

ENCOURAGING RESEARCH INTO ON-LINE LEARNING AND ASSESSMENT

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Abstract

The Scottish Centre for Research into On-Line learning and Assessment (SCROLLA) is part of a Scottish initiative intended to catalyse strategic change within universities. The paper outlines the history of this initiative and provides some of the background that indicated the need for SCROLLA. The focus of the centre is described, along with some of the approaches that are being used to encourage research into on-line learning and assessment. The paper closes with indicators of the potential barriers to this kind of development and pointers to how the centre is establishing a vision for the future. At the conference, an invited panel will share their experiences from related initiatives in other countries. This will lead onto an interactive debate that will discuss the implications of the SCROLLA experience for encouraging research that feeds into teaching and learning practice.

Keywords

Change management; Research; Policy; On-line learning; On-line assessment

Background to SCROLLA

The Scottish Centre for Research into On-Line learning and Assessment (SCROLLA) is one of the SHEFC (Scottish Higher Education Funding Council) resourced Research Development Grant (RDG) centres. The RDG scheme began in 1997 in response to the UK Government's Foresight (<http://www.foresight.gov.uk/>) programme. Foresight aims to increase UK exploitation of science, and in 1999 identified 11 key sectors for development. These Government priority areas are linked to the RDG scheme. In providing these grants, SHEFC's intention has been to "catalyse strategic change within universities, in research connectivity to Scottish industry and quality of life, and in new modes of collaborative behaviour that promote research capacity. The RDG scheme aim, in short, was to extend the research portfolio of Scotland in ways that other sources of funds would not" (SHEFC, 2001). While the primary objective of the RDG scheme was to improve the "fit between the research capability of Scottish

higher education institutions and the long-term needs of society; and provide funds for developments that seek to improve the infrastructure in areas of research excellence that are aligned to the needs of the Scottish economy” (SHEFC, 2002). The Council also has a number of secondary objectives for this grant scheme, including the support of high quality proposals to strengthen capacity through interdisciplinary, multidisciplinary and collaborative approaches. Given the above, it can be seen that there is considerable investment in the RDG scheme, both in financial terms and as an expected means of bringing about change in relation to the application of research within Scotland.

First set up in January 2001, SCROLLA’s objectives include:

1. To provide an integrated resource to draw together major research activities that overlap in this area but which lie within different traditional disciplines (for example psychology, education, multimedia studies, teacher training, policy studies, curriculum subjects) and to stimulate and participate in collaborative research.
2. To generate new research activities by providing a focus for collaboration between staff in classroom settings, in policy agencies and in commercial organisations, providing a critical mass of effort by linking activities that are presently disconnected. The aim being to create a ‘funding magnet’ that helps to pull research finance from outside Scotland into the research system.
3. To establish a permanent forum for the wider research community (those in schools, colleges and agencies as well as those in HEIs) to combine in the formation of policy for developments in the use of ICT in education.
4. To build on existing strategic alliances in Scotland and the UK for the delivery of on-line assessment and learning, so fostering further links with the Scottish software industry.
5. To produce regular reports on current developments, futures analyses, research findings and a newsletter in a form which is accessible to all. This will offer a point of access to research findings, materials and resources for staff at all levels of the Scottish education system.
6. To organise multidisciplinary seminars for Scotland on current developments and research implications.

These objectives link fairly clearly back to the aims of SHEFC in supporting research within the Scottish Higher Education (HE) sector, and the RDG scheme more generally. This paper will discuss how these objectives are being realised, where the work of SCROLLA has been particularly successful, as well as those areas of potential that are yet to be exploited. The paper will close with an outline of what SCROLLA hopes to become in the future. To start, however, the following section will set the context for the relevance of a centre like SCROLLA at the current time.

Why the time is right for SCROLLA

Changes in technology coupled with radical alterations in higher education policy have contributed to a situation where more students are being taught, while the expectations of those students regarding the use of technology within teaching has also increased. At a time when new methods are also extending the reach of distance education, there is a growing need for methodologically sound, and theoretically informed research into on-line learning and assessment. There is a considerable pool of knowledge and understanding in these areas among practitioners, but in many cases much of the expertise is so new that it is yet to be documented. SCROLLA offers a significant means of linking the various communities of practice – practitioners, researchers and policy makers – and thereby progressing research and understanding across the field.

One source of practitioner experience in Scotland has been the result of two programmes of SHEFC funded research and development. The first of these, Use of MANs Initiative (UMI) (<http://www.use-of-mans.ac.uk/>), aimed to explore uses of the Metropolitan Area Networks (MANs) in Higher Education through the work of 40 funded projects. More recently, ScotCIT (<http://www.scotcit.ac.uk/>) has supported 19 projects in the following strands: staff development, web tools, intranets and infrastructure. ScotCIT aimed to establish appropriate use of Information and Communication Technologies (ICT) as part of normal working practice, and ran from late 1998 until December 2001.

Nationally in the UK, current initiatives, such as the Learning and Teaching Support Networks (LTSN) (<http://www.ltsn.ac.uk/>), UK eUniversities (<http://www.ukeuniversitiesworldwide.com/>) and others, are

adding to this growing base of understanding in relation to on-line learning, while also increasing the demand for further research. Universities and colleges themselves underpin this, as they move towards extensive adoption, if not use, of Virtual Learning Environments (VLEs).

In relation to Computer Aided Assessment (CAA), there is perhaps the greatest perceived need for research and guidance, particularly given the lack of connected practice in Scottish HE.

What is SCROLLA?

To attempt to meet some of the above demands, SCROLLA provides a focus for multidisciplinary research into the use of ICT in education concentrating on on-line learning and assessment. It draws upon educational, psychological, socio-cultural and computing science research traditions to provide a strong infrastructure to support development and practice across the Scottish educational community and beyond. Currently, the centre has seven staff who are located at the University of Glasgow, Heriot-Watt University and the University of Edinburgh. In each of these locations, there is a focus on one of three strands of research associated with on-line learning and assessment.

Networked Learning

One of the foci within SCROLLA is on networked learning environments and their communities of use. This links to interests in issues of pedagogy, teaching development and learning support within networked learning. Some current projects are:

- Characterising on-line learning environments – taking theoretical frameworks from psychology, sociology, education and communication research to the study of on-line learning communities, and developing and testing tools for representation and analysis (Chappel, McAteer, Harris, & Marsden, under review; McAteer, Tolmie, Harris, Chappel, Marsden, & Lally 2002);
- Reviewing research and practice literature, developing models for 'communities of practice' (Harris & Niven, 2002);
- Working with appropriate agencies to identify critical issues of accessibility to inform technological and pedagogical development;
- Reviewing and developing models of information literacy for learning (McAteer et al 2002);
- Mapping on-line content resources to qualifications frameworks: One project in this area is funded by JISC as part of their X4L programme and is entitled Learner maps and guides. For further detail see <http://www.scrolla.ac.uk/post/000017.html>;
- Working with the Scottish eLearning alliance (<http://www.elearningalliance.org/>) on issues for workplace on-line or elearning.

Assessment

Another strand is particularly interested in assessment as it is supported by ICT, including issues of development, evaluation and implementation. Within SCROLLA, on-line assessment is defined as an entirely automated process of delivering and marking assessments using web or intranet resources. Some project areas that are currently under investigation include:

- summative assessment and item banking through the work of the PASS-IT project. (Fiddes, Korabinski, McGuire, Youngson, and McMillan, 2002). PASS_IT incorporates key research questions, but is also significant given the involvement of central education agencies: the SQA, Learning Teaching Scotland, SFEU and the BBC Scotland Education. See <http://www.pass-it.org.uk>;
- question type naming (Paterson, 2002);
- animation in assessment linked to simulation inside assessment and simulation as assessment. A project related to this area is currently being defined in chemistry, and will be sponsored by the Scottish Qualifications Authority (SQA) and the University of Cambridge Local Examinations Syndicate (UCLES);
- accessibility issues are currently being investigated within the CUE assessment system in order to link in the screen reading package JAWS for blind and partially sighted users;
- skills testing, which is forming a key part of the SCHOLAR project (<http://www.calm.hw.ac.uk/cue.html>).

Policy and strategy

The third strand looks at policy and strategy issues surrounding the implementation of ICT and on-line learning in education, from both a governmental and institutional viewpoint. Areas of interest include staff and student ICT skills, copyright and intellectual property issues, strategies to develop staff skills in on-line teaching, institutional recognition for on-line activity among teachers and researchers, and on-line accessibility issues.

How we are encouraging research

Much of the work associated with encouraging on-line learning research involves communicating with practitioners, policy makers and researchers in all educational sectors. This has been achieved partially through a programme of symposia, of which SCROLLA has already hosted three. The first took place in November 2001, and focused on Networked Learning Environments. It addressed three major aspects: theoretical frameworks from research and their use in understanding and developing practice; learner support for on-line learning communities; information literacy in the service of learning. The second symposium was entitled "Research into Computer Aided Assessment". This February symposium covered many CAA issues including the technical demands of IMS, the changing role of UK Examination Boards in the secondary sector and the impact of the new medium on the testing of learning outcomes. The latest symposium debated issues relating to ICT Policy and Strategy in May 2002. Delegates representing the school, further and higher education sectors discussed policy and strategy issues surrounding the implementation of online learning and assessment in their sectors. Summaries of the symposia invited presentations and plenary sessions are available on the SCROLLA website, under www.scrolla.ac.uk/papers. This kind of research symposia approach has obvious potential advantages in highlighting the major issues in particular areas, but also provides opportunities for people with similar interests from throughout Scotland to meet.

The communication process extends to the SCROLLA website. As well as offering more information about SCROLLA and its activities, the site includes a weblog that provides a stream of updated news and resources relating to SCROLLA and on-line learning and assessment. As part of the weblog, visitors to the site can comment on much of the site's content.

Other meetings have focused on more specific issues. For example, an accessibility forum has been initiated where individuals from various organisations working to improve accessibility, meet to discuss potential future areas of research in accessibility and on-line learning and assessment. At the first meeting, discussions quickly turned to the issues of working towards accessible on-line learning, especially given the forthcoming implementation of the Special Educational Needs and Disability Act 2001 (<http://www.hmso.gov.uk/acts/acts2001/10010--d.htm>). Overall, the meeting provided the opportunity to share current work and concerns regarding accessibility and on-line learning. This not only creates new networks that can usefully inform practice, but can highlight areas for future research.

More directly, SCROLLA actively works with organisations and individuals across the Scottish educational sectors in partnership with ongoing developments; and in supporting or leading appropriate bids for funding that can extend current work or set up new pilot projects. Examples of this kind of collaborative activity include the X4L and PASS-IT projects already referred to; a European Social Funding (ESF) project that is led by Robert Gordon University, but involves partnership with SCROLLA, the Scottish Further Education Unit (SFEU) and the University of Aberdeen; and other more leading edge research work with the Universities of Sheffield and Strathclyde. This work also extends globally, for example through the European Commission-funded SEUSISS project (Surveys of European Universities Skills for ICT for Staff and Students).

Essential to any developing research culture is the nurturing of new researchers. Part of this is being achieved within the networked learning strand through the funding and support of two PhD studentships.

Untapped potential

The above highlights some of the approaches used by SCROLLA and indicates some areas of success so far. There are other opportunities available to SCROLLA that have yet to be taken full advantage of. One

such area is the fostering of an on-line community of on-line learning researchers, which has not progressed as far as we would have liked. We are, however, about to start on an ESF funded project to make greater use of the VLS (an on-line environment dedicated to learning about ICT via collaboration. <http://itlearningspace-scot.ac.uk>) as a virtual research space. Part of this initiative will include ensuring the Further Education sector is actively encouraged to become involved.

Another useful facility, which the assessment strand would like to introduce, is the provision of an on-line assessment service across Scottish Higher Education. This would be a research tool for teachers to discover what does and does not work in motivating and stimulating student learning.

Staff within the centre have also received positive feedback on other potential joint research from agencies such as the eLearning Alliance, SFEU, BBC, and LTSN. The human and financial resources available to follow up on these options can, however, be somewhat stretched.

Barriers to further development

SCROLLA is clearly sited within Scotland, which presents its own benefits and issues. During the conference, an invited panel will feed into an interactive debate that will discuss the implications of the SCROLLA experience, and outline experience from related initiatives in other countries for encouraging research that feeds into teaching and learning practice.

This discussion will include reference to the kinds of barriers to encouraging research, and how these have been, or might be overcome. Some initial barriers that have been encountered within SCROLLA are outlined below:

- Within the institution:
 - Lack of awareness at Faculty and Institutional level of the benefits of this kind of initiative
 - Only a relatively recent understanding of the need for sustainability in extending the work of such centers beyond their initial funding.
- Within the department:
 - Difficulties in fitting into the traditional focus of the department. For example, the perception of research within the departments hosting SCROLLA is potentially narrower than SCROLLA's own remit.
- Within SCROLLA:
 - The distributed nature of SCROLLA can create problems in the development of a shared view of the centre's focus.
 - Further, being located in three very different institutions can lead to somewhat divided loyalties and a potential 'self-consciousness' over being open across SCROLLA.
- Outside of the institution
 - To become a centre of excellence requires considerable funding, some of which will be from commercial sources. Yet to be seen to remain impartial is vital.

The future - meeting the vision for SCROLLA

As indicated, to maintain this kind of initiative, it is vital that SCROLLA builds on its reputation with the other education agencies in Scotland. A vision for the future might be that we become a significant academic research centre that is recognised by the commercial world, while providing a catalyst for positive educational change. How we meet this challenge will be discussed in the interactive debate.

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