Towards an Evaluation Framework for Large Scale Networked Learning Initiatives

Shelagh Fisher

Manchester Metropolitan University
s.m.fisher@mmu.ac.uk

ABSTRACT

The formative evaluation of the JISC's Learning and Teaching Programme within the context of its wider Information Environment development strategy was a three year project (EDNER) funded by JISC and was completed in July 2003. This paper provides a reflection upon the strategies which were deployed in EDNER in conducting the formative evaluation, and upon issues in evaluating large-scale digital initiatives with reference to constructs and methods utilised in UK national initiatives which are concerned with networked learning. Building blocks towards an evaluation framework for large scale national digital initiatives which are related to networked learning are identified.

Keywords
Evaluation; Information Environment; Networked learning.

INTRODUCTION

The formative evaluation of the JISC's Learning and Teaching Programme within the context of its wider Information Environment development strategy was a three year project (EDNER) funded by JISC and was completed in July 2003. The idea of running an independent evaluation alongside a major development programme so as to encourage it to learn lessons from implementation was relatively new in 2000, as indeed was the proposal by JISC to develop an Information Environment for higher education. The EDNER evaluation was particularly concerned to explore the ways in which the development activities funded by the JISC were producing outcomes which impacted upon learning and teaching in UK higher education.

This paper provides a reflection upon the strategies which were deployed in EDNER in conducting the formative evaluation, and upon issues in evaluating large-scale digital initiatives with reference to models and approaches to evaluation utilised in related UK national initiatives such as the National Learning Network, National Grid for Learning, Learning and Teaching Support Network, LearnDirect and Culture Online. These contexts provide the opportunity to examine the lessons learned from EDNER's strategy and to posit components of an evaluation framework for national digital initiatives.

It was apparent from the outset of the EDNER evaluation that the task of building and evaluating national-level digital services was complicated by very different perspectives among key stakeholders, and by the lack of any single, clear model on which to base development and evaluative judgements. We recognised early in our work that part of the challenge was to develop a methodological approach which was robust enough to be applied to the elucidation of processes and performance across any major national-level digital initiative and which would support such programmes in maximising the outcomes and impacts of their work. We would not claim that we have been able to give a comprehensive answer to this challenge yet, but consider we have made progress towards it.

A CONVERGENCE OF DISCIPLINES

The arguments for developing an evaluation framework are rooted in the premise that digital initiatives emanating from two previously distinct disciplines – Education and Information Science – are now converging. The Common Information Environment Working Group (CIEWG) has been established By JISC to help cement a collaborative, cross-sectoral partnership to build a common on-line information environment. Current membership comprises representatives from the British Educational Communications and Technology Agency (Becta), The British Library , Culture Online, The UK e-Science (GRID) Core Programme , The Joint Information Systems Committee (JISC) , The National Archives, The National Electronic Library for

Health (NeLH), Resource: the Council for Museums, Archives and Libraries, and UKOLN. In describing the activities of the Group, Pothen (2003) comments that 'in an age of specific and far-reaching commitments to lifelong learning, to e-government, to the central place of ICT in our educational and cultural lives, it makes less and less sense to see these audiences as distinct and separate, and our individual activities in isolation'. Lyon's (2003) perception of the Common Information Environment cuts across the fields of Health, Cultural Heritage, Science and technology and Education, with Education comprising all aspects of lifelong learning from schools through colleges and universities to adult and community programmes. Borgman[8], in noting that digital libraries support specific activities in specific contexts - classroom instruction, distance learning, digital asset management, scholarship, virtual museums - and in pointing out that digital libraries need to be evaluated as systems and as services to determine how useful, usable, and economical they are and whether they achieve reasonable cost-benefit ratios has called for the development of a digital library evaluation infrastructure.

Indeed, a simple analysis of terminology and keywords used in defined objectives or description of purpose of a range of initiatives which have Information or Education at their root demonstrates convergence in terms of Learning and Teaching in an electronic environment. This is demonstrated in Figure 1.
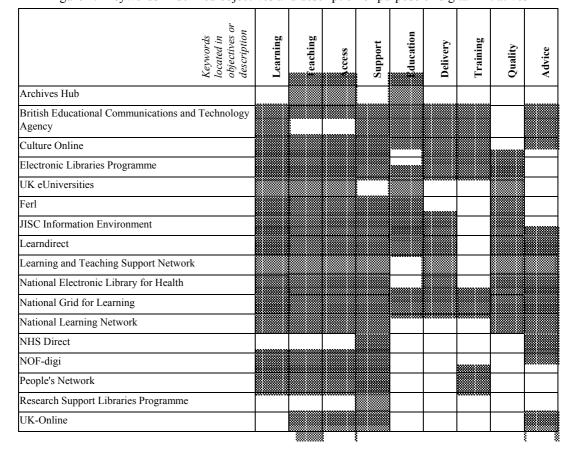
Figure 1. Keywords in defined objectives and description of purpose of digital initiatives

Keywords located in objectives or description	Learning	Teaching	Access	Support	Education	Delivery	Training	Quality	Advice
Archives Hub		�	▨		▨				
British Educational Communications and Technology Agency	▨			▨	▨	▨	▨		▨
Culture Online	▨	▨	▨	▨		▨	▨	▨	
Electronic Libraries Programme	▨	▨	▨	▨		▨	▨	▨	
UK eUniversities	▨	▨	▨		▨		▨	▨	▨
Ferl	▨	▨	▨	▨	▨	▨			▨
JISC Information Environment	▨	▨	▨	▨	▨	▨		▨	
Learndirect	▨	▨	▨	▨	▨	▨	▨	▨	▨
Learning and Teaching Support Network	▨	▨	▨	▨		▨		▨	▨
National Electronic Library for Health	▨	▨	▨	▨	▨		▨	▨	▨
National Grid for Learning	▨	▨	▨	▨	▨	▨	▨	▨	▨
National Learning Network	▨	▨	▨		▨	▨	▨	▨	▨
NHS Direct			▨	▨					▨
NOF-digi	▨	▨	▨	▨			▨		▨
People's Network	▨	▨	▨				▨		▨
Research Support Libraries Programme		▨	▨	▨					▨
UK-Online		▨	▨	▨					▨

IDENTIFYING CONSTRUCTS AND METHODS

A problem which taxed the evaluators from the outset of EDNER was in deciding on which areas to focus. The problem arose not because of the lack of a detailed evaluation plan, but because the 'thing' to be evaluated was dynamic and evolving in volume, scope and purpose. This problem is intrinsic to the evaluation of large-scale digital initiatives, whether formative or summative. In outlining challenges to digital library evaluation, Saracevic[6] asserts that key issues inherent in large-scale evaluation of digital libraries are 'what to evaluate?' *(Construct)* and 'how to evaluate?' *(Methods)*. Research and development of large scale digital library initiatives over the last decade has generated significant ongoing debate on the development of tools and frameworks for evaluation of these large scale initiatives. In proposing an evaluation framework for digital community information systems, Unruh, Pettigrew and Durrance[7] conclude that the critical question of exactly what to attend to in such an evaluation remains.

Within EDNER, the evaluation 'problem' (research question) as defined in the call for proposals (JISC, 1999) to undertake the evaluation could be described as ill-defined – ie. to undertake *"formative evaluation of the DNER, working closely with DNER developers in testing user acceptance of the DNER and identifying improvement strategies"*. Also seemingly ill-defined at the outset, were the objectives of the primary construct to be evaluated – the (then) DNER (ie. *""to provide the globe's high quality digital content to staff and students in (UK) higher and further education, at any time, and from anywhere."*). It could be argued that such visionary objectives are impossible to measure, but, as noted earlier, the idea of running an independent evaluation alongside a major development programme so as to encourage it to learn lessons from implementation was relatively new in 2000, so both developers and evaluators needed to experiment with ideas and applications in forging new territory. The EDNER team could not look to precedents in guiding the evaluation design. There was no precedent in the developing entity (ie. DNER/Information Environment) or in approaches to evaluation of such an entity.

Strategies adopted within the EDNER formative evaluation included an analysis of constituent roles and services of the nascent Information Environment using document and web content analysis; student evaluation of the quality attributes of a sample of contributing services using test questions ; analysis of the extent and manner in which services were becoming embedded within UK HE institutions, using search/link techniques; close monitoring and expert commentary on the developing presentation layer, including portals; case studies of two, and a survey of a larger sample of , HE institutions to determine the impact of the L&T programme and the developing Information Environment, using interviews and questionnaires; a critical review of information needs and information use in HE, using documentary analysis and interviews; and a pedagogical assessment of L & T projects, using project logic maps, 'history of the future' exercises and document analysis.

EDNER also undertook to identify approaches to the evaluation of large scale national digital initiatives which directly contributed to, or supported, networked learning to provide intelligence on related evaluation activity to JISC. It is from this aspect of the work within EDNER that building blocks towards an evaluation framework for large scale national digital initiatives which supply platforms for e-learning or are related to networked learning have been identified and are outlined in the following section.

CONSTRUCTS USED IN EVALUATING NATIONAL INITIATIVES

This section provides a summary analysis of evaluation approaches to national digital initiatives and to other major relevant evaluation activity in a digital information context. This overview is presented according to the **Construct** on which evaluations have focused. Published reports of evaluation activity for the range of digital initiatives outlined in Figure 1 were scrutinized, in the first instance to identify constructs (*what is being evaluated?*) and methods (*how is the evaluation being conducted?*). It is suggested here that the constructs provide the primary foundation towards developing a framework for evaluating large scale networked learning initiatives.

In the main, the constructs were found to centre around users, but the evaluations have focussed on a wide range of characteristics and criteria relating to users. Figure 2 outlines the key constructs used in evaluating initiatives related to networked learning. (The source evaluation report is referenced in parentheses)

Figure 2. Evaluation constructs in UK digital initiatives

CONSTRUCT	DIGITAL INITIATIVE (Evaluation Report)
Content / Landscape	JISC Information Environment (Brophy, Fisher and Jones, 2004)
Educational potential	Culture online (Taylor Nelson, 2001)
Evaluation design	Electronic Libraries Programme (Kelleher, 1995)
	People's Network
Information architecture	JISC Information Environment (Brophy, Fisher and Jones, 2004)
Institutional impact	Learning and Teaching Support Network (Saunders et al, 2002)
	JISC Information Environment (Brophy, Fisher and Jones, 2004)
Mapping activities against objectives	Electronic Libraries Programme (Esys, 2000, 2001)
Pedagogical viewpoints	JISC Information Environment (Brophy, Fisher and Jones, 2004)
Programme processes and outputs	Electronic Libraries Programme (Esys, 2000)
Project logic	JISC Information Environment (Brophy, Fisher and Jones, 2004)
Relation to similar projects/initiatives	JISC Information Environment (Brophy, Fisher and Jones, 2004)
Strategic context	National electronic Library for Health (McTaggart, 2001)
Take-up	NHS Direct Online (Nicholas et al, 2001)

Usability	NHS Direct online (Nicholas et al, 2001)
	National electronic Library for Health (Urquhart, Yeoman and Sharp, 2002)
	Archives Hub (Ramsden, Kelleher and Russell, 2002)
	JISC Information Environment (Brophy, Fisher and Jones, 2004)
Value	National electronic Library for Health (McTaggart, 2001)
	NHS Direct online (Nicholas et al, 2001)
Users	
Awareness (of initiative)	Archives Hub (Ramsden, Kelleher and Russell, 2002)
	Learning and Teaching Support Network (Saunders et al, 2002)
	JISC Information Environment (Brophy, Fisher and Jones, 2004)
Behaviour of	Culture online (McKinsey and Company, 2001)
	JISC Information Environment (Brophy, Fisher and Jones, 2004)
Demographics of	Culture online (McKinsey and Company, 2001)
Expectations of	Culture online (DCMS, 2001)
Experience of	NHS Direct online (Commission for Health Improvement (2003)
Impact on	National electronic Library for Health (McTaggart, 2001)
	Learning and Teaching Support Network (Saunders et al, 2002)
	Ferl Practitioners' Programme (Ferl, 2003)
	Learn Direct (Tamkin et al, 2003)
	National Grid for Learning (Harrison et al, 2003)
	National Learning Network (LSDA, 2002)
	Research Support Libraries Programme (Tavistock Institute, 1999)
	UK Online (Wyatt et al, 2003)
Needs of	Culture online (McKinsey & Company, 2001)
	JISC Information Environment (Brophy, Fisher and Jones, 2004)
	RSLG (HEFCE, 2003)
Skills acquired	UK online (Wyatt, J et al., 2003)
Value (of initiative to)	Archives Hub (Ramsden, 2003)
	National electronic Library for Health (Urquhart et al., 2001)

In summary, the following methods were used in the evaluations listed above.

Figure 3. Range of methods utilized in evaluating UK digital initiatives

Analysis of project reports	Analysis of search terms
Analytical exercises	Cartoon tests
Case studies	Citation analysis
Computer logs	Document analysis
Expert commentary	Group discussions
Focus groups	Interviews
History of the Future exercise	Manager surveys
Literature review	Project logic maps
Pilot-testing	Regional workshops for validation of findings
Self-reporting	Sentence and story completion
Surveys	Usability assessments
User survey	User testing
Vignettes	Web site appraisal
Web survey	
Workbook exercises	

TOWARDS AN EVALUATION FRAMEWORK FOR LARGE SCALE NETWORKED LEARNING INITIATIVES

In conclusion it can be seen that a wide variety of characteristics, criteria and methods have been identified both for use within EDNER and being used in other related evaluations. This illustrates the problem outlined at the start, namely that developing a robust evaluation methodology for large scale digital initiatives is extremely complex, especially if the issues of outcomes and impact are to be taken seriously. However, components for an evaluation framework for national digital initiatives can be identified. Building blocks towards an evaluation framework for large scale national digital initiatives which supply platforms for e-learning or are related to networked learning are in existence. Constructs and Methods identified within evaluation activity for such initiatives as the JISC Information Environment, National Learning Network, National Grid for Learning, Learning and Teaching Support Network, People's Network and Culture Online etc provide a sound foundation for collaborative activity. These preliminary analyses suggest the need for an evaluation framework to be developed under the auspices of a cross-sectoral body such as the Common Information Environment Working Group.

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