



E-Learning Guides

4. Developing Resources for E-Learning

This guide is aimed at all staff who may be considering, or are already involved in, developing or resourcing materials to support e-learning. It provides information on:

- identifying different types of appropriate materials
- transforming materials for web delivery
- planning the development of new materials
- providing additional support materials

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Introduction

Attractive and well-designed educational materials can have a major impact on students' perception of a module and their engagement with the topic. E-learning guide 3 describes how appropriate e-learning activities can be developed, and the next step is to identify which resources will best support them and stimulate learning. The following questions may help:

- What type of resources will the students need?
- Do any of these exist already?
- Are they of good quality?
- Will they require adaptation for online delivery, or can they be used as they are?
- Will you need to create any new resources?
- How technically complex do they need to be?
- Do you have the technical skills to do this?
- How much time do you have for development work?
- Can the development work be shared by a team?
- Will the students have access to hardware and software of the right specification to view the resources?
- Have you considered accessibility issues?

Using existing resources

It makes sense to begin by examining existing resources and to be mindful of the fact that just because a module is being delivered online, it doesn't necessarily follow that all materials have to be in digital format. Most people find it difficult to read long texts on screen for example, and it may be more appropriate to make lengthy documents or handbooks available in hard copy or to present them as Word or Acrobat documents which can be downloaded and printed for ease of reading, although printing costs should also be considered.



The web is of course the richest information source for students, providing access not only to text-based data, but also graphics, diagrams, charts, animations, video and audio resources. Set aside some time to **make an extensive search** for relevant information, and become familiar with the most effective search techniques. Library staff will be pleased to help, and the GCU subject guides provide an excellent starting place. The 24 subject centres within the Learning and

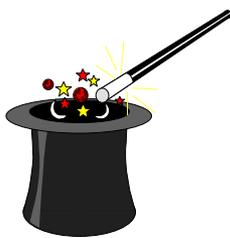
Teaching Support Network also have links to discipline specific resources, as do the JISC Resource Guides.

GCU Library Subject Guides	www.lib.gcal.ac.uk/subject/index.htm
LTSN	www.ltsn.ac.uk
JISC Resource Guides	www.jisc.ac.uk/index.cfm?name=resguides

The responsibility for identifying and creating resources need not lie solely with the lecturer. **Students** can help to build up a library of resources through identifying materials which they have found useful, and by sharing their own knowledge. Groups can work together to create **presentations, reviews and reports** which can be re-used in subsequent courses. **Archived discussions** on interesting topics can, with the participants' permission, be made available to future students as a reference resource or as a stimulus for further debate.

As with activities, the key here is **re-usability**. If developed with adaptability in mind, materials which have been created for one purpose can, perhaps with some minor amendments, be useful elsewhere. In this way, a bank of flexible materials can be accumulated and shared within a Department or School.

Transforming materials



As an experienced lecturer, you are likely to have an **existing library of materials** which you have found useful over the years. You may decide that certain of these could be transformed to make them suitable for web-based delivery through incorporating additional elements such as embedded web links, graphics, interactive quizzes and even short sound files and video clips. Adapting existing texts provides the opportunity to be **innovative and creative**, and to re-think how a topic might be approached in a more student-centred, collaborative mode. For example, the integration of questions and exercises can encourage the student to **reflect on key ideas, relate examples to their own experience and promote deeper understanding** of the issues.

The complexity of the transformation will depend on your technical skills and access to the services of instructional designers and technical experts. If you are using BlackBoard, tools for uploading materials are an inbuilt feature of the software. Creating web pages is now becoming

much easier with the advent of editors such as Microsoft FrontPage, Macromedia DreamWeaver and Macromedia Contribute, although a basic knowledge of HyperText Markup Language (HTML) can still be helpful. The C&IT Training Unit (**CITTU**) in GCU presents regular workshops on using these software tools, and will be pleased to offer advice.

- Microsoft FrontPage: www.microsoft.com/frontpage/
Macromedia DreamWeaver: www.macromedia.com/software/dreamweaver/
Macromedia Contribute: www.macromedia.com/software/contribute/
BlackBoard at GCU: blackboard.gcal.ac.uk
eLISU Support for BB: elisu.gcal.ac.uk/online/index.htm
CITTU: cittu.gcal.ac.uk

Useful tips for transforming text for web delivery	
<ul style="list-style-type: none">◆ Divide text into readable sections◆ Use a storyboard technique to create a manageable structure◆ Add navigation links or buttons◆ Incorporate active web links◆ Design an attractive layout◆ Choose a readable font style & size	<ul style="list-style-type: none">◆ Include graphics & diagrams◆ Add key questions & exercises◆ Link to email & online conferences to encourage discussion◆ Integrate video & audio if appropriate◆ Design with interactivity in mind

Creating new resources

If, after a full investigation of existing resources, there is still a need to create something new, consideration should be given to **time**, **budget** and the **level of expertise** available. Technology offers many options, but you should ask yourself the following questions:

- Will more sophisticated delivery methods enhance the learning process?
- Will the time and effort be worthwhile in the longer term?
- Will the new resources be easy for the students to use?
- Will they need guidance and training?

- Will the students need additional software or hardware to view them?
- How will the resources encourage interaction and dialogue?
- Can they be re-used for other courses?
- Have you considered copyright issues?



Ideally, new resources should be developed by a professional team which includes **tutors, instructional designers, graphic designers and technical experts**. In this way, skills can be combined to produce educationally effective, visually attractive and technically robust resources which will enhance learning. Web-based resources are particularly useful as they can be easily updated and maintained. If you do need to update your own skills, there are many helpful references for **developing and designing web pages**, including:

WebMonkey: www.webmonkey.com
Builder.com, Beyond the code: www.builder.com
Web Page Design for Designers: www.wpdfd.com/

Guidelines on **design issues** can be found at:

Yale C/AIM Web Style Guide: info.med.yale.edu/caim/manual/
Usability First: www.usabilityfirst.com/
Current Issues in Web Usability: www.useit.com/alertbox/

Information on **Web Accessibility** issues:

eLISU Resource on e-Learning: elisu.gcal.ac.uk/access/index.htm
Making Connections Unit: www.mcu.otg.uk
Web Accessibility Initiative: www.w3.org/WAI/
Technologies for Disabilities: www.techdis.ac.uk/
Bobby: bobby.cast.org/html/en/index.jsp

The following table may be helpful when deciding on the types of resources you might consider developing:

Easy	Moderate	Difficult
Setting up online conferences and live chat sessions	Linked web pages to create a simple web site with text, graphics and navigation links	Animations created with specialised software such as Macromedia Flash
Word (.doc) or Rich Text Format (.rtf) documents	Online quizzes and self-tests using assessment tools	Java programming to create simulations and games.
PowerPoint presentations	Animated or hyperlinked graphics	Fully interactive web sites with multimedia elements
Graphics, diagrams, maps	Interactivity using CGI scripts or JavaScript	The creation of fully searchable databases
Text-based web pages (.html) or Acrobat files (.pdf)	Provision of classified information resources via web portals or gateways	The development of streamed audio and video for delivery on the web.

Whether you are transforming existing materials or developing new ones, **copyright** is a major consideration. Each country has its own specific rules and regulations relating to **intellectual property**, and how these affect you will depend on the purpose of the course, mode of delivery and numbers of students to whom the materials will be distributed. Library staff can provide details on how this affects us at GCU, and further information on UK copyright issues can be found at www.cla.co.uk/

Other support materials

Participation in an e-learning programme is likely to be a new experience for the majority of students. As such, it is important to provide as much information about the programme as possible, so that everyone is clear about its goals, and the type of learning experience they might expect. This is particularly important for fully online programmes as distance students can often feel isolated and uncertain about what is happening. A clearly written **course guide** outlining the main issues relating to the course will help to establish realistic expectations and reassure the student. The course guide may include the following details:

- The **aims and objectives** of the course
- A **list of lecturers**, teaching assistants and invited experts and their contact details
- The **course schedule**, including dates for face-to-face seminars and the online period.
- An **outline of the content** and planned activities for both F2F and online learning with clear time schedules and deadlines
- Basic **technical information**, including guidance on whom to contact in case of difficulties.
- **Hints and tips on studying at a distance**, including online communication and time management.



In order to clarify expectations even further, you may decide to draw up a **learning agreement** which makes explicit the level of commitment expected by the students, and the level of support which they in turn can expect from the lecturers. This is likely to include guidance on:

Students

Minimum levels of participation, for example,

- how much time they should spend on study each week,
- how often they will be expected to log on to the online conference
- commitment to meet deadlines for coursework and activities
- participation in group work
- commitment to share information and resources
- keeping tutors informed of any reasons for non-participation

Tutors

Level of technical support which can be expected, e.g.

- Provision of user IDs and passwords

- Ongoing technical support (or an indication of who will be responsible)

Level of pedagogical support which can be expected, e.g.

- Provision of course materials
- Facilitation of online conferences
- Indication of how often tutors will log on each week and how regularly they will respond to messages
- Notifying students of any absences and arranging back-up support from colleagues.
- Evaluating the learning experience and course outcomes.

Some of these issues may be agreed in consultation with the students. In the case of work-based learning and students on work placements, it may also be useful to include the **organisation** as a partner in the learning contract to encourage visibility and acknowledgement of work-based e-learning and a guarantee of organisational support.

Whichever approach you decide to take, eLISU and the Academic Practice Unit can provide both technical and pedagogical advice on the development of e-learning resources and staff development needs, and CITTU training courses are available on a variety of software applications. Audio Visual Services can provide a range of support, including video and audio production, and Print Design Services have expertise on graphic design and web layout.

eLISU: elisu.gcal.ac.uk
APU: apu.gcal.ac.uk
CITTU: cittu.gcal.ac.uk
AVS: www.gcal.ac.uk/avs/services.htm
PDS: home.gcal.ac.uk/depts/pds.htm

References

Collis B. & Moonen J. (2001), *Flexible Learning in a Digital World*, Kogan Page, London.

Rowntree D. (1999) *Success factors in materials-based learning*
<http://www-iet.open.ac.uk/pp/D.G.F.Rowntree/MBL.htm/introdex.html>

Further Reading

Boyle T. (1997) *Design for Multimedia Learning*, Prentice Hall, London

Cain R., Purcell S., *Principles of Instructional Design: Web-based resources*
<http://dl.wju.edu/e472instrdesignres.htm>

Learning & Teaching Support Network (LTSN) (2002), Starter Guides –

Using the WWW in Learning & Teaching:

<http://www.ltsn.ac.uk/genericcentre/projects/elearning/docs/WWW.pdf>

Virtual Learning Environments

<http://www.ltsn.ac.uk/genericcentre/projects/elearning/docs/VLEL.pdf>

Computer-Mediated Conferencing

<http://www.ltsn.ac.uk/genericcentre/projects/elearning/docs/CMC.pdf>

Using Computer Assisted Assessment

<http://www.ltsn.ac.uk/genericcentre/projects/elearning/docs/CAA.pdf>

Maier P., Warren A. (2000), *Integrating Technology in Learning and Teaching*, Kogan Page, London.

The full series of GCU E-Learning Guides is available to download from
apu.gcal.ac.uk/pages/resources.htm

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Appendix – further web links

Information on specialised tools and further guidance on development issues can be found at:

Graphics & diagrams:

Adobe Photoshop: www.adobe.com/products/photoshop/

Paintshop Pro: uk.jasc.com/

Animations:

Macromedia Shockwave: sdc.shockwave.com/shockwave/

Macromedia Flash: www.macromedia.com/software/flash/

Documents

Word,Excel,Powerpoint: www.microsoft.com/office/

Adobe Acrobat: www.adobe.com/products/acrobat/

Video/audio

Apple Quicktime: www.apple.com/quicktime/

RealPlayer: www.real.com/

Microsoft Windows Media: www.microsoft.com/windows/windowsmedia/

Click and Go Video: www.clickandgvideo.ac.uk/

Assessment

QuestionMark Perception: www.questionmark.com/

CAA Centre: www.caacentre.ac.uk/

Quiz Factory: www.learningware.com/quizfactory/

File compression

WinZip: www.winzip.com/

Stuffit: www.stuffit.com/

Java, CGI

The Java Tutorial: java.sun.com/docs/books/tutorial/

Common Gateway Interface: hoofoo.ncsa.uiuc.edu/cgi/

Interoperability Standards

CETIS: www.cetis.ac.uk/