ORGANISATIONAL FACTORS IN THE USE AND IMPLEMENTATION OF ICT IN DAY SERVICES FOR ADULTS WITH LEARNING DISABILITIES

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Introduction

The past 30 years has witnessed a proliferation of practical and research interest in the educational, social, communication and motivational benefits of Information and Communications Technology (ICT). A part of this has been the recognition that ICT may be of benefit to adults with learning disabilities (Saunders, 1984; Fowler, 1988; Hegarty, 1991; National Council for Educational Technology, 1993). However, the majority of published research has focused on the use of ICT in the context of curriculum objectives and measures of academic achievement in schools (Mumtaz, 2000a; Woodward and Rieth, 1997), leading to guidelines on ‘good practice’ as well as suggestions for specific activities (e.g. for children with special educational needs: Hawkridge and Vincent, 1992; Hardy, 2000; Banes and Coles, 1995; Banes and Walter, 2000; Hardy et al., 2002). By contrast, there has been little systematic investigation into what factors support or constrain the use and implementation of ICT with adults with learning disabilities in post-formal educational contexts. Many day services now operate broad guidelines for activities, usually including a combination of work, leisure, education and social skills and a movement towards more community-based activities. This means that activities occurring within day service settings are not guided by curriculum demands in the same way as schools and are therefore, more flexible, open to interpretation and,
in theory, more person-centred (Whittaker and McIntosh, 2000). The corollary of this is that the wealth of information on the use of ICT in schools may have limited relevance to the experiences and needs of adults with learning disabilities in day service settings. This means that there is a need to consider the factors that support the use of ICT in order to provide realistic and relevant guidelines for service providers especially in a contemporary climate where the use of, and access to, ICT is considered a key part of service provision for adults with learning disabilities (Department of Health, 2001).

The formally published work in this specific area is scant and mostly appeared in the late 1980’s and 1990’s providing some useful descriptions of ICT use in post-formal educational contexts such as ‘adult training centres’ or day services. Some describe case studies of specific educational and training projects using ICT and include information about successful aspects of the course (Jotham and Leicester, 1989; Busby et al., 1988; Clay et al., 1988). Seale (1991; 1998) took a more systematic approach and developed coding schemes to rate ‘adult training centres’ on their management of ICT. Although Seale involved a number of sites in her work, she admits: “Analysis of the information obtained from the nine centres revealed that it was difficult to interpret specific events without taking into account the context in which they occurred” (p.32). In other words, the practice of using ICT with adults with learning disabilities was not something that could be separated from the wider context in which the work took place and was therefore more than a discrete or specific approach to individual learning. Consequently, in order to describe a wider view of ICT-related practice, a more qualitative approach is desirable (Aspinall and Hegarty, 2001).

Taking this into account Hegarty (unpublished, Keele University) adopted a qualitative approach in his evaluation of an ICT implementation project within one organisation, involving visits to many different sites and informal discussion with staff members. As Hegarty notes, an identification of factors that can be considered ‘good practice’ in this context is problematic since it often involves a subjective judgment about what is ‘good’ or not. Hegarty responded to this difficulty by employing an audit approach, that is, the extent to which observed practice met the organisation’s own requirements. However, this potentially narrows the factors that contribute to good practice by excluding wider issues that the organisation may not have considered. The approach taken in the present paper was aimed at identifying factors that support the use of ICT in day service provision for adults with learning disabilities by moving beyond personal opinion or self(organisation)-defined criteria. Instead, we adopted a normative derivation of appropriate standards and criteria, which Donabedian (2003) defines as:

‘…either from direct knowledge of the scientific literature and its findings, or from the agreed-upon opinions of experts and leaders, an opinion presumably based on knowledge of the pertinent literature as well as on clinical experience’ (p.62).

With reference to the published literature, and despite methodological differences across the studies mentioned earlier, it is noteworthy that there were a number of common factors included in their examples of ‘good practice’, albeit described in slightly different ways. All agreed there should be:
- regular, timetabled ICT sessions (Timetable)
- integration of ICT into a wider ‘curriculum’ or project (Integration/Inclusion)
- consideration of individual needs and interests (Individual)
- creative use of software, moving beyond prescribed functions (Creative)

Thus, these four features of ICT use could be considered as the normatively derived baseline criteria for assessing basic standards of practice. In addition, Seale’s (1991; 1998) work reminds us that checking for the presence or absence of factors according to a set of pre-defined codes is insufficient for understanding the embedded and contextual nature of practice. Brodin and Lingstrand (2003) also emphasise the importance of a wider perspective when considering the use of ICT and, in particular, the need to consider factors at the level of the organisation:

“The potential for change, which lies in using ICT for children in need of special support, must be discussed in an organizational perspective… creating time means prioritising, which presupposes organizational changes” (p.84).

Given the emphasis in current policy on the need for services to be outward looking in their practice, and focused, in part at least, on enhancing opportunities for participation in the wider community (Department of Health, 2001), we were keen to consider whether any evidence of this would be found in relation to the four basic standards. Specifically, how would a ‘movement beyond prescribed functions’ and a ‘wider curriculum or project’ be interpreted and implemented in reality, if at all?

In summary, the main aim of the present paper was to identify the organisational factors that support the effective use of ICT and explore their implementation for the benefit of all service users by taking a two-step approach:

(1) to apply the four normative criteria (Timetable, Integration/Inclusion, Individual and Creative) in order to provide an initial outline of variability in ICT-related practice and provision in day services for adults with learning disabilities and

(2) to expand the initial outline to include additional factors that contribute to and/or co-occur with the use of ICT by using a qualitative research approach

The aim and approach were developed to answer the main research question: what organisational and other factors have facilitated or constrained the use of ICT to enhance community participation in day services for adults with learning disabilities?

**Context of the research**

This work was part of a larger research project on the use of ICT by adults with learning disabilities in collaboration with a national charity providing a range of services for people with learning disabilities and their families. Other aspects of the research were concerned with describing the ICT-related activities observed (Parsons et al., 2006); working closely with a project advisory group that included adults with learning disabilities (Porter et al., 2005; Porter et al., 2006); identifying the purpose and understanding of staff members in their use of ICT (Parsons et al., submitted) and involving staff members and service users...
in the development of ICT-related practice through a series of workshops (Parsons et al., 2004).

The services involved were changing/evolving in the light of internal and external policy developments, most notably the learning disability strategy for the 21st century detailed in Valuing People (Department of Health, 2001). Within the organisation, and since 1997, there has been a systematic implementation of ICT across day and residential services following two grants from the Community Fund (now the Big Lottery Fund) to purchase computers, digital cameras and peripherals (scanners, printers, internet connections, touch screen monitors) for exclusive use by and with service users. Day services received their equipment first (approx. 35 computers), followed by the residential units 3 years later (approx. 90 computers). All sites had access to the same equipment and software.

As part of the implementation, the organisation provided specific training opportunities for staff as well as technical support; factors emphasised by Seale (1998) as important. Despite this, an earlier evaluation suggested ICT use was patchy, with pockets of regular use as well as an absence of use in some cases (Hegarty, unpublished). Thus, the presence of equipment, training and support was not sufficient to promote ICT use across all sites. Tolmie (2001) notes that in any ICT implementation there are likely to be other factors at work, within each local context, that influence how ICT is used. Starting with describing sites according to the four identified normative criteria, it was the ‘additional factors’ that we hoped to identify and describe.

Method

Participating sites

Nine day services in different geographical locations in England were visited. They were selected on the basis of described variability in practice in an earlier report (Hegarty, unpublished) and whether it was convenient for the research to take place. The majority of service users attending day services were also residents within the organisation and ranged from having mild to profound learning disabilities. They were engaged in a range of activities throughout the week, both on and off the main sites. This included college, work (paid and voluntary), use of sport and leisure facilities as well as some time spent at the day service site or building. Individual service managers were contacted directly by the researcher to provide agreement for the visits and information about the project. A poster with a photograph of the researcher and details about time and date was sent to services beforehand so that staff and service users were informed about who was visiting and why. Participation in activities and sessions was negotiated with staff and service users on a more informal basis during visits.

Procedure

There were two main phases of data collection. During Phase One, approximately two days was spent at each day service by the researcher, observing and participating in ICT and non-ICT based sessions. Staff and service users were involved in informal discussions about ICT use and, where available, copies of schedules or timetables were examined. Service Managers (or Assistant Service
Managers) contributed their perspectives through semi-structured interviews and in all cases extensive field notes were made. Interviews included questions about who used ICT, how ICT use was organised, how staff felt about ICT use and training, how ICT use had changed over time and how ICT related to other activities service users were engaged in. Phase One visits were used as a starting point for describing variability in practice and identifying sites that demonstrated any of the four normative criteria identified from previous literature on this topic: Timetable, Integration/Inclusion, Individual and Creative.

These initial observations were extended during Phase Two visits, approximately six months later, when a further two days was spent at each day service. In a similar way to Phase One, the researcher spent time participating in activity sessions and talking to staff and service users during the day. The purpose of this phase was to check and review initial observations and to consider the stability of observed factors and their reliability in distinguishing between sites in relation to the four basic standards of ICT use. In addition, more detailed information was gathered about the context in which the work took place in the light of preliminary analyses and coding of observations from Phase 1, which informed a more focused series of questions about ICT-related practice. In other words, there was an iterative approach to the development of interview and observation foci for Phase 2 based on observations and comments from Phase 1.

**Results**

**Phase One**

Field notes from observations of sessions and discussions with staff and service users were analysed qualitatively for information regarding the four basic standards. This means that all notes were first coded for evidence of these and then coded according to any additional factors. Thus, examples of similar kinds of use, or statements from staff about beliefs or timetabling (for example) were subjected to ‘exhaustive’ coding to identify the main themes and examples.

Prior to the visits it was not clear what variability in practice would be observed and whether the four normative criteria would be useful in distinguishing between sites. In practice, this proved more straightforward than anticipated. It was evident from early on that some day services were regularly and enthusiastically using ICT, based on written schedules of activities, staff comments, direct observation of ICT use and examples of work produced. Specific comments from staff members are used below to illustrate particular points of view or examples of practice:

“The computer is used to full capacity – staff members even work through their lunch times to enable people to access them”

“[if there were no computers] this would leave a big hole in the day service schedule, there would be no photography and no newsletter. They would find alternatives but it would be a loss – some have developed many skills”
By contrast, some services barely used any of their ICT resources, if at all, and so the lack of scheduling and integration of ICT with other activities was clearly apparent and acknowledged by some staff members:

“At the moment there is no room for a session – it seems a bit of a waste that there is no-one using it. The room is all ‘kitted-out’ but is not being used”

“No! [the computers would not be missed]. In the day service we have tried using them with some people but they just turn them off. One person uses them a bit, but otherwise none of them would miss them”

At such services, few or no ICT sessions took place and so other activity sessions were observed such as advocacy, arts and crafts and drama. Each day service was rated according to whether the four basic standards specifically relating to ICT use were present or absent (see TABLE I). Despite the heterogeneity of sites, it is interesting to note a degree of consistency between at least some services; rather than there being a range of variability in factors, there seemed to be three main ‘levels’ of ICT use which were named: Early, Emergent and Established. There were three Early, two Emergent and three Established sites.

Early sites were those where little or no ICT-based activity was taking place and the four main factors were absent, although this did not mean that individual needs and interests of service users were not being taken into account at these sites during other activities. By contrast, Established sites regularly used ICT, and this was often embedded in other activities as a creative tool (see Parsons et al., 2006, for more details). For example, the creation of newsletters was a popular activity for many service users, involving taking

<table>
<thead>
<tr>
<th>Service</th>
<th>Timetable regular schedule for ICT</th>
<th>Integration/Inclusion ICT used as part of other activities</th>
<th>Individual consideration of needs and interests of service users</th>
<th>Creative ICT used in a variety of ways beyond prescribed software functions</th>
<th>Classification</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>No</td>
<td>Somewhat</td>
<td>No</td>
<td>Emergent</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Early</td>
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<tr>
<td>3</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Early</td>
</tr>
<tr>
<td>4</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Established</td>
</tr>
<tr>
<td>5</td>
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<td>No</td>
<td>No</td>
<td>No</td>
<td>Early</td>
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</tr>
<tr>
<td>8</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Emergent</td>
</tr>
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digital photographs, producing art work, writing recipes or jokes, reporting on holidays, events, news etc. One member of staff referred to such sessions as ‘…literacy by stealth!’, which neatly illustrates the difference between e.g. typing a passage from a book onto the computer in order to ‘learn keyboard skills’ versus learning keyboard skills through wanting to create a story or picture about e.g. one’s recent work experience in the local town. Activities within ICT sessions at Established sites were frequently contingent on service user choices with opportunities for service users to contribute directly to the sessions. For example, one observed session on making calendars encouraged service users to insert pictures or photographs on their own preferred theme. This created a great deal of extra work for the member of staff running the session due to the wide variety of themes chosen and the support required to help service users with their individual projects.

In addition to the Early and Established sites, there were some services showing some, but not all, of the four key criteria and these were called Emergent. These sites recognised the need for regular, scheduled sessions and produced printed timetables to illustrate this. Service users were also asked in advance whether they wanted to take part in ICT sessions and so could ‘sign-up’ for an available slot. Emergent sites also demonstrated some tailoring of activities towards individual needs and interests. For example, service users were free to choose the CD-ROMS they wanted to view/use and staff members were supportive in following the requests of service users in the group. During one session, for example, a male service user had a birthday party coming up and wanted to create and print some invitations for his friends. Due to the ‘open’ nature of the sessions he was supported in this task and was pleased with the result. However, ICT use was not yet an integrated part of activities and software was often used in standard ways. For example, there was a high use of CD-ROMs (especially storytelling or games) in the ICT sessions, but activities did not extend beyond the CD-ROMs to consider other related activities. This approach is illustrated by the following comment from one staff member and shows a reliance on the software ‘doing the work’:

“I have done some 1 to 1 [work] with CD-ROMs, they are quick and easy things to do so I tend to go for this. More able people use the computers more regularly…we tend to set up an activity and leave them to it”

This narrower approach can be contrasted with a more developed use of CD-ROMs that was witnessed at Established sites; for example, a CD-ROM on musical instruments was incorporated into a wider project on making music that encouraged service users to try out different musical instruments and take part in musical group sessions. These built towards an ‘end of project’ performance where digital photographs were taken and then manipulated via the computers to collate a visual record of the event.

Phase Two

The main purpose of the second round of visits was to confirm and extend the observations made in Phase One. Return visits to the eight day-service sites six months later suggested there was little, or no, change in the demonstration of the four key criteria. There were also a number of additional factors identified at Established
and Emergent sites that co-occurred with the four main elements (see TABLE II for a summary). In line with our approach that considers ICT practice as inextricably linked to other contextual (organisational) factors, both ICT-specific as well as more general additional factors are included below.

**ICT specific factors**

These included the positive views of staff members about the use of ICT as well as the consideration of future uses of ICT at the service. Whilst it may appear obvious that staff beliefs and attitudes would influence use, it is worth noting briefly what kinds of beliefs promote or constrain practice in order to highlight issues that could be addressed in staff training. A detailed examination of this is beyond the scope of the present paper (and is explored further elsewhere; Parsons et al., submitted) but staff members at Established and Emergent sites were more likely to take the view that ICT was an important tool that could open up opportunities for service users in terms of access to information and services, and also to enhance their participation in mainstream life, for example:

“You couldn’t take away anything more profound [than the computers]. They provide opportunities for learning, and supported employment has links to ICT as well. It gives service users the opportunity to use computers if they don’t have them in their houses”.

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<th>TABLE II</th>
<th>Additional factors identified at Established sites from Phase One and Two visits</th>
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| **Staff views on ICT** | • Staff mainly see the positives and potential of ICT  
• Consideration of future use in a creative way |
| **Management of ICT use** | • Clearly identified ICT contact person  
• Regular ICT input from college tutors in addition to sessions by staff members  
• Commitment to training for staff members  
• Many staff members using ICT in sessions |
| **Use of ICT** | • Equal/encouraged participation regardless of ability  
• ICT used to facilitate communication  
• Practice is commensurate and realistic in relation to philosophy of staff members  
• ICT linked to activities in the wider community |
| **Physical evidence of ICT use** | • Many visible displays and evidence of use  
• Documentation or records of work and skills  
• Central and accessible room |
| **General features of activity sessions (not only ICT)** | • Contingent support and input from staff members  
• Flexible enough to allow for individual choices and needs  
• Appropriate for ability levels of service users  
• Working towards wider aims and goals  
• Advance planning of sessions or projects |
| **General features of the day service** | • Staff members working in day service only  
• Regular staff meetings  
• Regular reviews of the day service programme  
• Clear evidence of person-centred planning |
By contrast, the views of some staff members at Early sites were less enthusiastic about the use of ICT:

‘It is a means to communicate with other people but not the only means. In some respects, talking directly to people is much better and we try to encourage this.’

Staff members at Established sites (and at the Emergent sites to a certain extent) were also more likely to think about how the ICT resources could be developed in the future both in relation to supporting service users as well as developing a stronger sense of community participation:

‘An Internet café here would be useful, for service users and the community. The day centre could have a wider opening time to allow this.’

Although this was an hypothesised future scenario it formed part of a context where ICT resources were actively supported both in terms of time allocated to training staff members as well as obtaining funding to extend and upgrade existing resources. Comments from Managers at Established and Early sites respectively, illustrate how differently ICT training was viewed where there were many competing demands for the allocated training budget:

“In terms of ICT training, we asked ourselves whether we could afford to do it or afford not do it – we decided we couldn’t afford not to do it.”

“There is so much statutory stuff e.g. staff inductions, and lots of training needed, I can’t see how ICT training can be afforded.”

The latter comment illustrates a view that focused on the barriers to using ICT rather than the opportunities the resources could provide and was noticeable in comments from staff members at Early sites in particular; lack of time, budget and training were frequently heard complaints.

At Established sites, there was a person who took primary responsibility for the use and management of ICT facilities who tended to be well known amongst other staff members. This was often somebody with a personal interest in ICT and who was willing to accept the additional responsibility of supporting and developing the use of ICT resources. Often this person was the named ICT Co-ordinator, although there was no increase in salary in recognition of this. The use of ICT resources frequently depended (at least to start with) on motivated individuals who were positive about the resources and could visualise how use could be taken forward; sometimes this person was the sole staff member supporting an ICT session and sometimes other staff members were involved. There was often no ‘fixed’ staff member to service user ratio as this depended on the varying numbers of service users attending sessions each week as well as the need for staff members to respond flexibly to the changeable demands of service provision. The ratio varied from 1:2 up to about 1:6, with an average ratio of about 1:4 in many cases.

The organisation offered ICT training opportunities both on-site and at a central training centre and so staff could be well supported if budgets were allocated for ICT training at individual sites (see above). ICT Co-ordinators often encouraged other staff members to attend formal training as well as supporting them in developing their skills more informally in the context of their daily work. After providing the
initial impetus, it was important for the ICT co-ordinator to be able to share some of the responsibility for the use of ICT with other staff members. In this way, ICT became embedded within a wide range of activities rather than being seen as the lone responsibility of one person and as a stand-alone activity. Noticeably, at Early sites, there was a clear lack of ‘ownership’ of the ICT resources with no one person willing to take responsibility and therefore begin to develop use and interest more widely within the service.

Regular sessions with outreach college tutors at the day service site was a feature of ICT use at two out of the three Established sites, as well as both Emergent and none of the Early sites. At all sites, some service users attended college for ICT sessions, but this was not always possible for all service users and so outreach sessions were a good compromise for providing access to adult learning curricula such as the Open College Network (OCN) and the pre-literacy curriculum of the Learning Skills Council. Again, this was an indication that ICT use within Established services was being developed with an ‘outward looking’ view in terms of providing access to formally recognised qualifications.

Established sites were also much more likely to encourage service users to take part in ICT sessions regardless of ability and to link use with communication and community participation. For example, some services displayed health and safety notices in symbol formats (using Writing with Symbols) or used the digital camera to make daily schedules using photographs of staff and service users. ICT was also used to find out about, or communicate with, local communities for example, through the production of newsletters or the use of the Internet to search for local information (see also Parsons et al., 2006). In comparison, use of ICT at Emergent sites was narrower in focus with very limited explicit or planned use of ICT for facilitating communication. Finally, although some staff members at Early sites made positive claims about ICT use within their service, the observed use fell short of this.

The physical markers of ICT use were usually quickly apparent and available. Established sites displayed ICT related work around the walls of the computer room and the day service more generally, whilst Early sites showed few, if any, visible signs of ICT use (although often displayed signs of other activities). The location and accessibility of the computer room was also important. At Early sites, one computer room was located upstairs, another felt isolated from the rest of the day service and all were kept locked during the day. At Established and Emergent sites, ICT facilities were situated in central areas of the building and were easily accessible for most of the day and examples of pieces of work or projects were often collated to contribute to contract reviews and general record keeping.

**General indicators**

The general indicators of ICT use that co-occurred with the four normative criteria were based on observations of ICT and non-ICT activities. There were a number of features of sessions generally that were more evident at Established sites compared to Early sites, and the Emergent sites demonstrated these features to a greater or lesser degree. Support from staff members was frequent and contingent to needs and activities appropriate to ability levels and sessions were flexible enough to allow for individual choices and contributions, without rigid determination from staff about content, whilst at the same time being guided by staff members.
towards broader aims and goals (perhaps as part of a larger or regular project such as producing a newsletter). This was frequently accompanied by advance planning of sessions or projects, either formally through detailed written plans, or more informally through verbal agreement on an overall structure. Established sites included regular opportunities for staff to meet and discuss plans as well as regular reviews of the day service programme (usually once a ‘term’ as services tended to follow college timetables). The management of day service activities worked best with a dedicated day service staff, that is, staff members who worked only or mostly in the day service rather than dividing time between day and residential demands. Finally, the role of person-centred planning (PCP) was evident in the Established day services, suggesting a greater consideration of individual needs. Whilst this feature clearly links to the Individual factor used to classify sites initially, it is included separately here because PCP is part of a major and systematic implementation across all Services within the organisation and is a process over and above simply considering individual needs on an informal basis within some specific or discrete sessions (Department of Health, 2001).

Practical application

There are a number of factors, in addition to the supply of resources and training, which co-occur at sites that demonstrate the four key baseline criteria for the use of ICT in day services for adults with learning disabilities. It is clear that purchasing and installing ICT equipment does not, by itself, lead to good practice in the use of ICT. Instead, the pattern and scheduling of staff support; their beliefs about the usefulness of technology; and developing ICT use in the context of wider projects are key factors to be considered in specialist day-service provision for adults with learning disabilities. Thus, planning that involves staff members before the implementation of ICT equipment would be a crucial recommendation, both in terms of how the work is approached and shared out and in terms of creating conditions where staff members are more likely to ‘buy into’ the idea that ICT is useful and relevant for service users. In other words, professional development in this area needs to be systematic (i.e. available from induction onwards and for all levels of staff) and responsive to staff needs (i.e. centrally and locally available and related to self-identified needs as well as centrally driven initiatives). By making these factors explicit, practitioners may gain a greater awareness of how ICT provision can be developed to better meet the needs of service users as well as the staff members who support them. Such knowledge is likely to become increasingly important as adults with learning disabilities (along with the rest of the population) gain access to ICT resources.

Crucially, this may not occur through ‘mainstream’ routes such as libraries and other public spaces, partly because there are concerns that this kind of provision may exclude adults with learning disabilities due to an over-reliance on text-based, on-screen instructions (Paveley, 1999). Thus, many support/care organisations are purchasing ICT equipment in recognition of some of the potential benefits it provides. There is a timely opportunity to identify factors that support the regular use of ICT so that the learning about ICT implementation accrued in one context or organisation can be shared with others at what may be an early stage of provision for some.
Discussion

The purpose of this study was to identify organisational factors that facilitate or constrain the use of ICT in the context of day services for adults with learning disabilities within one organisation. Staff management was a particularly important factor in relation to the use of ICT, in line with the findings of Seale (1998). Opportunities for staff to meet regularly, even if only informally at the start of the day, provided peer support and ideas for activities and encouraged staff members to work as members of a team. Regular reviews of the entire day service programme were also crucial in maintaining the interest of staff and service users and preventing sessions becoming stale and tired. Both factors were facilitated by the presence of a staff group who worked almost exclusively in day service provision, rather than having to divide time and responsibilities between day and residential demands. The inclusion of person-centred planning in the development of activities at Established day services is also noteworthy and suggests that PCP and ICT usage has led to innovative and creative new developments in practice, and to interesting new service-user / staff relationships as planning has involved collaborative activities based on service user perspective rather than those of the organisation. The use of ICT for considering wider, more participatory and inclusive perspectives at Established sites was also encouraging. That is, ICT was often used as one tool of many to work towards specific projects or outcomes, with a perspective looking outwards from the day service. For example, one project looked at Indian culture and included food, dance and music as well as digital photography, research on the Internet and word-processing. It is important to note, though, that the present study was designed to address important organisational factors in the implementation and use of ICT resources rather than evaluate the specific gains of individuals through using ICT (e.g. whether and how users learned new skills and information). This is an area of research that needs to be developed alongside an understanding of organisational factors in order to build a clearer idea of which factors support the regular use of ICT organisationally so that individuals may gain access to resources that may facilitate learning (Li-Tsang et al., 2004).

The list of factors associated with use of ICT at the Established sites identified within the present study emphasised the importance of considering the wider context of ICT use; observations and descriptions of ICT use cannot take place in the absence of a wider organisational context; rather the use of ICT reflects the culture and practices of sites and provides a window on their operation. Of course, some of the changes that would be needed to accommodate these factors may require substantial cultural shifts at many levels (staff, service, organisation) and the enormity of such an undertaking should not be underestimated. Nevertheless, renewed discussion about the use and usefulness of ICT resources comes at a time when day-service modernisation for adults with learning disabilities is firmly on the agenda, especially in relation to the publication of Valuing People (Department of Health, 2001). Thus, at least some of the factors that linked to regular ICT practice may already form part of more widespread changes occurring in the provision of services for adults for learning disabilities generally.

The importance of individual staff members in the success of ICT implementation should not be overlooked either (Hegarty and Whittaker, 1993). Staff
views about the positive and potential future use of ICT were linked to frequent and successful ICT use at Established sites and this is consistent with work in schools which suggests attitudes and beliefs of staff members can play a significant, perhaps central, role in the successful implementation and use of ICT (Mumtaz, 2000b; Granger et al., 2002; Demetriadis et al., 2003). A more detailed exploration of the beliefs and views of staff members is beyond the scope of the present paper but will be addressed in further dissemination from the project (Parsons et al., submitted; 2004); however, it appears that staff members’ views of the educational/instructional nature of ICT-related activities, as well as its suitability for older or less able service users, are important factors in shaping the utilisation of ICT resources.

Services also change and develop over time; the use of the Early, Emergent and Established labels here aid description but are not intended to suggest a fixed state of provision. It is also likely that there could be a more advanced position to which Established sites could progress (Mooij and Smeets, 2001) although it remains an open question what factors one might expect to see. Some possibilities could include the use of ICT facilities in day services by other members of the local community; service users as peer tutors; ICT as part of job-related activities for which payment is received; involvement of service users in training; greater use of ICT for people with severe and complex needs; greater integration of activities between day and residential units and within the local community; development of more personalised services and strategies or plans for use and development.

In the context of this forward-looking view, it is worth noting the obvious and crucial role of sustained (and sustainable) financial investment in ICT resources to support such development. This requires a careful consideration of the Total Cost of Ownership (TCO) of ICT resources (Scrimshaw, 2002) which at a very broad level concerns all the costs associated with the use and support of ICT including staff, capital, maintenance, support, replacement and recurrent spend costs (such as consumables and internet connections). Notably, the older equipment becomes the more maintenance it is likely to require, thus increasing the long-term cost of the equipment.

The organisation involved in the present research had actively sought funding for its ICT resources through discrete grants from the charitable sector, which typically do not allow for the inclusion for costs like depreciation and upgrading. Thus, securing sufficient funds for the longer term is likely to be a somewhat precarious business in the absence of any systematic investment for ICT for adults with learning disabilities by the UK government (Hegarty and Whittaker, 1993) or elsewhere. This could place at risk the gains in good practice noted here and the potential for building on this for the future. Given the important role that ICT occupies in government policy for promoting social inclusion and facilitating communication (Department of Health, 2001; also Selwyn and Gorard, 2003, for a general discussion) this is a risk that may not be worth taking.

**Summary**

Information and Communication Technology (ICT) is becoming a part of everyday life for many adults with learning disabilities. However, there is scant information available about which factors are important for using ICT in post-formal
educational contexts with adults with learning disabilities. Eight Day Services within one organisation were visited to observe activities and interview staff and service users about ICT, which included use of personal computers, digital cameras and the Internet. Three main levels of ICT use and implementation were identified as well as a number of organisational factors associated with the regular use of ICT resources. Staff beliefs about ICT, the management and organisation of staffing and clear ideas about the purpose of ICT were important factors in addition to the basic requirements of providing resources and training. These factors are useful in guiding practitioners towards implementing and using ICT and highlight the importance of the context within which ICT use takes place. The provision of hardware, software and training are not sufficient by themselves to guarantee good use of ICT and careful attention needs to be paid to wider influential factors. Sharing of ideas about using ICT resources with adults with learning disabilities is timely in relation to the current policy context of social inclusion, but future development depends on the availability of sustained funding to adequately maintain and update equipment; without this the factors supporting regular ICT use described here will remain isolated and largely irrelevant to many people who could otherwise benefit from the use of ICT resources.

Footnote

Residential units were also visited during Phase One of the study to describe the kinds of ICT based activities occurring in day and residential contexts and is reported in Parsons et al., (2006). Residential units were not visited during Phase Two and so the development of good practice indicators was based on use in day services only.

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