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A guide for support staff (LTSN Generic Centre e-Learning Series, no. 5)

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Citation: CORE, J., ROTHERY, A. and WALTON, G., 2003. A guide for support staff. LTSN Generic Centre e-Learning Series, no. 5. York : Learning and Teaching Support Network (LTSN)

Additional Information:

- This guide is also available at: http://www.heacademy.ac.uk/resources/detail/e-Learning_Series_Guides_1-5

Metadata Record: <https://dspace.lboro.ac.uk/2134/3148>

Publisher: Learning and Teaching Support Network (LTSN)

Please cite the published version.

LTSN Generic Centre

e-Learning Series

No 5



A guide for Support Staff

By Jane Core, Andrew Rothery
and Graham Walton



Introduction

The Generic Centre e-learning guides are the first fully comprehensive guides on e-learning aimed at specific audiences within UK higher education. They address issues that are key to senior managers, teachers, support staff, learning technologists, heads of department and students, but the same message emerges from all: e-learning *is* learning, providing us with useful tools not only to deliver an enhanced learning and teaching experience, but also to push the boundaries of learning and teaching through creative use of technology. With e-learning now high on the agenda of the UK Government and of all educational sectors, it is clear that e-learning is here to stay. We hope that you will find these guides, written by leading practitioners in the sector, to be timely and relevant in developing your individual and institutional approaches to e-learning.

Kathy Wiles - Senior Adviser
LTSN Generic Centre

About the authors

Professor Jane Core is Director of Learning Resources at Northumbria University in Newcastle. The Learning Resources Service offers support for learning and teaching to over 2,000 staff and some 23,000 students, managing open access IT and IT support services, staff development for learning and teaching, libraries, classroom support and e learning production support services. Strategically she is involved with pedagogical, human and organisational issues in e-learning and e libraries, sponsoring the institutional project to integrate library services with BlackBoard. She has a significant institutional role in implementing Northumbria's Learning and Teaching Strategy, and on reviewing the Information Strategy. Formerly Assistant Head of Information Services and Professor of Lifelong Learning at University of Abertay Dundee, Jane works or has recently worked at a national level on a number of projects and initiatives including: the DNER Steering Group (JISC), JISC Learning and Teaching Committee, ILTHE accreditation committee and LTSN ICS Steering Group. Jane is presently an Associate of the LTSN generic centre where she represents the interests of support staff in learning and teaching.

Andrew Rothery has been Director of IT at University College Worcester for eight years and has now taken up a new post with responsibility for e-learning, web developments and the managed learning environment. Previously he had been a lecturer in mathematics and mathematics education, went on to teach IT and then developed the first IT degree courses at UCW. He has worked extensively with UCISA and has been Chair of its *Teaching, Learning and Information Group* and member of the UCISA Executive Committee. Currently Andrew is an active member of the TLIG *Learning and Teaching Working Group*. Andrew Rothery has presented papers at EUNIS conferences. Now a EUNIS Board member and one of EUNIS's vice presidents, he has particular responsibility for e-learning in the organisation's activities. Andrew has recently become the Project Director for a JISC-funded project based at UCW entitled 'Delivering a Foundation Degree through a Managed Learning Environment'. He is the Chair of the UCW e-Learning Group which is actively developing and implementing an e-Learning Action Plan.

Dr Graham Walton has worked in higher education for over twenty years within the learning resources area. He is employed at Northumbria University where he combines two roles: managing a campus library serving 7000 students and also Research Fellow in the Information Management Research Institute. He has published over twenty journal articles and is editor of 'Health Information and Libraries Journal'. Along with an initial degree in computing / library studies he has masters degrees in Educational Development and Business Administration. He is currently managing a research project exploring barriers to e-learning and strategies to overcome the identified barriers.

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1 Introduction

In Higher Education today, e-learning is becoming a dominant factor in the delivery of learning and teaching. As students increasingly come to depend upon online learning, either because they are in the workplace, based in a remote area, or simply through choice, support for their learning becomes ever more crucial. Not only will an 'e-learner' require to have at least the quality of support of the on-campus student, they will also evolve a number of special needs that support services will be called upon to meet.

Support service staff have a range of specialist skills that will be called upon ever more as the growth of team teaching and team development of e-learning continues. The challenges of working in teams and acquiring new skills (sometimes not by choice) must be faced if support services are to continue to meet the needs of their colleagues in the higher education sector. Combined with this challenge to the traditional roles of service staff is the threat that, as teachers become more involved in supporting their own online courses, they will fail to call upon support service staff expertise in resource location, technical support and student mentoring, leading to a failure of quality assurance of e-learning courses and materials. Those working in support of student learning must continue to work with these challenges and to evolve as e-learning evolves if students are to receive the online experience that they need and deserve.

This guide seeks to explore a number of issues that have arisen in recent years as e-learning becomes embedded in higher education. Many of these issues apply

equally to face-to-face service delivery as they do to the delivery of online support. The guide poses a number of questions, and is very much focussed on the needs of the clients of support services, but also considers issues around strategic management and cultural change. The guide can be read as a standalone document, but many readers may wish to acquaint themselves with the contents of the other guides in this series, which focus on management, learning and teaching and student issues.

2 Services to support e-learning

2.1 How can we support students?

How can support services respond to meet the needs of e-learners, as e-learning tools and techniques become embedded in everyday learning and teaching?

Learning First

Supporting students to benefit from e-learning requires that all support staff consider and understand the learning needs of students: why they need access to e-learning services, resources and support, and how they might best use them in the context of their own learning. This crucial point is easy to forget when the focus lies upon the massive professional challenges of managing large and complex budgets, services and staff, where technology and learning resources compete for time and attention. Support services are there to enhance the student learning experience but are rarely comparable between institutions. Hence it is difficult to benchmark or compare value for money, or the contribution such services actually make to student learning. Value for money is of course important and is part of every resource manager and support team's remit, but educational value or impact is the meaning or measure we need to determine and support. Services should therefore be designed through the process of developing an understanding of the contribution they make to student learning.

Support Services of all shapes and sizes

The extent to which support services are provided directly to students varies

according to institutional support policies and subject disciplines. Typically library and open access IT support will be provided directly to students whereas services like the loan of equipment (e.g. digital cameras, data projectors, digital audio/video capture and playback etc.) or hands on access to technologies like video editing, may be more specialist. These more specialist services may be provided by subject departments directly to groups of students, but student demand for hands on access to production tools is increasing as they become more involved in working interactively with e-learning materials. There is no single model: each institution has developed its own pattern of support to reflect its support history, mission, diverse student body and course portfolio (Field, 1998). As e-learning becomes an everyday part of learning and teaching, irrespective of boundaries of time and place, so support services will experience growing demand from students for:

- ubiquitous access to basic IT based network services and facilities;
- access to 'standard' software and services such as e-mail, internet access, applications packages, personal web space and customised learning space in virtual learning environments (VLEs) and other student 'portals';
- access to online courseware and support in its use;
- access to wider learning resources via redefined 'libraries' which combine quality assured and subject specific print and electronic resources in the concept of a hybrid or virtual library;

- access to classrooms equipped with interactive learning tools and technologies to allow the benefits of e-learning to be blended with face-to-face approaches to teaching.

Support services such as those described above can be made available from open access IT facilities, specialist labs, student residences, and remote access points using desktop, mobile or wireless IT devices.

The challenge now lies in ensuring student learning is enhanced and supported by and through these means. Failure to do so implies that instead of offering learners flexibility and choice, such technologies may become barriers to learning.

Support Principles

Institutionally based support principles ought to be able to be extracted from key institutional strategies and policies such as the Learning and Teaching Strategy, Information Strategy and Human Resources Strategy, or e-Learning Strategy if such exists. An understanding of institutional priorities for learner support will lead to the definition of service priorities for the support of e-learning.

If support services are designed with learning in mind we will be better placed to determine the impact our services have upon learning. It is impossible to generalise, but considering some broad principles for supporting learners provides a starting point.

2.2 How can we provide learner-centric services?

Learner support services tend to be defined as discrete units but from a learner perspective they actually cut across libraries, IT, administrative, registry and student services. Services support the work of the institution, but learning and teaching are fundamental to all. So the design of support is crucially connected to understanding how, when and where students learn, and what their learning preferences and styles are. There are three factors to consider.

1. Understanding your institution

Heads of services should be working closely with senior managers to ensure that all support staff are aware of the purpose, shape and size of the institution, the way the student body is defined, and

the vision for the future. For example: how many learners are off campus, part-time, overseas, declaring a disability and so on? Where are these learners, and how will services ensure accessibility for all of them? An examination of key policy / strategy documents and Higher Education Statistic Agency (HESA) returns is always informative and services should continuously inform the creation and interpretation of such documents. Many institutions publish vital statistics and facts to staff: these are invaluable in helping to predict changes in demand which are driven by increasing diversity of the student body, changes in the course portfolio and in modes of delivery.

2. Understanding student expectations and needs



We need to know our audience and understand something of their expectations and what matters to them. User satisfaction surveys and questionnaires can be complemented by more qualitative investigations into the needs of particular students. Regular feedback mechanisms through surveys and so on can provide guidance on trends and priorities but they cannot stand alone and are no substitute for building strong liaison arrangements with students and staff including: attendance at course committees and reviews; having involvement in the development of new courses; supporting resources at an early stage of curriculum design. There are many examples of surveys and investigations conducted into the behaviour and satisfaction of different groups of learners within or across institutions. Lessons drawn in one institution will guide or focus further investigation in another, for example:

- Society of College, National and University Libraries (SCONUL) publications and briefings include work on access for distance learners and users with disabilities (Heaps, 2001) and has a comparative statistical series (http://www.sconul.ac.uk/pubs_stats/);
- The JUBILEE project investigates

the possible impacts of Electronic Information Services (EIS) on information seeking behaviour, given an ever increasing plethora of information resources – from library web pages; on-line databases; e-journals; abstracting and indexing services; search engines, and virtual learning environments (http://online.unn.ac.uk/faculties/art/information_studies/imri/rarea/im/hfe/jub/hfjubilee.htm);

- The Health area is particularly rich in user surveys and evaluation, and one such example can be found at University of Northumbria (Childs & Banwell, 2001)
- University of Northumbria Learning Resources Service conduct student satisfaction surveys of library and IT users (Evans, 2000, Fozard 2000).
- Glasgow Caledonian University has a seven year survey set (<http://www.lib.gcal.ac.uk/research/>).

These and other debates about how best to provide support services will, and should continue to take place. The underlying principle that should be applied to this argument is that we ought to be developing learner support policies and the application of those policies should result in seamless and transparent services which meet the needs of increasingly diverse learners.

2.3 Understanding relationships between services in an institution

We need to know our own services and stand back from them to see how they connect to the other services across the institution. For many years support service structures have been converged and de-converged and opinions expressed

on the best model. Structure is neither the issue nor the solution: considering the student journey and the student experience is a more helpful starting point. This point is covered more fully in Section 7, Collaboration.

2.4 How can we provide integrated simple and standardised services?

Learners should not have to 'crack the system' to use it, it should be as simple, standardised and as integrated across platforms and systems as possible. We should be aiming to shorten the distance between the learner having a problem and finding a resolution and in doing so can achieve reduced duplication and confusion in service delivery and offer the learner greater independence. This leads us to consider how support services are represented online as well as 'face to face', for example:

- how will libraries customize their virtual wares to students who may now be more likely to log on to their course in the VLE or to Google than they are to search the library for resources?
- how will we ensure that the student records database integrates with the VLE and the library registration and IT password and authentication systems? Multiple logons and passwords are a real obstacle to making systems accessible;
- how can services and systems be redesigned to give learners a one stop registration system which seamlessly provides access rights to buildings (smartcard system), libraries (library management system), IT facilities (IT passwords and authentication services), personal space in the student portal or VLE, a view of personal

information (student portal) and progress (progress files and student database systems)?

The answer to these and similar questions lies not in systems and technology- it is already possible to conceptualise a Managed Learning Environment (MLE) in which these things can be developed. The success or failure of such initiatives lies in support services exercising creativity and imagination in repackaging support to fit with the various access points used by students. Hence a window into library

reading lists and subject support should be designed into the VLE and so sit alongside the student learning space, making access seamless. Likewise students will increasingly expect self service access to their own records and learning achievements, their module or course descriptors and the supporting course materials so that they may find help or training packages and advice on information, IT and study skills as and when they need them, rather than when service providers decide to offer them. The Joint Information Systems Committee (JISC) have produced a number of resources about VLEs and system integration (http://www.jisc.ac.uk/index.cfm?name=mle_home), including a comprehensive briefing pack (JISC, 2001).

2.5 How can we provide equitable services?

The quality agenda stresses the need to provide equitable and comparable student experiences across diverse student groups and modes of course delivery (QAA, 1999).

It is widely accepted that factors outside an individual's direct control, (such as licensing agreements, resources or cultural conditions) may in fact determine

the manner in which a service can be delivered. That said, it is important to recognise that e-learning will be in use to varying extents in different locations, time zones or by student groups with distinctive cultural, social, educational or access needs. e-Learning is promoted as a flexible solution, offering students independence and choice, so support services must offer similar flexibility. Providing equitable access to resources and support for learners is central to this challenge and e-learning tools and online resources offer significant opportunities in this regard. For example:

- **Hybrid Libraries** - Having relevant and timely information and learning resources, from course materials to library resources, is now central to student learning and learner independence. The introduction of VLEs and developments in hybrid libraries present many opportunities for providing support to learners. High quality learning resources can now be offered anywhere anytime. Integrating and customising resources in a student portal or at course level within the VLE is certainly a desirable development of library systems which has already begun. Examples can be found at the Open University (<http://myopenlibrary.open.ac.uk/>) and University of Northumbria (HyLiFe: <http://hylife.unn.ac.uk>)
- **Physical Access to Libraries and IT** - Local library portals or subject gateways, such as the University of Northumbria HyLiFe (see above), will signpost learners to hardcopy resources as well as online ones. UK based learners without easy access to their home university can take advantage of UK Libraries Plus (<http://www.uklibrariesplus.ac.uk>) – access, print and online resources

a service through which libraries in HEIs offer reciprocal borrowing and access. The UK Computing Plus pilot (<http://www.uklibrariesplus.ac.uk/ukcp/report.htm>) is examining the feasibility of host institutions providing similar access to IT and licensed information resources online.

These initiatives offer learners many advantages by blending institutional library access, print and online resources to complement that which they can access from their online learning spaces.

- **Subject guides** - Locally purchased 'library' resources can be supplemented by more general subject guides and tools provided for the further and higher education community such as:
 - JISC resource guides (<http://www.jisc.ac.uk/index.cfm?name=resguides>)
 - JISC Resource Discovery Network (http://www.jisc.ac.uk/index.cfm?name=services_rdn)
 - LTSN Subject Centres (<http://www.ltsn.ac.uk>)
- **Locally produced learning materials** - With the proliferation of locally produced e-learning course packages support staff face a new challenge, namely, how to help colleagues develop their resources beyond course notes or PowerPoint slides by encouraging the integration and use of high quality published material, including e-books and journals and publishers' content cartridges. This is covered more fully in Section 3, Learning and Teaching, but it must be noted here that hybrid library resources must be integrated with learning material in order that learners have access to good quality peer

reviewed sources, rather than rely on Google or other such search engine.

There are many examples of resource discovery tools being developed to try to interface library materials and resource lists with gateways and authentication services, all accessible from the course or portal level in the VLE. Describing those resources and services so that they can be cross-searched and presented as simply and seamlessly as possible is a further challenge. Some suppliers of library management systems are developing the Online Public Access Catalogue (OPAC) to perform this function. Examples include:

- MetaLib - Ex Libris (<http://www.aleph.co.il/>)
- TalisPrism - Talis (<http://www.talis.com/>)

- ZPORTAL - Fretwell Downing (<http://www.fdggroup.co.uk/fdi>)

A good overview of present issues and solutions is given in Cox and Yeates (2003).

A number of JISC projects are examining the integration of hybrid library resources with VLEs (e.g the Digital Electronic Library Integration within Virtual Environments (DELIVER) project <http://www.angel.ac.uk/DELIVER/>). Issues of interoperability and authentication remain problematic, not least because of the closed character of most library management systems. Addressing these technical challenges with learning in mind will demonstrate the crucial link support services provide in enabling sustainable e-learning.

2.6 Access to help and support

Skills

Support services have a long tradition of providing learners with the skills required to enhance their learning and research skills using the increasingly complex range of information services and IT applications available. Mastery of such skills is a pre-requisite to effective e-learning. This topic is more fully addressed in Section 5, Student Training and Staff Development. However, here is the logical place from which to consider help and support generally. Help and enquiry desk services are often seen as separate from skill programmes, and often seen as in a fixed place and time. In adopting a learner centric view we must

link everyday help and support to what we expect students to learn, and how and when they are learning.

'Signposting'

All help and enquiry points should have staff who understand something of how students learn and how best to support them. All parts of the support system should be equipped to signpost learners to help, advice and further resources. This could be: an appointment with a subject librarian, tutor or skills adviser for one to one support (in person, by phone, by email, by chat room), access to a skills package offered in a VLE, a frequently asked questions site, a guide to a

database, or a technical support desk to resolve password difficulties or other problems.

Delivered online and remotely

As technology allows learners to access our services and support from an ever growing number of locations more help and advice needs to be available online so that learners can help themselves in the first instance. Services have a good record of offering FAQs, guides to resources on web pages and so on, but the support system can be complex and can be dependent on having the right specialist available. Electronic helpdesk systems are widely used in IT services and could usefully be extended to library and other learner support services. Benefits include the opportunity to:

- standardise procedures;
- record and track queries for follow up;
- identify problem areas where help materials or staff skills could be developed;
- report management statistics to inform service levels and standards;
- create a knowledge base available for learners to interrogate independently.

Two useful resources include:

- The University of Central Lancashire, recently implemented such a system (Hitchen, 2003).
- The Universities and Colleges Information Systems Association (UCISA) helpdesk list at JISCmail, and the Teaching Learning and Information Group (TLIG's) provide

good sources of current practice and opinion (<http://www.ucisa.ac.uk/groups/tlig/asg/docs.htm>)

Many support staff express concerns that 'hi-touch' services will be sacrificed for 'hi-tech' solutions - this need not be the case. Staff at Central Lancashire report an enthusiastic response with more service areas being integrated; support services routinely use VLEs to offer support with the opportunity for more interactivity with learners; University of Northumbria uses remote 'shadowing' where Citrix users can have their desktop remotely accessed by helpdesk staff to fix problems. This has been taken further to support learning and skills more directly with support staff able to duplicate keystrokes or watch learners work, taking control to demonstrate how to do things if the learner agrees.

Open all hours?

Finally, we must consider how best to develop support so that it can be accessed at times when institutional help is not available. The London School of Economics collaborates with other institutions in other time zones, exchanging support materials and supporting each other's student queries to provide 24hour coverage (<http://www.lse.ac.uk/itservices/help/Helpdesk/FollowTheSun.htm>).

Global Librarian, a partnership involving public libraries in three continents also reports early successes in collaboration on library enquiries across time zones (<http://www.globallibrarian.info/>).

Other solutions include e-mail support accessed from web pages with turn

around times set for replies and the use of electronic reference librarian services, or intelligent questioning software e.g. Electronic Access to Reference Service (EARS) at University of Northumbria (<http://library.unn.ac.uk/ears/submit.asp>) or the recently established Librarians on Call service at the Open University (<http://library.open.ac.uk/aboutus/mission.html>).

The challenge to services is to get the best match between hi-tech and hi-touch approaches. In terms of supporting student learning and offering students flexibility and choice certain hi tech approaches do recommend themselves but the impact of this thinking on staffing and structures will be great.

Access to IT and networks

The trend towards more affordable and portable computing and network access means support services are called upon to redefine the way in which IT access is offered. Access to a workstation bounded by office hours and campus geography is already insufficient. The Dearing report recommended, "that by 2005/6 all students will be required to have access to their own portable computer." (NCIHE, 1997). Currently, steps towards wireless access, student lease or purchase schemes, and 'desktop anywhere' network access from campus or home are being made. Services must examine strategically where investments are made, how they are sustained and what service standards and levels are appropriate to support these developments.

There are examples of moves towards what has become termed ubiquitous computing in the USA and Canada and

there is a need to understand ubiquitous computing in the UK educational context (Franklin 2002, SUNY Morrisville – the first ThinkPad University at <http://www.morrisville.edu>).

Access to physical learning spaces

Some consideration of physical spaces is required given that e-learning has been shown to be most effective when blended with face-to-face learning. The growth in demand from students for access to IT on campus, in spite of reported rises in the number of students who own a PC, has been well documented. Capital investments in earmarked funds for developing estates and learning and teaching facilities are still generally deemed inadequate (HEFCE, 2002). Demands on campus facilities continue to grow with the need to offer students access to more flexible and technologically advanced formal and informal learning spaces.

- The Learning Café at Glasgow Caledonian University (<http://www.realcaledonian.ac.uk/learningcafe.html>) offers flexible learning space alongside informal group space and refreshments.
- The first interactive multimedia classroom at Strathclyde University, uses ClassTalk, an advanced classroom communication system to encourage active participation by students and provides immediate 'on-line' feedback on learning (<http://www.strath.ac.uk/publications/review98/news1.htm>).

Most institutions have already invested heavily in making networked workstations connected to data projectors as a standard part of classroom equipment, allowing

students to have a live connection to learning materials, streamed video and other digital learning and teaching resources. Interactive whiteboards offer a powerful way of integrating various media and e-content for collaborative learning in the classroom. If support is to be equitable and each student experience

comparable then campus-based learning spaces will require continued development and investment. In time, being taught in traditional campus facilities, without easy access to the e-materials and tools we are now developing and supporting for e-learning, will be seen as considerably disadvantageous to learners.

2.7 Legally Compliant Services

Support staff must be aware that in nearly every area of support they will be dealing with licensing and other legal requirements against which they must manage risk of litigation or misuse and assure institutional compliance via 'Acceptable Use' and other relevant policies. The following affect every further and higher education establishment:

- Data Protection;
- Freedom of Information;
- Human Rights;
- Email and Telephone Monitoring;
- Intellectual Property Rights;

- Disability, IT and the Law;
- e-Commerce;
- Cybercrime.

An excellent starting summary on legal information is available from the JISC Advice and Guidance Service (JISC 2002) and the JISC Legal Information Service (<http://www.jisc.ac.uk/legal/>).

CHEST license many software and datasets and have produced model license agreements which illustrate licensing issues. Databases provided by other hosts will be subject to different terms and conditions (<http://www.chest.ac.uk>).

2.8 Accessible services

The Disability Discrimination Act 1995 (1995) was extended to education from September 2002 through amendments introduced by The Special Educational Needs and Disability Act 2001 (2001). The legislation now places a duty on providers to make 'reasonable adjustments' to cater for the needs of students with disabilities and it must be noted that this is not just a duty to individuals with a declared disability, there is also an anticipatory element by which we have a duty to make adjustments in advance, to avoid

discrimination against people with disabilities in the future.

Assistive technology has demonstrably improved access to learning for students with disabilities, yet at the same time technology applied without proper consideration can also be a barrier to access. Support services are already experienced in providing assistive technologies to users, for example:

- Electronic Braille Displays and reading aids, screen magnifiers,

speech synthesisers and so on to support visually impaired learners;

- Recorded lectures, captioning and subtitles, electronic note and speech recognition packages and text phones to support hearing impaired learners;
- Software and hardware such as PDAs, scanning pens, speech recognition software, online dictionaries, spellcheck or packages and talking calculators and so on to assist listening, reading, memory, writing and calculations by dyslexic learners.

Many difficulties in accessibility can be minimised by the accessible and universal design of web based content and learning materials and assessments (Rose, 2002, Centre for Applied Special Technology - <http://www.cast.org>). The use of content management systems in institutional web sites provides an opportunity to define accessible templates and designs to be used by all. Developers and vendors of VLEs have a role to play and services tendering for systems should be mindful of

the need to assure accessibility when preparing invitations to tender. The web page design guidelines developed by the W3C Web Accessibility Initiative to ensure students with disabilities are not excluded can be applied equally to the use of VLEs (<http://www.w3.org/WAI/>).

Support services will also find they have a growing role in staff development and advice to improve awareness of the principles of accessible and universal design. In order to make such a contribution the staff development needs of support staff must be considered: there are many useful starting points, including the comprehensive JISC funded TechDis Service (<http://www.techdis.ac.uk>).

It is to be hoped that service providers have long been aware of the need to promote good practice in making services accessible to learners but these legislative changes have attracted funded support from funding councils across the UK which provides further opportunity to enhance services for students with disabilities.

2.9 Conclusion

e-Learning presents support services and their staff with new challenges. In developing services to support e-learning we must:

- Place the learner first - understand their needs and aspirations and those of our institution. From this understanding we can develop clear policies, service levels and standards for supporting learners;
- Blend 'hi-touch' and 'hi-tech' support methods to customize mass services and make them more widely available to learners wherever and whenever they need them;
- Develop models for support which cross organisationally discrete services so that they can be presented to learners as seamlessly as possible with clear points of contact and support processes in place;
- Contribute to the acquisition and practice of skills for e-learning by using help and enquiry services to reinforce those skills;
- Promote staff awareness of new roles and partnerships including the need to work across traditional boundaries and the need to continuously develop new skills and practices.

3 Learning and Teaching

In what ways can support staff contribute to the quality and success of learning and teaching using e-learning?

Support staff provide the key services underpinning e-learning. This includes both the underlying hardware/software infrastructure and the e-learning support services aimed at staff and students.

Furthermore, though some support services are specific to e-learning, the

growing extent to which e-learning is embedded in all learning and teaching means that all services must consider the impact of e-learning on what they provide. Learning and teaching is at the centre of support services thinking, so how can services provide support to the curriculum and to teaching staff?

3.1 Context

Local/distance course continuum

The distinction between 'local' and 'distance' courses is becoming one of degree rather than type. Instead of there being two kinds of course, 'local' and 'distance', each with its own character and traditions, the use of e-learning is leading to more of a 'continuum' ranging from 'largely distance' to 'very local'. Many so-called distance courses also include an element of face-to-face contact and even locally run courses include an element of online learning off-campus.

Within a campus-based course, tutors can introduce specific e-learning activities. They might include online discussion on a specific topic, setting up a virtual project team, making certain study materials available via the web or using an online assessment for a particular part of the course. Many courses will have basic information and back-up materials online even if principally delivered face-to-face. So the amount of e-learning delivered per module or course can vary from simple content delivery to properly structured learning activities supported by

interventions from teaching staff. The mixture of face-to-face and online delivery is known as blended learning, and student feedback surveys have shown that on-campus students prefer this mode of learning to either completely face-to-face or completely online learning.

At the other extreme of the local/distance continuum many universities have developed entirely online courses catering for specialist audiences nationwide or for overseas students. The UK e-University (<http://www.ukeu.com>) scheme is perhaps the most recent example of such a development, aiming to take the best of UK University online courses to overseas markets.

All students are now likely to have some experience of e-learning during their course, and support services must recognise the additional requirements that this will place on service delivery.

Blending of real and virtual learning

In a similar way, the distinction between 'face-to-face' and 'virtual' learning is rapidly

becoming blurred. The development of increasingly technological classrooms means that tutors use digital resources in their face-to-face teaching and these very same digital resources can be re-used within an online course. Support services are not only involved in providing hardware to deliver these digital resources, they may be involved in 'repurposing' resources for use in different media, for example taking a classroom video of a lecture and turning it into a streaming video to be delivered within a VLE.

PowerPoint presentations, video clips, visual and pictorial material, data and databases – all are useable within 'real' and 'virtual' teaching. Creating a digital resource collection reduces the distinction between real and virtual teaching. Creating a digital resource collection which can be effectively accessed both from the class session or VLE-based course is a major challenge for universities, but it is achievable and will help to support the rapid development of e-learning materials and stop the constant reinvention of material that is common in higher education.

Using a mixture of university-provided and privately-owned computers, both tutors and individual students can have ready access to the internet and other IT resources during teaching sessions. Support services have to be involved in planning these new teaching spaces and resourcing them appropriately.

It is even becoming possible for off-campus students to participate in on-campus teaching. For example during sessions which use discussion groups or workshop activities, off-campus students can participate via chat, online discussion forums within the VLE or by using videoconferencing. In many instances it is the role of Support services to determine the learning and teaching benefits of investing in potentially expensive equipment to allow these teaching innovations to happen.

Support services are therefore not only involved in the technical fitting-out of learning spaces, but also in determining the learning and teaching benefits of e-learning innovations.

3.2 How can we provide digital learning resources services

What services do support staff need to provide to help create a digital resource collection which can be readily available for use?

Materials production

Many tutors will need to collaborate with IT and media support staff in order to

produce good quality re-useable resources. This might range from help in improving a PowerPoint presentation to editing digital video material. Assistance with basic web material might involve help with direct creation of web pages or the provision and use of a content management system.

Do you offer a digital media learning materials preparation and production service? Even if not an explicit service, can tutors obtain this kind of help?

Storage and access

How are digital learning resources stored and accessed? Academic tutors are sometimes not keen to make their own presentations, video materials, etc available to other staff. There are questions of Intellectual Property Rights (IPR) (HEFCE, 2003), modesty regarding quality and lack of time to organise sharing.

Support staff can provide encouragement to share resources in a number of ways. Support service staff often work with many staff within the same department and across departments. In doing so, support staff often gain a unique insight into the potential for sharing and reuse of materials across their institution. Support staff are also well positioned to offer support structures which will encourage the sharing of resources, such as an online repository or simple web-based database of materials. Every University would be wise to develop an institution-wide system for storing or locating digital resources and indeed a method of classifying and finding them once stored. This requires the active collaboration and expertise of support staff crossing the IT and library boundaries

Re-usability/learning objects

If digitised learning resources are to be stored, shared, re-used and made available in a variety of ways some standardised method of organising them is needed. This need has led to the concept

of a “learning object” – an item or entity to do with learning which can be stored, coded, catalogued and then readily searched for and used.

Unfortunately there is no absolutely precise definition of the term, though the spirit of the idea is fully understood. The UK e-University defines a “learning object” as follows:

“Re-usable Learning Objects (RLOs) can be described as the smallest element of a course or other educational offering that defines a learning activity. ‘Reusability’ is usually taken to mean that any given RLO should be usable by any e-Learning platform...”

(UkeU, 2002 p.5)

In this definition a single PowerPoint presentation is a discrete learning object – as is a specific document, a video sequence etc. However, it is not just such passive resources which are included. An online discussion on a particular theme, a quiz or test, a group project task – each of these well-defined activities constitutes a learning object; they are all constituent elements of a theme within a course. The use of learning objects defined like this helps integrate different media and different activities into one system.

For support staff working alongside teaching staff encouragement and assistance in identifying such learning objects can be given formally or informally. Collaboration in the production of materials and appropriate re-use should be encouraged when possible, as such policies help save resources and provide quality assured learning experiences for students (Boyle, 2003, Newland, 2003,

Stiles, 2003)

There are national and indeed international initiatives in storing and cataloguing learning objects. It may not always be possible for local university or departmental initiatives to be of the same quality and standard as a national or commercial one but nevertheless awareness of and adherence to formal database and metadata standards will make further development and mixing of internal and external resources easier.

Though there are several systems of standards, there are two widely-recognised standards and specifications used in access systems for e-learning resource collections and databases, VLEs etc. These are SCORM and IMS:

- **SCORM:** Sharable Content Object Reference Model. A product of the US Government's initiative in Advanced Distributed Learning (ADL). SCORM conformance aims to guarantee interoperability between online management systems and e-learning courseware (<http://www.adlnet.org>);
- **IMS:** aims to define the technical specifications for interoperability of applications and services in distributed learning; support the incorporation of the IMS specifications into products and services worldwide (<http://www.imsproject.org/>).

Standards, specifications and metadata in e-learning is clearly a detailed and rather technical field and colleagues working in e-learning systems, databases and web areas are the ones who need to keep up to date in order to provide adequate support and advice. The Centre for

Educational Technology Interoperability Standards group (CETIS) is the UK body working in this field and they operate a number of special interest groups to cover those with specific interest within the standards movement (<http://www.cetis.ac.uk>).

Running the VLE

Running and supporting the VLE is one of the most direct ways that support staff engage with e-learning on a day to day basis. Though commercial vendors would prefer to see their software product as “the VLE” for a university the virtual learning environment is, in reality, a collection of software systems. The core course structure may well be organised using a specific product such as Blackboard, Bodington or WebCT but these are often supplemented by additional packages such as Questionmark for on-line assessment. Certain collaborative activities might best be operated using a simpler conferencing software system such as Microsoft Outlook. Videoconferencing for tutorial purposes may use NetMeeting or something more elaborate. Webcasting and videostreaming require additional software systems. Preparing and editing web pages may be done in a variety of ways – if your university has a content management system for the web site generally it can be used for e-learning materials too. Specific subject areas will have separate software for specialist activities such as virtual field trips or simulations. On top of all this IT services may have developed in-house web systems for uploading information and resources.

The VLE is therefore an elaborate collection of software systems. It is a real challenge for people-facing support staff to guide their colleagues towards appropriate and effective use and for the systems support staff to interlink these systems and create an environment which seems well-integrated to the student user.

Resources for VLE packages and technologies

The LTSN Generic Centre have published

a series of starter guides in conjunction with ALT. The eight titles currently available include 'Virtual Learning Environments' (O'Leary 2002), 'Computer Mediated Conferencing' (McAteer, 2002), and 'Streaming Audio and Video for Course Design' (Shepard, 2002). However, this is a rapidly developing field and to keep up-to-date requires regular horizon-scanning of organisations identified in Section 6.1, Keep up with developments.

3.3 Services for e-learners

Providing support for the student users of the VLE can result in a radical rethinking of service delivery. Even though your university may have experience in distance learning courses these are often supported by special arrangements. Now that all students will encounter an e-learning element in their course, if only a small one, all student services will need to be as available off campus to ensure that students have an equitable learning experience.

IT enquiries and library information and help desks traditionally operate over the counter – how many services are equally available by phone, by e-mail, by web forms, by videoconferencing etc? Is there a well-publicised email address? Are queries answered immediately? Outside of normal hours such provision is even more difficult and, indeed, perhaps even more important! As detailed above, partnerships with other universities can be a way of covering awkward times.

Technical queries from e-learners off-campus are likely to be even more demanding than those on-campus e.g. questions regarding passwords, access to the VLE and other software systems, and performance problems over the modem link, especially as the off-campus student may be working with software and hardware on their local machine which is different to the institutional standard. Support services have a role to play in setting the minimum specification for PCs for off-campus students so that students will not have a frustrating experience when they try to access on-campus facilities. IT services are also in a position to advise teachers on the relative download times for any learning objects, particularly multimedia objects. If the download time is too great a large financial burden may be placed on the off-campus student, as well as resulting in frustration for the learner.

Library and learning-related queries can

be even more demanding. A team of university librarians from SCONUL have written a briefing paper (SCONUL, 2003) in collaboration with the UkeU regarding library support. This gives a very clear account of service issues and stresses the need for tutors to liaise with library and information services staff when developing e-learning courses and course elements. Not all of a student's learning resources are built into the virtual learning environment per se: many are available via library web systems, and many via physical media such as books and CD-ROMs or DVDs.

Integrating and rolling out existing arrangements for distance students (e.g. telephone renewals, postal book loans,

literature searches) to all students has a substantial impact if the experience is to be made as seamless as possible for the student. Access to resources, authentication, document delivery, study guides – all aspects of library services need to be integrated into the course design. Ideally, students working off-campus are entitled to the same quality of resource provision as those working on-campus.

The UK Libraries Plus scheme allows students registered with a particular university to use facilities in a university library near to where they live. Clearly this is valuable for e-learners; at present 124 libraries are members of this scheme.

4 Academic Discipline

e-Learning is applied differently in different discipline areas. What challenges does this place on support staff and how might they ensure effective links with discipline-based practice?

Support staff are accustomed to providing institution-wide services and therefore tend to focus on generic rather than subject-specific issues. Academic staff see their particular discipline as very special. How can support staff appeal to the e-learning ideals and practices of many disciplines without becoming overloaded and losing essential understanding of generic issues? There is a real need for support staff to

continue to be involved in curriculum design processes in the online world. Many teachers now turn to purely online resources found by searching through Google to support their online courses. By demonstrating that you have an understanding of the e-learning issues relating to particular disciplines your advice and guidance on e-learning will be seen as both appropriate and timely.

4.1 Find out about different subjects

LTSN – <http://www.ltsn.ac.uk>

The Learning and Teaching Support Network has 24 subject centres and a single Generic Centre. Each subject Centre provides advice, guidance and resources for academic subject disciplines. A list of links to the subject centres' web sites is provided from the main LTSN website. Though not specifically focused on e-learning the subject centres web sites provide information on digital resources and e-learning. They also give you a good idea of the issues and approaches particular to each academic discipline.

The LTSN Generic Centre web site has an area on e-learning which brings together generic issues and also looks at subject-based practice. Their learning environment and pedagogy case studies can give you a flavour of the kinds of e-learning practised within different discipline areas.

The LTSN will move into the new Higher

Education Academy (as recommended by the HEFCE Teaching Quality Enhancement Committee (HEFCE, 2003). However, the subject centres are likely to remain within the new structure.

JISC – <http://www.jisc.ac.uk>

The JISC have produced a number of Resource Guides that include substantial guidance for electronic resources (<http://www.jisc.ac.uk/resourceguides/>). They provide information within six categories:

- Bibliographic, reference and research information;
- Publications online;
- Subject gateways;
- Data services;
- Learning and teaching;
- Support services.

At present seven subjects are covered

1. Arts and Humanities;
2. Engineering, Mathematics and Computing;
3. Geography and the Environment;
4. Health and Life Sciences;

5. Hospitality, Leisure, Sport and Tourism;
6. Physical Sciences;
7. Social Sciences.

There are other forms of resource guides published within the JISC Regional Support Centres (RSC) (<http://www.jisc.ac.uk/rsc>) network and many of these relate to FE. The remit of RSCs is now extending to HE, so they are another source of subject-specific information.

Keeping abreast of the plethora of subject-based information about e-learning is a real issue for support staff, and you may wish to work with others in your teams to

develop specialist knowledge about a limited number of subjects. Alternatively, as e-learning is developed in your institution, you may develop knowledge based on specific e-learning projects. If you have colleagues who have been involved in such projects find out from them how they have approached working in discipline areas. Support staff provide a useful bridge between subject disciplines and are often the only source of information for others on issues that have been developed within departments, playing an important role in the scaling up of projects from discipline to institution.

4.2 Look out for and organise contacts

Developing a network of personal contacts is not easily achieved. It requires careful planning and deliberate action. For example:

Learning and teaching co-ordinators: many departments now have a specialist learning and teaching co-ordinator or curriculum manager. Making yourself and the expertise that you have to offer known to this individual can ‘unlock’ a whole department for you.

Project teams: most universities run project schemes within learning and teaching. Try to ensure that support staff are included as members of e-learning development project teams and not just “called upon” by the team when help is needed! (Struthers, 2002)

Subject librarians: libraries traditionally provide subject librarians i.e. staff who liaise with tutors in designated academic

disciplines. In universities with merged or converged services this role may be broader in nature, providing scope for subject librarians to play a role in developing e-learning, and again providing a bridge, but this time between the ‘technical’ and the pedagogic. In institutions where the role of learning technologist has not yet been established, subject librarians can effectively provide the same kind of liaison role. Where learning technologists do exist, the subject librarian has a key role to play in ensuring that resource provision is as understood and integrated into online learning as the learning activities and materials themselves. In this sense, learning technologists and subject librarians can be seen as natural partners in e-learning developments, and institutional managers should enable this partnership where possible.

5 Student training and staff development

What sort of development do staff and students need to ensure they can reap the benefits of e-learning?

For many years universities have developed training programmes for support staff and student development in IT skills and information skills. All this is needed for e-learning, and more – being an e-learner or an e-tutor requires additional skills.

Support staff are likely to be involved in staff or student training whether running a one-off workshop session or a whole course. What should such training provide? And what skills do the support staff need themselves to help them help others?

5.1 Work towards developing “e-literacy”

The convergence of IT skills, information skills and e-learning skills together with the reflective, evaluative and behavioural skills form a ‘triple convergence’ which goes beyond information literacy into what is now being termed “e-literacy” (Hannaford & Rothery, 2003, e-Lit Conference, 2003 <http://www.elit2003.com>). This means that the range of skills for students has expanded greatly. Careful consideration is needed in designing training courses and workshop programmes to take account of the latest thinking in this area.

IT literacy

The report of the C&IT skills: Current Situations, Avenues or Possibility, Emerging Solutions (CITSCAPES, 2001) project presents an interesting classification of the stages in the evolution of ITC skills training and the conception of “IT literacy”:

- **Mastery phase** – up to the mid 1980s. “Computer basics” focus principally on how a computer works in simple terms and how to write simple computer programs;
- **Applications phase** – from the

mid-1980s to the late 1990s. “IT literacy” focuses on practical competence rather than specialist knowledge. Such skills relate to applications tools such as word-processors, spreadsheets and databases. Such software had become relatively easy to use thanks to the arrival of the intuitive graphical user interface;

- **Reflective phase** – late 1990s onwards. Facility in using IT tools is becoming increasingly straightforward. The new emphasis lies with reflective and evaluative aspects of usage. How do you select the right software application for a particular task? What is appropriate usage? How do you interpret and communicate the information you produce?

Information literacy

Alongside the development of IT skills training, the pattern of information skills training given by library staff has also evolved. The “Big Blue” project (<http://www.leeds.ac.uk/bigblue>) surveyed practice and looked towards the future development of ‘e-literacy’.

Standard library skills training based

around using catalogues and learning search techniques have expanded as libraries themselves have embraced the inclusion of electronic resources. Using web gateways, electronic indexes, search engines etc. have become part of the standard skill set required for finding academic information.

The notion of “information literacy” has developed a reflective phase too. In addition to the various techniques for finding information, skills in judging the quality of information, finding appropriate sources, interpreting and presenting search results are now seen as essential, not only for academic study, but also by employers who value these skills as highly in students as any other skill they may acquire during their studies. The ‘Seven pillars’ model for information literacy is an example of how reflective elements are needed alongside simple skills (Johnson, 2001).

The evolutions of IT skills and information skills seemed to be converging into an integrated information literacy concept, but

e-learning has further developed the need for these kinds of skills.

e-Learning literacy

Communication tools such as email, online forums, VLE software, chat and videoconferencing have all become added to the software applications list used by students as an integral part of learning. They are in fact the tools which have made e-learning possible. As well as technical skills in using software, students and staff need to develop reflective and behavioral skills. For example, working in an online discussion forum requires users to learn to behave in particular ways to ensure everyone gains maximum benefit from the experience. Having the internet available to search for resources to support learning means that students must develop their critical skills much more acutely to discern good material from bad. Support staff may also have a role to play in educating students about plagiarism and the dangers of ‘cutting and pasting’ directly from the web.

5.2 What are the full range of e-literacy skills?

Here is a checklist of skills that you need to consider when developing training programmes:

- *Local basic skills* – how to log on and use network and library facilities at your particular university i.e. information for gaining local access;
- *IT skills* – word-processing, spreadsheets, databases;
- *More specialised IT skills* – databases such as *Access*, statistics packages such as *SPSS*. (You might argue that all these should be incorporated as required into academic courses and not in general training courses);
- *Information management and communication* – search techniques; locating, accessing and evaluating information e.g. journals, literature searches; presentation

techniques and software (e.g. using PowerPoint); e-mail, chat, on-line forums, appropriate behaviour; videoconferencing, how to structure a session; VLE software, e-study skills; use of online resource databases;

- **Assessment** – using and coping with online assessment and tests (either within a VLE package or in separate software product, such as *Questionmark*); uploading assignments; working collaboratively without committing plagiarism; references and copyright matters;

Delivery

The strategy for incorporating the e-learning skills into a training course is to use e-learning activities in course delivery, a learning by doing approach. This approach has been used to considerable effect when developing staff skills in becoming e-tutors (LeTTOL, Sheffield College, <http://www.sheffcol.ac.uk/Lettol/>). But face-to-face sessions enable beginners to meet and gain confidence and more experienced students to reflect upon e-learning strategies and approaches. As with learning and teaching, a good skills development course may blend both modes of learning to maximise the benefit to the students.

Teaching staff need to be more aware of and understand what is being taught to students so that during their course design process they are taking account of existing students skills, or can lobby for additional skills to be included in training programmes to reflect the needs of their course. In addition teaching staff require training in implementing e-learning e.g.

using and managing VLE software, resources, teaching skills in moderating on-line discussions, running videoconferencing sessions and generally being an e-tutor (see the e-Learning Guide for Teachers in this series for more on the changing role of teachers). Support staff will often find that they will be involved in delivering staff development programmes where these skills are included, and sometime delivering these online (following the LeTTOL model), taking on the role of e-tutor. This is a good example of where the roles of teachers and support staff are changing and merging to meet the challenges of e-learning.

Support staff who provide such training and help will wish to keep up to date by themselves attending conferences and events and working within the key professional organisations such as UCISA, SCONUL and ALT, and seeking accreditation through the ILTHE or SEDA (see Section 6.1, Keeping up with Developments).

6 Learning methods

Varied methods of supporting learning are now developing within the practice of e-learning. In what ways can support staff encourage the use of varied learning methods in e-learning?

All support staff are becoming learning technologists to some extent as they are at the frontline of the blending of student support and technology. Recognising both the extent to which e-learning permeates learning and teaching and the diversity in which it appears is crucial. Support staff

are more likely to play a direct role in e-learning developments as e-learning makes extensive use of technology, communications and institutional information systems and services – all areas where support staff traditionally operate.

6.1 Keep up with developments

Professional associations and national government-funded organisations are clearly a starting point – their publications and events offer a major resource.

Association for Learning Technology – **ALT** (<http://www.alt.org.uk>)

Many universities are institutional members of this association and individuals can be members too. Amongst its services are a journal, ALT-J, a printed newsletter, ALT-N, an e-mail newsletter listing publications and events and, in particular, an annual conference ALT-C which gives you the chance to learn about very specific developments in e-learning practice from a substantial number of presentations and discussions. ALT is aimed at both support staff and teaching staff thus providing an ideal opportunity for interaction and establishing common ground.

Check who is your institutional ALT representative and ensure you are personally fully informed about what is available.

Other organisations and services:


Universities and Colleges Information Systems Association - **UCISA** (<http://www.ucisa.ac.uk>)

Focuses on support staff largely in IT areas but includes information services more generally as appropriate. Virtually all universities have joined UCISA. It has an annual management conference and its Teaching, Learning and Information Group (TLIG) runs a twice-yearly conference. In addition there is a programme of events and activities, some of which include e-learning.

Society of College, National and University Libraries – **SCONUL** (<http://www.sconul.ac.uk/>)

A parallel association for library staff and information services staff as appropriate. SCONUL publications and events often focus upon e-learning and provide another valuable resource.

European Universities Information Systems - **EUNIS** (<http://www.eunis.org>)



Association runs an annual conference which is based around invited speakers and a large number of specific papers from individual practitioners and teams. It has a strong e-learning component and is a good source of examples of the use of learning technology.

Institute for Learning and Teaching in Higher Education – **ILTHE** (www.ilt.ac.uk)

The ILTHE runs a number of regional events and an annual conference. Members have access to special resources on the website.

Learning Teaching and Support Network – **LTSN** (<http://www.ltsn.ac.uk>)

LTSN twenty-four subject centres (<http://www.ltsn.ac.uk>) publish discipline-based case studies on the use of e-learning on their web sites and in their journals.

The LTSN Generic Centre has a database of case studies on Learning Environments and Pedagogy (LEAP) particularly focussing on the use of VLEs to support learning as well as a series of papers addressing issues concerning Sustainable e-Learning (<http://www.ltsn.ac.uk/genericcentre> > Projects > e-Learning);

Joint Information Systems Committee – **JISC** (<http://www.jisc.ac.uk>)

A major funder of projects involving technology and provides reports and resources which are highly relevant to support staff and e-learning such as 'Embedding Learning Technology Institutionally' (ELTI) project (<http://www.jisc.ac.uk/elti>).

Staff and Educational Development Association – **SEDA** (<http://www.seda.org.uk>)

As well as accrediting staff developers and others who support the development of learning and teaching, SEDA runs an accredited pathway called Embedding Learning Technologies, specifically aimed at those who teach using e-learning or who support e-learning development.

There are of course many more organisations and publications and you will be able to track them down by following up references within the above. Case studies and reports or evaluations of different approaches to using learning technology are ideal examples to have to hand when making contact with teaching staff and discussing practical things to try.

6.2 Foster the research and development approach

Strong partnerships between teaching and support staff are vital if e-learning is to develop in ways that deliver a quality learning experience to students. Joint investigations of new methods will make maximum use of individuals' expertise, saving time too! Many support staff become involved in short-term projects

and studies to determine the usefulness of particular learning technologies and in pilot projects to test certain methods. You may be required to carry out some research into e-learning, including usability evaluations and interoperability testing.

e-Learning is still a relatively new research

area, and publishing your findings will not only assist others in your institution but will also make a contribution to the wider education community. Look at opportunities for publication whether on paper or via the web in your university. If there is no obvious suitable channel, do start one. A very good example of a university publication channel is 'Interactions', an online e-learning journal run by the Educational Technology Service at the University of Warwick (<http://www.warwick.ac.uk/ETS/interactions/>).

Universities have formal development projects often with specific funding. Support staff would readily find a place on the project teams of such initiatives. However, even what seems 'day to day' work of support staff is often actually helping with some form of innovation.

Tutors may be planning to convert analogue slides/film to digital form, or deciding to set up project teams, online discussions, new forms of online assessment, or webcasting of a lecture. Whatever the activity if you are reasonably well informed and up to date you will recognise innovation and be able to help in a constructive and collaborative manner, bringing in your own suggestions and helping broaden the range of learning and teaching methods being considered.

What institutional conditions impact upon the potential for support staff to contribute to e-learning?

Support staff are easily empowered – or encumbered – by institutional policies. However, as they work at a cross-institutional level they can also influence policy.

6.3 e-Learning strategy: Where is it? Who owns it?

Universities have a choice of outlets for expressing their e-learning strategies. The learning and teaching strategy might well be the place for the institution to publish its aims, objectives and concepts for e-learning. Equally, it might not, since one model for learning and teaching strategies is to focus on quality and style rather than implementation and methods – hence, e-learning could be "implicit" i.e. not addressed specifically.

The university IT Strategy or ICT Strategy is another possible home for an e-learning strategy. Again, this is not necessarily the case as IT strategies can focus on institutional IT infrastructure and

development policies, such strategies may not discuss pedagogic issues at all.

Information strategies are intended to take a broader view and could well incorporate e-learning. However, they can be too broad and though information and communication policies and systems relate through to e-learning, particular issues may not be addressed.

Both Human Resource and Estates strategies should also refer to e-learning, as staffing will be affected as will be the infrastructure of various teaching and open access spaces. e-Learning is a unique combination of technological and pedagogic ingredients which cut across

the established strategic areas.

Having a distinct and separate e-learning strategy can therefore be quite reasonably justified albeit linked across to other areas where strategic development is articulated. However, as e-learning is primarily a set of tools and methodologies that are about enhancing learning, any e-learning strategy should be driven by the institutional learning and teaching strategy. This does not mean that other strategies are not affected by an e-learning strategy, and all institutional strategies (such as HR, estates and information and IT) should show how e-learning will impact upon and help deliver their aims. Here is a checklist of items a strategy might include:

- the VLE – different types of software, different types of learning technology, any standardisation across the institution and interoperability issues with MIS and Library systems;
- the physical learning environment – development of learning spaces which allow students to access online materials through the VLE or institutional MLE;
- service level provision, such as 24/7 access to library or open access PC laboratory, policy on staffing to provide help to students;
- nature of the curriculum, changing approaches to learning and teaching;
- new local and global markets for courses;
- research and development policy for e-learning, project schemes;
- staff development and HR policies;

- student training provision for e-learning;
- changing study and lifestyle practices for students;
- partnerships regional, national and international.

e-Learning strategy formulation is very much an interdisciplinary activity, not owned by any particular area and though separate academic departments and services might need their own e-learning strategies and development plans, the institutional one is very much a collaborative venture. Understanding the institutional mission in relation to e-learning is clearly an important first step for all members of staff.

As well as expecting the institution to come up with a clear strategy to guide them, support staff can become involved in the formulation of the e-learning strategy. Often this will mean taking the initiative. As opportunities present themselves, form groups to think things through, hold events, publish discussion papers and even propose strategic objectives and responses to strategy documents (for example the DfES document 'Towards a Unified e-learning Strategy', 2003). Getting together to produce your response to such a major consultation will demonstrate your knowledge of and involvement with e-learning policy development. Your institution will no doubt make a formal response and the surrounding debate, part of which you might choose to initiate, giving an excellent opportunity to make a contribution to the institution's strategy.

6.4 What is the role of the Managed Learning Environment?

As thinking around institutional systems develops, the VLE must be placed in a wider context: that of the Managed Learning Environment (MLE).

MLE is very much a UK term. It refers to the online environment in its entirety, incorporating the VLE, together with the computer-based data systems for management and academic administration, the student portals and the full range of student services available via the web. As with the VLE, the MLE is not a passive block of information but includes substantial elements of interaction and communication. Students can register for courses, renew library loans, undertake learning activities, in fact any and all the activities a student might wish to carry out. In this way students (and staff) can gain seamless access to the information that they need, without having to log on with different usernames and passwords to different areas of the institutional online presence.

The concept and development of MLEs is strongly promoted and supported by JISC (2001). One particular project is the JISC/UCISA survey of MLE and VLE use and development (<http://www.mlestudy.ac.uk>). The survey defines an MLE as follows:

“Managed Learning Environment (MLE) refers to the whole range of information systems and processes of an institution (including its VLE if it has one) that contribute directly or indirectly to learning and the management of that learning.”

This survey was carried out during 2003. Its results are due to be published during

the summer of 2003 and not available at the time of writing this Guide. However the survey questionnaire itself (available on the web site) gives a very interesting overview of what actions constitute MLE development. It gives a very good basis for discussion and for the planning of strategic developments.

Those support staff directly engaged in development and work connected with corporate databases, student and staff portals and VLE systems will of course themselves be engaged in developing the MLE. It is important for support staff that their university recognises the interconnectedness of the entities within the MLE and makes opportunities available for support staff in different departments or services to work together co-operatively as the MLE links support areas which in the past have been quite separate.

The concept of MLE means that online information and learning activities are presented as an integrated environment for the student – it leads to a very student centred view. In order for information and online services to be integrated underlying databases must be linked. One major achievement of the 1990s was the establishment of comprehensive database systems for university administration: Finance, Student Records, Library etc. The challenge for the 2000 – 2010 decade might well be their integration, their links to online administrative processes and to the management of online learning.

6.5 How can support staff be supported?

Support staff themselves need supporting if they are to realise their potential to contribute to e-learning. The ideal conditions for fostering a coherent response to the challenges of e-learning are found in an institution which:

- has set clear strategic goals and priorities for e-learning and its support;
- provides recognition of new roles and a relevant staff development strategy for all staff;
- has established clear team groupings yet fosters inter-departmental collaboration and mixed project teams.

Improving the status and credibility of support staff through internal and national accreditation and reward is essential if support staff are to be themselves fully supported. This is of course a longer term process with responsibilities on both 'sides' – success results from awareness and interaction, developing trust, perhaps through working together.

A JISC Senior Management Briefing Paper (2003) entitled 'Embedding Learning Technology Institutionally' provides an introduction to the outcomes of a wider study into learning technology and contexts. The briefing states that:

"New specialist roles are emerging, traditional roles such as those of academic and librarian, are changing and others are becoming blurred. Until now, staff employed in a learning technology context in UK HE have, to some extent, lacked

visibility, leading to a lack of understanding of their roles and needs. As e-learning becomes pivotal in pedagogical and institutional changes, it is increasingly important that these are properly understood, supported and rewarded."

(JISC, 2003, p.1)

e-Learning still needs learning technologists as the specialists to lead developments but as the scale of support increases, and as all support staff become involved in e-learning the role of learning technologists themselves will change. Support staff are located in different parts of an institution both in services and academic departments so institutional context, attitude and clarity of purpose needs to be taken into account and be sympathetic to those changes.

7. Collaboration

7.1 Collaboration within institutions

e-Learning has amplified the need to look at services in a different way: it can lead to an institution wide shift in thinking and can be applied to different types of courses delivered in different modes. It is not a single approach and if learners are to experience the benefits of using technology to support their learning, it cannot just be bolted on to existing pedagogic methods or courses. Hence e-learning is not owned by any one part of an institution but it impacts on all of it. The following are all involved and should be actively collaborating across functional boundaries:

Registrars: student records are the passport to learners gaining access rights to services and facilities from enrolment to graduation. Collaboration is required by all services and academic units with student records to ensure that the learning journey is as obstacle free as possible, for example access to buildings, assessments, library resources and IT services are increasingly dependent on accurate student records.


Student Services: including careers, study skills, welfare, counselling, disability and other social and educational support. e-Learners need access to these services, which may be provided online or referred, but it is crucial that all support staff are aware of these services and can signpost students as required. One area of collaboration, which is sometimes underdeveloped, is the relationship between study skills and information literacy and IT skills. Collaboration

between IT services, libraries and student services to establish a single skills framework would greatly benefit students seeking to support themselves as independent learners.

Libraries: libraries are essential to supporting e-learners and are present online and on campus. They tend to have very strong enquiry and referral services offering longer service hours than most support services, making library staff a regular point of contact for students. The opportunities for signposting students from libraries to help from other services can be developed to provide a more unified level of support to learners.

IT services: If student records passwords and authentication services are not in accord the student is effectively denied access to their course, the library and learning materials and support. The means of accessing IT must be clear to students be it from on campus workstations or by using 'desktop anywhere' style logons externally. There are minimum technological requirements learners need to be aware of and supported in establishing. Staff developing courses and materials will need the support of IT services to ensure students are authenticated and have the technical access required to be an e-learner.

Academic departments, schools or faculties: services support the academic programme and a very close collaboration is required to ensure that services have advance information and feedback on courses and resources required to support



them. This is often achieved by attendance at committees at course or school level. There are many cases where new courses cannot be 'signed off' until the resource implications for services have been considered and plans put in place to satisfy them. Attending to these matters by collaboration at the curriculum development stage is desirable and may make the difference between a positive and a negative student e-learning experience. Working closely and systematically in the course approval process, with the Registrar or Academic Services department, can embed links to course planning and resources.

Quality and enhancement: services such as libraries, IT services, student services and estates are routinely included in quality reviews and professional body accreditation processes. This is a strength, and it can be developed to establish an ongoing culture of service enhancement and evaluation based on partnership with course teams. Different institutions have different policies on support staff becoming involved in learning and teaching enhancement. Service enhancement is an ongoing process in institutions and in e-learning it is often driven by vendor information or product reviews. Ideally it should be focussed upon learning and teaching with academic and support service staff working towards enhancement in partnership. The following enhancements provide examples where partnerships are required:

- developing skills support materials to underpin courses;
- establishing an electronic plagiarism

detection/advisory service;

- choosing resource discovery tools;
- designing a student portal, choosing a VLE;
- producing e-learning subject guides/reading lists for use in course VLEs;
- evaluating wireless computing, PDAs or other devices for course delivery and support;
- evaluating the impact of e-books on student learning.

Administrative and Legal departments:

many things are charged to the institutional secretariat and in the current climate of risk management we must work together with advice from the secretariat (HEFCE, 2001). Risk management will help to ensure innovation and flexibility, it helps organisations measure risks rather than avoid them and to have contingencies in hand for difficulties. Management information systems and new services such as VLEs, smartcards and so may be damaging to the student experience if implemented badly, therefore risk management should be factored into the project to ensure students are not inconvenienced. Similarly many services express concerns over legal copyright, Intellectual Property Rights (IPR) and licensing matters: risk management will help to raise these matters formally and ensure adequate policies and good practice are in place to allow services to develop whilst reducing the risk of contravention.

Occupational Health

e-Learning and the use of IT in learning and teaching requires that staff and

students spend more time 'connected' to devices from PCs to laptops and so on. We have a duty of care to all concerned to ensure that their health is not damaged - for example repetitive strain injuries and eye/headache problems are often reported with long term use of IT. Services should work with health services to ensure students and staff are properly advised and supported in using IT.

Current commentators tend to assume that e-learning strategies (Section 6.3, e-Learning strategy: Where is it? Who owns it?) will promote collaboration. It is true that they offer much promise but only when they are implemented strategically

and have full management commitment. e-Learning strategies may be a stand-alone but they are most likely to be helpful if they are also reflected or embedded with other key business strategies for example: Information, Learning and Teaching, Estates, Human Resources. Wherever and however it is expressed it is essential that within institutions we understand where e-learning sits and how it is supported strategically and in resources terms. With this understanding it is possible to define service contributions and connect between services to provide all learners with the right support at the right time.

7.3 Collaboration with funders and influencing policy

The UK funding councils remain the primary source of student numbers and funded places. Institutional policies and strategies reflect national and internationally developed policies and agenda derived from policy and funding bodies, for example the DFES e-learning strategy document (DfES, 2003). Services should ensure that they influence emerging policy and strategy by collaborating with national interest groups which can make responses to consultations and by influencing their institutional responses. Professional and interest groups for support staff include:

- Association of Learning Technology (ALT) <http://www.alt.ac.uk/>
- Universities and Colleges Information Systems Association (UCISA) <http://www.ucisa.ac.uk/>

- Association of University Administrators <http://www.aua.ac.uk/>
- Society of College National and University Libraries (SCONUL) <http://www.sconul.ac.uk/>
- Chartered Institute of Library and Information Professionals (CILIP) <http://www.cilip.org.uk/>

See also Section 6.1, Keep up with developments.

The increase in student numbers from non Funding Council sources requires institutions to work to multiple agendas and collaborate with practice and workplace managers. Various contract agreements with other public or corporate bodies increasingly require that support services demonstrate how the needs of

students, who may step on and off between study and practice, can be met. These students have particular types of learning needs associated with evidence or work based practice. It is frequently the case that specific groups of students have particular needs in terms of service delivery. e-Learning is a great enabler of this flexibility but negotiation is required to

agree which partner offers which services, when and how. Recent work at the University of Northumbria demonstrates the need for partnership and collaboration with NHS Workforce Development Confederations for nurse education, and the Teacher Training Agency for teacher education (Middleton, 2002).

7.4 Collaboration with vendors

In developing integrated, standardised and accessible systems and resources to support e-learners services need to collaborate in the development and application of technical standards and protocols.

It is essential that services stay abreast of these developments and promote best practice, sharing their learning and networking experiences and case studies in e-learning. Vendors of VLEs, student records systems, administrative systems and library systems have a role to play and it is in the interest of learners that

institutions collaborate with vendors to specify their needs, supporting user groups and the use of standards for interoperability.

- JISC have established programmes of work to promote standards and integration of systems and services to e-learners and have involved institutions and vendors in joint development pilots (<http://www.jisc.ac.uk/index.cfm?name=programmesbrowse>)
- CETIS represents UK HE and FE institutions on international learning technology standards initiatives (<http://www.cetis.ac.uk/>)

8. International & National factors effecting e-Learning

What international and national factors effect e-learning and learning support services?

8.1 Globalisation and cultural issues

A feature of e-learning is that courses are delivered to students distributed throughout the world. Learning will occur with no face-to-face contact between the student and those involved in teaching or supporting them. Cohorts of e-learners are only likely to communicate electronically. If the e-learner is to be successful then support services have to adapt to the implications of this learning mode. There are some very practical support issues that need addressing for the e-learner:

- It is no longer appropriate to provide support based solely around the United Kingdom's timeline. On grounds of equity, mechanisms have to be developed that will give the same level of support to the e-learner wherever they are physically located around the world. Partnerships can be developed with other institutions in other countries to provide reciprocal support at complementary times;
- Assumptions that the e-learner will have a good command of the

English language are naive and short sighted. Students need support in following processes and using systems that can appear complex and confusing. Conveying these concerns and queries to those involved in student support can be difficult and intimidating. Help sheets in different languages, frequently asked questions in different languages and multi-lingual support staff are possible solutions;

- Different countries have different cultures and this variety is reflected in a range of cultural learning styles. Students who are used to an authoritarian/didactic culture may encounter difficulties in adapting to e-learning where the emphasis is on exploration and collaboration. Attitudes to and understanding of plagiarism are also likely to be different. Sensitivities and approaches are needed by those in learning support to help students cope with the difference.

The onus is on support services staff to develop awareness and understanding of the e-learner in their cultural and positional context so that services can be created and altered to meet their changing needs.

8.2 Reflecting the strengths and cultures of individual institutions

An e-learner is able to review many institutions across the world when selecting the course that will best match their needs. Each individual e-learner will have criteria and features that are important to them in

their choice. After deciding which establishment to enrol with, the e-learner will expect learning support to demonstrate the characteristics they have seen as crucial in making their selection.

For example if an institution markets itself as an advocate of problem based learning, then learning support has to be seen to be focused on this approach.

Some institutions may promote themselves as being 'friendly' and 'responsive' to the e-learner. This must be reflected in the ethos and attitude of support services. Can this be done if support services are contracted out to telephone call centres?

Very often a key factor in choosing an institution is its existing reputation and profile. Maintaining that prestige and status is the responsibility of all individuals working in that institution, including the support staff.

If support services fail to match their institutions' strengths, recruitment and student retention will be adversely affected.

8.3 Costs

Support services for e-learning have financial implications that are both hidden and explicit. There is a responsibility for support services staff to convey transparency to the e-learner on the hidden costs they will incur in their studies. If this is not done, the student could resent and struggle to cope with a financial outlay they had not anticipated.

Printing online handbooks, notes or e-material can be very expensive, especially if a colour copy is necessary (e.g. for complex diagrams). Maintaining online communication whilst an e-learner works with academic staff, colleagues or support staff can be expensive.

In these situations, support services can be invaluable in identifying for the e-learner different ways in which they might minimise their costs.

Institutions need to develop different business models to cover the costs for support services within the context of national and international delivery. New support roles are emerging to ensure e-learning is successful and that quality support is available.

The training needs and the staff development programmes necessary for these role changes have to be costed and incorporated into business plans. It may be that an institution does not have the appropriate staff profile to provide appropriate student support for e-learning. New posts may have to be created and funded.

Unless these costs are anticipated and incorporated, financial difficulties could ensue.

8.4 Support issues for the e-learner around hardware/ networking and national electronic resources

In many ways e-learners have to cope with much higher levels of complexity than the traditional student. The reliance on electronic delivery places increased expectation on those involved with learner support.

Students will need guidance on the appropriate specification for their personal computer along with the most suitable network connection. Providing effective guidance will depend on support staff having a high level of knowledge on technology differences in countries across the world. In particular, attention must be paid to bandwidth issues, as the increasing complexity of e-learning materials can lead to increased download times, which will be a significant overhead for students overseas. Special consideration should be given to this issue for online examinations and assessments where time is limited for the student to

respond.

Further areas for support services to accommodate are the complexities resulting from national electronic learning resources, licensing agreements and international copyright legislation.

Learning platforms are integrating electronic learning material into their interfaces. At a national level organisations such as JISC and the NHS are making available significant online resources. Support services have to be informed and aware to ensure that these resources are incorporated into learning platforms effectively and legally. Further, licensing agreements with electronic journals and online research databases should be thoroughly checked for limitations on delivering to students based overseas, and the costs of extending these agreement must be included in the development of the e-learning course.

8.5 Diversity

In the traditional support services where students physically attend an institution there will be services geared towards specific needs. In e-learning, the diversity will still be there but alternative approaches will be necessary to reflect this.

Establishing that an e-learner has needs at variance to the majority will not be

straightforward. Ways of ascertaining these different needs will have to be built into interfaces and feedback mechanisms. Rather than having to respond individually on each occasion, frequently asked questions have to be recorded and made available for future reference. The quality of support for this diversity will influence choices when e-learners select an institution

9 Change as an influencing factor in e-learning and support services

9.1 Institutional profile

Support services for e-learning cannot fail to be influenced by an educational institution's changing profile. Most higher education institutions in the United Kingdom have a very different academic portfolio to that of 10 years ago. There have been increases in student numbers, new teaching areas have emerged, some subjects are no longer taught and more overseas students are present. Other trends are the greater reliance on distance learning, introduction of enquiry based learning and collaborative work with the further education sector. e-Learning

support services will therefore be informed by these institutional changes. They will have to change as the context in which we work changes. The most significant pressure is to support the changes happening in the institution where the support service is based.

While support services should be informed by institutional changes they should also inform these changes. An e-learning strategy benefits from input from staff of diverse backgrounds and areas of expertise.

9.2 Pressure for innovation and creativity

Many people feel that technology is the prime driver in the way people work, learn and access information. When this is combined with growing expectations of high quality services and shrinking budgets then there are definite pressures to change. Innovation has been described by the European Union (1996) as being about renewing/ enlarging services, establishing new methods of delivery/ production and introducing changes in the working conditions and skills of the workforce. These innovation features apply very closely to how support services have to evolve.

Intertwined with innovation is the process of creativity. By developing collaborative work practices and by working as part of a team, innovation is more likely to occur.

Support services need to be able to develop sensitivities and awareness to events as well as recognising patterns and trends in their working environment. A process needs to be in place to continually appraise and overhaul support services. This will enable a reshaping of support services to meet ever-changing demands emerging both strategically and from students in relation to e-learning.

Innovation and creativity must always have the student at the centre, and not neglect the primary business of supporting and enhancing learning and teaching. There is a requirement to develop student support services that are both valued and used. The dangers of ignoring the students' requirements are that services become irrelevant and will not be used.

9.3 Developing roles

Providing support services for e-learners is a relatively recent phenomenon. A study at Plymouth University in the late 1990's identified over 80 different staff roles in the learning process (<http://sh.plym.ac.uk/eds/effects/current.html>).

The nature of these roles, their number and variety will not remain static but will evolve over the years. Support staff are not protected from these role changes and are in many ways fundamentally affected. There cannot be an expectation that support service staff take on new roles and skills without staff development or training. The assumption that training is

needed in just technical areas is inappropriate.

Support service staff have to understand pedagogic principles and theory. Project management, presentation skills and time management are also key staff development areas. Partnership between people from different backgrounds will result in more effective services.

This can be achieved by setting up joint projects around student support. As people with various roles work together on these fixed term activities an informed understanding of each other's function will develop.

9.4 Diffusion of change


Many organisations are developing new and exciting ways to support students in e-learning. The challenge is for the knowledge and expertise generated by these innovations to be more widely applied.

Slow diffusion of good practice is not unique to support services. Often, work on e-learning within academic departments can remain largely unknown across the rest of the institution, and even within the department itself! Innovation is more likely to be applied if people think it will help them directly. If the new practice

fits in with the values, beliefs and current needs of an individual it will be rapidly adopted.

Generally, simple innovations spread more quickly than complicated ones (for example the rapid take-up of e-mail and web use versus the slower adoption of virtual learning environments). A significant approach to encouraging diffusion is to acknowledge that it takes energy and support staff have to have the time to incorporate innovation into their services.

9.5 Dealing with uncertainty



Support service staff involved in education over a number of years can reflect on how their work has changed. Developments in technology, globalisation and the pressures to reduce costs have accelerated the rate of change. It is not possible to predict the nature of the changes ahead, as technology develops too rapidly, and educational priorities will change with each government. This uncertainty can be unsettling and disconcerting for support workers. A new type of student will be learning with new learning styles and will need supporting with new delivery mechanisms. Insecurity resulting from the implementation of new technology is a global phenomenon, and part of the process of cultural change is to ensure that appropriate support mechanisms for staff are in place. Managers have to develop an awareness of these tensions and take on mentoring/facilitation roles to allow support staff to move forward.

There is a real danger that a 'blame culture' will develop in times of uncertainty. Support staff will then be wary of risk taking and of making mistakes. This inhibition will slow the development of new support services required by the e-learner. Support staff are being challenged to implement enhanced services and to do so there must be a margin in which mistakes can be made and lessons learned. In this supportive environment, services can develop to meet the needs and expectations of e-learners.

10 e-Learning and learning support services: the future?

In May 2003 a broad based group of learning support staff were invited to consider the future of support in the context of the changes brought about by e-learning. Included in this group were subject information specialists, web developers, IT help desk staff, technical support staff and writers/editors of e-learning packages. They were asked to address the following question: *In 2015, what will be the role of support staff in e learning?*

The scenarios produced by this group inform the ideas detailed below. There is every chance that other groups answering

the same question would paint different pictures of the future. The general conclusions that can be drawn are that:


- there will continue to be changes for support services staff involved in e-learning;
- e-learning will have to become more joined up and strategic if it potential is to be realised;
- some broad trends such as the shifts in work/ home /study continuum, and the need to improve our understanding and practice in supporting learning as a social and distributed process will continue to be influential.

10.1 Nature of Change

Various gurus such as Charles Handy (Handy, 1990) have established that change itself is changing. In the past change was seen as incremental and would mean more of the same, only better. This is no longer the case with change becoming more rapid and unpredictable. Learning support staff are faced with major technological changes and expectations of service enhancements in the face of declining resources. It is increasingly important to understand the nature of this change, prioritise where service enhancement is most likely to have the desired impact and establish how staff and learners can function effectively in this e-learning environment.

Collaboration is acknowledged in both the commercial and public sectors as having a catalytic effect on the development of services and products. The role of

learning support staff will continue to be redefined and traditional academic and support boundaries will continue to blur as learning becomes a more complex partnership of teaching and support. If we consider the needs of learners these traditional boundaries may themselves become future obstacles to e-learners who need access to a seamless and flexible support system when and where they need it. There will be an expansion in the various groups with whom learning support staff will work. Partners will come from many different backgrounds and sectors: secondary education, further education, higher education, health, social services, private industry, local government, national government. Collaboration in delivering and supporting e-learning will draw upon a wider circle of expertise from utility providers to accrediting bodies. Support services are likely to find that as e-learning



crosses national borders and courses are offered and accredited in franchise and in other partnership models, services may also become borderless, being shared across the globe with new service levels which are not bounded by time and place but by the learning needs of students working as networked communities of learning.

Effective collaboration requires joined up thinking from government level onward to institutions, courses and the support for them. e-Learning strategies are emerging at government and institutional level (DfES, 2003). Effective policies and resource strategies are required to support changes in staff roles and facilitate the collaboration required to realise the benefits of e-learning. The challenge to change implied in the shift to e-learning is the responsibility of everyone involved in education at all levels: to be successful it must become mainstream and strategic and not just something with which enthusiastic amateurs or champions become involved.

Recent years have seen the arrival of new technologies that have resulted in

fundamental changes to educational practice. For example, the World Wide Web emerged in the early 1990's as a network to promote collaborative research, it proved to have benefits far beyond its early research objective; transforming information sharing and the way we communicate and use information in work, education and leisure. By the year 2015 other technologies will be developed that will have a similar transformational impact. One of the most significant challenges will be to identify what learners need and select or develop appropriate emerging technology to support learning. This may be a little idealistic; it is equally likely that technologies developed for one purpose will continue to find applications in others e.g. telecommunications and scaleable access to mobile and wireless computing designed for entertainment are likely to continue to find applications in learning that were not their primary driver. Our understanding of how people learn must develop rapidly in the future to ensure educationally informed choices are made. Service success will be determined by foresight and flexibility in evaluating and implementing technology to meet evolving student needs and expectations.

10.2 Learner characteristics

The concept of lifelong learning means that by 2015, the e-learner will approach learning differently. Rather than higher education being seen as a one off event that happens between the ages of 18 and 21, e-learners will 'step-on' and 'step-off' formal taught programmes. They may also choose to learn informally without

taking assessment or wishing accreditation. Support services will need to mirror the flexibility that individual learners will display in their approaches to learning. Support services will have to address a more diverse community with differing demands related to their individual learning styles, cultural

backgrounds, and to the time and place in which they choose to learn.

It seems likely that learners will become involved with a number of learning providers at different stages in their formal education, life and work learning. As management information is integrated across evolving e-learning systems it should be possible to meet demands from learners for more cross-sectoral recognition and transfer. For example, to allow obstacle free transfer of credits between school and FE or FE and HE as is being explored in Scotland through the ScotCIT project (<http://www.scotcit.ac.uk>). This information could in turn integrate with information rich technology such as, smartcards, to give learners obstacle free access to cross sectoral facilities and support, so giving learners from various providers access to virtual and physical learning spaces with service levels most appropriate to their profile. It might be possible to combine access to IT at UK Online cent


res with access to information gateways in University and College libraries and community learning opportunities in public libraries via a single smartcard/logon.

Much has been made of the need to acquire 'learning to learn' skills to equip learners for life. Literacy, numeracy and critical thinking are all required. The e-learner will have additional skills needs - they must be proficient in the use of IT to find and use information to communicate and to work collaboratively. Support services are likely to be called upon to target more effectively the support they offer to ensure e-learners are not disadvantaged by lack of information and IT literacy: this is likely to mean skills levels will be defined against various courses/programmes and levels of learning and support for those skills will be embedded in e-learning activities. Support for acquiring skills may shift in emphasis from the one size fits all course to the more carefully customised programme of support relevant to a particular course subject, level or individual learner need/profile.

10.3 Different roles

The pressure for special skills to be acquired by e-learning support staff will be ever present. Interfaces will require features and characteristics that can only be developed by people with in-depth knowledge and specialist skills, from instructional design and e-tutoring to management information and system management. Support staff who deal directly online or face to face with e-learners will be required to develop a

strong customer focus, will need to understand more about how people learn and will become learning intermediaries who can multitask and handle simple and complex enquiries across a wide range of functions from registration and enrolment to information searching and IT applications support. The Higher Education sector in 2015 will require new approaches to human resource development and new systems of



recognition and reward for staff, some of whom may become highly specialised, and some of whom may be required to constantly retrain to signpost and facilitate hi-touch and hi-tech support services for learners.

The roles that learners could have in the learning process are likely to continue to alter as learning becomes more socially embedded and widely distributed. Technology will allow students to take on the role of resource sharing if they wish to distribute learning material to fellow students via learning platforms or e-mail. They are likely to become more peer supported and collaborative in their learning, develop further links between theory and practice, and tutors and students are more likely to become co-learners.

The balance of power in learning design and delivery will have changed making it possible for students to be much more proactively involved. By 2015, close, one-to-one contact between learning support staff and the e-learner will be key to a quality learner support service. In a time of declining resources and increasing student diversity and numbers services will need to be creative and flexible in designing and delivering support through a variety of channels. Achieving a balance between self-service and staffed interventions offers some promise. Support services will evolve to develop hi-tech solutions for routine services, queries and signposting, releasing the expert adviser to facilitate interactive learning and provide one-to-one or customised support to e-learners.

10.4 Technology

By 2015, the e-learner will take for granted some of today's technologies. The demands to learn where place is not important will make the use of mobile devices common. Intelligence from management information systems linked through mobile and wireless technologies will enable support staff to collect data to develop support service enhancements. Such intelligence will aid the development of intelligent solutions to customising mass services and reflect the individual learning styles and choices of e-learners. Support systems should become more interoperable over time so that e-learners are offered interactive interfaces from which they should be able to manage their

own learning interactions and access support services and learning materials as seamlessly as possible.

Access to electronic resources for e-learners will be developed to make them easier to locate via learner-centric portals with built in authentication processes which, whilst secure, are not obstacles to access. The resources to support e-learning will be drawn from published and practice based materials which may be developed in house or customised by instructional designers from third party material. As collaborative learning advances, student produced learning materials are likely to find a place in such a resource set. Access to a wide range of

relevant, high quality information sources will become essential to enable effective e-learning and e-scholarship.

Finally, digital inequalities will continue to be present both in the Western world and elsewhere. There will be large parts of the United Kingdom where Broadband will never be rolled out. Infrastructure will take many years to catch up in developing countries. e-Learning and its supporting services will certainly have to be delivered via multiple channels to ensure equity of access which respects the culture, capability and technology and infrastructure standards of different countries regions or groups of learners.

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Published by
Learning and Teaching Support Network (LTSN),
The Network Centre, 4 Innovation Close,
York Science Park, Heslington, York YO10 5ZF

For more information, contact the LTSN Generic Centre at the above address or
Tel: 01904 754 555 Fax: 01904 754 599
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LTSN Generic Centre

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No 5

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ISBN 1-904190-44-8
£40.00 (for full set of 5)

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