

# **Flexible learning objects for teaching, learning and sharing: implementing a multi-institutional collaboration**

**Dawn Leeder (dcl25@cam.ac.uk) & Tom Davies (twd10@medschl.cam.ac.uk)**

Clinical School, University of Cambridge, UK

www.cam.ac.uk

**KEYWORDS: e-learning, multimedia, learning objects, reusability, collaboration**

“In higher education, we do not need a vision of the perfect curriculum, the perfect textbook, the perfect Website, the perfect classroom, the perfect campus, the perfect home study, the perfect carrel, the perfect combination of media. We need a vision of improvement and change – how to keep moving forward, how to know when we’re making mistakes, and how to correct them.”<sup>1</sup>

## **BACKGROUND**

The original stimulus for developing e-learning resources came from changes in postgraduate training at the University of Cambridge Department of Public Health and Primary Care. We were being asked to teach subjects related to public health to an increasing number of smaller groups. The result was that lecturers would repeatedly use the same set of slides and notes; these became stale and the lecturer became bored. The answer it seemed was to put the lectures on to some form of recorded medium. Videos with sound had been used in the Clinical School for some years and had been made by simply pointing a camera at the lecturer. The result was flat and uninspiring, and had all the disadvantages and few of the advantages of a live lecture. A multimedia developer was therefore appointed to transform the existing lectures into a more engaging educational experience. At the same time another temporary and part-time post was created so that a thorough review of all relevant existing web-based material could be carried out, to identify resources which could either be used directly or used as exemplars to inform our emergent practice in creating multimedia materials to support or replace teaching in the social aspects of medicine. In fact, very little material was discovered, and what existed was predominantly in the form of electronic books.

We agreed that if an online course was to be produced to replace existing lectures, then we had to be a bit more imaginative. Our view was that an electronic book was not much of an advance on the traditional kind and whilst a video would be cheaper to produce it would have no interactive possibilities. None of the options were considered to be an effective use of such a potentially exciting new medium as the web.

At that time (1998) a course in Medical Sociology consisting of ten lectures was being delivered in the traditional manner to both undergraduates in a cohort of 300 and also to post-graduates in smaller groups. This course was selected for development into a series of self-directed online modules. Because a coherent course was the required project outcome, this was precisely what was developed; each lecture was deconstructed into component parts and then reconstructed and presented in the form of an interactive multimedia module for web delivery<sup>2</sup>. Each module consisted of a narration (to retain the character of the lecture) plus

---

<sup>1</sup> Steven W. Gilbert <http://www.tltgroup.org/gilbert/NewVwwt2000--2-14-00.htm>

animations, video clips, texts, photographic images, graphs and illustrations. In retrospect, and especially as now other institutions would like to use components of the course in their own teaching and learning materials, we should have explored the potential re-uses of the materials. The course had been initially created from much smaller components, and if these had been stored separately as independent learning resources, this would allowed much more flexibility, creating the virtues of what we later came to know as ‘learning objects’.

Nevertheless, and these deficiencies notwithstanding, the Interactive Medical Sociology course was ground-breaking for its time and is still in use by Cambridge students and others to this day. It also provided us with a wealth of experience in the methodologies and processes of e-learning resource development and deployment and our student evaluations fed back into the development lifecycle (Davies & Leeder 2001).

Here are some of the lessons we learned:

- The process was very expensive, costing about £70,000 (€115,000) to substitute a computer based package for around 7 hours of lectures.
- The majority of students liked this course, but a sizeable minority did not for a number of reasons: they preferred a traditional lecture; were suspicious of high production values, equating presentational slickness with lack of content; were technophobic or had genuine access problems through Cambridge’s distributed but patchy network of self-governing colleges, each with different standards of IT provision; resented the time spent going through each module and would have preferred a set book.
- The linear flow of the original course was maintained, but this imposed a rigidity on it.
- Without the structure imposed by regular lectures, students felt uncertain and tended to leave using the package until a couple of days before the examination. As a result there was little time for discussion or reflection. We therefore recommended that the computer-based course had to taken in parallel with live small group teaching (at least 4 sessions) and reading a set book. We noticed that lecturers in other institutions, whilst they might praise the course, did not often want to use it; the classic ‘not-invented here syndrome’.

We promoted a conference<sup>3</sup> in 1999 in which participants discussed a number of issues including expanding these techniques into other areas of teaching in the health field. A practical and attractive suggestion was to move towards ‘resource based learning’ or ‘RBL’ (Draper, 2000) that is, move away from bottling a whole course as we had done previously, and instead break it down into learning objects, which like a Meccano set or ‘atoms’ could be put together in a number of ways.

Clearly, co-operation on a large scale was necessary. Apart from the need to share the high costs, lecturers needed to ensure that any learning objects were:

- of high quality. This would mean that factual information is correct. The logic and pedagogy are rigorous. The visual and sound components must be engaging with high production values.
  - of use to the widest possible constituency. This minimises costs and maximises ownership and take-up.
  - capable of being linked together, whilst still supporting a ‘stand-alone’ concept.
-

## LEARNING OBJECTS – A DEFINITION

Wiley (2000) defines a learning object as ‘any digital resource that can be reused to support learning’. There is some debate about whether Joan of Arc or the war of 1812 are (were?) learning objects; Wiley argues that most instructional technologists would say not. Clearly, a series of web pages describing the life of Joan of Arc or an interactive timeline chronicling events around and during 1812 *are* learning objects – and are also capable of being duplicated, re-used, linked to, re-purposed and shared – whereas the ‘originals’ are not. Likewise, a learning object must be digital, therefore a book, although a learning resource, does not constitute a learning object under this scheme. A digitised section of a book, however, would qualify.

This approach imposed several requirements<sup>4</sup> that we need to meet:

- The objects should have a coherent style, so that when joined together there are no jarring changes which distract and confuse the students. It should be possible to join the objects together seamlessly, so that the effect of the female ‘robot’ on the London underground is avoided
- The objects must be stored and indexed so that they can be found and extracted with a minimum of computing expertise.
- There must be a facility for bridging material provided by the lecturer.

## COLIPHE

The proposal entitled Collaboration in Public Health Education was known by the acronym ‘COLIPHE’. The majority of medical schools in the UK were approached to see if they would be willing to support this collaboration and eleven institutions agreed. The level of enthusiasm varied and some responses were negative. Where there was a lack of enthusiasm, the justification typically comprised or more of the following reasons:

- It is very expensive and we have not got any spare money
- We have created our own material and we are not going to give anybody a free lunch
- No matter how you dress it up, students have to get down to the hard graft of learning and traditional methods are just as good.
- Once you have started collaborating what happens to the integrity of the University Departments and their degrees?
- We’re all extremely busy people and we don’t have time for this

Nevertheless, there was sufficient support for proposal to be put together in some detail for the creation of COLIPHE. This took the form of a number of grant applications, and in part these were to lay the foundations of a permanent infrastructure (an administrator, a secretary and an academic director based in the Programme for Industry in the University of Cambridge to ensure stability and sustainability for the project.

The grant applications failed. Sometimes they were not even acknowledged. Once the proposal was deemed to be too expensive; indeed, it was certainly ambitious. Once it was said

---

<sup>4</sup> In learning objects taxonomy, these issues comprise respectively, those of granularity and

that we had to have the collaboration up and running before it could be funded and on another occasion no reason was given.

So, the COLIPHE stalled, but it soon became apparent that the need for e-learning had not gone away and public health and social aspects of medicine education, at undergraduate level at least, is still something of a Cinderella subject and consequently is often under-resourced by faculty.

### **IF AT FIRST YOU DON'T SUCCEED...**

Collaboration is, as it always was, central and key to the success of cost-effective creation of high value digital learning resources. A new collaboration is now being established to co-operate on the production of e-learning objects for teaching epidemiology, statistics, research methods and related topics without the infrastructure proposed in COLIPHE. This modest collaboration will, it is hoped, form the seed-bed from which a much wider and broader project can grow over time. The best parts of COLIPHE have been retained whilst paring down the infrastructure to a minimum. This increases the workload and commitment of individuals, but maximises efficiency. Over time, as more partners join, it will be possible to phase in administrative staff where required; more importantly in the initial stages is the production of a 'critical mass' of e-learning resources to enhance and support teaching and learning. It is this practical aspect that, if not overlooked by the original collaboration, was underestimated. People prefer tangible outcomes to bureaucracy.

There are many technical and pedagogical issues to be resolved before learning objects are fully embedded into practice, but these are as nothing compared with the cultural and organisational issues we have had to confront during the courses of these projects. Co-operation is broadly welcomed, but it adds an extra layer of complexity for all participants as they negotiate the institutional interstices. Nevertheless, with a fair wind, the collaboration will succeed, because it is individuals that co-operate and not institutions.

### **References**

DRAPER, S.W. (October 2000 ) Strategic decisions for public health education [WWW document]. URL <http://staff.psy.gla.ac.uk/~steve/carey/ph.html> (visited 2002 Feb 20)

GILBERT, S. W. (Feb 2000) A New Vision Worth Working Toward -- Connected Education and Collaborative Change [WWW document]. ]. URL <http://www.tltgroup.org/gilbert/NewVwwt2000--2-14-00.htm> (visited 2002 Feb 22)

LEEDER, D. (2000) From linear lecture to interactive multimedia module: a developer's perspective. Education Media International Vol 37 No 4

LEEDER, D. & DAVIES, T. (May 2001) Delivering a web-based course to Cambridge medics: evaluation, issues and outcomes. Paper to conference: TET2001, Prague, Charles University

WILEY, D. A. (2000). Connecting learning objects to instructional design theory: A definition, a metaphor, and a taxonomy. In D. A. Wiley (Ed.), The Instructional Use of Learning Objects: Online Version. education [WWW document]. URL