

# Change in e-Learning in a UK university – London Met RLO-CETL

John Cook<sup>1</sup>, Debbie Holley<sup>1</sup> and David Andrew<sup>1</sup>

<sup>1</sup>Centre of Excellence in Teaching and Learning in Reusable Learning Objects (RLO-CETL), London Metropolitan University, 166-220 Holloway Road, London, N7 8DB  
{john.cook@londonmet.ac.uk, d.holley@londonmet.ac.uk, d.andrew@londonmet.ac.uk}

**Abstract.** This paper describes the most recent phase in a mature e-Learning project, in the area of reusable learning objects, that has attempted to bring about technological and cultural change. Following an overview of the project and organisational context, an institutional change model is described that helps managers and stakeholders to identify critical interactions among processes and emphasizes the need to recognise interdependencies among technology, practice and strategy. The rest of the paper is organised around the 5 key questions provided by the workshop. The research method for the work described in this paper was Interpretive and involved the first author's attempts to understand members of the project team's definitions and accounts of the situation.

**Keywords:** institutional change model, e-Learning, higher-education

## 1 Introduction

This paper describes the most recent phase in a mature e-Learning project, in the area of reusable learning objects (RLOs), that has attempted to bring about technological and cultural change within London Metropolitan University over the past six years. Our approach is heavily influenced by attempts to place pedagogy at the heart of our concerns [1]. There is some controversy over the term 'learning object'. The London Met approach is partly based on Boyle's [2] notion of decoupling and cohesion; which is in itself taken from software engineering. Each learning object we developed is characterised by being a cohesive learning resource focused on one clear learning goal. Each learning object is also decoupled in that there are no 'link outs' to external resources; this is crucial for reuse. This approach enables teaching staff, multimedia developers and students to become involved in an iterative and highly creative process of reusable learning object design, implementation and evaluation.

Several years work on the design, development and use of learning objects at London Met led to widespread recognition of this work, including achieving a prestigious European Academic Software Award (EASA) in 2004. This work has also lead to the award of the Centre for Excellence in Teaching and Learning (CETL) in Reusable Learning Objects (RLO-CETL for short) in 2005. This CETL builds on a strong base in the partner institutions: London Metropolitan University, the

University of Cambridge and the University of Nottingham. Although the focus of this paper is the work at London Met issues raised by working with a diverse set of partners will also be raised.

### **1.1 Centre for Excellence in Teaching and Learning**

CETLs represent a big national intervention in HE. The CETLs initiative has two main aims: to reward excellent teaching practice, and to further invest in that practice so that CETLs funding delivers substantial benefits to students, teachers and institutions. Following the completion of a two stage bidding process for funding, a total of 74 CETLs, of which 19 are collaborative, were approved. Funding of CETLs will total £315 million over five years from 2005-06 to 2009-10. Each CETL will receive recurrent funding, ranging from £200,000 to £500,000 per annum for five years, and a capital sum ranging from £0.8 million to £2 million. This initiative represents the Higher Education Funding Council for England's (HEFCE's) largest ever single funding initiative in teaching and learning.

The CETL in Reusable Learning Objects is being funded by HEFCE to develop a range of multimedia learning objects that can be stored in repositories, accessed over the Web, and integrated into course delivery. London Metropolitan University is the lead site, in partnership with the Universities of Cambridge and Nottingham. The RLO-CETL started Operations 1 April 2005 and will be funded at least until 2010.

The aims of the CETL are to build on the strengths of the existing partnership through a programme of parallel processes that will:

1. Advance the pedagogical and structural design of reusable learning objects (RLOs),
2. Build a common development framework for producing and sharing a critical mass of RLOs;
3. Share and evaluate these RLOs with a minimum of 2000 students per year across the three institutions
4. Achieve this through an innovative and extensive staff reward programme designed to harness expert knowledge and transform it into engaging interactive shareable content
5. Engage in a vigorous programme of dissemination to spread the impact of the RLOs beyond the CETL partner institutions and to form mutually productive partnerships with other national and international partners where appropriate.

Detailed targets and milestones have been set for the first two years of the CETL; years 3 to 5 are outlined and will be revised through continuous formative evaluation of the CETL programme. Each major strand is being subject to thorough evaluation that will inform the ongoing development of the CETL. A selection of London Met learning objects that have been developed and can be found at: <http://www.rlo-cetl.ac.uk:8080/rlo/index.htm>. For example, Figure 1 shows a RLO for Referencing websites. The RLO in Figure 1 provides an interactive tutorial on how to reference

websites correctly. It begins with an example, and interactively draws the student through the stages of accessing the relevant information through to how to include the final citation in the bibliography. It concludes with a ‘test your knowledge’ set of activities.

**Figure 1: Referencing websites**

The screenshot shows a web browser window displaying a BBC News article. A callout box on the right side of the browser window provides instructions on how to cite a website. The callout box contains the following text:

**Quoting from a Website**  
 This is how you take a reference from a WEBSITE. The Organisation may take the place of the Author. The date usually appears next to the Authors name as you can see in this example:

Below the text is a blue button labeled "SHOW".

Below the callout box is a table with the following fields:

BBC NEWS	1/11/05	TITLE	PUBLISHER	ACCESSED ON
----------	---------	-------	-----------	-------------

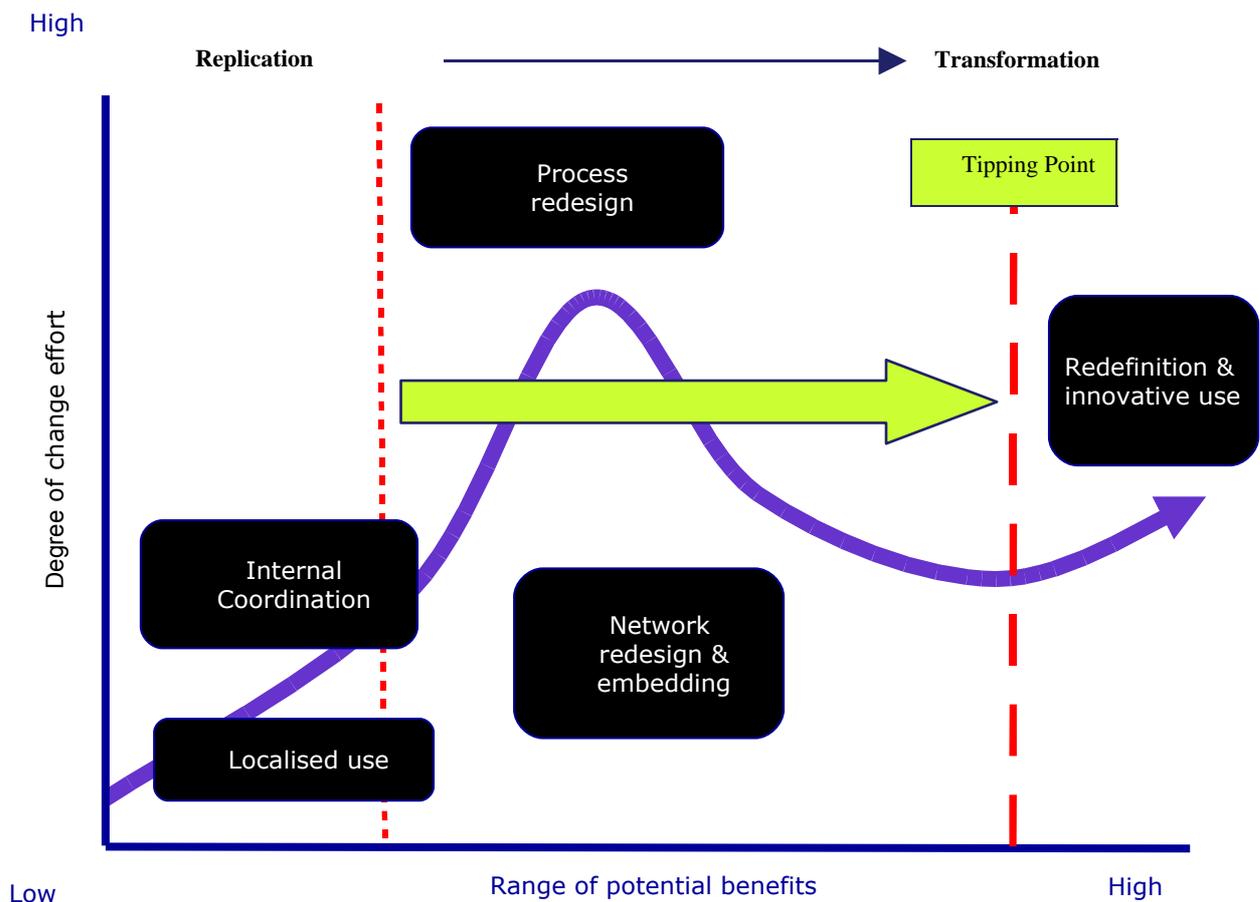
At the bottom of the browser window, there are navigation buttons for "Back" and "Next", and a central label "REFERENCING A WEBSITE. RLO".

## 2 Theoretical perspectives on institutional change

The institutional change model shown in Figure 2 is a synthesis developed by the first author from three sources [3, 4, 5]. The model helps managers and stakeholders to identify critical interactions among processes and emphasises the need to recognise interdependencies among technology, practice and strategy. The model also places a premium on feasibility and sequence. It is being used by our project as a way of mapping out what we are doing in terms of change management and is also being viewed as lens through which to see where we want to go. One way to pave the way for innovation is to recognise the processes and interactions involved when embedding e-learning. Figure 2 is split into three phases. In the first phase on the left we have the important self inspection phase, where critical process and interactions within the organization are identified. This first phase involves a lot of effort being spent on looking at localized use of technology and internal coordination. Existing and target processes are identified and systems interactions that are both complementary and competing are noted. The second phase in the middle of Figure 2 involves looking at pockets of change as the process of redesign gets underway. In phase 2 transition interactions and stakeholder analysis will take place. There is a need here to determine the degree of difficulty in shifting from existing to target practices. Furthermore, a stakeholder analysis involving students, teachers, managers, etc is performed to identify what is required to retrain current practice and implement targets. It may be at this stage that the requirement will be found for the need for some type of networked organization if a premium is to be placed on innovation: “If

environmental factors oppose one another they may indicate instabilities that might uncover new more flexible – possibly networked – organizations, with a premium on innovation” [3]. Phase 2 may entail a dipping off of the degree of change effort involved as the organization adjusts to the process redesign. The right-hand edge of phase 2 hits the Tipping Point. The Tipping Point [5] is similar to the idea of the 'critical mass', which originated in physics and is defined as the amount of radioactive material necessary to produce a nuclear reaction. The 'critical mass' in innovation research indicates the point at which enough individuals in a system have adopted an innovation so that the innovation's further rate of adoption becomes self-sustaining. This is especially relevant for interactive communications technology like e-learning where a critical mass of individuals must adopt the technology before the average individual can benefit from the system [5]. Thus, once the tipping point threshold has been passed we are into phase 3, on the right of Figure 2, which is where large-scale transformations, innovations and change that are self-sustaining take off.

**Figure 2: Institutional Change Model**



### **3 Research Method**

This paper is organised around the 5 key questions provided by the workshop. The research method for the work described in this paper was Interpretive [6, 7] and involved the first author's attempts to understand members of the CETL team's definitions and accounts of the situation (i.e. Holley and Andrew). Essentially, the first author put questions 1-5 to key team members and then interpreted them.

### **4 Accounts of change and interpretation**

The accounts below are followed by a brief discussion in order to highlight key change issues. Essentially, the change being discussed is in a RLO-CETL project for the Department of Business and Service Sector Management at London Met. The target for this project was 15 RLOs to be evaluated with several hundred students. This project identified current practice in terms of blended learning and drew in a around 20 stakeholders (teaching staff, students, multimedia developers) in order to identify the key process involved in reaching this target. The further aim is to achieved reuse of the developed learning objects and roll the approach taken out to other areas of the university (language learning and Sports Science). The accounts below can be viewed as a stakeholder analysis of the critical interactions among processes and interdependencies between technology, practice and strategy.

#### **4.1 What are the critical success factors for institutional change?**

##### **4.1.1 Colleague 1:**

- Has to be top management commitment – otherwise nothing changes at the bottom in a bureaucracy.
- Willingness to invest – either in a specialist VLE (WebCT, Lotus Notes, Blackboard) or to invest in staff development & training for open-source software eg Moodle, Boddingtons
- E-learning incorporated within the strategic plan
- E-Learning then disseminated further via policy documents – eg the Teaching & Learning Strategy that goes to HEFCE, our main funder
- E-Learning represented at a strategic level in the University committee structure – for example I [colleague 1] am on the e-learning committee chaired by our Deputy Vice Chancellor
- Then e-learning incorporated into the artefacts of the institution:
  - The website
  - Departmental plans
  - Various Universities 'Boards' – subject standard boards, student experience committee, quality committees

- Also needs to be considered as part of individual performance reviews – unless e-learning development is going to be equally valued with journal publication, it will be hard to get staff on board

#### 4.1.2 Colleague 2

<i>For</i>	<i>Against</i>
Champions – (appropriate champions)	Economic and political background – cuts etc
Support from senior management	Individualistic culture
Assurances that adoption will not lead to reduction in resources	Barriers to access
Technological advances	Technology does not do what lecturers want
Goodwill	Students reluctant to lose direct contact
Technology that enhances the fun of teaching and learning	Everybody thinking that teaching and learning has to be serious, hard work and painful

#### 4.1.3 Discussion

A clear message from colleague 1 is that a critical interaction is required between top management commitment and changes at the bottom in a bureaucracy. The Vice Chancellor for London Met launched our CETL and we have top level 'buy in'. Furthermore, through the help of the two colleagues the work of the CETL is being reported to committees. Interestingly our university had eschewed the Open Source solutions of Moodle etc and gone for a large purchase of WebCT Vista. This is because London Met wishes to draw on WebCT's technical support rather than employing a large team to set up and run Moodle etc. The table provided by colleague 2 gives an overview of some more general issue related to this question based on his experience of being responsible for e-learning across the whole university.

### 4.2 How did RLO-CETL embed e-learning into institutional practice?

#### 4.2.1 Colleague 1

- Strategically it is moving slowly through the top management agenda, however, there is currently a 'gap' between this and departmental agendas
- Practically at the customer interface – that is at student level, and I think a combination of top-down and bottom up is very effective for a large institution

- We also ran a series of staff workshops on re-use, resulting in a small number of projects for next year – so getting staff onboard is crucial
- Different dissemination strategies by Colleague 1 :
  - Learning Development Tutors
  - Staff teaching HEO (Higher Education Orientation) module (lecturers and seminar tutors 40 plus)
  - Students taking HEO
  - Via talks at learning & teaching committee and at L&T workshops
  - Presentations/papers
  - Articles for our in-house magazine, The Metropolitan

#### **4.2.2 Colleague 2**

- Variety of students via bursaries and students union
- Colleague 2:
  - Centre for Academic Development,
  - Various Continuing and professional development modules
  - Talks at learning & teaching committee and at L&T workshops
  - Getting managerial support
  - Focus of attention raises profile within the institution
  - Enabling collaboration through providing a focus, resources etc

#### **4.2.3 Discussion**

Critical interactions for colleague 1 clearly include getting middle management on board, running workshops and working with students. The RLO-CETL has bursaries for students to work within our teams in order to help design and evaluate the RLOs. A key point in the context of embedding is one of ‘team empowerment’ in the change process; one policy decision of the RLO-CETL manager (Cook) is that all members of the team are involved in presentations about our work, as the extensive dissemination list on the News section of the <http://www.rlo-cetl.ac.uk/> web site shows. Outputs so far on our CETL phase of the work include: 6 refereed papers/symposiums, 18 invited talks, being the top ranked UK “CETL” in Google.

### **4.3 What were the problems we faced and how did we address them?**

#### **4.3.1 Colleague 1**

- Personally my main issue was with my departmental head – he didn’t want to release me from my teaching, and made things very difficult (even although every single RLO goes back into the department for the

benefit of the students). This is the 'gap' I refer to above – the top level management are committed,

- Only had one real problem with one member of staff, and we worked together as the RLO-CETL team to resolve the issue.

#### **4.3.2 Colleague 2**

- Lack of time – still trying!
- Size of the organisation makes intervention more difficult – trying various things
- The institution's deep rooted conservatism- working with champions for change
- Too many stakeholders and power battles – diplomacy

#### **4.3.3 Discussion**

Since the statements by colleague 1 that “Personally my main issue was with my departmental head”, the situation has changed. We must be doing something right as Colleague 1's Head has agreed the manager's (Cook's) request to support colleague 1's release to run the next phase (September 2005 to Feb 2007). This is seen by the team as a major result. It did however involved meeting up with the Head of Department a formal meetings plus a chance informal meetings (in the pub!). Thus a critical interaction here is between the practice of staff, the RLOs being used to meet a departmentally useful leaning need and 'getting the Head on board'.

#### **4.4 What mistakes did we make?**

##### **4.4.1 Colleague 1**

- Honestly don't think we did make mistakes – communication with CETL partners was a bit limited, and we have tried to address this with a wiki site (didn't work) and now are trying a newsletter

##### **4.4.2 Colleague 2**

- Not managing to deal with all the political players at the right time – not that it would be possible!

##### **4.4.3 Discussion**

Colleague 1 hints that there is a clear danger that three institutions involved in the CETL will go into there own silos. Consequently, a networked organization has been developed as a premium has been placed on innovation. The CETL Manager has set

up Microsoft SharePoint to enhance wider partners' collaboration. This is being rolled out in late June 2006 when all 3 partners get together in Cambridge for a Reward and Development 3 day event.

#### **4.5 How did RLO-CETL change the student experience?**

##### **4.5.1 Colleague 1**

- The m-learning project was particularly interesting – it didn't work brilliantly for the task we experimented with, but the students really felt we had tried to do something for them – think this is the key difference for the student. The m-Learning project was a huge success with a different application – of sending SMS messages
- Students like the idea of using cutting edge technology, even if they don't get it right the first time.

##### **4.5.2 Colleague 2**

- Making me more aware of 'the student' when I am designing things
- Reinforcing my view of the inevitability of student autonomy and the impossibility for us to 'know what they need'
- Reminding me that the most important thing I can pass on to students is my enjoyment of learning!

##### **4.5.3 Discussion**

A large-scale evaluation of our project is currently underway. Colleague 1's comments refer to an innovation using RLOs and mobile learning [8]. This case study was of our RLO-CETL students who visit the Tate Modern art gallery as part of their first year undergraduate degree. An initial survey identified the views of students on using mobiles for teaching and learning. The results showed that the majority of students viewed the ability to learn at any time and in any place as 'extremely important'. Perhaps more surprisingly, the survey also showed that over half of the students were happy to use their mobile phones for university business. On the basis of the survey results, we introduced mobile technologies as an RLO-CETL mini-project using a multimedia message board (mediaBoard) and blended online resources that included learning objects. Colleague 2 further highlights the need to include the student voice as a critical interaction between design of RLOs and tutor and learner.

## **5 Conclusions**

Perhaps a key question is: Six years into attempts to use RLOs to achieve a tipping point are we there? The answer is no but that we are getting close in terms of the redesign of courses in the largest Department in our university. We predict that critical mass will be achieved in 2008 as the CETL gets wider. It is therefore instructive to

summarise what we feel are the key critical success factors for institutional change at London Met. Sustainability is seen as key issue and we have started to discuss at the Steering Group for the CETL's potential business models. As should have now become clear, the RLO-CETL is situated in phase 2 of our model. Essentially we have engaged in a process of (i) determining the degree of difficulty in shifting from existing to target practices, (ii) a stakeholder analysis involving has been performed to identify what is required to retrain current practice and implement targets, and (iii) a networked organisation has been developed as a premium has been placed on innovation.

**Acknowledgments.** The RLO-CETL is funded by the Higher Education Funding Council for England, UK.

## References

1. Boyle, T. & Cook, J. (2001) Towards a pedagogically sound basis for learning object portability and re-use. In G. Kennedy, M. Keppell, C. McNaught & T. Petrovic (Eds.) Meeting at the Crossroads. Proceedings of the 18th Annual Conference of the Australian Society for Computers in Learning in Tertiary Education, pp. 101-109. Melbourne: Biomedical Multimedia Unit, The University of Melbourne. [Online]. Available: <http://www.ascilite.org.au/conferences/melbourne01/pdf/papers/boylet.pdf>
2. Boyle, T. (2002) Design Principles For Authoring Dynamic, Reusable Learning Objects. In A Williamson, C. Gunn, A. Young & A. Clear A. (2003) Winds of change in the sea of learning, Proceedings of the 19th ASCILITE Conference, Auckland, New Zealand. Available online from: <http://www.unitec.ac.nz/ascilite/proceedings/programme.html> (A revised version of this paper was published in the Australian Journal of Educational Technology (AJET), Vol. 19, No. 1)
3. Brynjolfsson, E., Renshaw, A.A. and van Alstyne, M. (1997) The Matrix of Change: A Tool for Business Process Reengineering. MIT Sloan School of Management. Available from: <http://ccs.mit.edu/papers/CCSWP189/ccswp189.html>, accessed 04/06/06
4. Shaw, S. (2006) The ICT Test Bed project. Harnessing technology for 21st century education. Available from [www.becta.org.uk/page\\_documents/corporate/extra/shaw.ppt](http://www.becta.org.uk/page_documents/corporate/extra/shaw.ppt), accessed 04/06/06
5. Gladwell, M. (2000) The tipping point: How little things can make a big difference. Boston u.a.: Little, Brown. Cited by <http://www.jiscinfonet.ac.uk/infokits/change-management/adoption/the-tipping-point>, accessed 25 May, 2006.
6. Schutz, A. (1973) Collected Papers I: The Problem of Social Reality. The Hague: Martinus Nijhoff.
7. Schwandt, T.A. (1994) Constructivist, Interpretivist Approaches to Human Inquiry. In N.K. Denzin and Y.S. Lincoln (Eds.) Handbook of Qualitative Research. Newbury Park, CA, pp. 118-137.
8. Cook, J., Holley, D., Smith, C., Bradley, C. and Haynes, R. (2006) A Blended M-Learning Design for Supporting Teamwork in Formal and Informal Settings. Mobile Learning 2006, 14-16 July, Dublin.