Strategic Overview: HEFCE-funded Distributed E-learning programme 2004-06

1 Purpose of this document

This paper provides a strategic overview of the HEFCE-funded Distributed E-learning programme 2004-2006.

2 Strategic need

The use of IT in learning and teaching in the UK higher education sector has expanded substantially[1] in recent years, with a sharp increase in uptake of technologies such as Virtual Learning Environments. There are also strong strategic drivers from Government that e-learning should become fully embedded into everyday learning and teaching practice rather than the provenance of a self-selected group of 'early adopters'[2]. This movement of e-learning out of the backwaters and into the mainstream is both exciting and challenging: the technical infrastructure to support large-scale use of e-learning systems is not yet in place.

In parallel to this activity, there is a growing regional aspect to higher education. This may be partly due to a trend towards decentralisation and regionalisation, but is also being encouraged by Government-sponsored activities to encourage greater levels of uptake for higher education across all social groups, towards a target of involving 50% of 18-30 year olds in higher education by 2010. Some of the major challenges of this target are to retain learners within education, and to encourage a wider group of learners to engage in higher education (or 'widen participation'). One of the approaches that has been taken by HEFCE to meet these challenges has been to encourage closer working and cooperation between schools, colleges, universities and the business sector[3]. This is seen to support and encourage increased participation in education by a wider group, for example through new, regional Foundation Degree programmes; partnerships between schools and universities, and so on.[4]

The HEFCE has made IT infrastructure funds available to the JISC to develop technologies to underpin the Funding Council's political and strategic agendas and to work with regional and subject communities to use the technologies to support learning and teaching. The funds will provide a basis for the JISC and the new HE Academy to work together in partnership to achieve shared objectives. This is part of a longer term plan to implement HEFCE's e-learning strategy.

3 Context

Technical trends are supportive of both mainstreaming of e-learning systems and also encouraging regional or national partnerships between organisations. There is currently an international move towards rationalising the provision of educational IT solutions. The JISC Strategy 2004-6 places this ambition at the centre of its plans. Rather than providing separate infrastructure and applications for each part of the educational community (for example, teachers, learners, information professionals and researchers) we can now begin to use some of the same technology to support their needs. This trend supports the JISC's long-standing commitment to interoperability of systems, exemplified by the promotion of the Information Environment architecture but also increasingly developed through new programme such as the Frameworks programme funded by the JISC Committee for Learning and Teaching and JISC Committee for the Information Environment with input from the JISC Committee for Research.

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[1] Study of Managed Learning Activities in FE and HE in the UK http://www.jisc.ac.uk/project_mle_activity.html
[2] DfES e-learning strategy
[3] for example, the HEFCE-sponsored 'Partnerships for Progression' activity
[4] Foundation degrees http://www.hefce.ac.uk/learning/founddeg/default.htm

The JISC Committee for Learning and Teaching has recently developed plans for a new e-learning programme that explores issues of e-learning and pedagogy, technical frameworks and the innovation of technology that is needed to better support learning and teaching. The Distributed E-learning programme will be based on the same concepts as this programme but will extend the focus to consider the lifelong learner, regional agendas and subject differences.

Through the LTSN Subject Centres as part of the new Higher Education Academy, there are opportunities to provide a discipline and context specific focus for our activities. The practitioner base of the LTSN Subject Centre network and direct involvement in student learning provides a rich environment for building on previous developments and to provide a focus for new areas of activity.

4 Programme vision

The aim of developing the DELIA technical architecture is to provide **better opportunities for learners** through the use of better learning tools, easier access to personal learning information such as portfolios, and access to greater quantities of quality assured learning materials.

The aim of defining the DELIA architecture for **teachers** is to provide guidance on how to access, plan and use e-learning resources within appropriate e-learning systems. This will include guidance on locating and using existing learning resources and advice on how to share teaching materials with others. Difficult issues such as Intellectual Property Rights will be explored and guidance provided. Case studies of good practice in e-learning will be shared that will include approaches from different subject disciplines.

The DELIA programme will offer benefits to **institutions** by enabling links between schools, colleges and universities that can be used to encourage progression into higher education for some institutions. The programme will make available some open source e-learning tools that will complement commercially-provided resources. Provision of tools for personal development planning and e-portfolios will also help universities that need to meet the UUK requirement for provision of PDPs by autumn 2005.

The programme will offer benefits to **funders** by providing exemplars of good practice in the use of e-learning systems; by exploring how technology can support widening participation and regional partnerships; by demonstrating how the Academy and the JISC can work fruitfully in partnership.

The overall aims of the programme fit with the strategic vision of the JISC's e-learning activities which aim to:

- Build infrastructure to underpin e-learning;
- Provide standards to allow interoperability;
- Provide desk-top tools that work with the infrastructure;
- Provide models of e-learning;
- Demonstrate how infrastructure can be used.

5 Programme aims and activities

The Distributed E-learning programme will operate in six areas. Each area will have its own timescales but will consist of a development phase followed by a piloting and embedding phase. An overview of the aims of the programme and a mapping of the activities that will take place in each phase is given below. Objectives, activities and possible outputs for each work package is provided in Appendix 1.

5.1 E-learning infrastructure

Aim: Define a web services architecture that supports e-learning locally and for the sharing of resources across regions and sectors.

Reference to aims in the JISC strategy: 1.3, 2.1

5.2 Repositories for e-learning and other resources

Aim: Develop architectures and standards for repositories that can be used at local, institutional, regional or national levels and pilot these standards with repositories.

Reference to aims in the JISC strategy: 3.1, 2.4

5.3 E-learning tools

Aim: Identify significant gaps in the range of current e-learning tools to support lifelong learning and adapt or create standards-based, open source components to fill the high priority gaps.

Reference to aims in the JISC strategy: 3.2, 13.3.

5.4 Cultural issues, subject differences and embedding

Aim: Provide a discipline specific focus through the LTSN Subject Centres for creating exemplars of good practice in adapting current content for educational use.

Links to aims in the JISC strategy: 12.1, 12.2, 12.3, and 12.4

5.5 Sharing e-learning content

Aim: Assess the cultural and legal issues that might inhibit successful use of e-learning systems and produce guidance for the educational community.

Links to aims in the JISC strategy: 4.4; 6.1, 6.2, 6.3, and 6.4

5.6 Demonstrate impact of the programme

Aim: Develop large-scale, regional projects that support the HEFCE regional agenda and e-Learning Strategy (developed through use of the infrastructure and guidance produced under 1-5)

Reference to aims in the JISC strategy: 4.4

6 Services, sustainability and exit strategies

A sustainability strategy will run through the whole programme. Some of the development activities will not be expected to continue beyond the life of the programme, but others will be piloted and adopted by the sector or specified to become services. All activities will be reviewed to ensure that the outcomes are cost-effective and appropriate. Sustainability will be considered within the context of other national and international activities.

7 Possible scenarios for using distributed e-learning

The following section describes some possible scenarios for how the infrastructure and tools developed under the Distributed E-learning programme might be used. This is intended to address the fundamental question: what difference might the Distributed E-learning programme make to education?

7.1 Scenario 1

Scott is studying a-levels in art, photography and biology at Baskerville College of Further Education. He spends a lot of his spare time in the college darkroom and is President of the college Photography club. He is also keen on digital filmmaking and has entered a film into a local competition.

Scott is not a strong student in traditional academic subjects as he has some difficult in expressing himself clearly in writing. The A-level syllabus is perhaps not the most appropriate for him, though he has worked hard to achieve good grades in his coursework. His tutors at the college are highly supportive and have encouraged him to develop his own e-portfolio of photographs, art work and even film-clips that illustrate his understanding of key visual concepts. The college provides simple to use, drag-and-drop e-portfolio software on their web server that Scott can access either in college or from home, and he has spent a lot of time in creating a portfolio that he feels represents the best examples of his work.

Scott is approaching the end of the first year of his course and is considering his options for the future. His college has a partnership with the local University of Baskerville and shares a regional learning portal. Through the portal – which is one of the options that appears in Scott's personal learning environment - Scott has found out about degree courses in art and photography. He is able to read about the module subjects and has also made contact with current students on the Foundation degree course in Photography that is delivered through Baskerville college, to ask them for advice. Scott has not yet decided whether to apply for University – perhaps with an initial foundation degree year spent at the College, where he knows the tutors – or whether to apply for a job with a local film production company. He is confident that his e-portfolio will help him to create a good impression so that he is likely to succeed with whichever choice he takes.

The distributed e-learning systems that are used by his college help Scott to make better use of resources that are available locally and to showcase his achievements in an appropriate digital environment. This will help him to achieve his potential, whether academic or in employment.

7.2 Scenario 2

Janet teaches Psychology at the University of Hastings. She is currently updating her module handbook for the first year module in Biological Bases for Behaviour – a module that is taught to 250 students each year. Three years ago, Janet prepared a module handbook by photocopying extracts from books and typing up the course outline. This handbook has stayed the almost the same for the last three years because it is too costly to produce a new book each year. The photocopied images are faded and poor quality, but as good as the department secretary can make them.

Last week, Janet has attended a workshop in her department run by the Learning and Teaching Support Network Centre for Psychology. In the workshop, she saw lots of fascinating examples of digital materials that have been created by academics at other departments, and also some commercial software. It included 3-D animations of the brain that Janet thinks would be perfect in helping students to remember the different lobes and their functions – they always have problems labelling the brain diagrams in their first-year examinations.

Janet has written down the URL that she was given at the workshop, and she goes onto the web site to find the images. She finds what she needs and then remembers that she was given some guidelines at the workshop for how to use digital materials on her own web site. She's still not completely confident of her own abilities but calls in the help of the departmental IT support person. Together, they download some of the animations from the JORUM repository and add them to Janet's teaching space in the Psychology department web site. She will still produce a course handbook but the students will now have some excellent visual resources to support their independent learning.

1 Appendix. JISC context: current activities

1.1 Working with other JISC programmes

The programme will build upon the recommendations and outputs from previous JISC programmes, and be aligned with current activities. The next section gives an overview of the most relevant JISC activities upon which this programme will build, and how that activity links with the objectives of the new programme.

1.1.1 Information Environment architecture and services

The JISC and other organisations have invested substantially in the specification and, in some cases, development of national infrastructure to support the access, sharing and management of digital content. This has been described under the umbrella term of the Information Environment.

The Information Environment is neutral about the type of content that it might store or manipulate; it is not specific to any educational audience or type of organisation. Equally, it is agnostic about whether implementation of the architecture is at a local, regional, national or international level.

The JISC has not attempted to implement the full infrastructure of the Information Environment architecture within the UK. Rather, it has provided a framework of interoperable standards that allow other users to develop the systems that they require, and to be assured that data flow will be possible between systems. However, the JISC has implemented some demonstrations of aspects of the IE architecture such as portals, and funded exploratory studies that have provided advice to organisations about how they might implement successfully the IE architecture.

The distributed e-learning programme will identify the most relevant services that have been developed under the Information Environment and implement them. It will also build on current activities such as the JORUM repository to enhance and further develop their provision. The current repository pilots will be used as a basis for the development of specifications for local or regional repositories, and some examples of regional repositories for learner data.

Relevant programme aims:

5.1 E-learning infrastructure
5.2 Repositories

1.1.2 E-learning content and tools

The Exchange for Learning programme (X4L) has focused upon learning and teaching tools and the sharing of learning resources. Its technical strand has developed new, standards-based tools for the packaging of e-learning content and for the creation of online assessment questions, and has specified and procured a pilot digital repository 'JORUM' to store e-learning content. Its community-focused strand has funded case studies in colleges and universities of adapting existing digital resources for use in teaching situations.

The content packaging and assessment tools that have been developed under the X4L programme have been very well-received and this programme will allow further development of the tools, or development of new applications if necessary.

Relevant programme aims:

5.2 Repositories
5.3 E-learning tools

1.1.3 Middleware

In parallel, the JISC funds activities that may be described as middleware. This focuses in particular on the provision of access to content or systems, including authentication and authorisation. Middleware also include some of the 'shared services' that underpin the IE architecture, for example a URL resolver. These shared services are intended to provide national services for the educational community. Many projects are currently in a pilot stage rather than providing a full service.

Worthy of particular note within the middleware activities is the development of a national service for authentication and authorisation; this will be a necessary component for the new programme and their will be some dependence on the results of this service.

Relevant programme aims:

5.1 E-learning infrastructure
5.2 Repositories

1.1.4 Managed Learning Environments

The JCLT has dedicated significant funds to investigating the development of Managed Learning Environments within further and higher education as well as awareness-raising programmes and activities. There have been several studies to explore MLE issues and a substantial body of reference resources have been funded. Most recently the JISC has set up an advisory service to provide information and advice about MLEs to the FE and HE communities. The MLE programmes have increasingly focused upon the use of interoperability standards and specifications to create interoperable systems.

Relevant programme aims:

5.1 E-learning infrastructure

1.1.5 Regional Managed Learning Environments

The JISC has focused activity on this area by developing a programme of 'Managed Learning Environments for Lifelong Learning'. These are demonstrator projects or case studies of how colleges, universities and other learning providers (e.g. training organisations) can work together to support learners. This is partly through the development of shared systems to allow the sharing of learner profiles.

Within the new programme, this work will be reviewed and recommendations made about a possible regional and national infrastructure to support the movement of learners from institution to institution, and indeed to study independently. This will build upon the pilot 'IO-nodes' student data transfer system, and the development of a UK student transcript.

The programme will work closely with the HEFCE regional advisors to specify suitable regional MLE developments for the regions, and to plan and implement demonstrator projects. The programme will also develop some pilot services for regional MLEs – both for content sharing and learner data.

Relevant programme areas:

5.1 E-learning infrastructure

1.1.6 Digital Libraries and VLEs (DiVLE)

The Digital Libraries and VLEs programme ran until October 2003. It was a one-year programme that explored technical and cultural issues of integrating digital library systems with Virtual Learning Environments. The programme make some clear recommendations for further development activities that are needed urgently to help integration of these core systems. The programme also developed some useful technologies that might be further developed or implemented through the DELIA programmes. Outputs from the DiVLE programme are currently being reviewed and recommendations will be fed into the specification of the DELIA programme.

Relevant programme areas:

5.1 E-learning infrastructure

1.1.7 E-learning programme (pedagogy, frameworks and innovation)

JCLT is currently funding a new e-learning programme that covers three large strands of activity: e-learning and pedagogy; technical frameworks; and innovation. The programme has a single over-arching aim: 'to identify how e-learning approaches might be used to facilitate learning and to advise on how these approaches might be effectively implemented.' Activities that are funded under the programme will lead to guidance for practitioners on the use of e-learning systems; identification of the requirements for new e-learning tools, in particular for learning activity design; the creation of toolkits of technologies to enable the development of integrated e-learning systems, and investigations of innovation technologies such as games and mobile devices. The programme is focused upon investigating the requirements of users of e-learning systems, and these activities will feed into the specification of the DELIA programme. It will also investigate some of the e-learning specifications that currently exist and make recommendations about changes to the specifications and standards.

Relevant programme areas:

5.3 E-learning tools
5.4 Cultural issues, subject differences and embedding