who still enjoy such offices and staff in cubicles.

Theoretical perspectives

The same dilemma is posed in an exhaustive review by Heerwagen et al. (2004) who set out to consider the process in a modern office and ask how designs might enhance collaboration without compromising individual productivity thus addressing what they term “*the central conflict of collaboration*”; how to balance the need to interact with the need to work individually. Their starting point was to consider studies of what ‘knowledge workers’ (Drucker, 1959) actually do, drawing on research which has considered organizational behaviour but not asked whether a physical setting can influence it.

By its very nature, knowledge work is both highly cognitive and highly social. Workers need time alone to think and develop ideas, drawing on their own memory, insight and analytical skills. They also need ‘hassle-free’ time for non-conscious processing that aids creativity and imagination (Claxton, 2000). Yet, in order for ideas and concepts to become useful to an organization, they must be made available to others for scrutiny and further development. Thus, knowledge work also involves **conversation and interaction** allowing thoughts embedded in one person’s mind to be externalized and accessible to others through writing, speech or graphic visualization. This transfer happens through social networks as people encounter one another throughout the normal working day in both formal and informal settings (Allen, 1977; Backhouse and Drew, 1992; Brown and Duguid, 2000).

Three dimensions to collaboration are identified: awareness (the response to the activities of others in the work environment), brief interactions and actual collaborative work (involving more sustained interaction). The review seeks to establish the organisational needs that favour demand for each dimension as a guide to framing consideration of the suitability of particular spatial configurations. High awareness, it is suggested, is needed

⁸ The lack of compensating working protocols is mentioned in passing.

⁹ Buffalo Organisation for Social and Technological Innovation

in environments seen being dynamic with a high sense of urgency¹⁰. The need for brief interaction rises, the authors' interpretation of current research concludes, under the following circumstances

- when the task has a high level of uncertainty (Katz and Tushman, 1979)
- when groups are faced with high time pressure to produce or upgrade a product or service (Teasley et al., 2000)
- for multidisciplinary groups that must gain rapid understanding of one another (Allen and Gerstberger, 1973; Cachere et al., 2003)
- when information from external sources needs to be shared rapidly and assimilated in the organization (Katz and Tushman, 1979)
- when innovation is a high priority and when performance is related to generating, sharing and assessing new ideas, and developing new solutions (Allen, 1977; Katz and Tushman, 1979)

They emphasise they are drawing on :

research on the benefits of interaction has been conducted by social and organizational sciences that have largely ignored the relationship to physical space. Thus, many of the papers cited herein deal with benefits or constraints from a strictly behavioural and work process perspective and do not take physical space into account.

From a functional perspective, informal face-to-face interactions aid understanding and problem-solving due to the enriched context, including facial expressions, gestures, posture, appearance and reactions of other people (Kendon, 1990). Face-to-face interaction is also more flexible and can respond better to ambiguity and uncertainty (Allen, 1971). Brief, informal interaction may also aid organizational and individual learning by spreading knowledge broadly in the overall social system (Gabarro, 1987; Rizzo et al., 1999; Bagnara and Marti, 2001).

Informal interactions may be a valuable mode of learning because a large amount of any organization's knowledge resides in people's heads rather than in written form and it is easier to access by asking questions than by searching for paper documents or electronic information (Bagnara and Marti, 2001). This makes it more likely that people wanting information rapidly will seek out a colleague rather than use a formal knowledge management system. Furthermore, by consulting with a colleague, one also has the ability to follow up with additional questions as well as to explore the meaning and relevance of the information.

and highlight the importance of visual cues, and proximity, in deciding whether to draw someone into a brief interaction.

Surprisingly there is little evidence from the studies cited above that presumed 'natural' meeting areas (such as coffee nooks, copy rooms, etc) promote interaction unless they are on well-trafficked pathways. That is the pathway **seems more important than the destination** (emphasis added).

They make another point

For simple tasks, interruptions appear to have much less impact and may possibly be stimulating if the work being performed is routine and is judged as boring by the worker (Zijlsstra et al., 1999). Research also suggests strong individual differences in response to distractions, with introverts more likely to be

¹⁰ An observation which may explain resistance to moves from cellular offices in some sectors!

bothered than extroverts (Belojevic et. al., 2001) as are those who score high on the noise sensitivity and annoyance measures (Kjellberg et al., 1996)

Collaboration is pointed out as having many facets from high intensity team projects to group work requiring only more structured and intermittent communication. The variety of collaborative space solutions offered may not work if the different requirements of the collaborators are not met and - perhaps more importantly - if the prevailing organisational culture in fact rewards non collaboration.

There are also, as is again acknowledged, a wide variety of tasks for which varying degrees of cognitive privacy are conducive and perhaps essential leading the authors to identify a new metaphor:

The problems for individual work effectiveness suggest that the workplace should provide a cocoon-type space that, like the biological entity, has numerous beneficial capabilities: It surrounds, but does not entirely cut off outside stimulation. It has within it necessary support for growth and development. Its design is simple, but the solution is elegant. It provides release when the occupant determines the time is right.

For Heerwagen et al. the trade-off is also a matter of the 'awareness need' of the operations carried out in the workplace. How crucial is it that individuals are aware of and need to react promptly to the actions of co-workers? At the extreme of high awareness are, they suggest, activities where open layouts are taken for granted, for example control rooms and trading floors. The dimension seems important and offers a plausible insight into one dimension of the organisational context for particular workplace solutions, a consideration missing, as Cairns (2003) especially has emphasised from many studies of workplace designs. It also opens the probability that different individual's awareness needs and sensitivities will vary.

Price (2003) argued a similar perspective especially in terms of interaction. Drawing on the perspectives of the science of Complexity associated in particular with the Santa Fe Institute (e.g. Waldrop, 1992) he pointed to simulations of such systems which show the greatest capacity for change and innovation is found when the agents in a system exert a critical degree of influence on each others behaviour. Complexity theorists have labeled the zone the edge of chaos to distinguish it from, on the one hand, highly ordered systems where one or a few agents dictate the rules others follow and, on the other, completely chaotic systems where all or a majority of agents are constantly reacting to each other. A visible parallel can perhaps be seen in a spectrum from on the one hand highly ordered rectilinear offices with cells for status, through Becker's Team oriented 'bull – pens' to chaotic open plans that have either not been planned or have been allowed to deteriorate. Evidence in support of the concept (Price, 2007) is summarized in the following section.

PRIOR FMGC RESEARCH

For the previous 10 years FMGC have operated a network FMs in Local, and lately National Government benchmarking their accommodation portfolios. During that period cost pressures and Central Directives such as Comprehensive Performance Assessment and 'Best Value' have forced many of the members to seek to rationalize their portfolios and embrace, inter alia, higher density more open offices. During that time two years of

research sought to establish what occupants saw as important in their offices and develop a web based satisfaction survey instrument. It proved robust, with random samples of staff in particular offices producing repeatable results year on year and also sensitive, in that changes from year to year could be explained by changes in the office. It is now possible to benchmark offices in terms of occupation efficiency (m² per person) and overall satisfaction (Pinder and Price, 2005). There are several cases of buildings with densities of less than 10 m² per supported FTE and satisfaction in the upper quartile of the sample (of ca 150 individual buildings). The prime driver of occupation cost is the amount of space and, by using less space overall these authorities are spending a lower proportion of their total budget on office accommodation. They are however spending more per unit area of space; they are providing a smaller amount of higher quality space used flexibly¹¹.

When occupiers are asked not just about their satisfaction but also about the perceived impact of aspects of the office on their productivity (Haynes and Price, 2004; Haynes, 2005) our findings confirm Heerwagen et al's (2004) theoretical conclusion. Informal interactions and the spaces that enable them are universally ranked as having the most positive influence and distractions the most negative. In two cases where this has been surveyed with staff doing similar jobs in the same organisation but working in offices with different designs 'team oriented' open plans have been rated significantly better than cubicles or semi-open designs with enclosed offices for managers only. In both cases a change management approach was used to create the new space. In a third example, where it was not the beneficial interaction is seen in one department where the local management was an enthusiast for the change and not in another where the opposite was true.

Prior MBA students

Primary research undertaken by students completing the FMGC MBA in FM reveals parallels with the literature presented above. During 2007 research to discover the reasons for a lack of uptake in new working environments within organizations was undertaken through a questionnaire survey of FM's working in both public and private sector. The study, although generic and not specifically focused on the academic environment, provided useful baseline information against which to compare findings from academia.

Referring back to the possible causes for lack of adoption of NWOW arising from literature and case studies the author of this generic study confirmed that his research findings support most of the issues raised in literature. Barriers cited were those which are well documented and those relevant to this study are presented below:

- failure at board level to understand the impact workspace has on organizational success

¹¹ As a rule of thumb 80% of the costs of excess space are saved and 20% is put back into the running costs of higher quality accommodation.

- lack of involvement of client and facilities in designing workspace to match business needs
- focus on cost
- lack of involvement of FM at strategic level and across the organisation

It is evident that some organisations are making some changes to their work environments and recognize a range of benefits beyond cost saving but others are still culturally resistant to a more flexible, autonomous approach to working practice. This view concurs with findings from three studies undertaken in Academic Institutions by students undertaking the MBA and with the hypothesis presented in this paper: In all three studies the researchers concluded that prevailing organisational (academic) culture was too strong and remained a barrier to the introduction of different ways of working.

Case 3, involved a study at a UK University where the university's senior managers had, due to a critical incident, been moved into shared open plan space. In addition to interviewing the group the student conducted a postal survey of UK University Vice Chancellors to explore their views of appropriate work environments for academics was undertaken. The findings presented a firmly held view, that for academics, individual office space is a right and 'owned'. Respondents commented that open plan was not appropriate for the general academic community and that the culture of the organisation and profession was that of 'personal' space. This view was however contradicted by one of the interviewed group who stated:

“and if the senior management can do it, I would have thought, well, yes, everyone else can”.

Case 2 studied attitudes towards open plan vs shared spaces at a red brick University in the North of England where academic staff have, historically, been provided with cellular offices and where, it was suggested, such offices would be considered critical 'tools of the trade'. Interestingly of those working in single person offices **79% reported that the provision of a cellular office formed part of their contract with the University**. HR confirmed that no member of the University had such a clause in their contract.

There were some respondents working in shared space but this had come about more by chance than from deliberate design embodying the principles of successful cases. There were nonetheless some members of the research population working in such space were positive about their shared space. Others in the sample stated their shared space was like working in a '*glorified corridor*'. The student did not have the time or access to investigate possible reasons for the difference.

Case 1, another study at a red brick University in the North of England, explored postgraduate research students' perceptions of their workspaces. The author suggested that the continuation of existing practices might be embedding an attitude and expectation about workspace which is out of line with the environment beyond academia. In other words, the expectation of one desk per student is projected into a post doctoral

expectation of one's own office with the rationale rooted in history, status, hierarchy, outdated working practices, and cultural expectations rather than matching space to business need.

In general it seems there is no appetite for change at senior management level, supporting the view cited in literature that there is often *failure at board level to understand the impact workspace has on organizational success*. However, where a need for change was created, as in Case 3, a critical incident creating an emergent need, there was a willingness to work in open plan and the results were positive in respect of increased interaction and informal communication. Also, Senior Academics did recognize the need to match space to business needs. Perceptions of open plan were negative with regard to confidentiality and distraction free working but it is important to note that aside from meeting rooms, shared cellular areas were not provided within the open plan space confirming the need for *involvement of client and facilities in designing workspace to match business needs*. The conclusion is supported by the findings from Case 2 and one might concur then, that where this approach is not adopted lack of involvement of the client and facilities becomes a barrier to alternative workplace design.

Even so findings from these studies demonstrate that open plan environments can be seen to have benefits. Postgraduate research students recognized that the ability to interact with other disciplines may result in a discovery that otherwise might take years (adapted from quote from Science based student). Indeed, one might purport the current approach is restricting knowledge creation and transfer and that there is a propensity to provide 'dumb' space (Nathan & Doyle, 2002). The Senior Academics in Case 3 who were forced to work in open plan had had positive experiences and high quality open plan settings with support space eg quiet pods, social space, meeting rooms were considered acceptable with one respondent commenting: *"horses for courses – most important thing is to have good environment for sharing knowledge and information and no barriers to interaction"*

In Case 2 although most respondents also felt that shared space did not enhance productivity, the benefits of opportunities for collaboration and interaction were recognized by respondents and 73% of the respondents agreed that knowledge transfer was enabled in shared space However 76% of respondents in single offices also said that they could engage in knowledge transfer.

Case 2 also illustrated distinctions between different subject based communities. Arts and Social Sciences presented in the study as individualistic in nature compared with more team based activity for Science students. Notwithstanding the perceived need for solo based study for Arts and Social Scientists there were indications that this may lead to isolation.

Space can be designed to support various work activities and even where individualistic research dominates there are still a need for collaboration and community. Where shared space layouts are inflexible interaction is prevented, captured by the following respondent: *"arrange the desks so that we all have a work area and also have a space for interaction with each other"*.

Key issues from literature are confirmed in the above studies. It is clear that in academia cultural resistance to changed working practices prevails alongside a reluctance to give up what is 'owned' and yet once experienced, perceptions of shared spaces do change. The desire for a cellular office as a sign of status appears to be embedded in the post-doctoral 'apprenticeship' that is the first stage of an academic career at least in research based universities. Benefits of greater interaction and knowledge sharing are recognized by the respondents in all three cited cases. Barriers to working in shared or open layouts such as of lack of privacy, confidentiality and distraction were also cited by respondents in relation to their experiences of these environments. However, experiences of open plan environments did not extend to spaces which had benefited from good design principles and user consultation. Therefore, it is suggested that the trilogy of negative aspects can be overcome through a process of consultation, with input from users and Facilities Management experts to develop thoughtful design solutions. To overcome resistance the successful implementation will require the support of Senior Management to deliver the necessary cultural change. The barrier to implementing these changes rests with the fact that the power to retain space is vested in the academic community with a lack of involvement of FM at strategic level resulting in the FM function not being enabled to deliver added value by creating work environments designed with and for users, not just based on a one size fits all approach. As one of the above researchers accepts, in her role as an FM the culture of the University may result in her being someone who liaises, whose role is to consult and suggest rather her own preferred role of one who persuades and challenges the status quo.

HYPOTHESES

From the above various hypotheses might be drawn concerning the relatively low adoption of 'open-plan' working in academia in general, and questions about space management in SHU in particular:

1. Does the inherited 'long and narrow' building stock constrain design innovation?
2. Is there an embedded social science resistance to open plans and space management born out of a prevailing social science paradigm, or academic tradition, that is critical of managerialism?
3. Does the academic role fundamentally contradict Heerwagen et al.s and others criteria for collaborative knowledge work?
4. Is there, as Donald (1994) suggested, a fundamental gap between how facilities professionals on the one hand and occupiers of space on the other relate to space?
5. Is there a gap between a particular organisational culture and the requirements for successful new and flexible workplaces?
6. Is there or has there been a conflict between Becker and Sims' 'business driven' and cost driven' approaches?

7. Have designs been overly rectilinear driven by efficiency rather than interaction?

The opportunity to test these questions is provided by a number of case studies described below. In each there were constraints imposed by time and project needs and no single methodology could be adopted.

CASE STUDIES

Context

The university has, since its inception in 1992, pursued an estate strategy designed to achieve location of all activities on 2 sites and to release five former sites inherited from the various component colleges that had over the years become Sheffield City Polytechnic. The City Campus is adjacent to Sheffield Station and straddles the newly developed pedestrian route into the City Centre. The Collegiate Campus occupies a more landscaped setting some 2 miles south west of the City Centre.

In 2005 the university began a process of restructuring 11 previous schools into four faculties. In 2006 the university secured the entire contract for providing nursing education to the region. Both events have imposed a need for relocation especially as the latter involved the transfer, under TUPE, of a large number of academic and administrative staff and research students, who had formerly delivered ca 50% of the nursing education provision from the University of Sheffield. Our cases come, in the main, from moves associated with one or both those events.

The Faculty Relocation

One outcome of the restructuring was the creation of a Faculty of Organisation and Management (O&M), bringing together subject areas from previously separate Schools by combining Leisure and Food Management, Business and Finance, and Facilities Management Graduate Centre. An opportunity arose to bring together the three previously distinct areas in one building (that previously occupied by the School of Business and Finance). Part at least of the business rationale for the move was the pressure on space created by the transfer of staff from the other university however the faculty executive also had a vision for co-location enabling synergy within the new faculty.

The building would be 'home' to the whole faculty including academic and business services, with the exception of some specialist technical staff, who needed to be located in specialist space associated with hospitality related courses. There was a perceived opportunity to create, or enable, more collaborative work and improve social and business interactions in an effective working environment with an appropriate image particularly in the open access part of the building at street level. There was also an inherent urgency imposed by the staff transfers and the relocation project had to be completed to a tight deadline of approximately 8 months.

The consultation exercise required of the moves and all related communication was to be handled by the Faculty and a communications strategy and project framework were established comprising Steering and Working Groups. The former, chaired by an assistant Dean comprised representative members of the Faculty community, Facilities Directorate and the Union. The Working Group was made up of volunteers from across the Faculty with representation from the Students Union and Facilities Directorate. This group would work throughout the project responding to information and tasks set by the Strategic Group and working with Faculty staff to provide feedback and further information on any aspects of the relocations. The group set up and managed the consultation exercise through focus group facilitation with all Faculty staff and involved the setting up of sub groups to deal with issues as they emerged e.g. Reception areas, building accessibility. The authors sat on each group.

Initial, individual interviews were conducted with the faculty's new Executive Group. of academic and non academic managers who were drawn from all of staff the three areas that had come together. It was at this stage that ideas were discussed around working differently, moving away from cellular office provision, to a more open environment. The discussions allowed for exploration of issues of resistance, quite typically, as noted elsewhere in this paper the normal concerns of confidentiality, distraction and concentration and the underlying issue for many of status. There was however a significant willingness to lead from the top and work with Facilities to develop an open, shared approach to the work environment.

Initial communications with Faculty staff articulated certain 'givens'. The most contentious of these, was that all staff would be involved in the moves. The intention of this 'given' was to encourage and facilitate new internal relationships and collaborations. In addition, it was seen as a more equitable approach to those staff from other buildings for whom there was no alternative than to move to the Business and Finance building.

Previous moves for the residents of that had created negative perception of any 'move' arising from bad experiences of 'open plan' layouts. When the building was first occupied staff from were relocated into large open plan offices with rectilinear layouts a move that provoked widespread unrest. The move was followed by a reduction in staff through redundancies and the two events had come to be seen as related; a perception illustrated in the following comments from focus group sessions:

"the reality is that staff haven't felt valued for years and last time this happened the next move was redundancies"

and

"Nobody wants to work in open plan, one member had a bad experience, all existing staff should remain in unchanged location and Leisure and Management staff move into other parts of the building"

The perception prevailed that moves were the first stage in a cost cutting exercise, to be followed by reduction in staff and job losses and that given the numbers of staff involved

the only option would be to reinstate open plan offices, leading to comments such as *“it is just not possible to be productive in open plan”*

Interestingly findings from Focus Groups across the Faculty illustrated differing perspectives. Those who were more positive about the moves were the staff for whom the relocation was not optional:

“I think we need to demonstrate we are willing to be flexible and accept changes to working environments in order to improve cross faculty collaboration”

The Steering Group gave consideration to the comments received from Faculty staff and believed that, in light of the history, prevailing resistance and the relative infancy of the executive group, the timing was not appropriate to facilitate large scale change and relocate or ‘move’ all current residents. The Group made a conscious decision to be mindful and respectful of the history of the School of Business and Finance in the current situation, bearing in mind that this relocation exercise was following on the heels of the recent changes brought about by restructuring. The mapping of moves would be driven by a principle of causing least disruption without compromising groups moving into Stoddart to ensure functional relationships were accommodated by the building.

In an attempt to challenge in the existing norm of three to five academic staff per office a proposal was presented to plan some shared open space, with break out areas, quiet space and informal meeting space into one wing of the building. This was met with strong resistance from several staff who were even under the perception that this was a directive, rather than a proposal put forward for consideration and consultation. The history and background to this exercise did not set an appropriate climate for further change.

The Steering Group did however argue strongly for the remodeling of the street level area (Figure 2). Previously this had been arranged into a small, enclosed ‘Deli Bar (run for profit by the Facilities Directorate), an area of seating screened off to cater for functions and an area of space outside two lecture areas. The proposal was that the space be opened out into a multi-functional ‘commons’ including the faculty’s principal reception area for students submitting assignments and collecting feedback. There were undercurrents of concern, from facilities directorate who worried about catering takings, from some staff who worried about invasion of their privacy by students and from some business managers in the faculty concerned to separate undergraduate and ‘executive’ clients. In fact none of these concerns proved grounded. The space is now well used by staff and students and has begun to become a locus for informal interaction between different subject areas. Counter intuitively some members of staff can be observed treating it as a space for concentrated work where the background distraction is actually lower than in a shared office. The authors’ own experience has been that executive clients react favourably to the space as for example the Workplace Innovation Manager for a large UK Corporation who described it as an exemplar of the workplace of the future and commissioned research from the University as a result. The overall impact on the faculty’s business has not been quantified but catering receipts have grown by over 70%.

Figure 2 Plan of new ground level 'street' in the faculty building. A café and reception area are seamlessly integrated. (Needs improved plan for final version)



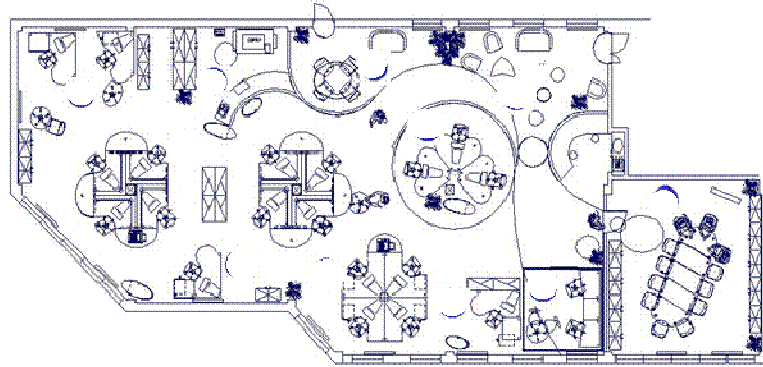
The creation of such deliberate central commons at a building scale has not been the subject of much research though they are a feature of some successful new offices with which the authors have been involved. Indeed it is our view that such commons, strategically located as natural foci, should be a more important concern of FMs and office designers than should individual work-stations.

The authors own FM subject group were obliged to move from an open plan which had been deliberately designed as an interactive and expressive space within a self contained unit on the university's 'Science Park' (the subject of the next case study. During negotiations concerning the space the group argued for retaining a shared office. Associated administrative staff were incorporated into designated administrative areas but 10 academic staff were allowed to create a single open space, opting to move to smaller individual desks to retain a feeling of openness and a design which was not rectilinear. It has been perceived, by other staff who were offered, and declined, a chance of redesigned space, as 'special treatment'

Overall the example vividly illustrates the degree to which workplaces are socially constructed entities that are taken for granted by occupants until there is a perceived threat to their equilibrium. For one of us in particular the experience was a revelation of the need for workplace projects to be as much about behaviouralism as about the rational functional approach to workplace design that still predominates in FM. Donald's (1994) separate communities are alive and well. The case, and particularly the remodeled commons also illustrates again the power of office geography to influence emergent behaviour (c.f. Price, 2007).

Unit 7 Science Park

Figure 3 Plan of Unit 7



As alluded to in the previous section the authors' centre was impacted by the reorganization into faculties. The centre had previously occupied a unit on the university's 'Science Park', a series of low rise office units designed as business incubators, since 1997. In 2000 with sponsorship from a firm of workplace designers and a furniture manufacturer the office was remodeled with a brief to create an exemplar open environment, expressing a wow factor and fostering intra-centre interaction (Figure 3)¹². As a result of the moves in the summer of 2006 the space was allocated to academic staff who were being relocated from the Collegiate to the City Campus. They were not offered an opportunity to refit the space as a traditional academic office. Two previously separate research groups were being merged into one centre during the course of the move. The move presented an opportunity for a comparative longitudinal study

Prior to the move those relocating were offered the chance to participate in an online survey (based on the design described by Haynes and Price, 2004) which included an invitation to comment on two open-ended questions. A year later their faculty space coordinator described them as 'loving the space'. Volunteers from the team participated in a focus group with the authors, unstructured except to ask individuals to describe their job role and general reaction to the space. The example allows a before and after comparison of a group allocated to a space designed for others, but designed to be open and stimulating.

The pre move survey yielded 15 responses; too few to merit statistical analysis. The overall atmosphere in the office, physical comfort, interaction with colleagues and

¹² Given informal hot desking by full time doctoral students without other desks the space was also efficient in terms of occupation density

position relative to colleagues were rated as the most positive perceived influences on productivity. Apart from physical comfort these are in line with the results from commercial and government offices. Surprisingly, compared to other studies, interruptions were actually rated by many as having a positive impact and the people who were concerned about privacy / distraction after the move were by and large among those who are most positive about interruptions at present (*this may of course be because they do not get many of them*).

The open ended responses were chiefly concerned about the temperature and peoples enjoying privacy, viz:

Please make any comments about how you feel your current office environment affects your work performance.

I'm lucky in that currently I am in a shared office for 3, but one colleague has left and another is on maternity leave, so I have a fairly large, light and bright, private office. I have books and files easily available, but the office can be hot, and is in poor repair (e.g. rotted window frames). So my own office is ideal for meeting students/phoning including conducting phone interviews and general office work. The building generally does not make for lots of social interaction, but this doesn't really concern me too much, we have a really useful large meeting room and a smaller interview room, both of which have excellent privacy. The setting is quite shabby for meeting research clients however. It is very close to colleagues in the Division of E and H who we work closely with.

Our current office is always a lot colder than the rest of the building and we often have to rely on a fan heater when the university heating is turned off. We are also quite segregated from the rest of the people in the building and can go for an entire day without actually speaking to anyone. On the plus side, the privacy makes it easy to get on with your work.

As I have an office on my own I am able to get on with my work.

I am in a small office with 1 colleague at present this makes individual and small team work easier as there is limited disruption to us and the other person in the office (usual involved with the team). As an old house the building has numerous rooms and thereby allows for all staff to a 'reasonably' quiet work space as there are no more than 4 people in an office, as well as 3 meeting rooms and a proper kitchen and separate lounge area. However, as a old house we do have problems with rotten window frames, doors that don't fit the door frames, numerous signs of structural movement and related cracked and missing plaster, damp and accompanying infestations.

Because I share with only two other research staff (one just retired and the other does not come very often and if he does he is very quite), I feel very comfortable with my office environment.

Very cold office - negatively affects performance. Sharing an office with a colleague who rarely comes in - positively affects performance - I am easily distracted by noise.

It is important to have a desk where the strain on my body is minimised. Some workplaces give me pain when I am working a long time at the desk. The desk at work is one of the better workstations and better than my home desk. I need to be able to be available to other people and to feel that social cum work interaction is maximised because a great deal of work is facilitated through that and it helps people get through the day.

I think my current office environment is well suited to the research work I'm involved with because it is quiet and free from interruptions which makes concentration easier.

There has been a gradual deterioration in office environment in recent years - too crowded, not enough desk space and storage space neat the desk - I need large surface areas for many aspects of my work , these are not available

I have plenty of storage for all my research data, current project files, reference books etc. The office feel is rather scruffy but I have got used to it! It is generally quiet and welcoming. I feel attached to my own personal space around my desk.

It's very cold. Burrrrrr

The majority view was apprehensive about the move, especially as distractions were expected.

Please make any comments about the plans to move to Unit 7

I'm worried about: privacy and noise, which can make doing analysis and phone interviews in particular very difficult, and meeting students although we will no doubt sort out protocols for this. I'm looking forward to a higher quality physical environment. Car travel will be a problem particularly in the next year as many of us continue to teach at Collegiate, and conduct field research. The biggest issue for me will be that colleagues I work closely with on projects and who I plan for new work will be at Collegiate whilst we are at City. In the short term, this is a real worry for putting bids together at short notice, as we always have to.

I am looking forward to being able to interact with my colleagues more often, but am slightly concerned about the effect of an open plan office on my output.

Having worked on the CC site for the whole of my employment at SHU I was at first not looking forward to the move but having seen Unit 7 I was thoroughly impressed with the layout and I have also worked in an open plan office before.

Whilst the building will not present the physical problems the current house does, this is also the loss of the smaller work spaces, large meeting room and a proper kitchen. Whilst privacy is not a personal concern, i am aware that for others it (particularly

due to the type of work we undertake). Storage, however, is and the new building is woeful in comparison to what we current have.

I'm dreading it! I can't see how researchers working on different research projects and are not necessary all at the same stage of work can actually share a space together. I can't also see how our administrator who is constantly dealing with people on the phone can share space with us- we do need peace and quite every now and then you know! My guess is I'll probably end up working from home most of the time... Thank Goodness for the flexibility!!!! In anticipation, all I need to do now is make some space for myself on our dinning table at home-let's hope my husband and daughter don't beat me to it!

Worried about open plan office; I don't work well with distractions. Worried about lack of storage space. Worried about the inconvenience of traveling to and from City - at present I can walk to work.

I am looking forward to it but I also feel I know very little about what the impact will be. I like the sense of light in the place we are going to compared to here which seems gloomy and dark - I don't actually like (aesthetically) the old building itself. I am worried that the noisiness of the city centre will restrict how we use the building for our own comfort and work.

It looks quite modern and probably more 'trendy' than current accommodation. However I do harbour some reservations about open plan offices for the research related work as I think interruptions and background noise may interfere with concentration levels.

Uncertain about if the conditions will be suitable for scholarly work - preparing to work much more from home

I am apprehensive about an open plan office in terms of quiet and distraction for my work. I am highly concerned at the lack of storage - to assume that we are all able to take reference materials home with us is wrong; to think they will be useful at home rather than work is wrong! I spend more than half of my working week here! I am unclear as to the data protection issues re storage of archive data..

It will be nice not to be alone in the office. :(

A year later 7 people participated in the follow up focus group. They were not shown the previous survey results. Six were positive. One admitted still preferring the room with a door where she was not “dragged into chats' and visible 9 hours a day” and a second researcher while he welcomed being less isolated had to do concentrated work at home. Telephone interview work from the new environment could be a problem. The other five were completely enthusiastic:

I much prefer the new environment as I talk to more people

I found the new environment easy to settle into with access to everybody

I was in a self contained room of 2 or 3. I have seen two teams come together. "We were lucky to get Unit 7 " Curved walls, layout, space between desks. It took getting used to and we had to reacclimatize.

I had my own office but now enjoy the open plan, its very good and you are part of the team.

I hated my old office from day one. You could go 2 weeks without seeing anyone. It was depressing before. I am pleased to be here. Quick chats sort things out. Other open plans are not as good (e.g. that provided for the PhD students. The light is great

The comments above seem to show a generally positive reaction to creative open plans though do hint at the need to consider individual needs in allocating space (previously efforts were made to allow more introverted individuals space in the quieter corners) and the need to develop behavioural protocols. Other comments do highlight again the issue of managerial style and team culture in such new offices and perhaps the need for gentle guidance on issues such as who sits where.

We get used to talking in a different way and being more diplomatic

We just placed ourselves. Admin stays together

We are more likely to have callers. It makes projects flow

Storage and accumulated stuff becomes an issue. We are still getting used to not cluttering

I used to have a room with my name on the door. Here students are less likely to come in and seem me. Harder to bring together bits of work and have books and resources to hand but face to face contact is good.

The office suits a relaxed and approachable management style. It would not have worked with others

In contrast to the prevailing views revealed by the MBA projects described above the evidence would seem to be that 'team oriented bull pen offices' (to use Becker and Sims' 2001 terminology) can work and be appreciated at least in certain academic environments.

The quality team

This particular faculty has established a senior member of academic staff as their space co-ordinator¹³. She suggested one particular open plan housing the faculty's quality team appeared to function particularly well and be well received by the individuals working

¹³ Through prior exposure to the authors and their colleagues this individual had acquired a particular interest in space and its impact on organisations.

there. The team leader agreed and she and three members of staff who had been part of the Team since its inception in 2004 agreed to participate in a focus group with one of the authors who explained the purpose of the study and asked them to narrate their experiences.

Following the reorganisation into faculties the team was formed and allocated into an existing open plan office where other administrative teams were already located. They recalled the atmosphere as stressful and crowded especially when up to 20 visiting staff members might be found in the reception space. They believed this might have explained five changes of receptionist in 18 months. The team leader was “*given a cubicle across the fire corridor behind a pillar*” and felt isolated from the team; “*the image of being the big boss felt wrong*”. Her partitions were “*higher than other people’s and people used to lean over as if to say ‘who are you’*”.

The group recalled the environment as *extremely territorial*. The Senior Officer who had the corner desk near the window ‘*would not move*. They recalled the pre-existing occupants as being territorial

We were made to feel (by some more than others) that we had invaded their space and had to take what desks were available. It was a noisy environment where concentration was not possible. xxx who had been there since 2000 felt it wasn’t nice. The space was dark and made worse by a layout with lots of tambours in the middle. There was little storage and none was offered to them “lived out of crates for 18 months”

There was nothing positive about it. The atmosphere was very oppressive and service did not happen. There was so much bitterness when we moved in that I still prefer not to go. They were always there. “We tried a tea and coffee hour but there was no mingling

In October 2005 a space on another floor became available. Two teams **bid** (authors’ emphasis).

Our business case won because of a need for quiet concentration. We did not notice it at first but there were no screens and the Tambours were round the edge. It seemed open and friendly and we wanted people to be able to come in, stay and chat.

Of interest in this comment is the manner in which it illustrates the subtle effect of space; its unnoticed influence. Also obvious is the unwritten rule about competing for space. It was apparent that the inclusive managerial style and micro-culture of the team suited the space. As the Team Leader commented “*being taken out of my little hole – I felt part of the team. We were able to bring in new members.*”. They volunteered the importance of informal interaction

Listening is important to the team. We pick up on chat. You could not do it on Level 4. Free communication is really important. Problems get answered. We try to give the 3/4s peer support.

There were perceived practical downsides. No water, no nearby toilets, post and photocopiers still on (the old level) “but it was far outweighed by the benefits”. Territoriality, on a wider scale was still seen as an issue:

We had to share a kitchen with (the adjacent research centre). They saw it as their kitchen and were condescending “oh you again”. They monitored how much water we used.

There was apparently a cross charging arrangement in place and the example serves as a reminder of the divisive effect procedures can inadvertently have.

But we had a sense of identity and our space. It was nice to have pictures up. We found screens were not needed.

In June 2007 the team moved again to their current location,

We are truly grateful for what we have. We would only move again into a similar space, not a large open plan or we would complain.

There was a discussion of move going smoothly, reaffirming La Framboise et al’s observations about communication.

One administrator volunteered to be project manager and liase with FD and the faculty

When the space was first viewed it “had central tambours – horrible” but it was rearranged to the teams design without screens or central storage.

We also have access to photocopiers, kitchen, cold water and main office. “Really nice not feeling isolated” “Feels collegial – you see people in the corridor” 2It is nice to feel we are coming together. “Useful little meeting rooms on the corridor¹⁴.. We have had so many comments on how welcoming our office is.

There was also a feeling that they were able to be different

“So many people are Mardy¹⁵ in this place. There’s a resistance in some teams. It’s historic but you have to work round it.

And more spontaneous praise for their current office with several references to the informal interaction that it enabled

¹⁴ In this particular floor, despite the long and narrow profile of the building a portion of the central corridor had been widened into a small, informal commons. The comment indicates how it was well received.

¹⁵ A local dialect word for moody or miserable. Do ‘Mardy’ spaces reenforce a ‘Mardy’ mood.

“It’s light” “info is shared” Its good for the 3/4ws they can pipe up. Where people are sitting is right, its good for admin to be together. We aim to be the same with people we support. All hands on deck rather than that’s not my job. Takes the confrontation out of validation and audit. No space for long timers people who want to be carried.

The Team Leader concluded overall *though it’s hard to quantify I feel it has raised productivity.*

There was some discussion of informal hot desking but a generally cautious reaction *“If you have specified hot desks then it should be clear”. Sharing desks would be hard, really hard. It does depend on how neat and tidy you are and personality”.*

The Health and Well-being Building

The University’s Faculty of Health and Well-being has its main location in a former YMCA building acquired and converted by the university and equipped as a state of the art teaching centre (hyperlink) with a particular emphasis on cross-professional education for nurses and allied health professionals. Academic accommodation was provided in one, three and five person offices according to the current space policy. However, unusually, the then school decided, at the urging of the then dean to deliberately mix members of different subject groups between offices in order to promote more informal cross professional exchange¹⁶.

At the time the perception, at least in informal comments made to the authors, was that this had been successful and did indeed promote cross-professional exchange. It is not known whether this was a factor in the University securing the larger educational contract.

In planning this research the author’s had hoped to investigate more rigorously how those offices were now perceived two to three years later. However an informal discussion with a manager from the faculty’s support services suggested this might be problematic. Apparently the culture of ‘management by walking around’ that the previous dean was trying to encourage has diminished wither departure and there is, or has been, a perceived problem of new recruits assigned to subject groups finding themselves isolated from new colleagues. There have also been concerns that administrative staff relocating as part of the transfer have been fitted into rather than integrated into the existing administrative space leading to two groups separated by informal design barriers; a situation very similar to that described in the previous case.

At the time of writing the author’s are scheduling a process to further examine these issues. As the previous cases and literature (Donald, 1994) have suggested newer spaces require pro-active management without which they have a tendency to become organised

¹⁶ A policy hat one of us had successfully encouraged in a commercial research department of 60 scientists and technicians.

into smaller tribal spaces and to settle into geographies that reflect hierarchy. Those with most power grab and hold onto the perceived 'best seats'. More structured, 'mechanical' managerial cultures do not appear to mix easily with more 'organic' adaptive work-places.

DISCUSSION AND CONCLUSIONS

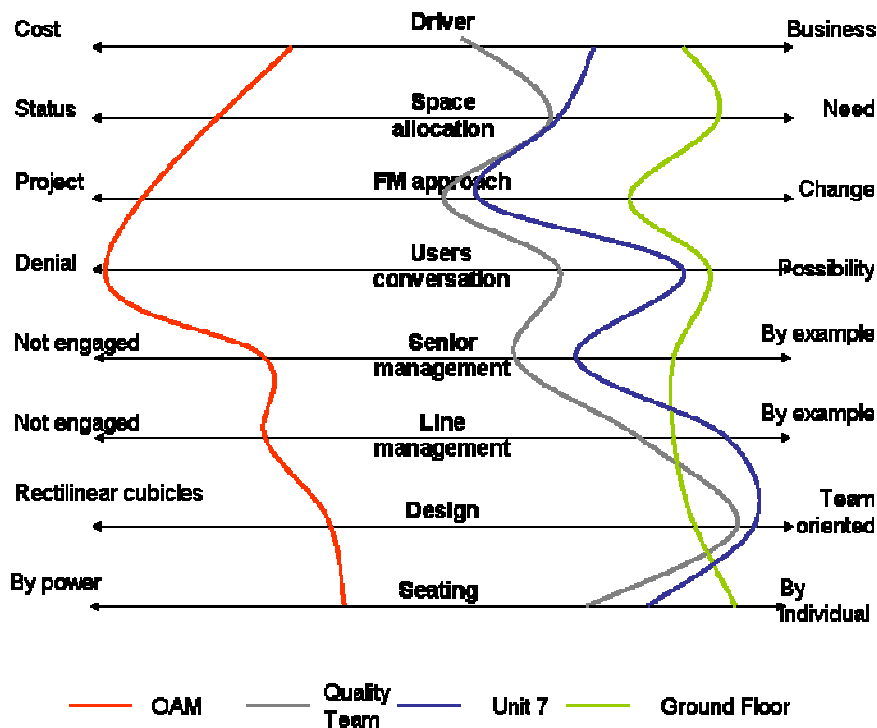
In general the observations on universities in general and the SHU specific case studies reveal and re-enforce the lessons that can be found in the literature. One intriguing possibility is suggested by Case 1. The traditional route into academia via postdoctoral or research associate positions may influence perceptions of space that develop into a widely held view that dedicated space is, if not a formal contractual right, part of the informal psychological contract between an individual member of staff and their university. The view seems to prevail up the order to the vice chancellors who responded in Case 3 though the same case illustrates that a group at such a level forced by circumstance into an open configuration found it positive. The overall reactions of the people who moved into unit 7 also suggest that well designed open offices can be seen as generally positive. More attention to protocols and individual needs in seating arrangements might have prevented more of the perceived downsides.

The most negative reactions to open designs have come from administrative staff moved, without planning, into open spaces where furniture, particularly storage units, but also screens, has been deployed to mark out particular territories: a tendency which is almost inherent unless local manager guard against it. Acoustic interference in such situations is made worse by the lack of visual contact (c.f. Becker and Sims, 2001). The observations in the literature about negative reactions to 'cubicle' and rectilinear open designs are supported as is the evidence that spaces which break this mould tend to be seen more favourably.

More generally the cases reveal the various tensions or dichotomies (Figure 4) found in the literature, in the projects above and in the author's experience. The fields on figure 4 are not in any sense independent of one another but they do suggest axes on which different projects can be mapped¹⁷. 'Open' office arrangements that have been favourably perceived tend towards the right hand side of the figure. They have been developed with a business objective and a determination to avoid 'space by status'. They have been implemented by change management rather than simply a project, succeeded in being seen as an opportunity f not a threat or the users (a change process in itself). They have had at least local if not senior managerial support and probably reflect a 'modern' managerial style, or at least one that recognises that an unseen employee is not an idle one. There is growing evidence that the designs which work owe more to thinking about social learning spaces than to traditional space planning and they recognise that not only does work vary but so do individual psychologies and responses.

¹⁷ It would be interesting but beyond the scope of this project to see if a scale could be devised for any of these axes.

Figure 4 The tensions in open plan layouts related to the four case studies presented here. Scaling is qualitative but the more a case fits the right hand side of the diagram the higher the reported success.



Running through all the cases, but especially that of the relocation of O&M is the degree to which perceptions of space become part of the socially constructed ‘reality’ of an organisation declared into existence and re-enforced by generally tacit, and taken for granted, assumptions. Where the underlying managerial approach is also geared to traditional hierarchies newer spaces find it hard to win approval and can revert as occupants recreate physical expressions of traditional structures. There are better and worse designs. Different individuals are more or less susceptible to interruptions. Communication and user involvement in design is important though the Unit 7 study suggests that, if **the new space is a sufficient improvement on the old**, even that may not be essential. The profile does suggest areas where the reported downsides could have been alleviated by more guidance on who sat where. The quality team had an opportunity to evolve to a better environment, in a faculty where there was some senior recognition of the need to manage space. The ground floor case, while not an office per se, shows the benefits of attractive commons or hubs.

The project orientated world of FM and the ongoing need for active management of space can lead to misunderstandings. Ultimately however the case examined suggest that in universities as elsewhere space and the way it is perceived reflect the cultural patterns and assumptions of those who occupy it. There is nothing in the research to establish a particular case that academic institutions differ in this regard from other organisations.

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