



USING OPEN SOURCE ONLINE MULTIMEDIA RESOURCES TO CREATE E-LEARNING ACTIVITIES BASED ON A 'LEARNING OBJECTS' APPROACH

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This report gives an evaluative account of a project 'Using open access online multimedia resources to create e-learning activities based on a 'learning objects' approach' which was supported by the Fund for New Teaching Initiatives from October 2005 to March 2006.

The project aimed to develop and evaluate online teaching and assessment activities, using open source multimedia resources. The activities were designed for the School of Education's newly restructured MA in Applied Linguistics and TESOL, particularly for the distance programme which will be delivered entirely online from September 2008. It also aimed to explore the process of producing online materials adopting a reusable learning objects approach. The intention was that both the learning objects themselves and the outcomes of the production process could be cascaded to other members of staff both in the department and wider University to disseminate knowledge and skills in developing e-learning resources.

Despite limited time and resources, the project largely fulfilled its three key objectives, ie

1. To develop online learning and assessment activities exploiting open source multimedia resources.
2. To evaluate the effectiveness of these activities.
3. To facilitate the process of distance materials development by adopting a reusable approach whereby these and future materials would form the basis of a bank of teaching, learning and assessment resources which could be adapted and reused, reducing the risk of 'reinventing the wheel'.

Although none of these were completed as thoroughly as expected, the project was undoubtedly a valuable learning experience and was seen as an important stepping stone for further work,. The process of e-learning materials development is still ongoing for the MA and both the materials created during the project and the skills and knowledge gained from the production process have been very helpful for the TESOL team. Some of the key conclusions drawn from the project are summarised below:

- The use of interactivity and multimedia is a real benefit of e-learning, particularly for distance learners, to help convey complex concepts and systems in subject areas such as phonetics and phonology.
- It is essential that technological innovations are pedagogically driven and to this end it is preferable that technical and academic staff collaborate in e-learning develops as much as possible. At present, the lack of dedicated educational technologists in the University of Leicester makes this difficult..
- Sourcing, developing and reversioning learning objects is a very time-consuming and relatively complex task. The resources need for such work should not be underestimated . Also, if the University wanted to use such an in-house approach more widely, considerable investment would be required in terms of staff time and costs. Ideally, a pool of educational technologist and academic 'e-learning champions' could work on projects to develop generic RLOs which could then be used across disciplines and in a range of programme types
- Develop RLOs from scratch, with limited technical expertise or support is very time-consuming and frustrating. The most efficient way forward seems to be to use a purpose-built RLO authoring tool such as Course Genie. Course Genie is relatively quick to learn and easy for non-technical staff to use and does all the complex technical work such as creating metadata and packaging and uploading learning objects behind the scenes. It is also relatively inexpensive to buy an institutional group licence.

1. BACKGROUND

This project builds on the University, and indeed national, e-learning strategy to promote the use of digital technologies to support teaching and learning. In particular, the project is based on the increasing recognition of the need for innovative online pedagogy to direct online technologies, rather than vice versa. Adopting an object oriented approach, focusing on the goals of reusability, modularity and a constructivist view of learning is in line with current thinking in teaching and learning, especially in the field of e-learning.

The centrality of e-learning is illustrated in the University of Leicester's current e-learning strategy which advocated that 100% of students, including distance students, should have Internet access by 2007. Given the scale of distance learning in the University, this assumption widens the scope and potential to develop e-learning provision for distance as well as campus-based learners and also opens up students' expectations regarding online support and resources for our programmes.

The Department of Education was one of the early adopters of e-learning within the University and has made significant steps to implement the University's E-Learning Strategy, as illustrated in the table below:

There is a considerable range of e-learning activities and research ongoing in the department, with regard for both campus and distance programmes. For instance, the Postgraduate Certificate in

Fig 1 Implementation of E-Learning Strategy in Faculty of Education – May 2007

Strategic Aim	Target	Achievement
An enabling policy related to full access and equivalence		
1. UoL part time and distance students must have regular Internet access, indication in prospectuses immediately.	100%	60% approx
2. VLE available and in use for all UoL distance and campus students by 2007	100%	80% approx
4. Distance learners receive equivalent support to campus attendees	100% of DLs	70%
Staff Development		
7. Deployment of teaching initiatives funds	100%	10% (see details)
9. Training in online teaching and delivery provided for staff & associate tutors, where required	100%	40%
10. Attendance by staff of Beyond Distance Research Alliance events & availability to all staff of Beyond Distance Blackboard™ site	50% pa	
11. Staff researching into their own teaching, attracting external funds and publishing in area of e-learning	10% overall pa	10% (see details)
12. Online assessment for appropriate D&ML courses	40% of dista	5% (see details)
Future projects and positioning		
13. Students using learning technologies other than VLE and e-library	25%	5% (see details)
Impact on business development		
14. New courses use VLE productively	100%	Yes (see details)
15. New courses and modules assessed for distance, e-learning or distributed teaching	100%	Yes, see details)

Education has been using online course content for 3 years and is increasingly making use of wikis, blogs and web-based videoconferencing to model e-learning for future teachers' use. The EdD and PhD programmes now have an integrated Doctoral Studies website through Blackboard. Similarly, the MA Applied Linguistics and TESOL team have been using Blackboard for distance & campus programmes since 2002, with one distance modules taught entirely online since 2003. The team is currently developing a restructured MA programme for online delivery in September 2008 and the outcomes of this project are key to this development.

Examples of recent funded e-learning projects in the Department include:

- Information Technology for Understanding Science. (2007) EU Socrates. L Rogers
- Becta Videoconferencing in the Classroom Case Study Evaluation. (2005) TDA. T Lawson; C Comber 'Polestar - Investigating training standards in Open and Distance Learning in Europe'. (2004) EU-Leonardo D Davies, M Morrison, P Rogerson-Revell
- 'Leading innovation in distance teaching and assessment: developing online multimedia activities for MA phonetics and phonology students' (2007) Subject Centre for Languages, Linguistics and Area Studies, HEA. P Rogerson-Revell

Despite these activities however, as with many departments there is a wide range of e-learning uptake and e-literacy among staff (and to some extent among students) and also differing degrees of motivation to get involved in e-learning provision. Nevertheless there is an increasing expectation from students, whether on campus or distance, to provide online resources to support learning and increasing pressure from competitor institutions and programmes to keep abreast of technological developments in HE learning and teaching.

However, many academics share the concern that pedagogy rather than technology should lead e-learning developments, while recognising the need to gain some technical knowledge and some expertise. A further concern is to be aware of accessibility and usability issues and the dangers of a potential 'digital divide'. In particular we want to ensure equality of provision for our students, especially for distance students who may have limited or intermittent Internet access.

Such issues and challenges which can substantially limit the development of e-learning are presumably not restricted to staff in the School of Education. Indeed, according to a recent survey (Garrett, R. & Jokivirta, L. 2004), although there has been widespread adoption of institution-wide e-learning strategies and platforms, such as WebCT and Blackboard, there is little evidence of more than modest use in course programmes. The survey concludes that this is hardly surprising:

The scale of investment in strategy and infrastructure is remarkable enough, but might be regarded as the 'easy' bit.To go further, to have ICT fundamentally change norms of materials development, classroom delivery, conceptions of learning, study tasks and assessment is to challenge the very cultural fabric- much of it semi-conscious- of mainstream higher education worldwide. (ibid:17)

This project aims to take these issues into account and explore a particular challenge, ie how to develop reusable online learning materials effectively and efficiently, ie within the time, cost and skill constraints of most academic departments.

2. PROJECT AIMS AND OBJECTIVES

Aim

Specifically the project aimed to enhance the MA Applied Linguistics and TESOL programme (distance and campus-based) by developing a set of innovative and reusable teaching and assessment activities using open-access online resources. This is particularly important as our newly restructured distance MA in Applied Linguistics and TESOL programme will be delivered entirely online from September 2008. A further aim was that the project outcomes could also support the TESOL team, and more widely, School of Education and University staff find ways of creating online materials efficiently and effectively. The objectives are therefore both product and process oriented:

Objectives

1. To develop and evaluate new assessment activities for our phonology and discourse analysis modules (Modules 2 and 3) using open access online databases (eg the 'Speech Accent Archive') as a source of data for language analysis.
2. To develop online teaching and learning activities exploiting open source multimedia resources ('Looking at Language Classrooms') for 2 modules (Modules 1 and 2) on the MA in Applied Linguistics and TESOL programme (distance and campus-based).
3. To facilitate the process of course development by adopting a 'learning objects' approach whereby these and future materials would form the basis of a bank of teaching, learning and assessment resources which could be adapted and reused, reducing the risk of 'reinventing the wheel'.

3. PROJECT OUTCOMES AND ACHIEVEMENTS

Fig 2 Programme of activity

Stage	Activities
Design	Review current assessment and teaching materials for phonetics and phonology module. Design new online activities
Research	Research development tools. Research existing RLOs.
Selection	Select tools and online resources for activities development Organise permissions and copyright clearance.
Production	Develop and trial activities
Evaluate	Monitor use and gather feedback
Disseminate	Disseminate findings and cascade skills

DESIGN

The online resources would be developed with our own MA in Applied Linguistics and TESOL students in mind and particularly our distance students but the content would also be relevant to a range of linguistics, English language or ELT students, working either at distance or autonomously.

The lack of face-to-face teaching in distance programmes can be felt particularly in an area such as phonetics and phonology where audio visual cues are so important. Developing multimedia online activities could therefore considerably enhance the provision of text-based learning materials. They could also provide greater scope for a range of assessment methods, allowing us to add variety to the traditional written assignment approach.

The plan was that ultimately the activities referred to in objectives 1 and 2 above would be incorporated into 4 different modules of the MA in Applied Linguistics and TESOL programme. These are:

Module 1 - English Language Teaching Methodology

Module 2 - Descriptions of Modern English (phonology and grammar)

Module 3 - Language, Discourse and Society

Module 5 - Options (Intercultural Communication)

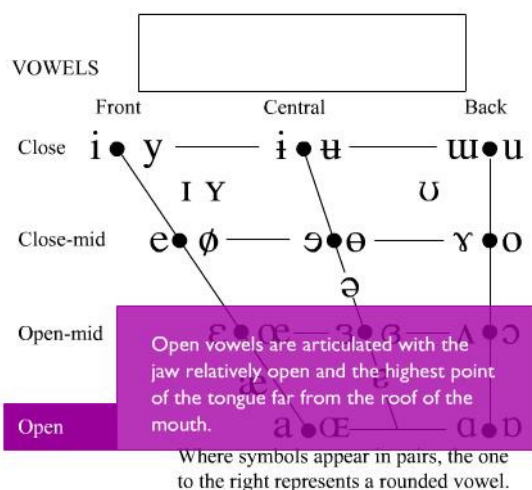
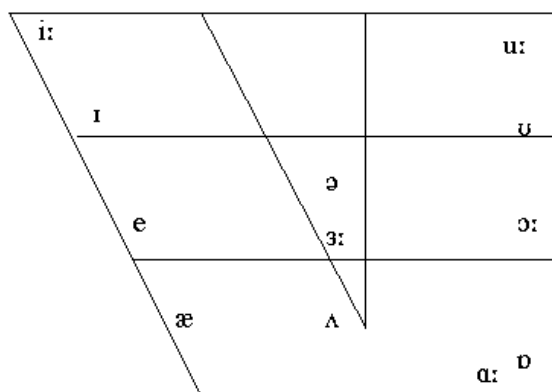
However, the initial focus was on developing resources for Module 2 and Module 5, ie for the Phonology and Intercultural Communication courses. The activities could be used on both distance

and campus -based programmes. Both modes have 2 entry points per year and we would plan to introduce the activities in the Spring term 2006.

There are approximately 190 students following the distance programme in any one year (doing different modules) and approximately 20 students following the campus programme.

The first stage of the project was spent reviewing existing teaching and assessment materials for Phonology and Intercultural Communication and outlining potential online activities. The example below shows a print-based illustration used for learning phonemic symbols which was replaced by a multimedia interactive version in the phonology learning object.

Fig 3 print based phonemic chart and online version



About this chart

Source: permission obtained from <http://www.yorku.ca/earmstro/ipa/vowels.html>

RESEARCH AND SELECTION

This stage of the project was lengthier and more time consuming than planned but given that one of the key aims of the project was to explore the process of online materials development it was

considered time well spent. The only problem was that this inevitably reduced the amount of time available for later stages of the project.

RESEARCHING DEVELOPMENT TOOLS

There are hundreds of development tools on the market from programming languages to authoring tools and there is a considerable amount of literature evaluating their merits (Bickerton et al 2000, Riley 1995, Laurillard et al 1993). Initially various options were considered for the project, including the 'Hot Potatoes' software which is designed specifically for the development of language learning materials and non language learning specific multimedia authoring tools such as 'Director'. A further choice was between such authoring tools and general web development applications such as Frontpage or Dreamweaver or the more recent e-learning software Breeze/Connect.

Initially, the most favourable contender regarding authoring tools was Hot Potatoes. There are many features that make Hot Potatoes a serious option, not least the low cost for non-profit making educational projects and the fact that it provides a relatively wide range of CALL specific functionality and interactivity. The ready accessibility and ease of use of Hot Potatoes makes it an excellent choice for many individual or institutional CALL materials developers. However, web development packages such as Dreamweaver offer considerably more sophistication regarding interface design so that it is possible to produce more visually attractive and professional quality user interfaces.

The Macromedia Breeze e-learning development software has the advantage of being freely available to University of Leicester staff and can be used to create professional looking multimedia presentations relatively quickly and easily. However, Powerpoint presentation with sophisticated sound and animation loaded onto the web minimally allows the learner simply to sit in front of their screen and skim through the slides. What are needed, rather, are task-based interactive units of learning. Perhaps, more than any others, this is an area of e-learning where tutors need training in order to create pedagogically sound, well -designed online content (Rogerson-Revell 2005).

RESEARCHING LEARNING OBJECTS

One of the most compelling attractions of digital content is the ability to create, capture, and store knowledge to be analyzed, reused, and shared with others: knowledge assets that can be used to create new learning resources and generate new knowledge.

The sharing and reuse of resources is seen as a solution to the problem of materials proliferation and obsolescence. This approach is based on the idea of creating e-learning resources or 'learning objects', a concept borrowed from computer programming, which can be used and reused with appropriate adaptations for their context. A learning object is a small unit or module of instructionally sound content centred on a specific learning objective or outcome.

According to Heins and Himes (2002) learning objects can be seen as incorporating three key elements:

- > Instructionally sound content that contains opportunity for practice, simulation, collaborative interaction, and assessment that give learners the power to achieve a specific objective or outcome.
- > Metadata contains key words that describe the attribute of an LO. Metadata gives users the power to specify the attributes of the right kind of instructional content. Metadata makes searching more efficient and, since content is easier to describe and locate, it is easier to reuse objects in different courses and performance support applications, and to distribute them using a variety of devices;
- > Interoperability resulting from being built with standards-based technical specifications—business logic—that allows LOs to communicate with management systems, data bases, and web applications.

The development of technologically transparent learning objects also has the advantage of enabling subject specialists, such as linguists, who often have limited interest or time to learn the technical skills of development or programming, to become involved in content production. This idea of separating form and content, of creating templates into which content from a script could be poured, has been taken up, for example, in the CALL materials developed by the Open University/EU collaborative projects '[TELOS](#)' and '[MALTED](#)'. The object-oriented approach to these projects resulted in the development of a bank of flexible activity-type shells which are content independent that materials writers could 'mix and match' to create complete modern language learning packages (Bangs and Shield 1999). However, these materials were developed for CD-ROM rather than Web production, using a sophisticated multimedia authoring tool (Director) and complex programming.

REUSABLE AND REVERSIONABLE LEARNING OBJECTS

At this stage it might be helpful to clarify an important difference between types of learning objects. 'Reusable Learning Objects' are basically learning objects that can be taken out of one context (eg a repository) and used in another. For example, an 'academic study skills' learning object could be developed by one university staff development unit and used in another institution or department. However, the learning object itself cannot be changed or 'disaggregated'. On the other hand, a reversionable learning object can be taken apart and rebuild to fit a different purpose.

STANDARDISATION

The move towards greater standardisation and interoperability is apparent in initiatives to develop open standards, for instance, through the [Shareable Content Object Reference Model \(SCORM\)](#), for the creation and sharing of web-based learning content and Learning Object Metadata (LOM) for the standardised classification and labelling of learning content. The adoption of such standards, particularly within CMSs, should facilitate greater flexibility, enabling the exchange of materials with colleagues and the portability of content from one learning system to another (Godwin-Jones 2002). Various content creation tools were researched during the earlier stages of this project, including for example the non-commercial, system, [LAMS](#) (Learning Activity Management System) which has been developed by Macquarie University, Australia and LAMS International. The application has been widely trialled by schools and HEIs in Australia and the UK and has been made available as open source software, allowing users to view, use and modify it freely. A similar tool designed specifically for use in Computer Assisted Language Learning is [Lectora](#). Lectora is standard

compliant and is available with both Blackboard and WebCT and enables the production of sophisticated multimedia learning modules without the need for any technical coding knowledge.

There is widespread support within the field of e-learning to increase standardisation (DfES E-Government Interoperability Framework (eGIF) 2005). However, there is also concern, certainly in the UK and Europe (Garrett & Jokivirta 2004, European Commission 2005), over the lack of progress in this area and the 'strong disconnect between experts in pedagogy and technologists' (Alt-I-Lab 2004:8). As an academic with some, but limited technical knowledge, the idea of trying to develop standard-compliant materials from scratch with little technical support seemed extremely challenging. Nevertheless, it seemed equally unsatisfactory to ignore standardization issues. Consequently, it seemed imperative to try to work within a framework where such matters were already taken care of, which again led back to using a template or learning object approach.

METADATA

A key realisation from the project was the importance of contextual metadata in finding resources and in contributing to the creation of effective online resources. However the creation and incorporation of metadata fields seems similarly to involve a level of technical expertise and time that was far beyond this project. This was a further reason to adopt an approach where such technical issues were not the responsibility of the materials developer.

RESEARCHING ONLINE REPOSITORIES

One of the key aims of the project was to try to find ways to develop online materials without 'reinventing the wheel' in other words to avoid producing materials from scratch where equivalents already existed online. With this aim in mind, the obvious place to start seemed to be digital repositories of online educational resources. Two of the biggest and widest know of these are JORUM and MERLOT. Jorum is "a free online repository service for teaching and support staff in UK Further and Higher Education Institutions, helping to build a community for the sharing, reuse and repurposing of learning and teaching materials." (Jorum website <http://www.jorum.ac.uk/>). Merlot is a similar US -based "searchable [collection](#) of [peer reviewed](#), higher education, online learning materials" which aims to help HE staff and students around the world share pedagogy and materials. (<http://www.merlot.org/merlot/index.htm>).

Both repositories are very well organized and easy to use, although I did have some difficulties with Jorum initially as users have to register at an institutional level and subsequently have to logon via their Athens authentication. Merlot has a simple sign in after initial membership. Both sites are free and materials can be used freely based on the Creative Commons agreement.

There is a vast amount of material in both repositories which seems to range both in quality and usefulness, as would be expected. I tried searching both sites from two starting points, ie content-specific resources (eg 'phonology' 'phonetics' 'linguistics') and activity-specific resources (eg 'quizzes'). Unfortunately, I found relatively little in the content-specific category and came to the general conclusion that both repositories have more science than humanities based resources and a lot particularly in the medicine and mathematics fields. In the activity-specific resources, there was a considerable amount of material but extremely little that was reversionable as opposed to reusable.

Given that little was in the right content area I therefore decided to abandon my search of these repositories for this project, although I plan to keep them in mind for future development work

Fig 4 RLOs - Possible sources

Source	Advantages/disadvantages	outcome
LAMS	Structured learning activities Not for content production	Packaging learning activities Learning design
RELOAD	Free to HEs Complex Not for content production	Packages LOs
MERLOT	International HE Free to HE	LO repository
HUMBUL	UK HE based	LO repository
JORUM	Took a long time to get institutional access to database	Reuse LOs
BREEZE/CONNECT	Access Content creation but limited functionality	Powerpoint presentation
FLASH	Good multimedia functionality Steep learning curve	Multimedia content creation
QUIA	Subscription charge Easy to use Bank of teaching RLOs	Create and reuse RLOs

The repackaging and reuse of online learning objects which underlies the concept of building databases of electronic materials or 'asset banks' can be adapted not only to avoid re-inventing wheels but also to help disseminate best practice. This approach underpins the L2O 'Sharing Language Learning Objects' project which aims to share and reuse language learning objects

between several UK HEIs.¹ This and similar subject-specific repositories were also reviewed (see Fig) but, although promising, seem to have little in the way of actual RLOs that could be taken and reused to date.

PRODUCTION

During the project, some important decisions had to be made about the production process, particularly regarding the role of the subject specialist, the use of multimedia and choice of development tool to create the LOs.

THE ROLE OF THE SUBJECT SPECIALIST

There appear to be three basic choices for the subject specialist. Firstly, to become a 'technical expert' and be prepared to invest a great deal of time and effort to gain an appropriate level of technical competence. Secondly, to take the role of 'content provider', sticking solely to subject content, producing materials initially on paper and handing over all responsibility for interpreting these into e-learning materials to a technical expert. This has the obvious advantage of avoiding overlaps of skill and knowledge but can also result in both the technical expert and language expert not fully understanding each other's requirements and restrictions. The third option is for the subject specialist to collaborate with the technical expert, which inevitably means some transfer of knowledge and expertise between the two parties. For the subject specialist this can often result in a considerable 'technical' learning curve but in my own experience can have substantial pay-offs ultimately in terms of efficiency and quality of the materials development process. Ultimately, the role of the subject specialist should relate to issues of productivity and 'returns on investment', although it is all too easy for materials developers to ignore such issues in their enthusiasm for the development process.

As a materials developer, my ultimate goal is to be able to develop online materials as competently and efficiently as is possible using more traditional media. This is not to suggest that the same materials should be created for the different types of media, nor to suggest that e-learning materials can or should be produced as quickly as, say, print-based materials, but that the development process should be comparable in terms of quality of output and productivity. This is obviously an ambitious aim and one that necessarily involves making various decisions about the role and expertise of the subject specialist, the significance of technical expertise and the level of performance and functionality of the courseware required to meet the needs of the end users.

A key aim of the project was to develop and later cascade in-house skills rather than buy in expertise. With this aim in mind, the focus was on finding a production process which enables the subject specialist to play a lead role in the design and production of the learning materials without needing to become a technical expert.

¹ The L2O (Sharing Language Learning Objects) is as a [JISC](#)-funded Distributed e-learning Regional Pilot Project. Each of the 12 partner institutions will provide existing language learning resources to generate re-usable learning objects (RLOs).

USING MULTIMEDIA

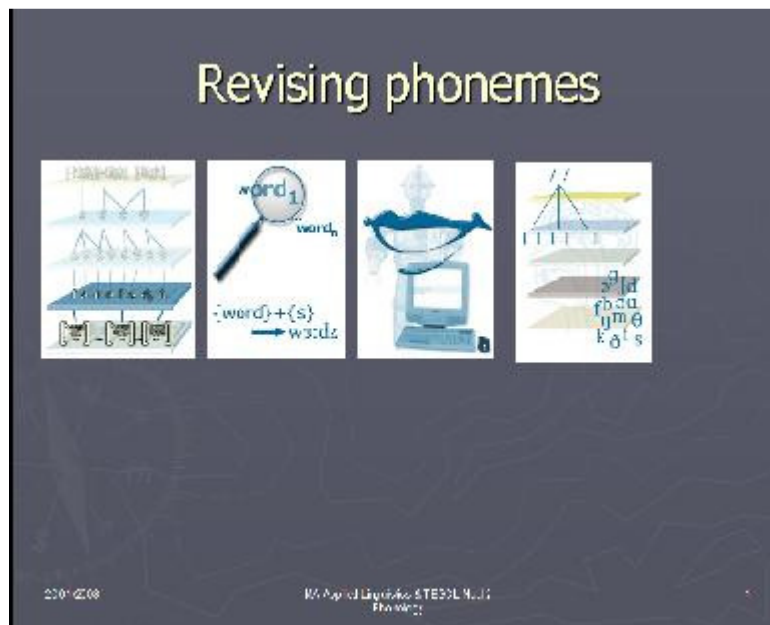
One of the biggest opportunities afforded by online materials development is to move beyond the constraints of traditional, print-based delivery of course content. It is now possible for both staff and students to create a wide range of multimedia output such as streamed or downloaded audio and video clips, synchronous and asynchronous voice and text communication, flash animations relatively easily. If well-designed, such media-rich resources can both stimulate and enhance the learning experience and support a variety of learning styles and approaches, as illustrated in Fig 5 which shows Flash-based materials² to support our Phonology module.

The creation of online multimedia resources is time consuming and requires an awareness of sound instructional design principles to ensure optimum effect. For instance, it is now relatively easy to use multimedia by simply linking a Powerpoint presentation into a VLE such as Blackboard. However, the types of interactions which are possible using such rich media are in the main still relatively limited.

CHOOSING A DEVELOPMENT TOOL

During the initial stages of production, as a result of the unsuccessful attempts to find suitable reversionable learning objects, the LO approach was put to one side. Several content development and authoring tools were reviewed (see earlier section) and various prototypes were developed:

Fig 5 Breeze prototype



² These materials were produced and made available by the Department of Phonetics and Linguistics, University College London.

Fig 6 Website prototype 1

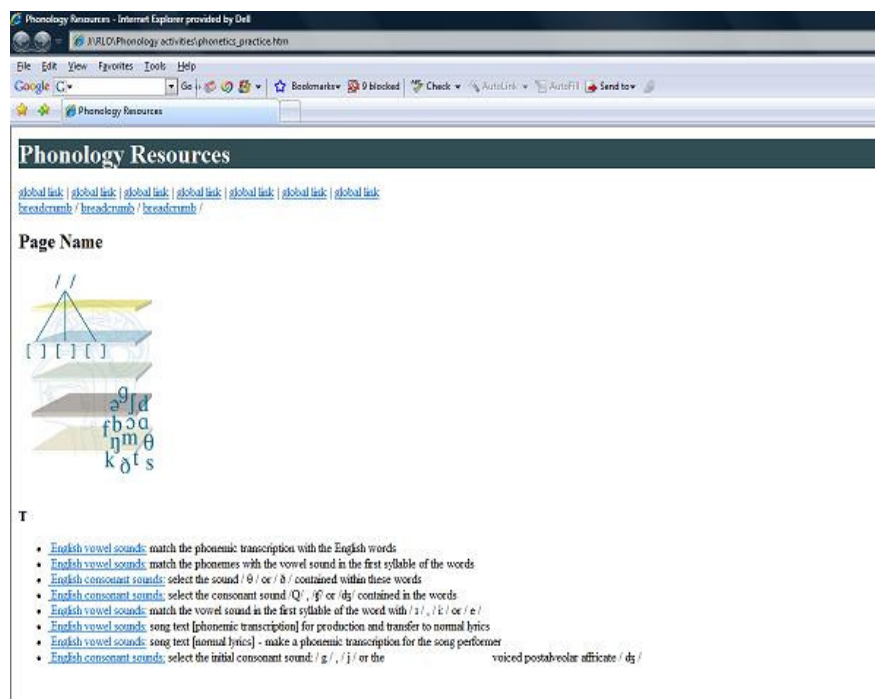
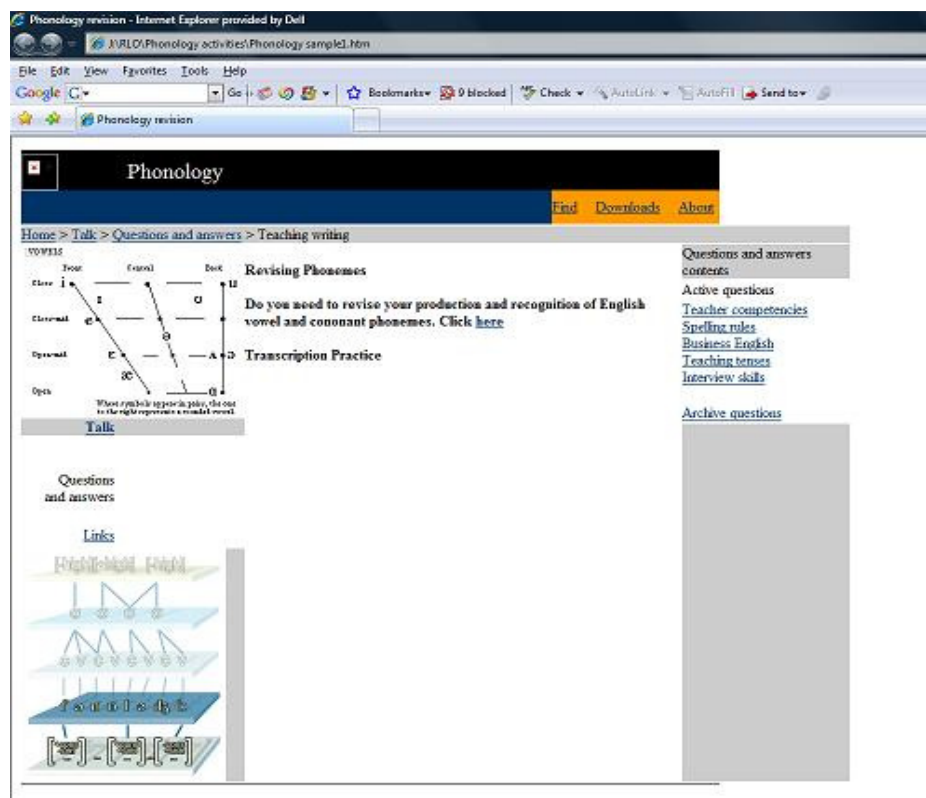


Fig 7 Website prototype 2



As a result, the initial plan was simply to create reusable resources based on a simple website design using Dreamweaver as illustrated in Figs 6 and 7 above.

Course Genie

At a relatively late stage in the project development, I learned of a new and simple e-learning tool, Course Genie which can create SCORM compliant and accessible learning objects. If this had been available at the start of the project, it would have freed up a lot more time for further development, evaluation and dissemination.

CREATING CONTENT

Turning to the creation of the learning content, some of the content already existed as print based tasks and the focus here was on redrafting these so that they would be appropriate as interactive computer-based exercises.

Fig 8 Example of print-based phonology task

Name _____

Chapter 1, exercise A

A Fill in the names of the vocal organs numbered in Figure 1.14 below:

1. _____	8. _____
2. _____	9. _____
3. _____	10. _____
4. _____	11. _____
5. _____	12. _____
6. _____	13. _____
7. _____	14. _____

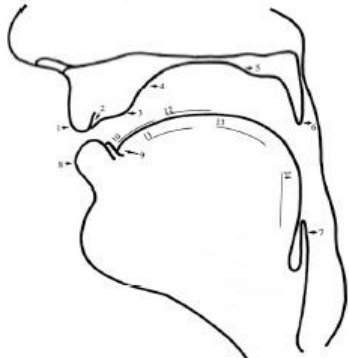



Fig 9 Example of online equivalent phonology task

Source: permission obtained from <http://www.uiowa.edu/~acadtech/phonetics/anatomy.htm>

SELECTING EXISTING ONLINE RESOURCES

As a key aim of the project was to reuse open source materials rather than spend a lot of time creating new ones, it was necessary to carry out an extensive search of available online resources. As mentioned in the previous section, this was done initially by searching digital repositories but widened into a more general search of web-based materials in the specific subject areas. Obviously this was very time consuming but did result in the discovery of some very valuable resources.

COPYRIGHT CLEARANCE

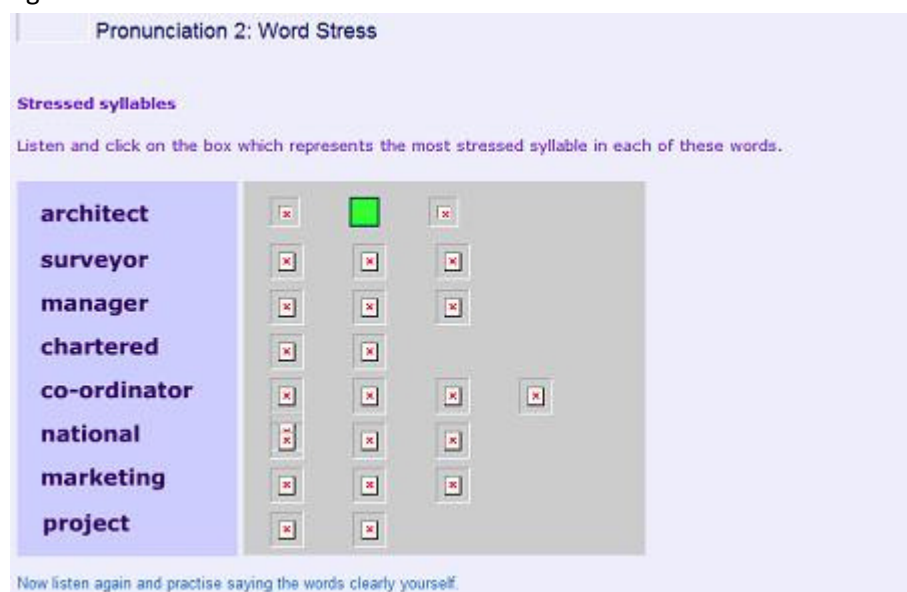
Sources were then approached for permission to use these resources. It was pointed out that the learning materials would be exemplars of good educational use of the material and might stimulate further demand from other educationalists for the project content. It was made clear that the project would not be receiving any income for the learning materials and would of course make reference to the source of every file or document used. In cases where materials would need adapting, this was pointed out in initial correspondence.

Permissions were obtained from all contacted sources and interestingly the most generous contributors turned out to be the individuals who had developed the technically most sophisticated materials rather than institutional or commercial producers.

REVERSIONING EXISTING RESOURCES

As well as using a variety of online freeware or shareware, an attempt was made to reversion existing online resources which I had developed for an earlier online language learning project (LANCAM). These resources had been created using Dreamweaver and its extension software Coursebuilder which can add interactivity such as quizzes and drag and drop activities. Some of them also incorporated Flash which posed serious technical challenges.

Fig 10 Flash based word stress activity



Due to the excessive amount of time it was taking to create or modify interactions using Coursebuilder and Flash, I decided largely to abandon this approach about half way through the project.

THE LEARNING OBJECTS

LEARNING RESOURCES

One of the key aims of the project was to develop online teaching and learning activities exploiting open source multimedia resources for 2 modules (Modules 1 and 2) on the MA in Applied Linguistics and TESOL programme (distance and campus-based). The idea was to develop resources which would facilitate the presentation and revision of key concepts and skills in these subject areas. The multimodality and interactivity of the web were seen as important advantages, particularly for distance students, particularly for distance students who otherwise spend a lot of time studying in isolation and with print-based texts. In this sense, these online resources were seen as helping to maintain equivalence of provision between the campus and distance versions of what is in fact the same MA programme.

During the time available, two RLOs were completed: one for the phonology module and one for the intercultural communication module.

Some screenshots of the RLOs are provided below:

Fig 11 Screenshot of phonology RLO

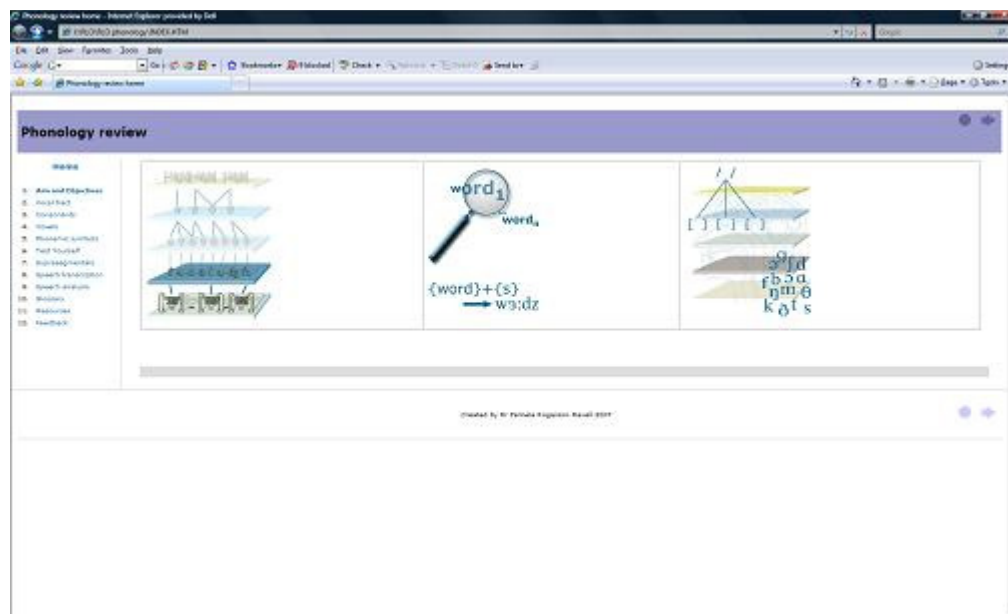
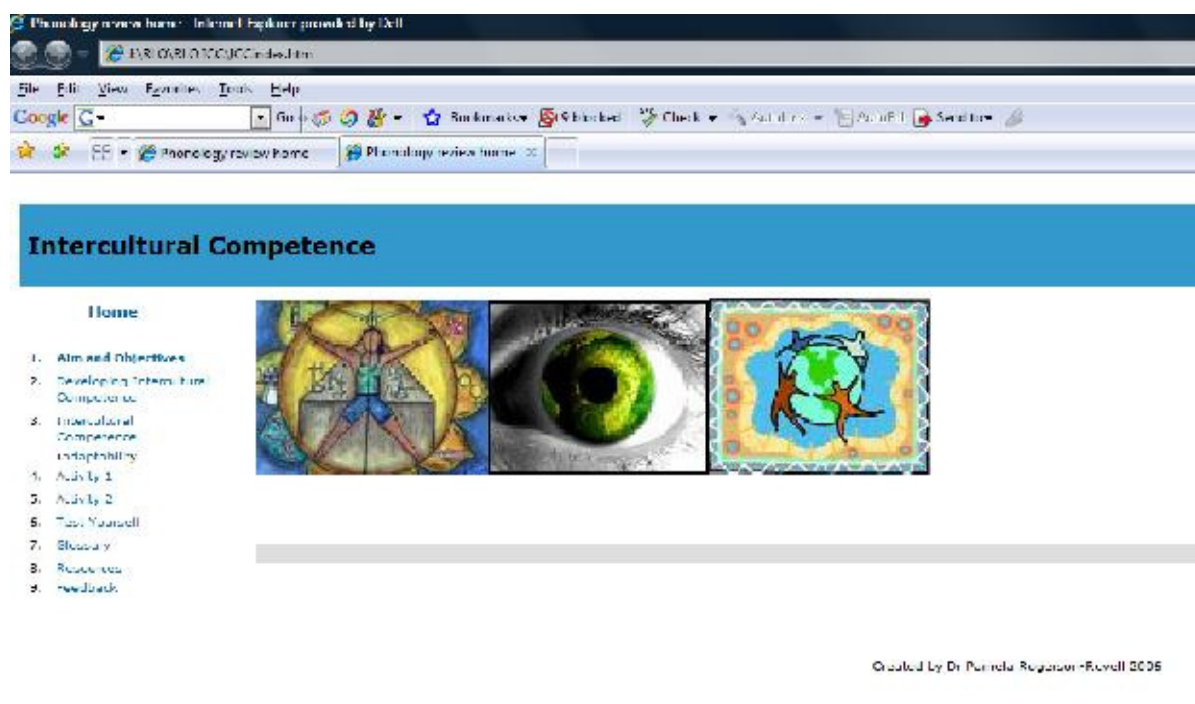


Fig 12 Screenshot of intercultural communication RLO



ASSESSMENT RESOURCES

A second key aim of the project was to develop and evaluate new assessment activities for the phonology and discourse analysis modules of our MA. Two types of assessment activities were developed; formative and summative assessments.

Formative assessment activities

The formative assessment activities were designed primarily with our distance students in mind, although they have also been used with our campus cohorts. With distance delivery, where there is no face-to-face contact, there is a risk of students not being able to see how well they are developing their subject specific knowledge and skills, except through the production of their written module assignments. For this reason, the availability of online formative assessments can help reduce this lack of ongoing feedback on learning.

Formative assessment activities generally took the form of various multiple choice or gap-fill quizzes.

Again the production of these activities went through different stages and a selection of development tools were trialled including Breeze, Blackboard, Dreamweaver + Coursebuilder, Hot Potatoes, Quia and Flash. An evaluative summary of these tools is provided in the Evaluation section. During the project a variety of quizzes were developed using some of these tools. Two examples are given below:

Fig 13 Sample multiple choice quiz – developed with Quia

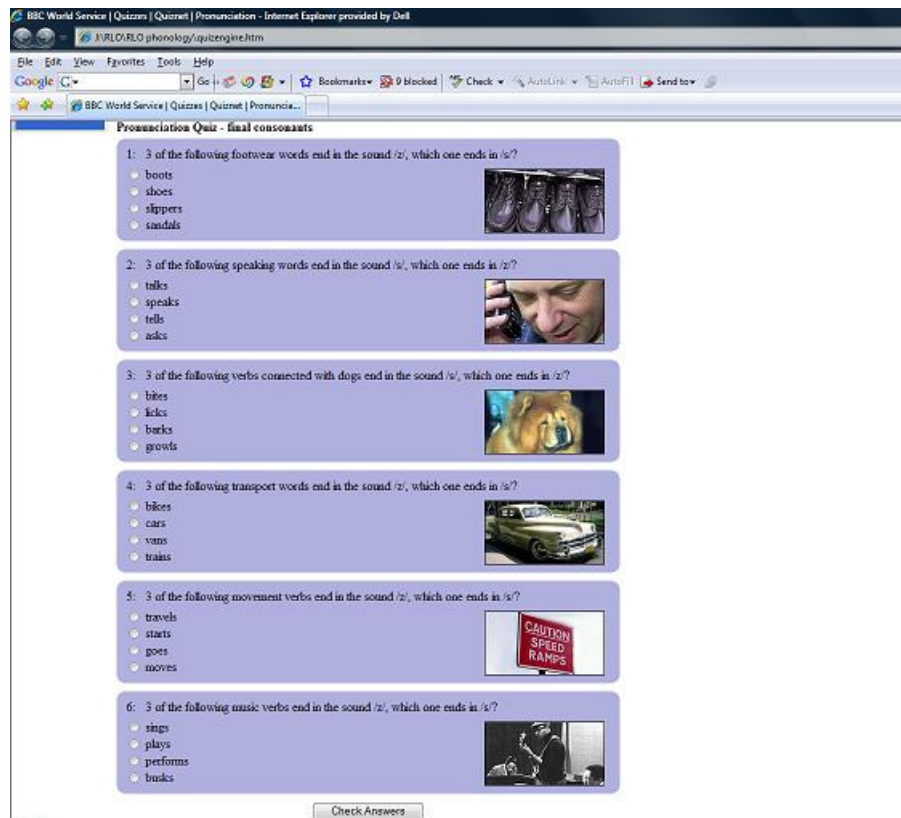
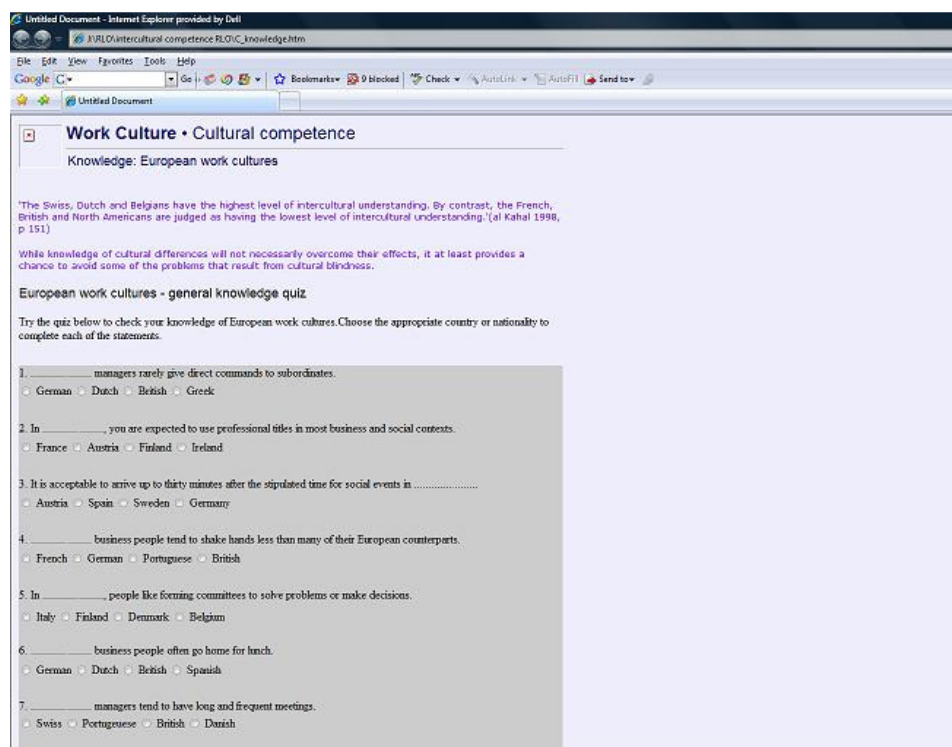


Fig 14 Sample multiple choice quiz – developed with Dreamweaver



Summative assessment resources

The plan was to use open-access online materials as data for analysis in the the assessment of the core module in phonetics and phonology in the MA in Applied Linguistics and TESOL programme. The online resources were to be used as the basis of two different assessment activities, one would be part of a final written assignment for distance students and the other, part of the final exam for campus students.

i.The test

The final part of the timed exam, which carries 40% of the final mark, involves the analysis of suprasegmental and segmental aspects of phonology, including phonemic transcription. The idea was to use online speech extracts (from the International Dialects of English Archive - IDEA) for this analysis which the students could access through Blackboard only for the limited period of the exam.

Fig 15 The IDEA website

International Dialects of English Archive
Since 1997

Home | What's New | Dialects & Accents | Special Collections | Copyright & Credit Information | Associate Editors | Contact Us

Dialects and Accents of England

Here you will find downloadable mp3 recordings of accent/dialect speakers from the region you selected, plus textfiles giving their biographical details, and scholarly commentary in some cases. The recordings average four minutes in length, and in most cases feature both the reading of one of our two standard passages, and some unscripted speech. The two passages, *Comma Gets a Cure*, and *The Rainbow Passage*, may be accessed from the menu bar to your right. In some cases, you may also view an orthographic transcription of the unscripted speech. To access IDEA's sound files and documents, you will need an mp3 player and Acrobat Reader, available free from [Acrobat Reader](#).

If you are interested in specific information about England, please go to Yahoo's website at dir.yahoo.com/Regional/Countries/United_Kingdom/England/.

For instructional materials or coaching in the accents and dialects represented here please go to [Other Dialect Services](#).

Dialect Samples

****IMPORTANT**** In order to properly play these soundfiles, you must first save them to your hard drive! Please right-click on the desired sample and choose to save it to your computer. Our server does not support streaming audio at this time.

There are currently 70 samples from England, distributed across nine separate tables representing the following regions: South-West, South-East, London, East, West Midlands, East Midlands, Yorkshire and Humber, North-West, and North-East. There is one additional table for samples that don't belong in any of the regional tables.

South-West

Includes: (counties) Somerset, Bristol, Gloucestershire, Wiltshire, Dorset, Devon, and Cornwall; (some major towns and cities) Bristol, Plymouth, Bournemouth, Swindon, Gloucester, Cheltenham, Torbay, Exeter, Bath, Weston-super-Mare, Torbay, Taunton, Weymouth

Sound Sample	Basic Information	Text Files
England Eight	White male, thirties, personal trainer, Swindon, Wiltshire	England Eight Transcription
England Thirty-one	White female, nurse, born 1944, Appledore, North Devon. Strong rural dialect	England Thirty-one
England Thirty-two	White male, fitter, born 1952, Appledore, North Devon. Strong rural dialect	England Thirty-two
England Thirty-three	White male, retired businessman, born 1932, Appledore, North Devon. Mild Devon dialect	England Thirty-three
England Thirty-four	White female, housewife, born 1933, Appledore, North Devon. Medium rural dialect	England Thirty-four
England Thirty-five	White female, born 1979, hairdresser, Born in Barnstaple and raised in Bideford, Devon	England Thirty-five
England Thirty-six	White female, born 1925, Torrington, Devon, housewife	England Thirty-six
England Thirty-seven	White female, born 1928, Torrington, Devon, housewife	England Thirty-seven

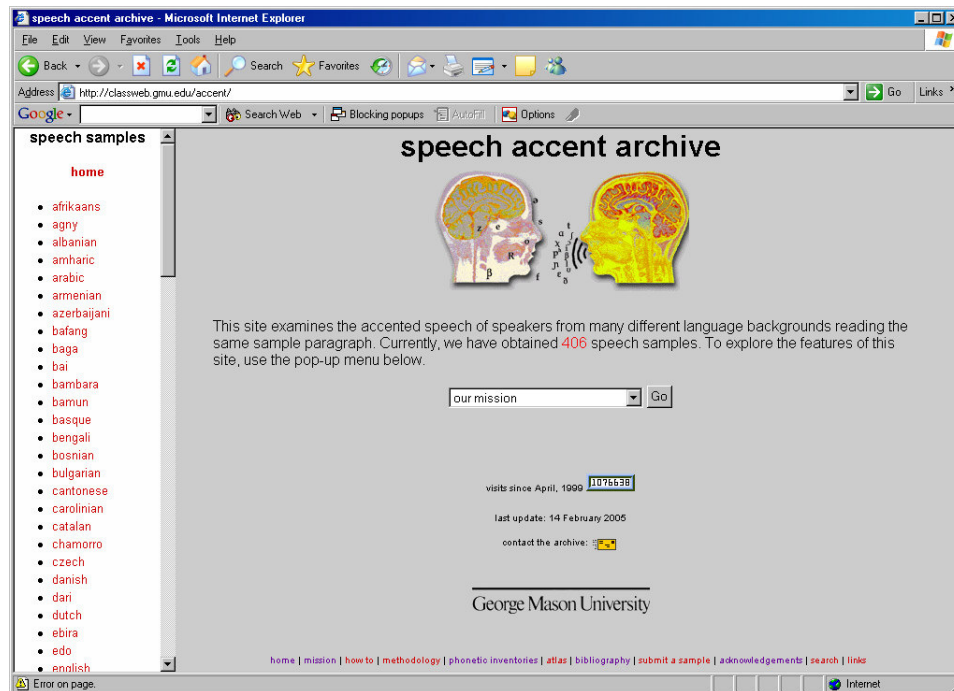
Europe

- Armenia
- Austria
- Belarus
- Belgium
- Bulgaria
- Croatia
- Cyprus
- Czech Republic
- Denmark
- England
- Finland
- France
- Germany
- Georgia, EU
- Greece (Hellas)
- Hungary
- Ireland
- Italy
- Macedonia
- Netherlands
- Northern Ireland
- Poland
- Romania
- Russia
- Scotland
- Spain

The assignment

The aim was to assess a learning outcome defined in terms of the ability to apply theoretical knowledge to real life language data. Using freely available online speech extracts (from the Speech Accent Archive website) as input avoided issues of data collection and allowed students to concentrate on analysis and interpretation, while keeping within the length limits of the assignment.

Fig 16 The Speech accent archive website



Also, the online databases allow students to select data from a wide variety of languages while performing the same assigned task. This gives the students some choice of topic focus (ie choice of language) while ensuring consistency of assessment criteria and marking standards by also giving tutors access to the speech data being analysed.

It is envisaged that this approach can be used as a template and the task design could be adapted to other fields using alternative online sources

4. EVALUATION

Project evaluation was really at two levels: firstly the evaluation of the online resources and secondly, evaluation of the production process itself.

EVALUATING THE RESOURCES

Students

The plan was to gather qualitative and quantitative feedback from students on the effectiveness of the learning and assessment activities both through questionnaires and informal interviews. However, as the research and development stages of the project took much more time than anticipated, only some aspects of this evaluation has been completed to date. So far, evaluation has concentrated on the assessment activities as these were completed and trialled first. It is anticipated that the learning activities will be similarly evaluated in the coming months. As the RLOs have a built in online questionnaire, this should facilitate gathering feedback from users.

Fig 17 Online questionnaire

Feedback - Phoneme Review

Questions marked with an asterisk (*) are mandatory.

Home

1. Aim and Objectives
2. Vocabulary
3. Constraints
4. Words
5. Phoneme symbols
6. Test Yourself
7. Suprasegmentals
8. Speech transcription
9. Speech analysis
10. Summary
11. Resources
12. Feedback

1. How would you rate this learning object?

☐ Excellent
☐ Good
☐ Not good
☐ Poor

2. How easy was it to use the learning object?

☐ Very easy
☐ Easy
☐ Not easy
☐ Difficult

3. How helpful has the learning object been for learning this subject?

☐ Very helpful
☐ Helpful
☐ Not helpful
☐ Unhelpful

4. Would you recommend it to others?

☐ Yes
☐ No

5. What did you like most about this learning object?

Staff

Given that the learning objects are intended to be reversionable by other members of staff, it was important to gather feedback from staff. Informal feedback was given by individual staff members throughout the project, however, there was not enough time to do a systematic evaluation with staff. However, evaluation is seen as an ongoing process and it is hoped that further use of the LOs will provide more comprehensive feedback from staff on their effectiveness in the coming months.

Student evaluation of assessment activities for the assignment

Generally, the feedback on the assessment activities was positive. For instance:

‘The assignment was a good way for me to demonstrate the learning outcome.’

‘Doing the assignment helped me consolidate what I had learned during the course.’

‘I enjoyed doing an assignment based on real data.’

‘I found doing an assignment on real data challenging.’

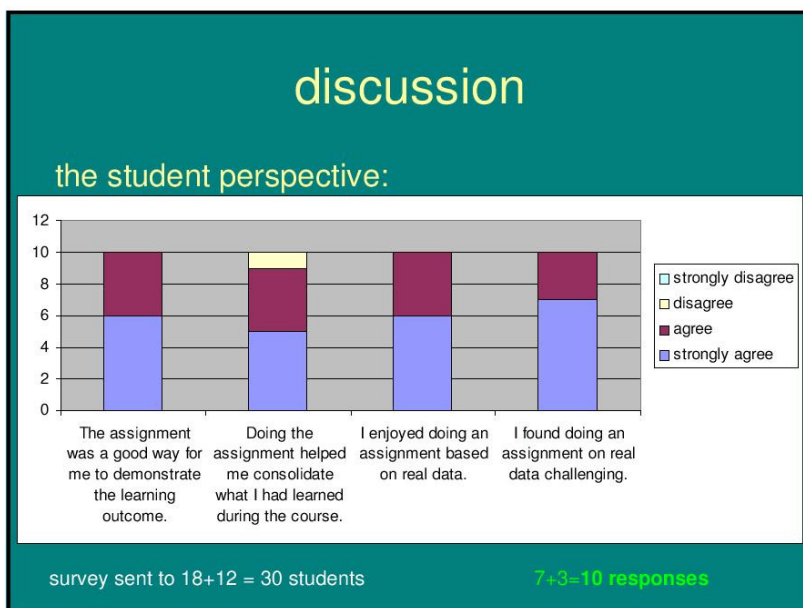
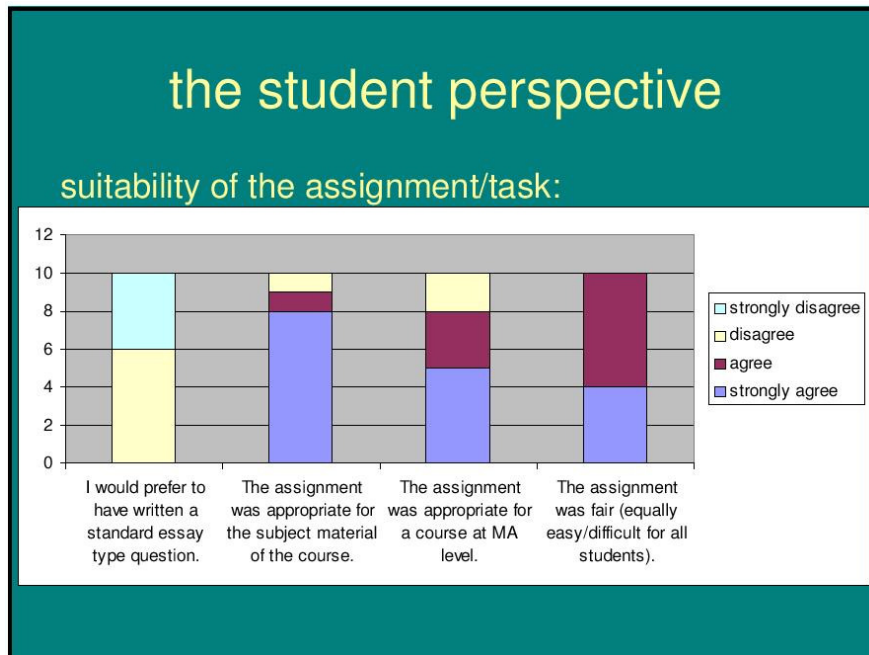
‘I was able to do an assignment using real data without the difficulties of trying to find a native speaker who is willing to be recorded. This helped me concentrate on the data analysis rather than spending a lot of time trying to collect the data as well, which can be very time consuming and frustrating and have ethical difficulties too.’

'Doing the assignment helped me to connect the theory to real data and it became more interesting. Also, because a lot of us are working in different countries we could select speakers with different L1s.'

'I was nervous about using the technology but it was quite easy downloading and using the resources. I enjoyed applying it to my own language of interest.'

The screenshots below give some indication of how students evaluated the assignment assessment

Fig 18 Student evaluations of the assignment task



To summarise the key points that emerged through student and staff feedback:

- The use of online resources enable s students to access, store and retrieve a wide range of authentic language data on which to base their assignments.
- The activities enable students to apply their theoretical knowledge to 'real-life' data.
- The multimedia dimension adds a visual and non-verbal element to activities for phonological analysis
- The multimedia component is a particularly advantageous teaching and learning tool for our distance students.
- The proposed activities add variety to assessment methods beyond traditional written assignments.
- The online data gives students a degree of choice, in terms of data selected for analysis, as well as allwing tutors ready access to the data used and thus facilitate consistent assessment.

EVALUATING THE PROCESS




































The process of producing these activities went through different stages and a selection of development tools were trialled including Breeze, Blackboard, Dreamweaver + Coursebuilder, Hot Potatoes , Quia and Flash An evaluative summary of producing quizzes using these applications is given below (Fig 19).

Overall, CourseGenie was considered the best option. The scope of the tool, in terms of functionality, design and reversioning capabilities, together with its relatively low cost and the availability of technical support made it a clear leader. Although Coursegeneie is a relatively easy development tool to learn independently from scratch, I had little access to graphic designers and technical experts to exploit its facilities fully in the time available or to sort out some of the technical challenges. However, I expect to become an increasingly proficient user in the coming months.

In hindsight, possibly too much time was spent researching existing RLOs and trialling various development tools but it is hard to see how these stages can have been avoided and the knowledge and skills gained will undoubtedly be useful for future online materials development.

Perhaps my biggest regret is that I didn't 'discover' the Course Genie software until the last two months of the project which seriously limited my time to learn and then produce learning objects with it.

Fig 19 Producing quizzes for formative assessment

Product	Cost	Ease of use	Possibility of reuse	Possibility of Reversioning	Standard compliant	Other comments
Breeze						Design is limited to one question per page
Blackboard						Limited interface/design capabilities
Hot Potatoes						Good functionality. Limited interface/design capabilities
Quia						Good interface. Have to register and use through Quia website
Flash						High functionality but challenging.
Dreamweaver +Coursebuilder						Sophisticated but challenging.
Course Genie						

Key



low



medium



high

5. CONTINUATION OF THE PROJECT

It was expected that the outcomes of the project would be of benefit both within the Faculty of Education and potentially in other areas of the University. In particular:

- As a model for the further e-learning developments in the Faculty
- For academics in other disciplines interested in the development of e-learning materials, particularly learning objects.

- For future collaborative projects with other centres or departments.
- For technical feedback to the Computer Centre and for pedagogic feedback to the Teaching and Learning Unit.

A key intention was to make the finished objects available to the wider HE community; both within and beyond the University of Leicester. External dissemination will be achieved³ⁱ by publishing these resources on a public HE website and within the university they will be made available on Blackboard. Some of the resources may also be submitted to HE repositories such as Merlot and Jorum.

Although dissemination and cascading of skills was not possible during the timescale of the project, this process is about to start as the TESOL team now have six months to produce materials for the online distance MA which will be offered from September 2008. Hopefully the experience I have gained, particularly in the use of Course Genie will facilitate this development project and be the first in a series of cascading skills processes within and beyond the School of Education

With regard to further development of the resources, funding is unlikely to be forthcoming consequently future redrafting and development will have to be done within the existing workload capability of staff.

CONCLUSIONS

On the whole, the project fulfilled its three key objectives, ie

- To develop online learning and assessment activities exploiting open source multimedia resources.
- To evaluate the effectiveness of these activities.
- To facilitate the process of distance materials development by adopting a reusable approach whereby these and future materials would form the basis of a bank of teaching, learning and assessment resources which could be adapted and reused, reducing the risk of 'reinventing the wheel'.

although, because of lack of time and resources, none of these can be said to have been completed as thoroughly as expected. Nevertheless the project was undoubtedly a valuable learning experience and is seen as an important stepping stone for further developments.

I will summarise below some of my main conclusions about the project:

³ through the award of further funding towards this project by the Higher Education Academy's Language Linguistics and Area Studies 'mini-project' scheme.

SOURCING CONTENT AND RLOS

Trying to find appropriate online open source resources was rather like looking for a needle in a haystack, which reflects the general issue of the size and complexity of the Web. Getting permission to use such resources can also be time consuming and can be costly.

Trying to find reversionable learning objects proved difficult and largely unfruitful. This is partly because the majority of LOs that are available, particularly through digital repositories such as Jorum and Merlot are reuseable rather than reversionable. Also, relatively few LOs in digital repositories seem to be in the humanities and specifically linguistics subject areas.

DEVELOPING RLOS

Trying to develop RLOs from scratch, with limited technical expertise or support is very time-consuming and frustrating. From my own experience, the most efficient way forward seems to be to use a purpose-built RLO authoring tool such as Course Genie. Course Genie is relatively quick to learn and easy for non-technical staff to use and does all the complex technical work such as creating metadata and packaging and uploading learning objects behind the scenes. It is also relatively inexpensive to buy an institutional group licence.

PRODUCING THE RLOS

For many of the reasons outlined here, mainly to do with time, cost and skill, the final RLO product was not as complete as intended.

Nevertheless what was produced was generally very well received both by staff and students. In particular, the user interface and the multimedia aspects of the RLOs were praised which reinforces the need for developers to bear in mind the importance of these elements of online materials development.

The use of multimedia is a real benefit of e-learning, particularly for distance learners, to help convey complex concepts and systems in subject areas such as phonetics and phonology.

DEVELOPING AND FINDING EXPERTISE

As one of the aims of the project was to develop and cascade online materials development skills, it was decided to fund my own academic time rather than buy in technical support. Towards the end of the project I did in fact try to buy in some technical expertise, firstly from within the University and then when this proved impossible, externally from a commercial company. However, the cost estimate for a relatively small amount of Flash-based materials development proved prohibitive.

My technical skills did indeed develop as the project progressed. However, one negative consequence of this was that a great deal of time was spent gaining these new technical skills as well as developing learning content. This resulted in spending more time and achieving rather less on the project, in terms of content and evaluation, than planned in the project proposal.

CASCADING SKILLS

Although this in-house approach to development did have some negative consequences, in the longer term it should also have benefits in terms of cascading online materials development skills to other members of staff. The current need to develop online materials for our restructured distance MA TESOL programme by September 2008 is compelling motivation to use and further develop these resources.

COST EFFECTIVENESS AND FEASIBILITY

Many of the above issues relate to a more general consideration of the best way forward for UoL staff (and HE staff more generally) to develop online resources. Other projects, both external (eg Laurillard 2003) and internal (eg Parry) to the University have investigated the cost and feasibility of online development and seem to come to the general conclusion that the best combination is to provide the finances and time for academics and technical support staff to work collaboratively on such developments.

In my own case, the plan to work largely independently to find, create and evaluate online teaching and assessment resources in a relatively short period of time was probably over ambitious but the project design was based more on necessity rather than preference. Nevertheless, it is probably more efficient and effective, and more enjoyable to work collaboratively with at least one academic and one educational technologist. Ideally, a pool of educational technologist and academic 'e-learning champions' could work on projects to develop generic RLOs which could then be used across disciplines and in a range of programme types.

Developing online learning materials can be both challenging and frustrating as the technology provides both enormous potential and yet can create considerable problems and hurdles for the materials developer along the way. The ideal remains to produce e-learning resources which, from the user's point of view stimulate learning, are easy to use, visually attractive and motivating and, from the developer's point of view, are pedagogically sound, make good use of technology but are feasible and cost-effective to create.

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Jorum website <http://www.jorum.ac.uk/>

Merlot website <http://www.merlot.org/merlot/index.htm>).

The L2O Research Community <http://www.elanguages.ac.uk/researchcommunity/index.html>

‘Articulatory Anatomy’ - <http://www.uiowa.edu/~acadtech/phonetics/anatomy.htm>