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Cleaners don’t need computers: Bridging the digital divide in the workplace

Abstract

Purpose To report the findings of research into the extent and impact of restricted access by specific groups of staff to ICT-based communications in UK Further and Higher Education Institutions.

Design / methodology / approach An exploratory approach combining quantitative and qualitative methods. A questionnaire survey was distributed to all HEFCE-funded institutions in the UK. Six institutions acted as case study sites for in-depth qualitative investigation using documentary analysis and semi-structured interviews.

Findings Lack of hardware and network infrastructure posed less of a barrier than lack of ICT skills, lack of motivation either to use computers or to gain ICT skills, and line manager resistance to staff using computers or accessing ICT training in work time. Job function was the factor most associated with lack of access, with cleaning, catering and estates staff least likely to have access. However, there were also many examples of good practice to extend staff access, particularly with regard to ICT training. The research concludes that one of the main concerns for institutions is to ‘win the hearts and minds’ of non-desk staff and their managers. The development of an institutional communication strategy is identified as being of critical importance.

Research limitations / implications Provides a ‘snapshot’ of the prevailing situation at the point of data collection rather than a longitudinal insight into developments in access over time.

Originality / value of the paper The first comprehensive analysis of staff access to ICT in UK further and higher education. In addition to highlighting examples of good practice for dissemination across the sector, the research provides information about gaps in provision to inform the targeting of future initiatives.

Keywords Information and Communication Technologies, higher education, further education, access, staff, digital divide.

Paper type Research paper

Introduction

As in many other private and public sector organisations, further and higher education institutions in the UK are relying increasingly on the use of Information and Communication Technologies (ICT) as the primary medium for the internal dissemination of key corporate information. In addition to the use of email for one-to-one communication, important information is routinely disseminated institution-wide or to targeted groups via email lists; policy documents, strategies, manuals and other forms of practical information are made available to staff on intranets and corporate websites; Virtual Learning Environments (VLEs), Computer-Aided Assessment and technology-based multimedia applications are used to enhance the learning and teaching experience and improve teacher-student and student-student interaction. Indeed, the use of new technology to support learning and educational administration has received considerable government support and encouragement (see, for example, DfES, 2005; HEFCE, 2005; Becta, 2004).

However, while the education sector has made significant progress towards the improvement of network infrastructure and the provision of computer hardware, there has been a lack of research to establish the extent to which access to ICT-based communications is available to all personnel within individual institutions. This project was initiated in response to concern expressed by the Joint Information Systems Committee (JISC) that a significant proportion of staff were being excluded from this access, whether by virtue of their job function, their conditions of

contract (e.g. part-time or fixed-term) or their geographical location. Whilst for some staff, access to ICT may not comprise a core component of their day-to-day work, the resultant loss of access to key corporate and external sources of information in an increasingly 'virtual' work environment, risks perpetuating and extending existing inequalities among personnel, creating a digital divide between the "information rich" and the "information poor" (Norris, 2001; Feather, 2004). There was also concern that restrictions on staff access to ICT were likely to be acting as a constraint on the efficiency and effectiveness of institutions.

The research therefore aimed to quantify the extent of any restrictions on staff access across the sector, in order to understand the scale of the problem, as well as to conduct a qualitative analysis of its impact on individuals and institutions. In addition, it set out to identify examples of current best practice in institutions that are taking measures to extend the range of personnel with access, and specific methods that institutions have adopted in order to ensure inclusive communication with all personnel irrespective of role or function. Some brief discussion of such examples is provided here: more comprehensive analysis can be found in the full JISC research report (Cooke et al, 2006).

Impact of the digital divide

It is commonly accepted that developed economies are increasingly dependent on information- and knowledge-based activities rather than on labour-intensive and resource-intensive manufacturing industries. Castells

(2000), for example, describes the defining feature of this new era as "informationalism", with economic opportunity and social mobility being premised on the ability to harness the potential benefits offered by new communications media. However, there has also been extensive recognition of the impact of the digital divide, whereby there is differential access to these media. This may be the result of lack of access to hardware and software, or from a lack of IT, information literacy, or basic skills. It may also be the result of a perception of lack of relevance or usefulness of computer and network access, or of lack of relevant content to be accessed (Hellawell, 2001).

A key concern in the digital divide debate has been that differential access to information and communication technologies (ICT) risks reinforcing existing inequalities inherent in social structures and exerting a disproportionate effect on those with low educational attainment and lower household income levels (Golding and Murdock, 2001; Murdock and Golding, 2001; Mossberger et al, 2003; Bozionelos, 2004). In addition to the lack of economic opportunity and job mobility afforded to those without ICT skills, in a world where work processes are increasingly automated[1], non-users also face a potential lack of democratic opportunity as the tools for civic participation, engagement and communication are increasingly available online (Mossberger et al, ibid; Norris, 2001). As the availability of well-paid manufacturing jobs has rapidly eroded, and the 'job for life' culture has disappeared, the same non-users are hampered in their ability to take advantage of online job-search opportunities or online learning

opportunities, and generally lack the social networks that lead to employment opportunities, available to those higher up on the socio-economic scale. Thus Norris (2001) points towards the growth of an unskilled underclass, who face further marginalisation as basic IT skills become the essential passport to career advancement, personal development, educational opportunities, social networks, civic engagement and access to public information.

In recognition of the need to 'level the access playing field' public policy initially focussed on providing public access, particularly across the public library network (as, for example, with the *People's Network* initiative in the UK[2]). However, it rapidly became apparent that policy effort needed to focus on the skills divide as well as the access divide, if potential users were to be able to take advantage of the opportunities offered by new technologies. Indeed, research by Mossberger et al (2003) confirms the assumption that the access and skills divide are inherently linked in a form of vicious circle: without access, potential users are not able to develop skills, and without skills, they are unable to benefit from access. Moreover, it is not simply a matter of IT skills: users need to be able to locate, make sense of, and evaluate appropriate resources, and therefore attention needs to be paid to the development of information literacy skills. Further, for some groups, basic literacy levels need to be raised in order for them to be able to benefit from internet access.

The importance of internet access at work as a means of gaining familiarity with, and skills in using, new technologies has been noted by Norris, who highlights the fact that the unemployed and those in manual occupations are less likely to experience internet access in this way (2001, p.80). This reduces the possibility of overcoming psychological barriers towards computer use (Bozionelos, 2004) and reinforces the impact of Rogers' diffusion theory, whereby early adopters of new technologies tend to be drawn from groups with a higher socioeconomic status, who thereby reinforce their own economic advantage (cited in Norris, p.70-71). Trying to overcome psychological barriers towards computer use by providing access in public libraries is unlikely to be successful in many cases: as Mossberger et al note, low income and less educated individuals are those who are most likely to be resistant to using such public access sites, deeming them to be unwelcoming and irrelevant to their needs (2003, p. 39 and p.51).

Whilst there are undoubtedly altruistic and moral imperatives to encourage initiatives to eliminate barriers to internet access for all social groups, there are also other compelling public policy drivers. In an information- and knowledge-intensive economy, a well-educated and skilled workforce contributes to the stock of 'human capital'[3] that is key to the competitive advantage of national economies (Edvinsson & Malone, 1997). Moreover, if we are not just to treat the symptoms of poverty and disadvantage, but instead are to offer a way out of deprivation, then it is essential to provide the 'second order' resources, such as education and skills training, that

enable individuals to create alternative futures (Servon, 2002). Similarly, as public bodies have emulated the use of the internet by private corporations to disseminate information about their services, the internet has become a valuable source of political and civic information. The potential of Web 2.0 technologies to extend the interactive and collaborative nature of the online environment, offering opportunities for a genuinely deliberative public forum, could, ironically, lead to new barriers to social inclusion for those unable to participate in such an environment (Wallis, 2005). At a time when democratic participation, civic engagement, and social inclusion, are all high on the policy agenda of governments, this is a matter of key importance.

Therefore, although this research represents a relatively bounded study in one sector (education) of the labour force in the UK, it is important to understand the wider implications of its findings. In particular, the insights afforded by the findings into barriers to, and enablers of, inclusive workplace communication policies are transferable to a wide range of other contexts.

Methodology

The overall research strategy was exploratory in approach and comprised a combination of desk research, a web-based questionnaire survey distributed to all eligible institutions in the sector, and six in-depth case studies carried out at a targeted selection of institutions. This combination of methods aimed to allow the collection of wide-scale quantitative data

that offered a broad and representative overview across the UK further and higher education sector, as well as providing a richer, more qualitative insight into specific issues within particular institutions.

Survey design and analysis

The questionnaire survey was intended to address the quantitative aspects of assessing levels of restricted or non-existent access to ICT systems. It was distributed electronically to a named individual in each of the 371 HEFCE-funded Higher and Further Education Institutions in the UK. Questions were generally closed, although where appropriate an 'other' category was offered with an opportunity to elaborate. Respondents were asked about:

- The existence of formal policy documents outlining the principles of access to ICT-based communications within the institution, and of any stated policies with regard to the use of electronic communications media to disseminate corporate information;
- The extent to which hard copy provision of information otherwise disseminated electronically is made available to those without access or to those with limited access;
- The use of VLEs and other multimedia applications in the learning and teaching process;
- Numbers of personnel without access or with restricted access, and their functions and status within the organisation;
- The provision of training in the use of ICT systems, and to which categories of staff such training is made available;

- Any examples of current initiatives within the organisation that are intended to extend access or to counter the negative impact of restricted or non-existent access.

In addition, the questionnaire asked respondents whether they were willing to participate further with the research by acting as a case study site. Prior to analysis, the survey data were checked and grouped into further and higher education responses, and analysed by sector. The two sectors were then statistically compared to identify any significant differences between the two groups of responses.

Case studies

Six institutions were selected as case study sites, in order to provide a more in-depth qualitative insight, particularly with regard to the *impact* of limits to network access on institutional effectiveness and efficiency, and with regard to the identification of good practice within individual institutions. In order to achieve a balanced perspective, three institutions were selected from the further education sector, and three from the higher education sector. With regard to the latter, care was taken to include at least one institution from each of the 'new' (i.e. post-1992) and the 'old' university sectors. Further selection criteria included ensuring a geographic distribution that included institutions from each of the constituent countries of the UK. Within these parameters, institutions were then selected according to the 'intrinsic interest' (Stake, 1995) of their questionnaire responses and, to a lesser extent, by their accessibility to the research team. The final selection comprised:

Further Education	Higher Education
Causeway Institute, Coleraine, N. Ireland	University of Wales, Bangor, Wales
Lauder College, Dunfermline, Scotland	University of Chichester, England
Loughborough College, England	Loughborough University, England

Table 1 Case study sites

At each site, a series of semi-structured interviews was conducted with a range of personnel. Although the job titles of specific individuals who were interviewed did, of necessity, vary somewhat between institutions, interviews in each institution were held with representatives of some or all of the following departments or functions:

- IT and Information Services (usually the Director);
- Estates Department (where possible, both the Head of Department and operational personnel);
- Equality and diversity;
- E-learning champion.

Other staff involved in interviews at one or more of the case study sites included representatives from staff development and personnel departments, teaching staff and a trade union representative. Although specific questions that were asked were guided both by responses to the initial questionnaire and by the interviewee's role and function, and the semi-structured nature of the interviews meant that some topics were discussed in greater depth by some interviewees than by others, the same general themes contained within the survey questionnaire (see *survey*

design and analysis) were explored, at least to some extent, in all the interviews.

In addition to the interviews, copies of relevant institutional documentation (such as communication policies) were obtained and analysed, and, where possible, organisational intranets and portals were also observed.

Findings

Desk research

The initial desk research revealed that this is an under-researched area, with little evidence being found of any previous work specifically relating to a digital divide in the tertiary education workplace. Where work on access to ICT in further or higher education does exist, the focus has tended towards accessibility in e-learning design for students and staff with disabilities (e.g. see Phipps et al, 2005). Some statistical analyses of relevance have been undertaken: for example, with regard to the further education sector, a survey carried out by Becta on behalf of the Learning and Skills Council (LSC) reported in 2004 that "access to ICT…for staff has reached target levels set by the National Learning Network (NLN)" (Becta, 2004). However, the target set related only to permanent members of teaching staff and fails to take into account contract teaching staff or other types of staff employed, thus omitting the very groups most likely to be marginalised in terms of access. The annual statistics from UCISA (Universities and Colleges Information Systems Association), representing

UK universities and higher education colleges and an increasing number of further education colleges, are also of some interest. The most recent available figures indicate that in 2005 provision for staff averaged 1.1 staff per work station (UCISA, 2006). This figure has remained relatively constant for the last eight years. The same survey data show that the average number of hours of IT training for staff has been decreasing in recent years – the average in 2005 was 1.2 hours per member of staff.

Survey response rate

The questionnaire was distributed to 371 institutions in total, comprising 212 Further Education Institutions and 159 Higher Education Institutions. After some initial chasing, an overall response rate of 32.6% (n=121) was achieved, spread fairly evenly between the further (31%, n=65) and the higher (35%, n=56) education sectors. Of these, the research team received offers to act as a case study site from 25 Further Education Institutions and from 15 Higher Education Institutions.

Communications policy

Overall, fewer than half of all responding institutions had a stated policy or policies relating to the means of internal dissemination of information: although half of Further Education Institutions had a communications policy in place, this was the case in significantly fewer (31%) of the Higher Education Institutions. However, institutions did commonly note an increased commitment to the use of electronic communication (principally email and intranet), as illustrated by such comments as:

> *[HEI A] has principles in relation to electronic communication media, but these are not necessarily expressed in formal policies. For example, the decision to make "kiosk" PCs available, so that everyone could access the Web and email, was made at the highest level in the institution, but was not (to the best of my knowledge) formally expressed in policy terms.*

However, a proportion of institutions had given formal expression to such principles through a stated communications policy: good examples that the research team investigated included the *Electronic Communication Policy* at Loughborough College and the *Internal Communication Policy* at the University of Chichester. The latter is interesting in its identification of the two-way responsibilities of staff towards communication: it enshrines the principle that staff have a duty not only with regard to information dissemination, but also with regard to keeping themselves informed: as the Director of Information Services put it, '*Nobody has the right not to be communicated with!*'. At Lauder College the principle of using electronic communications media is enshrined within an overall *ICT Pervasiveness Strategy* document, which has been instrumental in embedding the use of ICT as the primary means of communication across the College's many distributed sites across West Fife.

Non-electronic information dissemination

A large majority (around 80%) of institutions across both sectors make some hard copy provision of electronically-available corporate documentation, although this is often only on request. Examples were

found of institutions that were trying to move away from the use of hard copy altogether, in order to instigate better version control and to reduce the environmental impact of whole scale document printing. However, institutions generally recognised the need to make alternative provision for those without computer access, or for those with specific requirements as a result of disability such as visual impairment. Indeed, it was noted at Lauder College that the time saved by online document delivery can be used better to meet the needs of those with specific access difficulties. There was also a strong emphasis on the information dissemination responsibilities of line managers. Memos, staff meetings and briefings, newsletters, notice boards, handbooks and payslips were all cited as alternative means of information dissemination. However, respondents in some institutions also noted a reliance on '*luck*' or '*the grapevine*' to achieve effective information dissemination.

Access policy

In further education, 68% of respondents said they have a policy or policies outlining the principles of access to ICT-based communications within their institution. This compares to 56% of respondents in HE. In common with institutional communications policies, some respondents said that the principles of staff access to ICT are not formalised into a policy in their institution. For example:

> *Although policy is not formal…there is an informal expectation that all staff will have access to ICT-based communication.* [HEI]

Where an access policy did exist, in many instances the emphasis of the policy focused on compliance with acceptable use and security issues, rather than on access entitlement. Another higher education respondent commented:

> *Policy formulation has concentrated over the past three years or so upon the highest priorities: i.e. regulatory compliance, information security and acceptable use. Having addressed these we are now turning our attention to information management and dissemination, firstly regarding email good practice, but we need to get to grips with information classification and electronic record /document content management. Without these, widening access to information could quickly become out of control.*

Factors affecting staff access to ICT

The research indicated that the provision of computer hardware is generally adequate across both sectors, with desktop access being supplemented by the provision of loan laptops. In addition, staff are making increased use of their own computer facilities to work from home. However, in the majority of institutions not all groups of staff have equal access: table 2 indicates the factors that exert the most influence over levels of access in each of the sectors.

Further Education			Higher Education	
Factor	% respondents (n=60)		Factor	% respondents (n=52)
1 Job function	68%		1 Job function	87%
2 Geographical location	38%		2 Level of ICT skills	27%
3 = Level of ICT skills	37%		3 Geographical location	21%
3 = Type of contract	37%		4 Type of contract	19%
5 Financial constraints	32%		5 Financial constraints	15%
6 Status/seniority	25%		6 Status/seniority	13%

Table 2 Factors affecting staff access to ICT, ranked and by sector

Thus, it can be seen that job function is the most critical factor in determining whether or not an employee will have reasonable workplace access to ICT. With regard to the impact of contract type on staff access to ICT, further education respondents frequently mentioned that part-time staff tend to share computers, particularly part-time or sessional teaching staff. Geographic location posed particular access difficulties for teaching staff based in community or work-based locations, such as the prison service. In addition to the factors shown in table 2, 3 further education respondents (5%) cited physical building constraints / space as a limiting factor in their institution, while one higher education respondent said that sharing of offices / desks was a factor.

Staff without access to a networked computer in the workplace

Questionnaire respondents were asked to report on the proportion of staff within each of the occupational groups of academic, research, academic-related, clerical, technical, estates, cleaning, and catering who do not have access to a computer in their workplace. For staff in the academic,

research, academic-related, clerical and technical groups, some form of access was generally available, although, with the exception of estates and technical staff, staff in further education were less likely to have access than their counterparts in higher education. In both sectors, lack of access to computers is most pronounced in catering and cleaning staff groups. In some cases, respondents said this was because cleaning and catering functions are outsourced – the implication being that it is the responsibility of the contractor to communicate with these staff. Where access to networked computers was provided for these groups, they tended to be given the oldest and slowest machines, cascaded down from upgrading of the machines used by other groups.

A number of respondents suggested that some groups of staff may not be motivated to use computers, even if they are available. Conversely, the attitudes of those responsible for IT provision may also play a part in determining which staff have access. One further education respondent claimed:

> *Cleaners don't need computers, catering people don't seem to want them because even when supported and helped they do not use them and anyway their hours of work are very closely aligned to catering opening times so there is no real time for other than their own job which doesn't require the use of a computer.*

However, there were also many examples of more positive attitudes and proactive initiatives to open up access to non-desk-based staff. For

example, most institutions now have a policy of entitlement to a user account and email address for all staff, irrespective of job function. Nevertheless, whereas activation of user accounts tends to be automatic for other staff, non-desk-based staff in many institutions have to apply to activate their account and in practice do not always take up the opportunity.

ICT skills and training

The majority of institutions make ICT training available to all staff groups: 83% of further education and 74% of higher education respondents reported that this was the case in their institution. Where training is not made available to all groups it is generally staff in estates, catering or cleaning departments who are not eligible to take part. Some case study respondents reported that initiatives to extend ICT training to those in manual functions had met with low take-up and were therefore not viable. Staff turnover in these functions also tends to be high, making regular training provision a resource intensive activity. In some instances, the implementation of new computerised systems had acted as a driver for initiating ICT training for manual staff: examples of this were security staff responsible for operating new CCTV systems, and maintenance personnel required to use a new facilities management system. Furthermore, the increased use of intranets as document repositories, and the growth in volume of information in circulation in institutions, had highlighted the need to support staff in developing information literacy skills – even where staff

possessed adequate computer skills, they did not necessarily know how to locate relevant information on the corporate intranet.

The case study interviews indicated that the ICT skills levels of teaching personnel are also very variable, particularly in the further education sector, and this impedes the ability of institutions to implement innovative methods of learning and teaching or to take full advantage of their Virtual Learning Environment (VLE). Staff who had come to teaching from more practical craft-based professions, such as carpentry, did not always have previous experience of computer use and, in some cases, did not understand the relevance of such skills to the role of a lecturer or the role that technology can play in the classroom.

The attitude of line managers towards staff gaining ICT skills plays a crucial role: where such skills are not seen to contribute directly to the performance of work duties, line managers were often reluctant to allow such training to take place during work hours. Even where they recognised the benefits of their staff learning new skills, it was often difficult to release staff from covering essential duties. This was particularly the case with part-time staff. Nevertheless, there were many examples of good practice with regard to the provision of ICT training, including targeted training initiatives for non-desk-based staff. Opportunities on offer at different institutions included informal IT drop-in sessions, a dedicated ICT training day and one-to-one training and support. Peer mentoring and 'buddying' is also being used in both a formal and informal manner. For example, at

one case study site, the Senior Caretaker described how a younger, more IT-literate member of caretaking staff had been instrumental in helping his colleagues to use ICT. Many institutions offer the possibility for staff to gain the ECDL qualification, and new staff induction is often used as a key opportunity for training interventions. The importance of leadership and the development of a culture of learning was highlighted by the case studies: at Lauder College, the former Principal was seen to have led by example by undertaking the ECDL qualification, and at Loughborough College the Principal was described as being '*very inspiring*' in encouraging staff to develop their ICT skills. This affirmative approach was illustrated by the College's participation in a national project to facilitate training for staff who work unsociable hours. All cleaning staff had been offered basic skills training and had been paid for the time spent attending. According to interviewees, the cleaning staff had shown a '*thirst for learning*': the encouragement and positive attitude of the cleaning supervisor was seen to have been instrumental in this desire for training.

Initiatives to improve staff access to ICT

In responses to the questionnaire survey, significantly more (at the 1% level) further education than higher education respondents said they currently had initiatives to improve staff access to ICT (81% compared to 54%) . In further education, initiatives predominantly featured the provision of staff training or making laptops available to staff, in particular to teaching staff. Other examples included:

- Wireless networking and provision of remote access;

- Home computer purchase initiatives, including making redundant college PCs available for purchase;
- Hot desking;
- Reviewing IT access in staff rooms;

In higher education, the focus was also on ICT training. Other examples included:

- Provision of PCs in shared areas, e.g. cyber cafes, 'kiosk' PCs, staff rooms, part-time staff labs;
- New posts covering information architecture (including the development of taxonomies and metadata) and records management, in order to make information more accessible;
- Provision and loan of laptops in place of desktop PCs.

A degree of complacency was voiced by several higher education respondents, one of whom stated '*We are at optimum*'. Another commented:

> *Access to ICT by all staff doesn't seem to be an issue here – it's not that some people might not like it who don't have (much) of it, but from the institution's point of view it has been a long time since I have heard that 'x can't get the sort of PC they need' or 'I never heard about that…'.*

This contrasts with the comment from one further education respondent, who said:

> *I feel the lack of complaints about access within my institution indicates the need for greater staff training and I am about to put*

> *together a cross-college training scheme for both academic and support staff. I expect that the demand for physical access will then increase.*

The case studies offered some examples of good practice in extending access to all staff groups. At the Causeway Institute caretaking and catering staff had been provided with a dedicated computer for their use, although it was acknowledged that such staff were often apprehensive about computer use and relied instead on line managers to filter information down. At Lauder College the implementation of a computer-based facilities management system had led to recognition that facilities staff need access (for example, in order to obtain their task list each day), and therefore issues of whether computer use is a valid use of their time did not arise. The College also provides laptops for loan for home use to all staff, but the perception tends to be that these are only available to academic staff and uptake of them tends to reflect this perception.

At the University of Chichester manual staff have access to ICT training, and to a shared computer facility attached to a workshop for the use of maintenance, grounds and security staff. However, only about one third or these staff have made use of it, and therefore information is still printed out for distribution either to individuals or via a notice board. Contracted catering and cleaning staff do not have access, so managers are responsible for disseminating important information verbally or in hard copy.

At Loughborough University, the devolvement of funding for computers to departments was recognised as having the potential to act as a constraint for departments where computer use is not a core feature of the job. This had been resolved to some extent by making redundant computers from other departments available to them free of charge. Manual personnel such as security staff, cleaners and maintenance staff, are the group that are least likely to have ready access to a computer. Although shared access to a networked computer is available to estates staff in their canteen, this usually limits staff to using it in their break time. Supervisors of manual staff usually have access to their own computer: according to the cleaning supervisor who was interviewed, access to a computer and to email has enabled faster reporting of maintenance requests, with an almost instantaneous response that lets her know that the job has been logged. She also commented that she is able to access information more quickly using the intranet and that her paperwork has been significantly reduced.

All new staff at the University are offered ICT training as part of their induction: finding information on the Web (and who to ask if you cannot find it) is included in this training. In recognition of the fact that lack of access to computers might be less of a barrier for residential and estates staff than was posed by their lack of ICT skills and a lack of knowledge of how to find information, the University had organised an *IT Awareness Week* specifically for these staff. This included guidance on the availability

of resources, hands-on training on internet and email use, and a guide to further training opportunities. A spin-off from this initiative has been the provision of evening classes for University estates staff at a local Community College. However, it was acknowledged that some staff are not interested or motivated to develop their skills and the cleaning supervisor suggested that some staff are still fearful of computers: she had felt the same a few years ago, but '*the more you use them the more confidence you gain*'.

The dispersed nature of the estate of one case study site in the higher education sector was acknowledged to pose logistical difficulties in the maintenance of good communication across the University, particularly with regard to staff in the Estates Department. Security and cleaning supervisors have access to a shared computer, but estates staff other than supervisors and managers do not have any dedicated access. Focus groups had been held with these staff and they had expressed a need to have access to ICT. As a result, a plan had been formulated to make older machines available specifically to estates staff in various locations across the premises (*'after blocking the games on them*'). However, this plan had met with resistance and was never fully implemented. Operational managers were opposed on a number of grounds: these included concerns that staff would '*look at dodgy websites*'; the implications for training needs; and whether there was any purpose in the initiative ('*should cleaners have computers?*').

Discussion and conclusions

Across both sectors there appears to be a broad recognition at institutional level that all staff should have some access to ICT, and in 71% of questionnaire respondents, this has been formalised into policies governing the principles of staff access to ICT and / or corporate information dissemination. This is driven partly by an increased recognition of the efficiency benefits of the computerisation of processes such as fault reporting, events booking, and purchasing and procurement. On the whole, the provision of ICT hardware and network infrastructure is no longer seen as a major problem, although institutions with very dispersed estates do face particular difficulties. Job function was the most commonly cited factor affecting staff access to ICT in the responding institutions, but there appears to be a consensus that staff who need access to a computer to do their job do have access. Institutions are making increased provision for estates staff, although they are often provided with the oldest and slowest PCs which might act as a deterrent to those who are already reluctant to engage with computer use. Contracted staff in manual roles, such as cleaning and catering, appear to be the only group who are routinely excluded from entitlement to an institutional user account.

The majority of reported initiatives to improve staff access to ICT focused on staff ICT training, and once again, there was often a broad recognition of the importance of all staff possessing basic ICT skills. There were a number of examples of innovative and proactive approaches in meeting the training needs of personnel in manual roles. The real dilemma with

regard to non-desk-based staff seems to rest in winning over their 'hearts and minds' (and sometimes those of their line managers). Staff themselves were not always motivated either towards using computers or towards gaining new skills. This may be in part due to a fear factor, especially with older staff, but may also be attributed to a lack of awareness of the potential benefits to be had. Operational managers also do not always see the need for their staff to possess these skills or to use ICT, and in some instances the lack of trust on their part that staff will make responsible use of ICT is acting as a barrier. This will, hopefully, become less of an issue as younger staff, who accept computer use as an integral part of the job, are appointed into supervisory and managerial positions. Four fifths of responding institutions currently make hard copies of corporate documentation available to staff. Whilst necessary in the current situation, the duplication of hard copy and electronic information in order to accommodate all staff groups, represents a duplication of effort and resources that the sector could more usefully deploy elsewhere.

In further education in particular, the combination of increased use of learning technology, together with large numbers of part-time sessional staff and community- or work-based staff, poses real dilemmas with regard to access to ICT. The questionnaire findings confirm that significantly fewer academic staff in further education have a computer for their individual use, and that in a few cases there are teaching staff without any access to ICT in their workplace. In the long term, access issues may be overcome by the increased prevalence of wireless network access

combined with mobile devices such as laptops, although cost is currently a barrier to this solution in some institutions. Increased home access can also overcome some of these difficulties, although the issues of work-home boundaries that accompany this solution were found to be a concern for some staff. The non-availability of paid time for training is also a problem for some of these staff.

There were many examples of good practice demonstrated by participating institutions. The research findings indicate that the main issue of concern for institutions is less one of access to computers as of access to information. Moreover findings highlighted the difference between information provision (a relatively passive function) and information *communication*. Ensuring that relevant information reaches its destination and is read and understood, is not simply a matter of putting a document on an intranet or sending an email. It is suggested that a focus on communication strategies and their fitness-for-purpose would resolve many of the issues highlighted by the research.

The desk research indicated that this had been a relatively ignored and unexplored area as far as the sector is concerned. Although the study suggested that access to ICT equipment is, for most personnel, less problematic than might have been anticipated, and institutions have generally taken an enlightened and proactive approach to providing access, issues of time, training, motivation and, in some cases, line manager attitudes need to be addressed further. Personnel who are most disadvantaged appear to be contracted staff in manual roles; other estates

staff and part-time teaching staff are also at risk of information access disadvantage. The increased use of learning technology in the teaching process, as well as an increased reliance on computerised systems for a range of administrative functions, has intensified the need for comprehensive access to ICT and, in many cases, has led to a more inclusive attitude towards ICT provision.

The research has highlighted a number of issues related to providing inclusive staff access to ICT that extend well beyond the provision of computer hardware or network infrastructure. It is hoped that these findings will assist Senior Managers in educational organisations to identify priority areas to consider as they move towards a genuinely inclusive ICT-based environment. Issues of staff time and training may well appear here, as will those of the fitness-for-purpose of institutional communication strategies.

Limitations and Further Research

The importance of having a formalised policy governing communication and access to ICT has been highlighted. However, the scope of the research has not allowed in-depth analysis of the content of such policies where they do exist. The sector would benefit from guidelines with regard to the potential content of such policies in order to assist those responsible for their formulation. This is an area where further work would prove valuable.

The research was limited by the six-month period available for the investigation. It therefore provides only a 'snapshot' of the situation prevailing at the point of data collection (May - August 2006), and not a longitudinal insight into developments in access over time. There was evidence of many initiatives to improve access and the dynamic environment in which institutions are operating suggest that staff access to ICT is constantly evolving. Therefore it would be of benefit to be able to build on this work with further in-depth investigation in the future.

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[1] For example, research indicates that in the US around 50-60-% of “low-skilled” jobs involve some computer use.
[2] http://www.peoplesnetwork.gov.uk/ [accessed 26 February 2007].
[3] Defined as the acquired skills, knowledge and capacities of human beings (Edvinsson & Malone, 1997, p.34).