

JISC

Innovative Practice with e-Learning



Case Studies

Supporting learners

Designing flexible learning spaces
Northumbria University

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Background

The University Library and Learning Services at Northumbria University are responsible for library and learning support services on two campuses, IT open access areas across the university (including those within the libraries), IT training, and information literacy programmes and materials. The City Campus Library, situated at the heart of the city, is the larger of two libraries, with approximately 1.1 million visits per year.

The challenge

The City Campus Library, opened in 1978, had received little investment in buildings or infrastructure, and the facilities available were increasingly unable to sustain the demands of a learner-focused library service. By mid 2004, only 39 of its 1050 study seats were equipped with open access IT. Key constraints were the lack of appropriate electrical wiring, ventilation and networking infrastructure.

However, student demand for access to IT had been rising significantly. Facilities were being used at full capacity for the duration of the library's opening hours with queues regularly forming at peak periods. This was in spite of additional facilities provided in the two open access IT centres at City Campus.

Furthermore, changes in assessment and pedagogical approach were clearly impacting on students' use of learning materials. An increase in assessment of group work and changes in student culture indicated that redevelopment was necessary. Increasingly, students were seeking access to resources on the Virtual Learning Environment (VLE), to web pages, e-journals, e-books and databases alongside print-based materials. User surveys had shown that the use of print and online resources had continued to increase at an equal rate, demonstrating that they complement rather than exclude one another, and should be offered in combination.

Innovative solutions

Factors such as these led the Library and Learning Services team to redefine the library in terms of a hybrid learning space. Accommodation has been reconfigured to provide a mix of resources and environments to match specific learning styles and outcomes. Designated areas are now zoned by use of colour and defined by permitted levels of discussion and refreshments.

Infrastructure: The university IT and Infrastructure programme identified the need to make the existing building fit for purpose by upgrading the power supply, ventilation, lift access and lighting to each of the 500 sq m floors. The university also approved reconfiguration of the existing IT and study space in the library basement, upgrading the group discussion and IT facilities to provide a range of attractive areas for relaxation, individual study and group discussion alongside refreshments.

The library at City Campus has now gained overall 130 open access workspaces which allow integrated access to print and online resources alongside desktop software and courseware. Although Floor One is mostly given over to study space with IT access, the design of the space and the use of furniture allows the technology to be used in a flexible manner i.e. within groups or individually, as an IT-only activity, or in conjunction with printed materials. Input from students was important when drawing up the designs.

Flexibility and choice for students has also been extended by providing 30 wireless laptops on a loan system for use anywhere within the City Campus building. A consistent student desktop environment is provided, whether using a loaned laptop or a personally owned one, by virtue of Citrix® technology (see below).

Support: IT Support and Enquiry Services team members are developing an integrated one stop support facility for

“Talk to and observe your learners. In a library, watch how students use resources, even down to where chairs are left at night. Build an evidence base against which to check your understanding and evaluate new developments by means of user surveys.”

Jane Core, Director of Learning Resources, Northumbria University

students, encompassing what is currently offered at discrete IT support and enquiry service desks. With a new service structure developed, a learner support team will provide help with IT and library enquiries and support training and production of documentation to foster greater independence amongst students.

A smart card access system has introduced a balance of staffed and self-service opening hours. These now run from 8.30am until midnight Monday to Friday, 9.30am until 5pm Saturday, and 11am until 5pm Sunday. Before 9am and after 9pm the facilities are open on a self-service basis with security staff appointed to monitor the buildings and use.

Flexibility of provision: The existing learning space in the library basement was reconfigured to blend IT provision with casual seating – the result was the ‘Learning Café’. All work areas have access to power and to the Citrix desktop via a wireless virtual local area network (VLAN), and the area is designated a ‘green phone zone’, where mobile phones may be used on silent. There are no rules prohibiting food and drink whilst using the Learning Café facilities. The result is a social learning area which extends the options provided on Floor One. Integrated within it are individual and group working spaces to provide maximum flexibility for different kinds of learning and social activities.

User surveys had provided evidence that academic tasks were being compromised by use of open access IT facilities for activities such as checking e-mail, web-browsing or online shopping. The Library and Learning Services staff believe that such activities are legitimate and must be supported, but not at the expense of other academic users. As a result, the concept of casual access points was introduced to meet this demand. These are short use IT stations which are supplemented by ‘nomad points’ within academic and other areas of the campus – these are positioned on a high desk so that users stand to access the IT, or sit at high benches for short periods of use.

The technology

Citrix®: This is a ‘thin client’ technology in which the applications are executed on one or more remote servers with only screen updates being transmitted across the network. This results in low bandwidth on the network, and allows applications to be used on lower specification terminals. This move enabled the university to run all applications on file servers and provided central management and configuration of applications and desktop environments, presenting students with the same ‘look and feel’ and the same access to resources whichever route they choose.

Static workstations: 100 Neoware™ Capio One thin client static appliances were purchased providing access to the Citrix desktop and the university’s VLE. These can be used in groups or individually.

Casual access points: Additional Capio One thin client appliances are available within the Learning Café on tall stations where users stand or use high stools.

Two specialist research hubs have been designed to offer high spec desktop computers and a screened private study area.

Wireless laptops: A Cisco Wireless LAN Solution Engine® is used to centrally configure, manage and monitor all of the wireless access points for the virtual local area network. Wireless cards need to be 802.11b compatible.

USB Pens/‘A’ Drives/Mice: These are available for purchase or loan from the Learning Café shop.

Making it happen

It is important to ensure that utilisation of space is kept as flexible as possible in order to ‘future proof’ the infrastructure; involving academic staff and students in the design of learning spaces will help to ensure the

“The ratio of computers to students can offer a false representation of the type and quality of provision. What is important is the whole student learning experience.”

Jane Core, Director of Learning Resources, Northumbria University

effectiveness of the design. For example, non-pedagogical factors within the learning environment, such as levels of noise, lighting and heat, can be essential to students' ability to focus on higher order tasks and these requirements should be taken into account in any redevelopment.

Key points for successful innovation

- It is possible to reconfigure and refurbish existing learning spaces without incurring crippling costs. Careful choice of technology will enable institutions to respond flexibly to changes in pedagogy and learner needs.
- Reviewing decisions taken by other institutions can help to determine what to implement and what to avoid. Observing student behaviour is also a good indicator of what is needed.
- Offering students a varied range of IT opportunities, including loan of laptops on a short term basis, use of their own equipment within the wireless network, and provision of both formal and informal learning areas, will increase their learning potential.

Final word

Assumptions made about how and why students use IT need to be challenged – flexibility is paramount. A choice between types of learning spaces provides students with the ability to respond more effectively to differing study and assessment requirements at different stages in their programme of learning.



For further research

Neoware™ Capio One – www.neoware.com/thin-clients

Citrix® – www.citrix.com

Cisco systems Inc – www.cisco.com

Warley, D. UKERNA Wireless Networking Case Study, June 04 –

www.ja.net/development/network_access/wireless/wag/Northumbria-Wireless-Case-Studyv2.pdf

Northumbria University Library Systems & Management Support holds a library of documents known as planning and research notes (PRNs). The following reports are particularly pertinent to this case study:

PRN 164 Wireless Devices Pilot - Evaluation Report (Mar 02)

PRN 167 Opening Hours Survey Report (Feb 02)

PRN 167 Appendix A Initial Analysis Report

PRN 167 Appendix B Analysis of Comments

PRN 167 Appendix C Survey Questionnaire

PRN 167 Appendix D Summary of Datafields (pdf format)

PRN 167 Appendix E Analysis of comments on earlier opening hours

PRN 168 Opening Hours Project 2002: Report of the project team (Nov 02)

PRN 169 IT Open Access Centres User Satisfaction Survey (Nov 01)

PRN 169 Appendix A Survey Questionnaire

PRN 169 Appendix B Distribution of Questionnaires

PRN 169 Appendix C Nationality of Overseas Students

PRN 169 Appendix D Cross Tab Analysis

PRN 169 Appendix E Survey Comments

PRN 169 Appendix F Newsletter article

PRN 170 Library Space Project Report (Jan 03)

PRN 179 Extended Library opening hours survey Coach Lane & City Campus Libraries May 03

PRN 180 Extended Library opening hours Project Report Coach Lane & City Campus Libraries May 03

PRN 184 Self-Service Christmas opening evaluation report

To receive a copy of any of these, please contact Paula Vardy (paula.vardy@unn.ac.uk)



This case study is based on case studies of innovative e-learning practice collected for JISC by the Open University – www.jisc.ac.uk/eli_oucasestudies.html