

A Framework for the Evaluation of Networked Learning and the Implications of Evaluative Research for the Process of Re-design

Andrew Sackville and Mark Schofield

Edge Hill College of Higher Education

Sackville@supanet.com, Schom@edgehill.ac.uk

ABSTRACT

This paper introduces a framework for evaluative research that the authors have used in their own practice of designing and delivering networked learning programmes. The types of evidence produced by the four aspects of the evaluative framework are analysed, and modifications made to the networked programmes as a result of reflection on the results of the research are discussed. The importance of the process of re-design is highlighted, and an initial attempt to de-construct this concept is attempted.

Keywords

Evaluative research; re-design

INTRODUCTION

This paper builds on work completed by the authors on a conceptual model of designing for networked learning that seeks to capture the complexity of planning for such learning. We have argued elsewhere that more attention needs to be given to problematising design at the level of purpose, audience and form. (Sackville & Schofield 2003). Using the analogy of a bespoke tailor customising a jacket for a client, we have explored different constituents of the 'jacket' within which design takes place – technology and tools; models of pedagogy; parameters of interactivity; and learning communities. (Sackville, Schofield and Davey 2002). Our conceptual model draws on Biggs' discussion of the constructive alignment of outcomes, pedagogy and assessment. (Biggs 1999). This evolving conceptual model has guided and informed our own practice of designing networked learning programmes.

Like our earlier work, this paper has been conceptualised as a result of immersion in the practical aspects of designing and delivering networked learning opportunities for a wide range of higher education programmes, alongside conducting evaluative research into the delivery of the programme. As we will demonstrate, the results of the evaluative research we have conducted have influenced our design activities, and we have become increasingly aware of the crucial activity of re-design, which we return to in the later part of this paper.

Initially the paper presents the framework used by the authors in conducting evaluative research into the networked learning programmes they have been involved in designing. The programmes which we have designed have been conceived as supported online learning programmes, that is – they have been designed to be delivered primarily using a virtual learning environment (VLE), but a limited number of optional face-to-face sessions have been incorporated into the design to support the networked learning. The suite of programmes analysed include a Postgraduate Certificate in Teaching and Learning in Clinical Practice and an MA in Clinical Education (including modules in Research into Clinical Education; Curriculum Design; Mentoring; and E-learning in Clinical Education). These have been delivered to a multi-professional group of health services trainers/ educators.

Data from each of the four elements of the evaluative framework will be presented and analysed to illustrate the challenges that promoting interactivity poses to designers developing networked learning programmes. Examples of design responses to these challenges will be discussed. It is important to recognise that these challenges not only exist at the initial stage of design, but often metamorphose into different problems at a later stage, when re-design becomes an essential component for the designer of the learning opportunities.

A FRAMEWORK FOR EVALUATIVE RESEARCH

As our practice has developed we have recognised four distinct evaluative elements which we have used in gathering intelligence about the effectiveness and utility of our networked learning design. Whilst we have separated them out in this analysis, we are conscious that they relate to each other in a number of different ways – sometimes they overlap, sometimes they are distinctive. It is a challenge to draw together the separate findings into a cohesive whole that can then be used to inform future practice. Other authors have presented toolkits to aid the evaluation of C&IT, and we are indebted to their ideas (Oliver & Conole 1998).

However taking a social constructivist view of the construction of knowledge, we have set others' experience alongside our own to form our own framework for evaluative research, which we are now sharing. The four elements in our framework comprise:

- Evaluation which is designed and built into the programme, both formal and informal.
- Data collected within the virtual learning environment.
- Data derived from the analysis of the online discussion archive.
- Data collected from an independent research project.

We will now turn to an examination of each of these elements, attempting to identify both the useful and limiting aspects we have discovered in using the framework.

EVALUATION WHICH IS DESIGNED AND BUILT INTO THE PROGRAMME

Traditionally evaluation has often been seen as an add-on to be undertaken at the conclusion of a programme of study. However in designing a networked learning programme a series of opportunities for 'continuous evaluation' present themselves.

This evaluation takes several forms:

- Informal evaluation by tutors. This is partly based on the optional face-to-face support meetings that are built into most of our programmes. This information is assessed and discussed at the monthly meetings of the programme team, and information can be utilised immediately from this source. Tutors also observe the interaction that is taking place online and can identify potential and actual difficulties, students having problems, and particular online material or ideas that are causing problems to students.
- Immediate feedback from participants using e-mail. This may involve comments, requests and suggestions. Sometimes this feedback relates to problems specific to a particular learner, but other feedback relates to broader considerations that may affect all members of the learning community (participants and tutors).
- Evaluation activity incorporated into contact-days/ sessions. The design team use a nominal group technique during one of the sessions to obtain a wealth of formative evaluative data. This takes place four months into the ten-month Certificate course; and six weeks into each of the fifteen-week MA modules.
- Evaluation is contained within the 'activities' which the participants undertake. For example an activity within the "Assessing Learning and Evaluating Teaching" module on the Postgraduate Certificate programme is worded:

We hope that our assessment strategy on this programme is explicit. We would like you to reflect on what you have read either in our printed material or online, and consider whether there are areas of our assessment strategy we could make more transparent. Please share your reflections with your personal tutor by using the mail facility.

- A conventional end-of-programme questionnaire and an evaluation meeting, which we now combine with an optional 'closure' meeting.

This form of evaluation has allowed us to identify specific learning needs of different cohorts undertaking the same programme. For example, we have been able to respond rapidly to technical difficulties and to problems of access to online materials (e-books & e-journals) which some individuals were experiencing.

But perhaps of greater significance for the concept of re-design, we have been able to identify areas where certain groups were experiencing difficulty with online material, which other groups have not experienced. For example, we discovered that doctors and dentists studying our Research Module had little understanding or experience of social science research, in contrast to nurses and other health professions where this was included in their initial training. Since an understanding of social scientific research is necessary to critically review much of the research material in medical and dental education, we were able to respond rapidly by providing

additional background material for these particular students, and, in the longer term, we were able to re-design the material to ensure that future doctors and dentists were not disadvantaged.

We have found that the incorporation of evaluative elements into the core activities of the module has proved effective on two levels. Firstly it has ensured that the participants reflect on their learning as it is taking place, and secondly, it has enabled the tutors to archive the suggestions for re-design, so that they are not lost in subsequent online discussions. As we have built more evaluative e-tivities into our materials, we have noted that the participants' contributions to the discussion board became more reflective, both of the material, and of their own learning.

EVALUATIVE DATA WHICH IS COLLECTED WITHIN THE VIRTUAL LEARNING ENVIRONMENT (VLE)

Using the 'instructors' access to the VLE, we have been able to collect a large amount of numerical data recorded about the use made of the VLE. This data includes:

- Pattern of access to the website by programme participants. This includes information on the number of visits, date and time of use of the VLE, frequency of postings to the discussion board etc.
- The use made of each page of materials. This includes the number of hits sustained by any one page, the time spent reading the page etc.
- Information about other temporal aspects of design. This includes the use made of the VLE during 'holidays', periods of work pressure within NHS, and within the conventional academic year.

We are well aware that much of this can only be treated as indicative data. Other research has revealed that some of our networked learners simply download all the material at the commencement of a programme, and then only go online to post mail or discussions. So the raw data on the use of the VLE has to be treated with caution. However the data has proved useful to us in re-design in a number of ways.

In the first cohort of students on the Postgraduate Certificate we were able to identify five different types of user. These we labelled – (a) the express trains, who worked through ten months of material in two months; (b) the slow starters – who eventually picked up speed and momentum; (c) the slowing downers – who started satisfactorily, but who then lost momentum; (d) the reliable and consistent students, who worked their way through the material at the pace the tutors expected; and (e) the witness learners, who rarely appeared online – but who were still out-there working on their own. After discussion we re-designed elements of the online activities to try to achieve more consistent online participation. This involved releasing only five to six weeks of the programme in advance, so cutting down the scope for the express trains to steam away, and discourage the more consistent learners. By introducing an online attendance policy – that all participants had to complete 70% of the online activities, we dealt to a large extent with the witness learners; and by setting each online activity in a three-week response envelope, we reduced the number of slow starters and slowing downers!

A second aspect of re-design which we identified from the raw data on use of the VLE related to the absence of many staff in the NHS in the period August/ September, when there is usually a change around of junior posts within the health services. This was particularly important for our Postgraduate Certificate that runs from the end of January to the beginning of November. This subsequently has led to the alteration of the order of the presentation of the modules that comprise the Certificate – a more major aspect of re-design.

EVALUATIVE DATA DERIVED FROM THE ANALYSIS OF THE ONLINE DISCUSSION ARCHIVE

The analysis of the extensive online discussion archive was discussed in some detail in the paper presented at the third Networked Learning Conference at Sheffield in 2002. (Sackville 2002). In that paper Sackville discussed some of the difficulties in analysing an online archive. Whilst it was possible to capture different types of interaction using a coding process, it was difficult to make judgements about the significance of any contribution to an ongoing discussion, since individual contributions were effectively de-contextualised when they were coded. It was suggested that both tutors' and students' ascription of the importance of their contributions to the online discussion needed to be considered.

The paper indicated that this had led the programme design team to modify their interactivity design, by asking participants as one aspect of their assessed activity, to review the online discussion relating to one of the online activities (of their choice) and to reflect on their role within that discussion. This has proved to be a very

successful form of assessment, both in encouraging more reflective online discussion in general, and in providing a tool for the participants to reflect on their own involvement in the online discussion. From the tutors' perspective on this particular programme – we would see this as crucial self-awareness necessary before the participants become involved themselves in delivering and tutoring networked programmes.

The information derived from this analysis of archived discussion also let us identify and reflect on the interaction of both task-based and social discussion. We had been considering having a separate chat-room on the VLE, and restricting the discussion on the main discussion board to purely activity based discussion. The analysis however made us reconsider this suggestion, and we have retained a single conduit for discussion (work-related and/or social). We have however overtly justified this to our learners, with the expectation that they will 'police' themselves if the discussion board is being abused in any way.

We are continuing to monitor and analyse the online discussion archive. Among our more interesting recent findings are:

- The longer a group are studying online together at a distance, the more spontaneity creeps back into online discussions. Some MA students have been working as a group for 24 months. However this initial finding has to be qualified since we have found that when our present group of 18 MA students split into two separate groups to focus on either e-learning or mentoring, the e-learning group was extremely vocal online, whilst the mentoring group was markedly quieter. Of course this may relate to the subject material, or to the self-selection of students in deciding which option to study. We are continuing to research this one!
- A group who are in regular face-to-face contact (nurse tutors in the same faculty) find it more difficult to engage in online discussions – they feel they have already made comments to fellow students they see on a daily basis. We are now reviewing how we could re-design this module (the Research Module) so as to have a delivery pattern which is more 'blended' for those in frequent contact with each other.

EVALUATIVE DATA COLLECTED FROM AN INDEPENDENT RESEARCH PROJECT

The final element of the evaluative framework that we have adopted was a more conventional piece of research in which an independent researcher conducted a series of in-depth interviews with 9 former participants from the first two cohorts of the Postgraduate Certificate programme. This sample was drawn up to cover a range of variables – year of completion, occupation, personal tutor, gender. The interviewees had completed the programme either 2 years or 12 months previously.

This research provided a very positive evaluation of the programme, but it also identified a range of suggestions for improvement (which one would have hoped for from successful participants on this programme!)

The research interview was semi-structured, and among the more structured elements of the interview, the researcher asked each respondent to make a judgement of the success of the 'interactivity'. Five judgements were requested, one for each of the different parameters of interactivity identified in our earlier evaluative research. (Sackville 2002). Each parameter was self-graded by the respondent on a five point scale (from 1 – highly successful to 5 – highly unsuccessful).

This produced the following interactivity grade averages:-

- Interactivity between yourself and the material. 4.3
- Interactivity between yourself and the technology 4.1
- Interactivity between yourself and the tutors 3.4
- Interactivity between yourself and other participants 3.3
- Interactivity between yourself and your professional community 3.3.

Whilst each of these grades is encouraging, particularly those relating to interaction between the participant and the programme material and the technology; the programme team were more concerned that the interaction with other people – the tutors, the other participants, and their professional peers was not as strong. Was this a sign that the participants who chose to pursue a networked-learning programme were more likely to be 'lone-workers'? Evidence collected from other forms of evaluation suggested this was not the case.

When the interactivity grade range was examined the following pattern emerged:

- Materials. 5,5,5,5,4,4,4,4,3.

- Technology 5.5.5.4.4.4.3.3.
- Tutors. 5.4.4.4.3.3.2.2.
- Other participants 5.4.4.3.3.3.3.2
- Professional community. 5.5.4.4.3.2.2.1

This demonstrates that some participants found the interaction with tutors, other participants and their own professional community to be successful (grade 4) or highly successful (grade 5). It was also possible to identify individual profiles for the different learners. The most enthusiastic e-learner produced a profile of grades – 5,5,5,4,4; whilst the respondent who have been seen as classic ‘witness learner’ whilst on the programme produced a profile – 4,3,2,2,1.

Comments from the participants served to provide more explanation of the lower rating of some of the person-interaction grades. There was concern with the response rate with two of the four tutors on the programme, particularly from students in the first cohort. This was when the team of four tutors was new to online tutoring, and before they worked out a modus operandi of tutoring that they now share with participants. Similarly there was frustration with the number of witness learners in the first two cohorts, an issue which the programme team addressed by bringing an online attendance policy (see above). Clearly this independent research exercise will need to be repeated with members of the third and fourth cohort to see if these aspects of re-design have made an impact on the interaction grading scores for more recent students.

One of the challenges which remains for the programme team as a result of this research is how we can strengthen the participants links with their own professional community. The comments attached to the grading here suggest that those participants who were already active within their profession became more active; whilst those who tended to be isolated practitioners (a status fostered by some of the organisational and cultural practices of the NHS in the past) remained so. More encouraging was the formation of an inter-professional learning community online, a factor welcomed by many of the participants who successfully completed the Certificate programme.

RE-DESIGN

The concept of re-design is not unique to networked learning; but the re-design of networked programmes is in practice facilitated by the technology that allows for rapid response. It is important to recognise that re-design is not simply an automatic response to negative evaluation, although such negative evaluation may play a part in stimulating re-design. Re-design can also be linked to rapidly changing technology which presents new opportunities within a programme, for example the initial programme which primarily text based is now being redesigned to incorporate more multi-media material as the technology develops to allow this to be delivered effectively to participants’ own computers. Re-design also recognises the changing environment in which online material is developed – more high quality material is becoming available online, in e-books, e-journals and on associated websites. Finally re-design recognises the changing subject matter of the programmes themselves. Trying to keep abreast of changes in the clinical education of the health professions is a major challenge for a programme team, and of necessity contributions of ideas and materials from students within specific medical and dental specialisms, within branches of nursing and midwifery, and from the twelve allied health professions, are crucial in ensuring the currency and relevance of the programme for participants.

This final point illustrates that the process of redesign is not the monopoly of the programme designers, but learners themselves play a significant part in both critically appraising a programme; and generating ‘new’ material which can be incorporated electronically into their programme. However there is a challenge here for programme re-designers. Decisions have to be made as to which ‘new’ material will be incorporated into the basic repetition of the module/ programme for the succeeding cohort, and which will be edited out. Not only is there the danger of putting too much ‘new’ information into the materials, and so over-burdening the participants; but there is also the basic pedagogic issue that the tutors want participants to discover materials for themselves. We want each generation of learners to experience that special ‘learning’ moment when ‘the penny drops’ and they start to make new sense of the ideas and materials.

In conceptualising the process of re-design we would identify a number of different aspects which are incorporated into the overall concept. These include:

- Updating the material as new developments take place.
- Supplementing and complementing the material, with information and material discovered and identified by participants.
- Altering the online activities to promote an enhanced degree of interaction

- Customising a previously delivered module for a 'new' audience, which has different learning needs to the original audience.
- Creating additional online groups rapidly – so that they can focus on special interests or specific tasks.

There are undoubtedly additional aspects of re-design that we will identify in the future. In our practice, re-design has been based on evaluative research carried out within the evaluative framework we have described. All four types of evaluative research have provided insight into possible challenging issues that the programme team has been able to address. As our e-design experience and research-based knowledge grows, we may be able to predict some of these challenges in advance and incorporate methods of dealing with them in the initial design stage. But we would also argue that the variety of learners, the constantly changing knowledge base, and the results of evaluative research carried out alongside programme delivery, will always make the process of re-design a crucial aspect of the overall design of networked learning.

REFERENCES

- Biggs, J. (1999) *Teaching for Quality Learning at University*. Buckingham: Open University Press.
- Oliver, M. & Conole, G. (1998) *Evaluating communication and information technologies: a toolkit for practitioners*. *Active Learning* 8 pp. 1-6.
- Sackville, A. (2002) *Designing for Interaction in Proceedings of the Third International Conference – Networked Learning 2002*. Pp.534-541.
- Sackville, A. & Schofield, M. (2003) *Interactivity Analysis; problematising purpose, audience and form within virtual learning environments*. Paper presented to the 27th International Improving University Learning and Teaching Conference; Vaxjo University, Sweden.
- Sackville, A.; Schofield, M. & Davey, J. (2002) *Why should we be concerned about 'patterns of interactivity' in cyberspace education?* Paper presented to the Idea in Cyberspace Education Symposium; Higham Hall, Cockermonth.