Providing access to electronic information resources in further education

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Abstract
This article aims to provide a baseline for future studies on the provision and support for the use of digital or electronic information services (EIS) in further education. The analysis presented is based on a multi-level model of access, which encompasses access to and availability of information and communication technology (ICT) resources, access to and availability of EIS resources, and the third leg of staff skills and their development. The research was conducted within the third cycle of the JISC (Joint Information Services Committee) User Behaviour Monitoring and Evaluation Framework, in 2001/ 2002. Evidence was gathered from library and information service web sites and various stakeholders, including library and information service staff, academic staff and students to generate insights into the provision of access to EIS in further education. Sector-wide funding initiatives have had a significant impact on ICT infrastructures, and these attract a positive response from students. EIS are represented on some library web sites but both web site development and EIS availability is very much less advanced than in higher education. Staff, however, lack sufficient dedicated access to ICT to be able to develop their own skills and use. There remains a low level of access to electronic information resources, with only limited access to these resources through library web sites. LIS managers face a number of challenges in enhancing this provision, including licensing arrangements, tight budgets that need to be spread across many discipline areas, and the absence of EIS designed specifically for the further education student. The other key challenge lies in the provision of time and opportunity for academic and LIS staff to develop their ICT and EIS skills, and, more generally in the further development of the role of Information and Learning Technology (ILT) Champions.
Keywords: Electronic libraries, digital libraries, digital information resources, electronic information services, further education.

Introduction
This article reports on a study that identified and analysed some of the issues associated with the provision of access to electronic information resources in further education in the United Kingdom. The project described in this report was conducted under the JISC (Joint Information Services Committee) User Behaviour Monitoring and Evaluation Framework, during the third annual cycle of the Framework in 2001/2002.

The Framework develops two distinct, but interrelated sets of insights: those relating to user behaviour, and those relating to the provision of access to EIS. The first of these themes is developed elsewhere (Banwell, 2004). The aim of this article is to provide a baseline for future studies on the provision and support of electronic information services in further education. The objectives are to illustrate the use made of library and learning resource centre web sites to provide access to resources, and to explain how library managers have responded to the funding made available to them for such resources. The article also focuses on staff development requirements, for library, learning support and teaching staff. Planning future developments requires awareness of some of the likely problems as well as the opportunities. Such insights are useful for librarians, tutors, managers and policy makers, and the research particularly supports and promotes the development of a shared understanding across these various professional groups.

The study in this report has been conducted at a time when major changes which affect the delivery and management of learning and teaching activities are taking place in further education (FE) in the United Kingdom. The adoption of managed learning environment (MLE) software which is now available needs to be accompanied by changes in institutional practice. Cultural changes are as important to the success of MLEs, or the VLEs (virtual learning environments, a subset of MLEs) as the technology (JISC, 2002).

National structural changes in the management and funding mechanisms for further education in the United Kingdom, were signalled by the formation of the Learning and Skills Council (LSC). The LSC is responsible for all post-16 education and training excluding higher education, and includes further education, work-based training, adult and community learning. It operates through forty-seven local Learning and Skills Councils, and these councils strongly reflect business and commercial interests. The key priorities are to encourage young people to stay on in learning, increase the demand for learning by adults, maximise the contribution of education and training to economic performance and raise standards (Department for Education and Skills, 2002a). Increased learning opportunities are high on the governmental agenda, and it is envisaged that e-learning has a pivotal role to play in the delivery of these opportunities (Department for Education and Skills, 2002b). The National Learning Network (NLN), the information and learning technology (ILT) investment programme in further edu-
cation, has been developed by the Learning and Skills Council’s Further Education Information and Learning Technology Committee (FEILT). The final report (Learning and Skills Council, 2002) from the NLN evaluation team emphasises the immense changes taking place in the sector, with development of college information and learning technology (ILT) strategies, alongside the network connections to the Joint Academic Network (JANET) and trials of virtual and managed learning environments.

Other important initiatives that are relevant to the development of e-learning, the embedding of information technology in learning experiences, and other contextual developments that support the development of the use of electronic information services in further education include the ILT Champions Programme and the Regional Support Centres. The ILT (Information and Learning Technology) Champions Programme, has been promoted by The British Educational Communications and Technology agency (Becta), a government funded agency that has a key advisory and development role to play in further education developments in information technology. In a programme which started in summer 2000, selected members of staff from each FE college are designated to encourage and lead ILT initiatives within each college, and be ‘ILT Champions’. The Regional Support Centres (funded by JISC) (RSC Wales, 2002) aim to provide curriculum staff with the support they need to make the best use of ILT and to develop e-learning. They usually act through the ILT champions in each college, make site visits and offer training, as well as providing email discussion lists and help desk support.

Methodology and data collection
The findings in this article draw on two distinct strands of data collection, using different methodologies. The first component of the research focused on the planning and provision of EIS, whilst the second sought to build a more user-focused perspective on the benefits of the barriers to the use of EIS.

Planning and provision of EIS
The objectives of this component were:

- to profile the provision of EIS through examination of FE LIS web sites;
- to contextualise the profile of use through investigating senior librarians’ purchasing intentions and problems with respect to EIS for FE.

These twin objectives were achieved through two distinct methodological approaches.

The first objective was achieved through an analysis of LIS web sites. Twenty-two colleges were selected from a list of colleges of further education using a random number generator. For each of these colleges, all web pages relating to the LIS site were copied into a Word document, and a process of tagging, sorting, and deleting was performed to reduce the database to an authority list from which statistics could be generated. Analysis provided statistics relating to web site presence, subject trees and the complexity of the web site, and, with the aid of a taxonomy of EIS types, links from the web site to different types of EIS.
In order to achieve the second objective, interviews were conducted with four respondents, in four different colleges. The seventeen questions covered general perceptions of benefits to users of EIS, current concerns affecting ability to plan for EIS, special arrangements for remote users, management and staffing issues, web site development and maintenance, licensing and collaboration issues, budgeting and collection development, service evaluation and emerging patterns.

All the interviews were transcribed and loaded into NUD*IST for qualitative data analysis.

User perceptions of benefits and barriers
In this context the objective was:

- to develop insights into the barriers and facilitators to effective use of EIS.

In-depth field work was conducted in five institutions, and snapshot fieldwork in ten institutions. The disciplines of law, art and design, geography/environmental science and business were the focus for the fieldwork. Research methods comprised:

- questionnaires, in paper and email versions, sent to academic, LIS/IT staff, and students, in order to collect background data on information behaviour, especially in relation to EIS;
- face-to-face interviews with key informants in disciplines and LIS service personnel at case study sites, supplemented by the use of email and telephone interviews;
- face-to-face interviews with other academics in target disciplines, snowballed by LIS staff and other academics;
- themed snapshots focusing on search processes, drawn from email or telephone interviews with students.

Data collected included: 43 questionnaires from library and information and academic staff, 401 questionnaires from students, 65 interviews/focus groups with staff and students, and 19 themed snapshots with students.

Interview data were prepared, using the NUD.IST style of qualitative categorisation, for entry into the database. Questionnaire responses were coded and entered into SPSS files.

Findings
Findings reported in this section are integrated and drawn from insights culled from all of the sets of data gathering activities described in the previous section. Findings are organised under three main headings:

- access to and availability of ICT resources;
- access to and availability of electronic information services;
- implications for staff skills and their development.

Access to and availability of ICT resources
This section summarises a range of issues relating to the provision of ICT platforms, and access for staff and students. Specifically it covers:
• academic staff and student access;
• service delivery developments such as the provision of e-mail accounts, intranets, and VLEs and MLEs.

Most colleges have made good use of recent injections of government funding to install upgraded servers, more (and higher specification) machines and better print facilities, as well as improving software. Nevertheless, there were variations in progress, sophistication of technology platforms, and the use of technology to support learning. In addition to injections of funding, there would appear to be two other key drivers in the development of the availability of ICT resources:

• Leaders who have always been aware of the emerging importance of ICT and EIS have ensured sufficient finance has been available for the college to develop electronically rather than waiting for the ‘push’ from government.

Very lucky with the support I do get from management in terms of money (IT staff).

• Increasing student expectations are increasing and their demands that the college offers up-to-date IT facilities is a key factor in policies are made to develop electronically.

Academic staff access to a networked computer varied both between and within colleges. While some staff had their own access to a networked computer, some shared with one colleague, some shared with a large group and others didn’t have any access and had to use the LRC or the computer suites within the college.

There are four in the office and there is a PC there. It can [be a problem] because if some of us are free at the same time it’s a matter of... ‘I’ve been on it for an hour and a half and you would like to come on it’. you feel guilty and you can’t always get on the PC when you want to (Law academic)

Ninety-seven per cent of the students had access to a networked computer at their college and 59 per cent had access at home. Over 55 per cent of the student respondents thought that there were sufficient computers available within the college while 13 per cent thought that there were insufficient computers available. Academics’ perceptions of student’s ease of access to a PC differed between the colleges:

The students are well served by computers, in College some people would say better than the Universities, in terms of access, but then we don’t have as many students as a University (Art and Design academic)

There are never enough PC’s for the students. If you talked to every student you’ll find there’s always times when they can’t get access. A lot do rely on their own systems at home and it copes because not every student uses the college facilities (Law academic)

Use of a networked computer at home clearly incurs costs for the student but 30 per cent of the student respondents stated they used their computers at home for work related purposes.
Provision of email accounts varied across the colleges. Students studying in a number of the colleges were not provided with college emails, but were instead encouraged to open Internet email accounts. Although this approach circumnavigated security and virus threats, staff expressed concerns about the loss of any sense of a community and the difficulties in providing information to a group of students.

Seventy-five per cent of the students noted that they made use of email for communicating with friends and tutors within the college while 24 per cent used email for external communication. On multi-campus sites this was perceived as being the main forum for communication both between staff and between staff and students:

Being a big college with approximately 900 staff spread across the city it is potentially the only way to communicate (IT Manager)

Mobile phones and text messaging are developing in significance:

[Interviewer: Do tutors use it (email) to contact you?]... No, not usually, they phone or send us text messages. (student)

All of the colleges participating as in-depth sites had their own Intranets, but progress was uneven. Often the Intranet developed in an ad hoc way with staff who have been keen to grasp and embrace technology being responsible for developing the template and the content. Staff Intranets were valued more for the access that they provided to college information, than for their potential role in teaching:

I use the Intranet a lot, because all the College’s policies and procedures are on there so although I’ve got my own copy it’s useful to make sure you’ve got the most up to date copy (Business academic)

Developments of Virtual Learning Environments (VLEs) and Managed Learning Environments (MLEs) have been promoted through the provision of funding, during 2001/2002. Over the last year many of the participating colleges had investigated the various packages available but not all had purchased one. A number of the colleges were members of the ‘G6’ Forum, a group of six North-East colleges who worked together to look at, among other initiatives, various MLEs/VLEs. Within this group, each of the colleges piloted a different MLE/VLE to allow them to make more informed decisions prior to purchasing one system.

Access to and the provision of electronic information services
This section reports on findings relating to three aspects of access to and the provision of EIS:

• a profile of the current level of provision of EIS;
• a review of the challenges in the provision of EIS;
• user perspectives on the benefits of, and access to EIS.
The analysis of LIS websites indicates that colleges are beginning to develop access to electronic information resources through their web sites. There is progress but in comparison with the provision of EIS in higher education, there is still work to be done. College web sites are generally smaller and less complex than those found in higher education, with only 27 per cent having subject trees, and 13 per cent being described as under construction. For colleges, 59 per cent of sites visited had no or minimal LIS web presence, and 32 per cent had a full LIS website; this compares to 7 per cent of HEIs with a minimal presence, and 93 per cent with a full LIS web site. Nevertheless, there is evidence of progress with 41 per cent of college sites showing some evidence of facilitating access to EIS. Table 1 provides a summary of the types of links that were provided. A further difference between HEIs and colleges is the types of EIS to which access is provided. Whereas in HE, JISC-negotiated services, OPACs, web databases and e-journal collections are ranked high with over 85 per cent of sites linking to them, colleges link to these sites significantly less than search engines and other institutions’ web sites. These differences may be a result of resourcing, perceived needs, or the nature of the courses and learning in further education. Interviews confirmed that many colleges were developing web sites in 2001/2002.

Unquestionably, cost of access to EIS is a major concern for many FE colleges, and there is little evidence of the use of consortia to negotiate favourable pricing deals. Many FE colleges are now taking advantage of the JISC deals open to them, although there are still some who see this as an imperfect solution because most services available under these arrangements do not specifically match the needs of the FE market. A further problem is the unpredictability of library budgets in further education.

<table>
<thead>
<tr>
<th>EIS</th>
<th>Percentage of College sites linking</th>
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<tbody>
<tr>
<td>Gateways</td>
<td>32</td>
</tr>
<tr>
<td>Organisational web sites</td>
<td>32</td>
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<tr>
<td>Various web EIS (reference materials)</td>
<td>32</td>
</tr>
<tr>
<td>Search engines</td>
<td>23</td>
</tr>
<tr>
<td>Individual e-books</td>
<td>23</td>
</tr>
<tr>
<td>Data sets</td>
<td>18</td>
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<tr>
<td>Text archives</td>
<td>18</td>
</tr>
<tr>
<td>JISC negotiated services</td>
<td>14</td>
</tr>
<tr>
<td>OPACs (other institutions)</td>
<td>14</td>
</tr>
<tr>
<td>Databases via web</td>
<td>14</td>
</tr>
<tr>
<td>E-journal collections</td>
<td>9</td>
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<tr>
<td>SDI services</td>
<td>9</td>
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<tr>
<td>Database aggregators</td>
<td>5</td>
</tr>
<tr>
<td>Local EIS (eg, CD-ROMs)</td>
<td>0 (but many colleges have separate CD-ROM collections)</td>
</tr>
<tr>
<td>Document delivery</td>
<td>0</td>
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<td>e-book aggregators</td>
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They only have access to a few databases since the cost is often prohibitive. The thing is that there may only be a few students on each course, so it’s not worth spending lots of money on specialized databases. Publishers are way beyond FE’s access unless you happen to be a really big inner-city college. The British Humanities Index and British Education Index have an FE pricing structure and so are the only two instances in which the college goes straight to the publisher. The JISC consortia deals are really good. (LIS Staff)

Yes, well I’m very cautious about long-term arrangements because FE is unpredictable. The future is always a little hazy and I have experienced blocks... freezes in funding in the past, so anything over 2 years I’m very dubious about. (LIS Staff)

Well the merger is going to complicate things no end with different licences and duplication and different expiry dates—we’re finding that already. We’ve been quite careful not to enter into any long-term agreements that might make things difficult. The only one that hasn’t applied I guess is the JISC arrangement with Infotrac service. (LIS Staff)

‘There seems to be a gap between provision for school and provision for HE... FE tends to get left a little in the middle. We do find things but sometimes it would be nice if things like RDNs were extended down into the FE market a bit more (LIS staff)

The main benefits of EIS to users are perceived as accessibility and the timeliness of EIS. They are bang up-to-date and instantly available. (LIS Staff)

...reliability, ease of access and printing facility. (LIS Staff)

...the students also find these useful because they can access them from home. (LIS Staff)

Apart from the usual technical breakdowns, rendering EIS unobtainable, there are few drawbacks to users perceived by the library managers.

I don’t think there are any serious drawbacks. It does require a bit of discipline on the part of the users. Firstly, they have to manage their time, they have to plan a particular period when they go to the LRC and devote, say half an hour of their time to it... and they also have to be fairly scrupulous in following the on screen instructions. (LIS Staff)

I think where the college does fall down is with the lack of instruction on how to use the electronic information properly. (LIS Staff)

*Implications for staff skills and their development*

Increased use of ICT in teaching and learning and, more specifically, the use of EIS in learning is dependent on library and information staff and academic staff updating their skills both in the use of such facilities, and also in their use in teaching and learning contexts.

Some library and information staff were concerned about their current level of IT skills. Some staff had CLAIT (Computer Literacy and Information Technology) training or had...
taken the initiative and organised Internet training sessions for themselves. Skills were mainly acquired via self-taught methods or trial and error.

I sometimes get frightened. I lack confidence and I think the kids know more about the computers that I do (LIS staff)

We could do with a bit more training, as it tends to go over your head. When you’re not actually using it on a day-to-day basis it’s probably best to get the training after you’ve used it a bit because then you know the questions to ask, and you know what you don’t understand (LIS staff)

As a result of limited numbers of LIS staff within most of the FE colleges attendance at courses was often difficult to organise:

It hasn’t happened as you have to go away from your job... and that leaves the library short staffed. We have a service to run and we never get cover (LIS staff)

Academic staff talked about their IT skills on two levels: their ability to use the technology; and, their ability to teach students how to use EIS in a classroom situation. Concerns about their lack of general ICT skills relative to those that they perceived their students to have undermined their confidence in their ability to use EIS in the classroom.

Despite the availability of advice from the Ferl service (Ferl, 2002) on creating ILT resources for further education, and the National Learning Network (NLN) site (National Learning Network, 2002) with online learning materials commissioned for post-compulsory education and training, some teaching staff are reluctant to make use of newer resources.

I’m too old for that. I’m not going to start now (Geography academic)

Staff development was seen as key to increasing staff skills and their use of EIS. Training needs were generally identified through an appraisal system, and in some colleges there is encouragement for teaching staff to become qualified to CLAIT level and this was closely linked to the Teachers Pay Initiative (TPI) to provide an incentive for the staff. In other colleges it was compulsory for members of staff to be IT literate to Information Business Technologies (IBT) Level II, while others encouraged the European Computer Driving License (ECDL) course.

ILT Champions are members of staff within the college who have an interest in IT and the use of EIS, and in some colleges the librarian and learning resource manager may also be the ILT champion. One college conducted ‘ILT skills audits’ to help identify staff development needs. During these audits the Champions conducted one-to-one sessions; these were perceived to be beneficial both in promoting the facilities and raising staff awareness.
Conclusions
The use of EIS within the further education college sector is fairly new and it is obvious that most colleges are only just developing their access to EIS. This has led to considerable diversity in levels of development across the sector. Accordingly experience at student, academic and LIS staff level is very varied. There has been considerable investment in ICT infrastructure, but there is still work to do to ensure that all staff can take advantage of opportunities available through agencies such as Becta (Ferl) and JISC’s Regional Support Centres.

The main challenge for staff in the colleges is coping with rapid changes, and uncertain future funding. Intranet development and the development of new College Web sites are taking place at the same time as trials of virtual learning environments.

Issues that will need further attention over the next few years include:

1. Sharing of good practice in relation to LIS web site development and design, and access to appropriate EIS.
2. The development of EIS targeted or packaged for further education students. This needs to extend beyond online learning materials to support students in accessing and evaluating a much wider range of resources.
3. The development of licensing arrangements that make appropriate EIS more affordable to further education colleges.
4. The identification of specific time and opportunities to develop LIS and teaching staff ICT and EIS skills, and to build their confidence in using these skills in the classroom.
5. The further embedding and development of the role of ILT Champions.

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