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Pedagogy and learning technology: a practical guide

Keith Smyth and Christina Mainka

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IN PEOPLE

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Unit 1 Introduction

Teaching and learning with technology? From the mechanical teaching machines of the 1950s to the computer-based instruction applications of the early 1980's, and more recently from the internet and world wide web to the currently emerging mobile technologies, the use of technology in teaching and learning has always been an area surrounded by genuine promise, over enthusiastic claims, natural scepticism, and mild to serious apprehension.

Separating the rhetoric from the reality of educational technology is difficult, especially for those who are new thinking about using technology in their teaching, and who may be wondering what this can offer, or what the implications are, for what they are already doing well in the classroom.

One important fact is that no new teaching medium has ever come close to completely replacing the one that preceded it, for the good reason that no one teaching medium is diverse enough to provide for everything that the tutor or the learner will require in every possible situation. A second important fact is that when it is used appropriately, educational technology can play an important role in supporting teaching and learning, often enhancing it in ways that would be difficult or impossible to achieve in the traditional classroom environment. This has been especially so since the emergence of the world wide web, which made single-point access to a rich range of information, resources, and communication tools possible, and with it allowed interactions between people, and with resources, to occur independently of time and geographic location.

1.0   So what can educational technology offer you?

It should never be forgotten that good teaching practice is good teaching practice, whether it occurs in the classroom or online. For most tutors then, educational technology provides a means to build upon their existing good practice by adding an extra dimension to what they are already doing well, and by providing additional opportunities for their students.

How might this work in practice? Consider briefly the following examples:

- A tutor has a particularly large class, and is repeatedly dealing with the same kinds of questions in tutorials and via e-mail. To help them make better use of their contact time with their students, they establish an online problems forum that students are required to post any general questions to. The tutor now only needs to respond on a particular issue once, and their feedback is there for all their students to benefit from.

- To help foster the development of peer-working and inquiry-based learning skills, weekly lectures are alternated with research and report exercises where students work in small groups to investigate an issue using appropriate web resources, and report back in tutorial sessions.

- Technology is used to more easily bring guest experts into the classroom for an online Q&A session, to enable collaboration with fellow learners at another institution, or to establish a support network for a group of students who are out on placement.

These examples are intended to give a feel for just some of the possibilities educational technology offers. There are many, many more, and it is hoped that this guide will help you identify ways in which educational technology could effectively support what you currently do in your teaching, and contribute to an even more active and engaging experience for your current and prospective students. By learning to teach with technology, not only are we able to exploit the rich possibilities that educational technology offers, we are also better equipped to support an increasingly diverse and technologically aware student population who are seeking more choice and flexibility in their course provision.

2.0   About this guide

This guide is an introductory guide, and the emphasis is very much on providing an overview of the topics covered, with practical tips and guidance for approaching the use of educational technology in teaching. You will not find much here that directly addresses the various theories that underpin current thinking about educational technology. However, the explanation and advice offered does have a sound basis in accepted concepts and principles, in addition to being informed by the practical experiences of the contributing authors, and research into technology-supported teaching and learning.

With the focus being on general awareness of relevant teaching and learning issues this guide is not a technical how-to manual, although with it being aimed predominantly at Edinburgh Napier staff you will find specific mention of WebCT at certain points. For technical guidance as well as helpful hints and tips on working with WebCT (and some other relevant technologies), please see the range of guides and the FAQ list at **http://www2.napier.ac.uk/webct/staff/**

2.1   What is the purpose of this guide?

This guide was originally distributed as a 'working document' in 2006 simply because it was the first time such a document had been made available within Edinburgh Napier, where the widespread use of technology in teaching and learning continues to be an area of rapid development. The main purpose of this first revision is to update links and reading lists while addressing the organisational changes within the institution-predominantly those related to the improved support of students and staff in technology enhanced teaching and

learning. Many important issues have not been appropriately addressed simply for lack of time, but the intention remains to continue to evaluate the guide's use and usefulness properly for a comprehensive revision in the near future.

2.2   What does this guide cover?

Reflecting current developments at Edinburgh Napier, the guide mainly covers various ways of using online technologies and resources to support teaching and learning in campus-based and online course contexts. However you will also find that classroom teaching tools, mobile devices and web 2.0 technologies are touched upon in certain sections. These areas are obvious ones to expand upon for future revision.

2.3   Who is this guide for?

This updated guide is aimed primarily at new members of Edinburgh Napier teaching staff who are thinking about using technology in their teaching, or who have some experience and are looking to take things further. Those tutors who have already made use of this guide have even found that it provides a useful introduction to some topics and issues that they had not been fully aware of despite their extensive use of educational technology in the past.

In addition to teaching staff, this guide is also used as a general reference by learning technologists and other staff members who are involved in supporting the development of blended and online modules or programmes. Last, but not least, this pedagogy and learning technology guide serves to support students as a core text on the Edinburgh Napier programme MSc Blended and Online Education run by Academic Practice.

2.4   How to use this guide

This guide should be seen as supplementary to the support and advice that is offered through the relevant events within the Professional Development programme, and available on a one-to-one basis from the Academic Development Advisers Online Learning (ADAs). It is not a replacement for these kinds of support, and instead should be used alongside the assistance that is readily available from the ADAs.

It is also not a document designed to be read in its entirety – unless you really want to of course! Instead the intention is for the reader to be able to dip into the section covering the topic or issue of interest, and receive a straightforward explanation with practical tips and advice, and also illustrative examples, resource links, and recommended further reading where these seemed useful.

3.0   Hit and myth! Some things to know right now…

If you're just starting to think about using technology in your teaching, or have had some limited experience but perhaps still feel slightly apprehensive, then there are a number of misconceptions and common fears that you need to be aware of. In no particular order then here are some popular myths to put to rest, either for peace of mind or to help outline particularly important points.

1.   **Technology means getting rid of tutors**. OK, this one was deliberately put first as it is undoubtedly the biggest myth of them all. The use of educational technology, and particularly communication tools, does tend to mean that the role of the tutor changes somewhat, as explained in Unit 4. This can be very advantageous though, and the effective use of educational technology, both in course development and support, is critically dependent upon the role played by the tutor. Many students now express a preference for courses that combine classroom and online support, with face-to-face contact with the tutor being a critical factor associated with the class-based element. In addition, fully online courses with poor levels of tutor support tend to be very poorly rated by students, and are often associated with low retention rates.

2.   **Tutors must be really skilled in IT to make good use of educational technology**. Not really. This depends upon what the tutor wants to do and the context they're working in, but there are many ways for the tutor to very effectively support learning that require only a basic familiarity with some common tools. Some options are detailed in Unit 2.

3.   **Students who are IT literate will be able to use educational technology effectively.** Not true. Students need to be able to operate the technology so this is not a barrier to their learning, but being IT literate is not enough by itself. Students need to know why the technology is there, and how to get the most out of it. For example, there is a world of difference between students being able to post to a discussion board, and then using a discussion board in such a way that they can benefit from the increased reflection time this offers them. Unit 8 Issues in student support provides more guidance in this area.

4.   **All students need to collaborate online is access to a discussion board.** Or 'build it and they will come'. It's a common mistake to think that providing the resources is enough, but students need a reason to use educational technology effectively, either through necessity (there's no other option), or because there is a clear purpose for them doing so (such as an obvious educational benefit, or an assessed task). The issue of providing a clear purpose is common to Units 3, 5, 6 and 8.

5.   **Designing a blended or online course takes a lot of time.** It's true that the amount of time required to develop any course that makes extensive use of educational technology is considerable, but it doesn't necessarily need to take longer than the total amount of time involved in developing any classroom-based course from scratch. There are also real benefits

beyond the first time the course has run, for example the first year's discussion board messages can easily become a very useful resource for the next intake of students, maybe as an FAQ feature.

6. **Putting lecture notes online means students won't come to class.** Not necessarily. If the lecture notes provided online in advance are almost verbatim what is covered in class, then some students may well attend less, while others will instead ignore what's online. It partly depends on what students are told about how they are expected to use online notes, and how not, and there are many ways of enhancing the lecture experience through providing 'skeleton' notes and other supplementary materials online. It can also often be the case that students who don't attend lectures where notes are provided online are just as poor at attending lectures for modules where there is no provision of online material.

7. **I'll be answering e-mails and discussion posts all the time.** You really don't have to be. In fact in campus-based courses there are ways of using online communication tools to actually reduce the amount of e-mail already received, and make better use of face-to-face contact time. Please see Unit 2 for some initial suggestions on this. In the case of a distance course that relies upon online communication, there will certainly be more online messages than would be the case with a campus-based course, but there are very good strategies for efficiently dealing with the volume of communications, as outlined in Unit 4 section 4.2

8. **I'm going to have to write all this material to put online.** Maybe not. There are so many good and reputable sources of subject material on the web that you may need to provide little more than topic overviews with links to relevant readings for students to explore when undertaking their assigned tasks. You may not need to do the interactive stuff either, as there is a wealth of good interactive multimedia covering most subjects out there, while many textbooks now come with supporting web resources including interactive self-tests. For more on not reinventing the wheel please see Unit 7 section 5, and Unit 10 section 2.

9. **Some subjects just can't be taught using technology.** Very, very few subjects can be taught entirely with or via educational technology, and technology should never be used for the sake of it. That said, there probably isn't any subject in which teaching and learning can't be aided or enhanced by using technology appropriately. That doesn't mean technology should necessarily be used, but by being open to possibilities in the first place interesting possibilities may well become apparent.

10. **It's just a fad.** It's not. There have been faddish technological trends in education (mechanical teaching machines anyone?), and there no doubt will continue to be, but the possibilities enabled by developments in recent years means that the momentum towards the widespread adoption of technology in education is well underway. Please see section 5.0 in this unit, and particularly section 5.5.

4.0   What is educational technology?

If you've read the above, it will be apparent that some assumptions about what educational technology is have already been made. Strictly speaking, the term 'educational technology' could be used to refer to any tools or equipment that are used in teaching and learning. This could include blackboards, overhead projectors, and calculators. However, the contemporary view on what educational technology encompasses is focused on computer-based communications and information technology in teaching and learning.

This is still a very broad definition, and would include the use of common software applications including word processing and spreadsheets, and presentational software such as PowerPoint®, in addition to the various other kinds of stand-alone, online and mobile tools and technologies we now have.

The focus of this guide is on the online dimension of educational technology, which includes virtual learning environments (VLEs), discussion boards, real-time communication tools, and online repositories, to name a few. However, as previously indicated there is some discussion of stand-alone classroom tools and new mobile technologies.

4.1   The technologies…and where to find the answers!

VLEs and MLEs, hypertext and multimedia, PDAs and iPods, discussions boards e-portfolios, and wikis, blogs, clogs and vlogs, and other bits and bobs!

The area of educational technology has more than its fair share of technical jargon, and unfortunately it is growing all the time as new technologies come into play. If you're new to educational technology, the important thing is not to be phased by the terminology. Instead, just focus on what you'd like to do or find out more about, and you'll pick up the jargon as you go along.

That's certainly what is intended to happen as you work with this guide, which is organised into a series of units that each address a particular topic area, and describe and discuss relevant technologies and resources in context.

So, if you're interested in the possibilities of using audio, visual material including graphics and animations, or interactive simulations then check out Unit 7 Educational multimedia. Want to know about the range of possibilities for getting students to talk and work together online, then that's Unit 5 Communication and collaboration. Maybe you'd like some advice on the kinds of coursework that are best suited to blended and online learning, then that's Unit 6. You no doubt get the general idea, and if the title of each unit doesn't quite make what it covers clear, the contents list for the guide will.

If you do want a quick definition of certain key technological or pedagogical terms, then you may well find the Glossary a very useful jargon buster.

4.2   Contexts for using technology

Although it is the potential of distance or non-attendance online learning that has generated perhaps the most enthusiasm within education, this is only one context for using technology to support teaching and learning. There are also the possibilities offered by the use of 'stand alone' educational technologies in the classroom, learning that blends class-based and online activity, and the emerging practice of using handheld technology to enable mobile learning.

4.2.1   Stand alone self-study and classroom tools

The term 'stand alone' basically refers to any educational technology resources that are not accessed online via the web, an intranet site, or some other form of computer network. Instead, materials and tools are usually stored within the computer itself, or on a CD-ROM that can be accessed through a computer.

For this reason, stand alone learning technologies tend not to support communication or collaboration, although information in stand alone resources, such as an interactive CD-ROM, could include web links to communication tools including discussion boards, in addition to other web-based resources.

However, stand alone learning technologies can include any combination of informational, multimedia, interactive, or self-assessment content. In this respect, stand alone resources can offer many of the same advantages as a rich online environment can. Their main disadvantage is that they can only be used by one or a small group of students at any one time, unless of course the same resources are available on several computers or CD-ROMs.

Stand-alone self study resources, like CD-ROMs, are increasingly being joined in the classroom environment by other tools to enrich the classroom learning experience. These include interactive whiteboards (such as ActivePanel) that allow the tutor, and the student, to present and manipulate content dynamically, and link to locally-stored applications and the web. Class-based voting systems (such as Turning Point®) are also introducing more dynamic possibilities within the lecture theatre.

4.2.2   Blended

Blended learning basically involves content, support and coursework activity that is taught, studied and undertaken across some combination of the face-to-face and technology-based (typically online) environments.

Here at Edinburgh Napier University, blended learning is officially defined as:

> The use of a combination of online, flexible, and face to face teaching methods to provide learning materials, student support and assessment.

Blended learning approaches can vary considerably, and the approach taken should ideally depend upon what is feasible and appropriate within a particular

course context. There is a growing consensus that well-implemented blended learning approaches are potentially the most effective at supporting student learning, and there is an increasing amount of evidence that students on campus-based courses prefer a combination of face-to-face and online support.

Although the learning technology element in blended learning is usually thought of as being online, stand alone learning technologies can also have their part to play (the use of interactive whiteboards in the lecture theatre is a good example of a blended classroom approach). Aspects of course delivery and support normally associated with traditional distance learning can also have a role.

4.2.3 Fully online
At Edinburgh Napier, we define online learning as 'The use of the Internet, particularly the world wide web, to support teaching, learning and assessment'.

In fully online learning, where materials and resources are accessed via a VLE or other form of web-based environment, educational technology is typically the sole means by which course content is accessed, communication between students and tutors is enabled, and the undertaking of coursework is facilitated. The following diagram illustrates where fully online learning sits in relation to the other forms of technology-supported learning described above.

| Supporting face to face | Blended | Fully online |
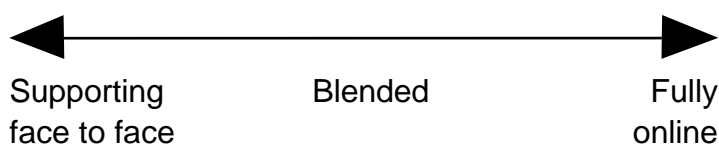
Online learning can have many advantages for both tutors and students. These include the possibility to study and communicate at virtually anytime and from anyplace, and the range of ways in which a rich online environment integrating, for example, multimedia, communication tools and self-test features can accommodate a range of different learning styles and preferences.

While many of the benefits can be experienced in a blended approach, fully online approaches are arguably the most challenging form of technology-supported learning. For tutors, the difficulties lie in the thought and work that is required in order to establish a good fully online course, and thereafter to teach on it. For students, the main challenges arise through the increased self-dependence and discipline that studying online requires. For tutors and students, the prospect can sometimes be made a little more daunting as fully online teaching and learning is something that is still new to many of them.

► See **Unit 3 section 1** for examples of blended and fully online modules.

4.2.4 Mobile learning
Mobile learning, or m-learning as it is popularly known, essentially involves the use of wireless mobile technology devices including mobile phones, PDAs (personal digital assistants), digital audio players (MP3 players, iPods) and even

notebook computers to allow students to download and access educational content, and communicate with tutors and peers, regardless of their location. M-learning therefore enables truer anytime anyplace technology-supported learning than is possible through networked internet access.

M-learning is a recent development, but has thus far provided a promising additional dimension to class-based and online learning by allowing students to access pre-recorded lessons and other course content in manageable 'chunks' (eg short video narratives, animations, self-test quizzes etc). M-learning is not without problems, particularly in preparing course content to be delivered in small segments, or for legible viewing on small display screens, but it is an area of rapid development that is generating increasing interest in education.

► **See <u>Unit 7 section 4</u> for more information on m-learning.**

5.0   Why is educational technology important?

There are a number of reasons why the use of educational technology has become, and looks set to remain, such an important issue within higher education. Chief amongst these are the external factors driving the momentum towards the widespread use of technology in teaching and learning, in addition to the growing recognition of the advantages offered to students and tutors.

5.1   The big picture

Amongst the range of factors driving the move towards increasing use of technology-supported teaching and learning, three of the most important are government directives, changes in the student population, and the established consensus on what constitutes effective teaching practice.

In the UK, the Government and the HE sector is focused on increasing and widening access to education for students who may have previously found that their educational experience, location, work or life commitments were barriers to their participation. Alongside a student population that is growing at a faster rate than universities can physically expand, and a recognised need for non-traditional courses that can support continuing professional development and progression to degree-level programmes, learning technology is seen as a partial solution to enabling more flexible modes of studying and attendance.

Recent estimates based on population growth indicate that the UK can expect undergraduate places to rise by up to 270,000 by 2028. Much of this growth will come from mature students over 25 seeking to study part-time, and increases in international student numbers (HEPI, 2008). This will see a student body that is more varied in entrance qualifications, professional experience, ethnicity, geography and support needs than it has ever been previously. This general trend is also being experienced out with the UK, and beyond flexible attendance, educators are looking towards technology to help support students with different

methods of learning, disability requirements, or knowledge gaps to bridge, and to offer this support inside and outside of the classroom.

Of course, in addition to their changing demographic profile, the expectations of current and prospective students are also driving the move towards technology-supported learning. This is borne out by much of the research in this area, while in 2003 the HEFCE/Universities UK/Standing Conference of Principles Joint Teaching and Quality Enhancement Committee (TQEC) published their 'Final Report on the Future Needs and Support for Quality Enhancement and Teaching in Higher Education'. This report found that good on-campus computing facilities, independent studying opportunities, and VLEs were amongst the most valued aspects of the learning experience for UK students. Desired enhancements included good online learning resources, better information dissemination, 24/7 accessibility to resources, and a greater use of technology by teachers (HEFCE/UUK/SCOP, 2003). For those students who enter HE from school, but also for those who are used to technology at home and in the workplace, a common expectation is that computer-based information and resources will be provided as standard.

Finally, the increasing role that learning technology is playing within teaching and learning reflects, and can also be seen as a result of, current thinking on how best to facilitate learning within educational contexts. Often discussed in terms of active or student-centred learning, the ideas of relevance here include those that address student collaboration, problem and case-based learning, fostering critical thinking, learning by doing, self reflection on understanding, learning through examples rather than description, and the role of the tutor as a guide or mentor rather than as a teacher or, in common parlance, as a 'sage on the stage'. The common rationale linking all these ideas is that deeper, more effective learning is enabled when students have more control over how, when and what they learn, and where they are able to learn in more meaningful ways.

5.2   Advantages for students

Whether used in stand alone, blended or online modes, educational technology has the potential to effectively support and enhance student learning in a diverse range of ways, from opening up studying opportunities for the geographically dispersed, to extending what is possible in the classroom. Some of the main benefits of educational technology for students include:

Improved access to materials
- students can study at a time most conducive to learning
- learning can be self-paced, and within reasonable limits students can spend as much time as is necessary to understand particular topics
- learning can be needs-based, as students have more flexibility to focus on those topics and issues that they most need to attend to
- basic course materials can be supplemented with external links to relevant online resources to encourage further reading as required.

Access to multimedia and interactive content

- relevant visual, audio and other multimedia information can be provided to allow students to see real world examples, or depictions of processes in a format that is easier to understand than text alone
- simulations and other interactive tools can allow students to easily apply their knowledge and see the effects of their experimentation in ways that might not be possible or practical in the classroom
- self-test quizzes can allow students to assess for themselves their progress on a periodic basis, which for some may motivate further progress, and for others signal possible areas for improvement.

Peer and tutor support and collaboration

- In campus-based contexts, increased access to students and tutors for subject-related discussion out with the limits of traditional seminars
- Through synchronous communication facilities, the opportunity to communicate in real time across geographic boundaries
- Through asynchronous communication facilities, more reflective discussion than might be possible face-to-face, and increased opportunities to participate for those that are normally less vocal
- Through group-working tools, the opportunity to work collaboratively without being present collectively, and to establish shared workspaces that might be unavailable or of limited availability on-campus
- Being able to collaborate with global peers, and benefit from a culturally rich exchange of ideas, and discussions of diverse beliefs and practices.

Central resource for each course

- In blended and online contexts, a central point of access to a range of resources within a VLE can allow students to more immediately engage in learning, and use their time more effectively than when lectures, seminars, and materials are dispersed over time and location
- VLEs allow studying any time from any place with an online computer.

5.3   Advantages for tutors

Although educational technology has many potential advantages for students, and this fact alone may provide enough rationale for taking a technology-supported teaching approach, there are also specific benefits for the tutor.

Across various levels of technology use, just some of the advantages include:

- Increased choice and flexibility in when and from where to teach
- Encouraging students to become more self-directing, and less dependent on the tutor to provide explicit instruction
- Knowing that students are being exposed to appropriate resources that should further aid what the tutor is able to do in the classroom
- Being able to get information and announcements to students quickly
- Encouraging students to be better prepared for lectures and seminars
- Knowing students have no excuse for not having basic course material

- In VLEs, the ability to see which students are not 'attending' online
- Saving time on administrative functions (eg module questionnaires, marking multiple choice tests, uploading coursework).
- Being able to support a broader range of students (eg CPD, part-time, and distance learners including online international cohorts)
- Providing increasing flexibility for, and possibly improving retention rates among, students who may be finding it difficult to balance studying and work or domestic commitments (eg mature, part-time, and also full-time students who just as likely may have work and family commitments)
- Easing the transition for direct entrants by providing access to relevant resources and online discussions from courses prior to their entry.

Many educational technology specialists, and tutors who have been through the process, also believe that re-thinking existing courses in order to enhance them through an element of technology-based learning can result in courses that are better organised, more up to date, and more motivating for students.

5.4   Advantages for institutions

At an institutional level, the good use of educational technology in teaching can contribute towards the institution being more equipped to cater for a diverse range of students both on and off campus. It may also contribute to logistical problems that universities are experiencing with the need to expand their student numbers, and expand their course provision into new geographical territories, possibly in partnerships with overseas institutions.

In addition, it looks like a good level of flexibility and additional support through online and other technology-based provision will increasingly affect enrolment rates when students are faced with a choice between otherwise comparable institutions, and can also contribute to increased retention as indicated above.

5.5   It's not going to go away!

Although the range of technologies we have now available is no justification by itself to make use of them in teaching and learning, it is fair to say that due to the external factors and obvious advantages that have just been outlined, there is now no prospect of educational technology not being an important part of teaching and learning practice. The likelihood is that its use will eventually become such an integral and natural part of what tutors and students do and expect, that at some point in the future it will cease to be an issue worth addressing as a separate aspect of teaching and learning practice.

6.0   The key challenges…and making them smaller!

The use of the kind of educational technology being addressed in this guide is still very much a new area of teaching practice for many tutors. New areas of practice

naturally bring challenges with them and this one is no exception, but the challenges don't need to be big…and there's ways to make them smaller!

6.1   Shifts in teaching practice and responsibilities

The use of educational technology in blended and online contexts usually results in a more student-centred approach, due in no small part to the increased choice and flexibility for the student that is offered. However, this can be an empowering experience for the student, not to mention liberating and rewarding for the tutor who may be able to find better ways to support students in having a more active, engaging learning experience that may ultimately result in improved achievement and retention.

The extent to which this shift towards a more learner-centred approach occurs really depends on the tutor in question, the characteristics of the student group, any practical or logistical constraints on where, when and how the learning can occur, the kind of the coursework and assessment that is to be undertaken, and the nature and range of the technologies and resources that are available for the student to use. Of course in many cases the tutor is already going to be taking a learner-centred approach in teaching, in which case introducing appropriate uses of educational technology is simply introducing more flexibility and variety to an already engaging course.

So what are the main challenges this entails for the tutor? Playing more of a guiding role than might be the case when a course is delivered mainly through lectures and seminars is one, especially where there is an increased emphasis on students collaborating online. Gaining ease at providing this guidance as a participant in online discussion is a related issue, while ensuring that the students themselves understand and feel comfortable with what they are expected to do when working in blended and online contexts is another.

► See Unit 4 for further guidance on the role of the tutor supporting blended and online learning.

6.2   Making the transition

Understanding what is involved in terms of shifting roles and responsibilities is one thing, but for the tutor facing the prospect of teaching in a blended or online context for the first time, actually making the move towards doing so is another matter. However, there are some really good ways to better prepare yourself for teaching using technology. Here are a few suggestions to think about:

- **Think about your teaching**. Consider the courses(s) you teach and how you currently teach them. What works well and what could perhaps work better? Would increased collaboration between students be desirable, or having more students participate in subject-related discussion? Would your students benefit from more self-testing and reflection opportunities, or through interacting with relevant multimedia? Thinking pedagogy first, are

there any ways in which technology could perhaps play a role, or is this at least worth exploring further?

- **Consider your students**. Who are they? If they are new to HE will they have the skills to work largely independently online? What will they need or expect if they are Masters or distance learning students. What IT skills will they have or need for what you have in mind for your course?

- **Shadow a colleague who is already doing well using technology in their own course(s)**. Go along and see what they do in the classroom, or ask to be enrolled as a guest in the online environment for their course and get a feel for what's happening. Ask them questions about their approach.

- **Seek relevant staff development guidance**. Sign up for relevant workshops and events, and arrange to meet with specialist advisers to talk through your questions, ideas and concerns. At Edinburgh Napier, this is enabled through the Professional Development programme and the Academic Development Advisers (Online Learning) that are attached to each Faculty.

- **Become an online student**. What better way to get a real insight into the nature of blended and online teaching and learning than for the tutor to experience this as a student. At Edinburgh Napier, we're fortunate enough to have Online Taster Courses offered through Professional Development and that are designed for this very purpose.

► **See Unit 3 and Unit 4 section 2 for further guidance on making the transition.**

6.3   Developing expertise

Given the range of ways in which technology can be used in teaching and learning, you may find it useful to keep the following general advice in mind whether you are completely new to using educational technology, or are taking the first steps towards trying a different approach to those you've used before:

- **Don't feel under any pressure to become an expert overnight**. It takes time to get to grips with trying anything new in teaching, and this applies equally to trying something new with educational technology.

- **Start small**. If you think there's a way in which technology can be used to better support some aspect of your teaching and your students learning, try it out on a small scale first. For example, perhaps introduce the use of online discussion within one aspect of one of your courses (having an online guest seminar in a particular week, or asking students to collaborate on one element of their coursework).

- **Don't expect everything to go to plan**. If you're trying something out for the first time it very probably won't, which is fine and provides a basis to build upon for next time. This is also why it's important to start small.

- **Talk to your students**. Ask them what they felt about the use of a particular technology-supported approach. What worked for them, what could have worked better? What else would they like next time?

6.4   Finding the time!

This is often a problem, depending upon what the tutor would like to do in terms of using educational technology, or what is being expected of them. It's certainly tempting to view the introduction of educational technology as just something else to be tackled in addition to a full range of other commitments, but introducing a technology-supported approach doesn't have to be that time consuming. Start small as described above, and introduce new things incrementally either throughout the course, across courses, or from one trimester to another. Be aware also of the manner in which using educational technology in certain ways can actually save time (as described previously in section 5.0 and in Unit 2).

Of course, if you are to develop a predominantly or fully online course that's a different matter altogether. The hope is that an appropriate amount of time will have been scheduled in to allow this work to be undertaken. If not, please see Unit 3 section 5 for useful information that may help make the case for this.

6.5   Knowing where to find help and resources at Edinburgh Napier

It is important to establish what guidance and advice is available to you from colleagues, other departments, and also from the online learning team in Professional Development here at Edinburgh Napier where each faculty has a designated Academic Development Adviser (ADA). The ADA's role is to provide pedagogical and technical support for online teaching and learning activities. One of the first things to do when considering the use of technology in your teaching is to contact your ADA who can point you to valuable resources and reading material, help you decide whether to choose a blended or fully online approach and can assist you at all stages of design, development and implementation.

Please find the contact details for the **online learning team** below:

- **Stephen Bruce** (MLE developments)
  s.bruce@napier.ac.uk
  tel: 455 6116
- **Julia Fotheringham** (Faculty of Engineering, Computing and Creative Industries)
  j.fotheringham@napier.ac.uk
  tel: 455 6468

- **Colin Gray** (Faculty of Health, Life and Social Sciences)
  c.gray@napier.ac.uk
  tel: 455 6437
- **Elaine Mowat** (Napier Business School NUBS)
  e.mowat@napier.ac.uk
  tel: 455 6446

There are also other contacts and helpful resources to be aware of for getting assistance on a range of technical, administrative and specialist matters that are relevant to the success of blended and online learning approaches here at Edinburgh Napier which are compiled below for your convenience and may be referred to again in later sections of this guide:

Edinburgh Napier services

- **C&IT services** for (not just) technical problems in using WebCT. Consult the C&IT website for new staff at **http://staff.napier.ac.uk/services/cit/IntroductionNewStaff/Pages/IntroductionNewStaff.aspx** or send an email to **c&itsupport@napier.ac.uk**. You'd be surprised what C&IT has on offer such as their TINY URL service at **https://staffworkplace.napier.ac.uk/OnLineServices/Pages/SmallURL.aspx**
- **Library** for advice on digitisation of text for use in your online module, copyright issues, access to e-books and further e-resources. Get in touch with your school librarian for individualised support at **http://staff.napier.ac.uk/services/library/helpcentre/Pages/MyLibrarian.aspx** or browse the library's one stop e-resources shop at **http://staff.napier.ac.uk/services/library/electronicresources/Pages/NUINlink.aspx**
- **Professional Development** technology-enhanced learning website for a list of technologies Edinburgh Napier subscribes to for your use in your teaching. See **http://staff.napier.ac.uk/services/academicdevelopment/professionaldevelopment/TEL/Pages/welcome.aspx**
- **Professional Development** programme for a range of general and customised training sessions related to the use of technology. Have a look at **http://www2.napier.ac.uk/ed/profdev/**
- **School office** for ensuring module presence and online module student enrolment in the VLE. See **http://www2.napier.ac.uk/webct/staff/contact.html** for your school contact details.

Edinburgh Napier resources and materials

- Accessibility Matters website at
  http://www2.napier.ac.uk/ed/accessibility-matters/

  This site provides a guide to creating online learning materials which are accessible to all regardless of disadvantage or impairment and covers a wide variety of file formats.

- Be wise, don't plagiarise! website at
  http://www2.napier.ac.uk/ed/plagiarism/

  Developed in 2006 to address the need for a "one stop shop" for materials and resources related to good referencing practice including guidance and tutorials for staff and students. The site also hosts the Turnitin®UK text matching software user guidelines.

- Distance learning website (for students) at
  http://www.napier.ac.uk/napierlife/firstday/distancelearners/Pages/DistanceLearners.aspx

  This site provides a comprehensive overview of what Edinburgh Napier offers its distance learners. Be sure to point it out!

- Get ready for University website at
  http://www2.napier.ac.uk/getready/

  This site is a resource haven for students struggling with academic writing. Originally designed to ease the transition for FE students into HE this site has evolved into an interactive writing skills resource for all.

- Edinburgh Napier podcast project at
  http://edinburghnapier.podbean.com

  Launched in 2009 this project aims to improve retention by providing additional support to first year students. In 2009 each week a podcast was released to students with relevant and timely advice-have a listen for yourself and point out relevant clips to your students.

- Institutional web 2.0 guidelines for staff and students at
  http://staff.napier.ac.uk/services/CorporateAffairs/governance/DataProtection/Pages/InternetServices.aspx

- Use of wikis, blogs and social networking sites has real educational value, but there are risks involved which this relevant and current document makes you aware of and which includes helpful advice on how to avoid the most common pitfalls.

6.6   Consult the Quality Framework

If you get no further in this guide, but are thinking about using educational technology in your teaching, make sure you consult the Edinburgh Napier University Quality Framework section A.9: Assuring quality and standards in online learning currently being updated and soon to be made available on the Quality Framework website at
http://staff.napier.ac.uk/services/academicdevelopment/QualityEnhancement/QualityFramework/Pages/QualityFramework.aspx

Until the update has been completed find the original guidance on the Academic Development website at
http://staff.napier.ac.uk/services/academicdevelopment/LTAresources/Pages/onlinelearning.aspx for a brief but relevant set of guidelines to help get you started with technology-enhanced approaches to your teaching.

6.7   Consider the PGCert/PGDip/MSc Blended and Online Education Programme (MSc BOE)

If you start using this guide or have had an opportunity to incorporate technology into your teaching and discover that you would like to gain further insight into the practice and theory behind it all, then you may not find adequate coverage of these themes here. What you will find at Edinburgh Napier University, however, is the fully online PGCert/PGDip/MSc Blended and Online Education programme aimed at teaching and training professionals in the HE, FE and commercial education sector. If you are keen to gain the practical skill and pedagogical understanding to allow you to become an expert in the field in order to make more informed choices in the design and development of your teaching with the increasing range of technologies then do have a look at the MSc BOE website at **http://www2.napier.ac.uk/ed/boe**. There you will find an overview of the programme structure, topic coverage, study support features and student testimonials. The MSc BOE takes a hands-on, practice-orientated and highly interactive approach where students apply their learning in individual and collaborative projects directly to their own teaching or training environment.

In other words, if this guide does not fulfil your needs there certainly is opportunity for more in-depth exploration of technology enhanced teaching and learning in the company of others on the MSc BOE!

7.0   So where do you go from here?

That really depends where you are starting from. Perhaps you've already had some ideas for using technology in your teaching from good practice you've seen elsewhere, from browsing through parts of this guide, or from talking to your colleagues or Academic Development Adviser.

Whether you're doing something now or simply contemplating it, take some time to look through this guide if you've not already done so. If you're completely new to using educational technology, the unit that follows now (Unit 2 Starting to use technology in teaching) might provide you with some simple ideas to try out.

8.0   Further reading

Ashwin, P. (Ed) (2006) *Changing Higher Education. The development of learning and teaching.* Ch. 6 Elearning in Higher Education by D. Laurillard. London: Routledge. Available at Edinburgh Napier library in print and as an e-book (2008) via MyiLibrary.

Butcher, C., Davies, C. & Highton, M. (2006) *Designing learning: From module outline to effective teaching*. Ch. 1 The higher education context; Ch. 2 How your teaching fits into the bigger picture. London: Routledge. E-book access only at Edinburgh Napier library via MyiLibrary.

HEFCE/UUK/SCOP (2003) Final report of the TQEC on the future needs and support for quality enhancement of learning and teaching in higher education. Available online at **http://www.hefce.ac.uk/learning/heacademy/tqec/final.pdf**

Higher Education Policy Institute (HEPI) (2008) Higher Education supply and demand to 2029. Available online at **http://www.hepi.ac.uk/466-1366/Demand-for-Higher-Education-to-2029.html**

Howard, C., Schenk, K. Discenza, R. (Eds) (2004) *Distance learning and university effectiveness: changing education paradigms for online learning* Hershey, Pa.; London: Information Science Pub. Also available at Edinburgh Napier library as an e-book (2004) through Netlibrary.

Inglis, A., Ling, P. & Joosten, V. (2002) *Delivering digitally: managing the transition to the knowledge media*. Open and distance learning series. London: Kogan Page. Also available at Edinburgh Napier library as an e-book (2003) through Netlibrary.

Laurillard, D. (2002) *Rethinking university teaching: a conversational framework for the effective use of learning technologies* (2nd edition). London, New York: RoutledgeFalmer. Available in print and as an e-book (2003) at Edinburgh Napier library through Netlibrary.

Weller, M. (2002) *Delivering learning on the net: The why, what and how of online education*. Ch. 1 Why the net is important; Ch. 2 Exploring some of the e-learning myths. Available in print and as an e-book (2003) at Edinburgh Napier library through Netlibrary.

Unit 2 Starting to use technology in teaching

If you are just starting to think about how you might be able to make good use of technology in your courses, but are perhaps unsure about where to begin or how much work this might involve, then please don't be! Using technology to support your teaching, and enhance your students' learning experience, really is within your grasp. This short unit aims to show you how, by presenting a series of examples that illustrate some simple but effective uses of technology to complement classroom practice. Hopefully you'll find something to try out!

1.0   Little blends, big benefits

It's important to realise that taking a blended approach to teaching doesn't have to mean re-designing your course to make extensive use of educational technology. The focus should always be on using technology in ways that are appropriate to you, your subject, your students, and your current good practice.

If you've read the introductory unit, you'll know that starting small is the way to go when first approaching the use of technology in your teaching. However you should also know that some of the most effective ways in which to use educational technology, whether you are new to doing so or not, often involve really quite straightforward interventions that don't take long to implement, or require any more technical expertise using the VLE than could be picked up in no more than a couple of hours. We can think of these kinds of approaches as 'little blends', where the emphasis is on enriching rather than replacing.

1.1   Some real examples of 'little blends'

Just take a look in the following interdisciplinary examples at the ease with which you can introduce a 'little blend' into your teaching. For each example think about the potential benefits for the tutor and the students, and then ask yourself 'Where might I usefully be able to do something similar?'.

- **Romance language**: Students' persistently poor written language skills have prompted a Spanish lecturer to incorporate Spanish e-mail correspondence between UK, Spanish, and Latin American partner institutions. The lecturer is encouraged, as students feel compelled to write better to their Spanish 'e-mail mates' than in their course assignments.

- **Chemistry**: A chemistry lab professor creates an online discussion board in which experimental procedures, pitfalls and safety concerns are discussed before the real lab session. In her very first message she

includes a video clip of a lab class in which correct procedures are ignored and students are challenged to identify these as a group online. This has saved time (and glassware) during real lab sessions.

- **Religion**: A reader directs his students to consult a chapter in an e-book, which is accessible to all his mature students at anytime. Students are pleased to be engaged with oral, printed and electronic forms of instruction.

- **Nursing**: Students enrolled in an orthopaedics course are directed every week to the VLE to watch a different open source examination video which prepares them better for their practical. The lecturer follows up the video clip with an online self test which students can download onto their mobile phones or PDA's in order to reinforce key elements of the examination procedure whenever and wherever most convenient for them.

- **Computing:** A lecturer has a high proportion of direct entrants coming into their course from a partner FE college, and provides additional support for these students through organising guest access to VLE sites for the modules that were undertaken prior to them entering the course. To help provide further bridging support, the lecturer 'buddys' direct entrants with a previous direct entrant who has progressed to the next year of the course, with their communications facilitated via e-mail.

Hopefully at least a couple of these examples illustrate how simple uses of technology can have very worthwhile benefits. Now let's consider some further ways in which technology can be used to effectively enhance different aspects of classroom-based courses, specifically in relation to lectures, seminars, collaborative working, and the provision of tutorial support.

2.0 Enhancing lectures

There are many ways of using educational technology to support lectures, both in advance of and during the lecture. Just some of the possibilities include:

- **Providing skeleton notes online** Providing very basic outline notes online in advance of lectures can help students better prepare for lectures, and provide more 'space' within the lecture for students to listen rather than simply write. Skeleton notes also provide some structure for those who are new to note-taking, or need to improve their skill. Consider linking to a few key readings in skeleton notes so students can further prepare for your lectures. Providing definitions of key subject-specific terms within the notes can also help, particularly for international students who are then able to translate before, not during, the lectures.

  Explicitly state that notes are provided in advance to enhance what students learn in lectures, with attendance still very much expected.

- **Get the students to write the lectures!** Not literally of course, but perhaps each week a different group of students can research the next week's lecture topic and then put together a short PowerPoint® presentation on what they've found out, and key questions they've identified. This could be provided to the tutor in advance of the lecture for them to add their annotations and additions, or could be used as is for exploring the topic in the lecture, with the tutor elaborating.

- **Make use of relevant multimedia** There's so much good, free-to-use multimedia subject material on the web. Why not elaborate upon explanations of particular topics by connecting to relevant examples during the lecture? This will enrich the lecture and aid understanding, and be particularly appealing to students who either have trouble visualising objects and processes, or who have a visual learning style.

  You could also provide links to relevant multimedia examples in your own online materials (eg topic overviews, skeleton lecture notes).

- **Bring an expert in** Many modern lecture halls are well equipped with technology, and the ease of using internet video telephony these days means that it's actually very easy to bring a guest speaker into the lecture. Perhaps the students could decide upon key questions in advance, and the lecture becomes part guest lecture, part Q&A session. Alternatively, the tutor could provide a short lecture on a particular issue in the first part of the session, in which they would help their students identify key questions, before then chairing a Q&A with an expert guest.

► **See Unit 7 section 5 and Unit 10 section 2 for more examples of freely available online multimedia resources subject to permissions.**

3.0   Enhancing seminars

Through using asynchronous discussion boards or web conferencing tools (eg, Elluminate®) in particular, technology provides several options for enhancing or extending the traditional seminar:

- **Bringing an expert in – again!** But this time using a discussion board or via a web conference. Experts could be from the field, academic colleagues, or students from different disciplines or further on in the same course. The important point is that both communications tools aren't necessarily dependent on everyone being online at the same time. The discussion board is a time delayed communications tool and web conferences can be recorded for viewing at a later time. Both options open up the possibilities of students learning from the perspectives of knowledgeable others who themselves never have to fill out a travel form to be there.

One possibility is to have an expert 'hot seat'. Students explore an issue in advance through some key readings – perhaps including material from your guest, before deciding (maybe with the tutor's help) on a set of questions to post to the discussion board. The expert would then take some time to consider the issues raised before responding on the discussion board or prior to the synchronous web conference session. In this way they could even put questions back to your students for them to consider and respond to, before the tutor or expert provides a closing summary.

- **Online follow-ups** Encourage greater participation in subject-related discussion, particularly for those who are less forthcoming in face-to-face seminars, by having students (maybe in pairs) take turns to summarise seminar discussions, and post this summary online. The rest of the class can then be required to respond to this summary, either with key comments on what they learned from the seminar, or issues they are still unsure of. Alternatively, if the summary contains some follow-up questions, each student can be asked to provide a response to at least two.

  Another good variation on online follow-ups, and which might be a better option when working with new undergraduates, is for each student to be asked to briefly summarise what they learned from the seminar, along with the one key issue or question they would like clarified. Each student then has to answer at least one question from a classmate, with the tutor providing their own input to clarify major points.

- **Making online seminars student-led** For more advanced students, you can take the idea of extending seminars further by having students open up, contribute to, and help close online seminars. This will help facilitate involvement in deeper subject-related discussion, as well as allowing experienced students to take more direct responsibility for their learning.

4.0 Supporting collaboration

Collaborative working is critical to understanding and the development of interpersonal and group communication skills, but can often be hard to support. Students can have problems managing group-work due to inexperience, or outside commitments making group meetings difficult. Lack of shared working space to meet and share documents can be a problem on campus, and when tutors are asked to help resolve group-working problems, it is often based on conflicting versions of events that are given long after the conflict first began.

► See **Unit 4 Section 5.1** for conflict handling tips.

Possible educational technology options to help support campus-based collaborative learning by tackling some of the above issues can include:

- **The provision of group-working tips and advice**. Easily accessible for consultation online. These can either be written by the tutor, or provided via a link to a good study-skills site that has appropriate advice on group-working strategies, roles, and common pitfalls and how to avoid them!

- **Establishing online group-working spaces** For sharing resources and documents. Students can easily establish their own shared spaces through setting up a blog, wiki or social networking space. Most VLEs, like WebCT, allow the tutor to set up private group areas and discussion boards.

- **Making the group process visible**. Consider asking students to take turns within their groups to write a weekly or fortnightly update covering progress, actions assigned, and any problem issues. After the nominated student has circulated the report for agreement, this can then be posted to a group discussion area that is also open to the tutors. This will give the group and the tutor with a means of monitoring progress, and provide documentation of agreed decisions and responsibilities that can be consulted should any group conflict need arise that the tutor needs to address. Using discussion boards this way also provides an easy means for the tutor to provide advice and guidance at key points.

► **See Unit 5 Sections 4 and 5 for more guidance on online collaboration.**

5.0   Improving tutorial support

Tutors often find themselves repeatedly dealing with common questions. With large classes, the number of queries the tutor might be expected to deal with in person or through e-mail can become particularly problematic. For students, the concern might be with the anxiety that results from not receiving help on or near the point in time at which it is most needed. Again, in this area educational learning technology can be used in fairly simple but effective ways by:

- **Providing readily accessible online advice**. Providing general advice on study-skills issues via external links, or subject-related advice on a simple FAQ page, allows students to get immediate access to guidance prior to, or even without, contacting the tutor. This may allow face-to-face tutorial time to be used to address more specific concerns.

- **Establish subject and coursework problem forums**. In a similar vein, using discussion boards or web conferencing tools to handle general subject and coursework-related questions can be a very effective way of ensuring the tutor only needs to answer common questions once. The idea here would be to inform students that all general questions should be posted to the relevant area on the discussion board, where the tutor will answer them for the benefit of the group. Students could also be required to help one another to encourage collaboration, and also reduce reliance on the tutor. Live web conferencing sessions (or so-called "virtual office

hours") can be scheduled in advance for more personal support at a distance.

• **Providing inks to good self-monitoring tools** Maybe there are good interactive tests or simulations in your subject area that are freely available online, subject to permissions, and which your students might find useful as an additional means of monitoring their developing understanding. These might be available as part of an electronic textbook, or in an online repository. There's a lot out there, and you may well be able to find something very valuable to point your students towards.

► **See Unit 8 for more guidance on supporting the online student.**

6.0   Taking it further

Remember that you don't need to use technology in particularly sophisticated ways to realise the benefits it can offer to yourself and your students. Thinking about what you could usefully do to enhance your courses in the types of ways described in the examples above is an excellent way to make a start, and you may find that implementing just one or two ideas like these can add a significant new dimension to how you teach, and how effectively your students learn.

7.0   Further reading

Bonk, C.J. and Graham, C.R. (Eds.) (2006) *The Handbook of blended learning: global perspectives, local designs*. San Francisco, California: Pfeiffer.

Bowles, M.S. (2004) *Relearning to e-learn: Strategies for electronic learning and knowledge*. Melbourne University Press. Available at Edinburgh Napier library in print and as an e-book (2004) via the Informit Database.

Conrad, R.M. and Donaldson, A. (2004) *Engaging the online learner: activities and resources for creative instruction*. San Francisco, California: Jossey-Bass.

Littlejohn, A. and Pegler, C. (2007) *Preparing for blended e-learning*. Routledge.

Thorne, K. (2003) *Blended learning: how to integrate online and traditional learning*. London: Kogan Page.

Unit 3 Designing blended and online modules

Current literature in online education cites seemingly ubiquitous advantages of blended and online modes of course delivery that include everything from increased flexibility, richness of communication and greater opportunities for lifelong learning. Nevertheless, many lecturers in higher and further education remain wary of online technology, sceptical about an unfamiliar format of teaching, fearful of lack of technical and pedagogic skills, and uncertain about workload implications.

These are in fact often valid concerns and if you find it hard to embrace online technology, then it is really not surprising at all. In fact it probably mirrors the feelings most of your teaching peers had before they 'went online'. This is sometimes a result of misconceptions about using technology in teaching, the most common of which are addressed in Hit and Myth! (Unit 1 section 3.0) of this guide. Even after reading that section you are likely to still have concerns. Possibly the following surprising experiences reported by your peers after going online can help put you more at ease?

Consider Rachel, for example, a health lecturer and staunch resistor of online teaching until it became evident that one of her failing students suddenly excelled in a newly launched fully online module. Rachel was stunned, but the student easily explained that the flexibility of studying, reading and interacting online finally gave her a realistic chance to fit work, family and study commitments into one day.

Ian, a lecturer in the business school, was pleasantly surprised by the improved level of preparedness his students showed during his lectures after making lecture note outlines available to them beforehand, online. Lecture attendance did not suffer and students remarked they had more time to reflect on the lesson.

Finally, part-time engineering lecturer, Barbara, couldn't have kept her lecturing position had she not had the flexibility to teach fully online from at home while her children were young. There she discovered that the chatroom for holding virtual office hours would lend itself to her face to face lectures as well.

These are only a few examples of the benefits to teaching staff and their students after going online. In addition, by using online technology you are at the cutting edge of emergent, innovative teaching and learning practice! This is by no means meant to downplay the challenges of using technology to support teaching, the anxiety felt at communicating online or the extra time required to redesign a course to a blended or fully online format. Often, however, these problems and the resulting feelings of disappointment are consequences of inadequate preparation, underestimation of online student support needs and grave

misconceptions about good design practice for blended and online modules. All reasons for which you are encouraged to continue reading this chapter.

Might there be something in it for you or your students? Let's explore the design and development issues around blended and online instruction in this unit first in order to

- Raise awareness for key issues around the delivery of online learning
- Provide a point of reference for the incorporation of online technologies to teaching including examples of redesigned classroom-based instruction
- Promote a consistent approach to the delivery of online learning, and
- Encourage you to give it a go!

1.0   What is blended and online teaching…really?

In fully online modules learning materials, student support, activities and assessment are delivered online such as in a virtual learning environment (VLE), for example. This chapter focuses on the design and development issues around fully online modules or blended modules in which ICT (Information and Communication Technology) has replaced substantial elements of traditional delivery. The degree of the blend can vary, of course, and for examples of 'little blends', you are referred to Unit 2.

So, really, what does a blended and online module look like? Let's take a closer look at one example of each, below.

Example

Blended module

Information Technology Management and Applications is a module in a School of Engineering that was redesigned from face-to-face to blended delivery in order to more fully meet the needs of the growing number of international students enrolled. The 30-40 students are typically in their second trimester. Two of the three hours lecture time have been replaced by tutorial sessions with the lecturer in the computer lab during which time students completed practical work (eg Making presentations using PowerPoint®, project management using Microsoft® Project 2003) and discussions are held. Lecture notes are published on WebCT after the lecture. Administrative info, relevant web links, online resources and support sites are posted in WebCT as well. One of originally two written assignments has been replaced by an online assessment. A peer assessment activity is carried out in groups supported by the group-work tool in WebCT. Assignments are submitted, graded and returned electronically.

The module is currently being migrated to WebCT in which group sign up sheets will reduce the workload for the module leader substantially. More online quizzes with automated feedback will be created in order to give students more opportunity to practice. Plans for the future include audio rather than written feedback to assignments and introducing the wiki as a collaborative working area for student group-work tasks.

Summary: International students in particular welcomed the availability of supporting course material online as a supplement to the lecture in addition to the online self-tests for practicing skills and monitoring their learning progress.

For a detailed account of this module's redesign from lecture-based to blended please see Appendix 2.

Example

Fully online module

This case study is an Environmental Studies module delivered fully online to 23 mature students living in 8 different countries. All students are expected to participate 2-3 times/ week in a variety of collaborative discussions and activities online. Readings are assigned from two hard copy core textbooks, e-book chapters, online journals and the daily press. The module leader has prepared weekly open-ended questions for students to engage with in the asynchronous discussion forum. The questions encourage problem-based learning in which students enact role plays, collect and compare environmental data (such as hourly carbon monoxide concentrations in major cities) or discuss current events issues that add relevance to weekly topics. The module leader is highly visible online to publish announcements, support discussion activity or grade assignments. Students complete written assignments independently in which they consolidate knowledge constructed in the discussion forums. In a group-work activity in weeks 6-8 groups of 4-5 students work collaboratively in a wiki in order to prepare the online presentation of a case study analysis to the whole class. An online midterm tests basic terminology and concepts. All work is submitted electronically. Help and support is available via the asynchronous Problems Discussion area. The module leader offers a synchronous office hours' chat session which has proven tricky due to time zone differences, however. In an informal 'Chatterbox' discussion area students have the opportunity for online socialising.

Summary: Thanks to the supportive learning environment of the module and despite never meeting face-to-face, students felt comfortable sharing ideas and learning with one another online. The geographically dispersed student body posed some additional challenges for the module leader which were outweighed, however, by the rewards such as discussions unfolding rich in thought, reason and global knowledge.

2.0 Getting started

In Unit 2 of this guide you are introduced to a number of simple ways in which to use technology to support your teaching as in 'little blends' that require a minimum of preparation. In this section you will find a step by step guideline to prepare for the more comprehensive incorporation of technology to support your teaching for the delivery of a blended or fully online module.

2.1   First: Get in touch with your ADA!

Once again, and certainly worth repeating, you are encouraged to consult the Professional Development team at Edinburgh Napier University where the faculty Academic Development Advisers (ADAs) reside and whose role it is to assist teaching staff make best use of technology in their teaching activities. ADA contact details can be found in Unit 1 section 6.5 and on the WebCT staff pages at **http://www2.napier.ac.uk/webct/staff/training.html**

2.2   Next: Ready already?

If you think you're ready to try online, then by all means: get started! As discussed in Unit 1, teaching online requires many of the same skills you use in the traditional classroom. Aside from contacting your ADA avoid the most common pitfalls by talking to peers already online and by visiting relevant Professional Development training sessions. Dip in and out of this guide and any of the readings listed at the end of this guide's chapters for ideas and examples of what your online endeavour might look like.

While you're still here, though, find the rest of Unit 3 devoted to tried and tested online design and development recommendations for blended or online learning.

2.3   Finally: Be prepared-not scared!

Before starting to design and develop your blended or online module, do check to see if system and administrative requirements are in place first and avoid disappointment later on:
- Availability of internet access, correct hardware/software, system specifications and browser settings work/home (see link to WebCT staff pages at **http://www.napier.ac.uk/webct/staff**), anti-virus software updates.
- Teaching team login ids and access to WebCT (C&IT)
- Module instance on WebCT (contact your school office)
- Introductory training on features and functionality of WebCT(see WebCT staff help pages above or Professional Development programme for WebCT and related training sessions)

► See **Unit 1 Section 6.5** for detailed list of contacts.

3.0   Issues to consider in developing online learning

Regardless of mode of delivery, the principles underpinning designing effective approaches to learning, teaching and assessment are the same. However, there are several key additional issues to consider when developing online materials and resources, and which apply whether your aim is to enhance aspects of what

you do in the classroom, or to enable a predominantly or fully online learning experience.

Therefore, let's take a first look at key issues around:

- Your students
- Activities and assessment online
- Content and file formats.

Each of these points will be expanded upon further in later chapters of this guide (Units 8, 6 and 7, respectively) as the focus here is predominantly on approaches to the design of each rather than on their implementation.

3.1   Your students

When preparing to develop online materials, consider who your students are. If they are new to HE, will they have the skills to work largely independently online? If they are distance students, what are they likely to want from an online course? Might there be language or cultural barriers to overcome? What IT skills might they have, and what equipment will they need access to? How can they prepare for learning with online technologies?

3.1.1   Technical orientation
Prior to undertaking any online learning, the student must know how to operate the technology. At Edinburgh Napier the first-year induction programme provides a basic to introduction to WebCT, and Schools have run their own events for direct entrants and other students who are new to Edinburgh Napier's VLE.

The WebCT student support site at **http://www2.napier.ac.uk/webct/students/** is available through the student portal.

Before the trimester begins, consider sending out a 'Technical Checklist', a complete list of hardware and software requirements including browser settings for the VLE (available online from the WebCT staff help page) to your students. Encourage them to login to the VLE before the first day of the term, list relevant contact details and links to student help pages such as for WebCT at **http://www2.napier.ac.uk/webct/students/**

3.1.2   Online learning orientation
Most students will not only be unfamiliar with the virtual learning environment (WebCT at Edinburgh Napier), but with the general nature of learning online. It is important that students understand the nature and demands of studying online. Before the term begins point out to your students (via post and e-mail) the Edinburgh Napier student online induction website (at **http://www.napier.ac.uk/napierlife/firstday/distancelearners/Pages/DistanceLearners.aspx**). Book a computer lab for face-to-face induction sessions. Allow the first week of the term for online orientation and community building tasks. Let

them know what being an online learner will mean, either in an introductory e-mail or included as part of a Module Overview document in WebCT.

► **See [Appendix 1](#) for an example of online learning orientation guidance for students. See [Appendix 3](#) for a sample text "The successful online learner".**

At Edinburgh Napier the first screen the student sees when entering a WebCT module is the so-called Course Content Home. When designing your module's Course Content Home, be sure to make your students feel welcome online by greeting them warmly. As demonstrated in Fig 1 below let them know exactly what you intend to use WebCT for, the online presence expectation you have of them, your role and important contact information.

.
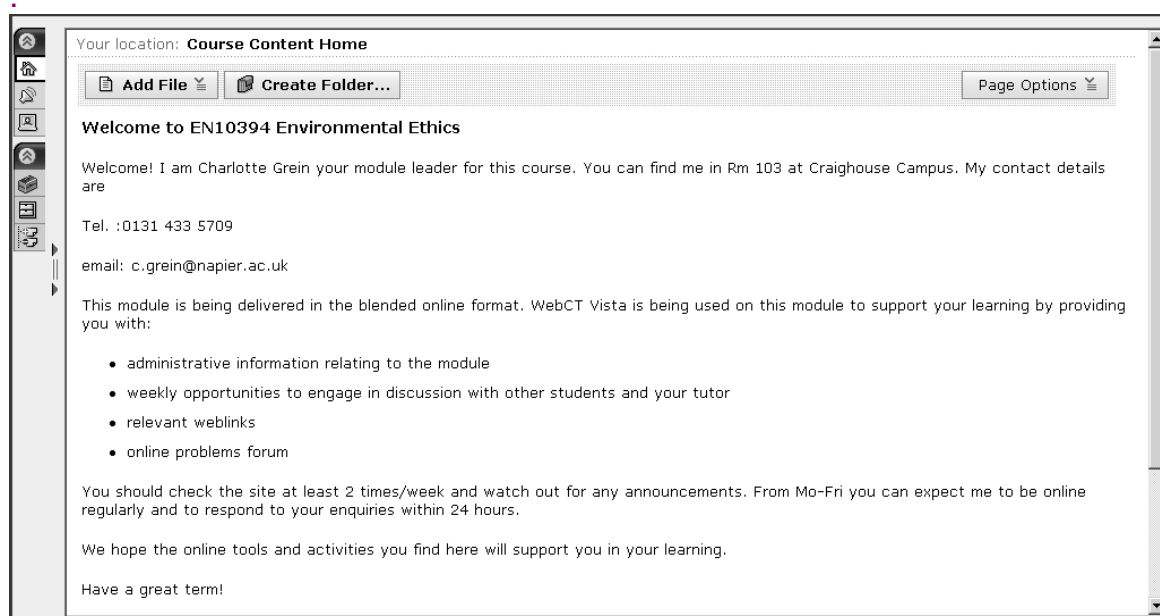
Figure 1: A WebCT module homepage with relevant module information for students

It is recommended to organise materials and activities in folders in order to avoid clutter on the homepage. For example consider creating two folders on the Course Content Home to begin with: the **Module Guide** and the **Module Materials** folder as shown in Fig 2.

Figure 2: Module Guide and Module Materials folders on WebCT Course Content Home

The **Module Guide** folder could hold all relevant administrative and support documentation. For example in the example in Figure 3, the students new to WebCT, were invited to a face-to-face induction workshop before the beginning of the term and asked to complete a set of induction activities in order to familiarise themselves with the tools they would be expected to use throughout the term. In addition they were given a handout
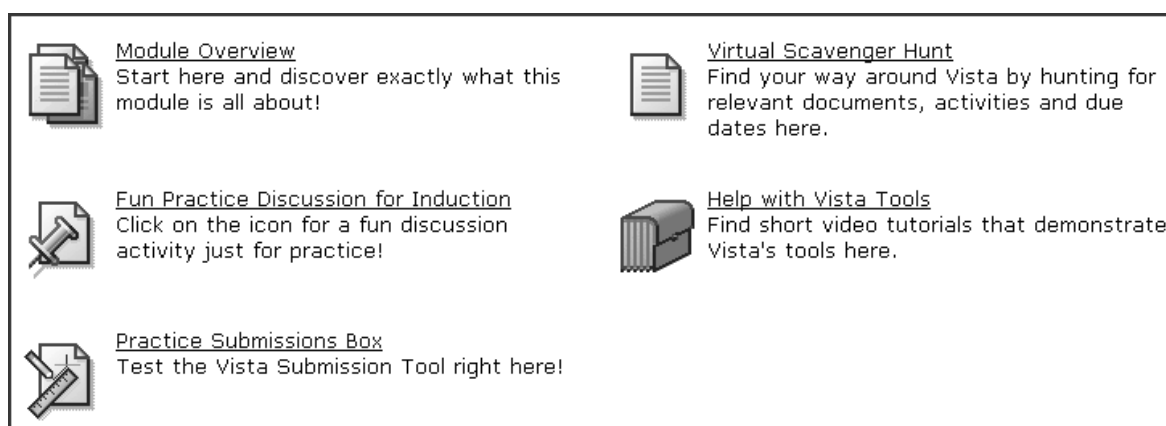
Figure 3: Module Guide folder content in WebCT

In addition to induction or orientation activities the **Module Guide** folder (see Figure 3) would include any or all of the following information, some of which will usually be part of the **Module Overview** file (see Figure 4 for a Module Overview excerpt and Appendix 4 for a sample text):

- Programme details
- Module descriptor
- Role of VLE including expected usage/purpose of online tools
- READMEFIRST file that includes technical help contact info/FAQ file/troubleshooting guide)
- Timeline with list of weekly activities (readings, research, discussions, etc) including exact assignment due dates/closure of discussion boards/on-site meetings and locations/test dates and locations
- Netiquette guidelines (see Appendix 8)
- Online study-skills guidance (see Appendices 1 and 3)
- Plagiarism policy (see Unit 10 section 3)
- Grading criteria
- Assignment specifications including preferred file type/submission mode/late policy etc
- Tutor contact details (more than one!)
- School administrative contact details
- E-mail guidance (see Appendix 11)
- Role of tutor (online response time, statement of intent)
- Role of student (online communication policy, time commitment to online study, discussion and other activities) (see Appendix 13)
- Module team biographies and photos.

Figure 4: Example Module Overview found in the Module Guide folder of a WebCT module

The second folder on the Course Content Home, the **Module Materials** folder could hold module materials such as Unit lessons, assignments, web links, discussion boards, group sign up sheets, and assessments (see Figure 5).

For predominantly online study consider adding to the **Course Content Home**:

- Problems Forum discussion area on which to ask module related questions
- Informal socialising space for students to stay in touch beyond module-related issues (eg Chatterbox, Teatime).
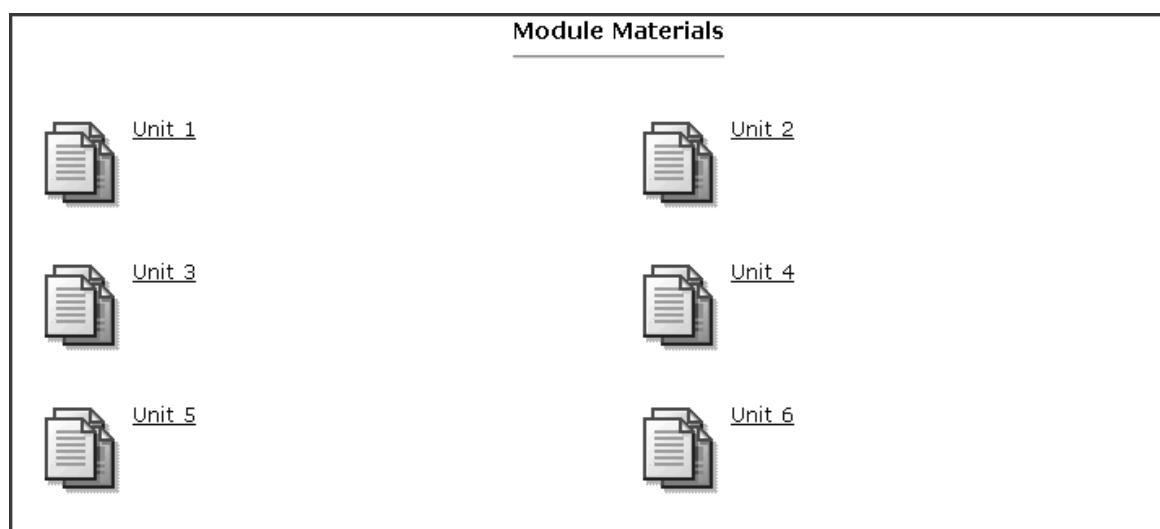
Figure 5: Example of Module Materials folder content in WebCT

► **See Unit 8 for further guidance on designing your online module.**

3.2   Activities and assessment online

How might online provision support your students' learning? First, carefully look at the subject matter and desired learning outcomes, and then explore the possibilities offered by online technology. Provide students with a need to use online resources and include continuous coursework that requires students to engage with online materials, and with each other online, over the duration of a module. Make it as purposeful as possible by carefully aligning learning outcomes to the online activities.

3.2.1 Activities online

Regardless of the subject matter in an online or predominantly online module it is recommended to include weekly activities that actively engage the students with the material and with one another. Online modules benefit from opportunities for online communication and collaboration between students to enhance learning, reduce isolation, and help improve retention. Table 1 lists types of activities that have been shown to work well online including teaching examples and tips for implementation.

► See Unit 5 for further guidance on online communication tools and collaborative working spaces.

Table 1: Real examples of activities that work well online (idea for table inspired by Virginia Tech Faculty development institute resources located at http://www.fdi.vt.edu/

Activity type	Supporting technology	Teaching example	Tips
Discussing and interacting	Discussion boards, chat, e-mail, list servs, blogs, video conferencing	Hands on vs. inquiry science lesson	Open-ended questions promote critical thinking skills. Might there be an expert guest you could invite for added value?
See example at: **http://www.wasdinet.org/sample-sl.htm**			
Debating: Students defend opposing side of a controversial issue	Discussion boards, chat, video conferencing	Students debate the question: Should everyone carry an identity card?	Think of a controversy related to your subject area for meaningful debate. Be sure students have the opportunity to collect evidence and become informed in order to participate properly in debate
See example at: **http://www.idebate.org/debatabase/topic_details.php?topicID=34** from debate database at **http://www.idebate.org/debatabase/**			
Role play: Students take on an assigned role in a group or individual activity	Discussion boards, chat, e-mail	Role play assignment "Murder on the internet" in which students learning French and Spanish are assigned a character to play in the story revealing secrets about themselves by communicating with other students.	Think about positions that lend themselves for role play in your subject area, and how you prepare students for taking on that role.
See example reviewed at: **https://www.calico.org/a-636-Murder%20on%20the%20Internet.html**		Role play software at **http://www.fablusi.com/**	
Collecting and analysing data students collect data locally and share it via the VLE	Spreadsheets, discussion boards, chat, wiki, desktop sharing applications	In a geophysics lesson on earthquakes students collect earthquake data from Edinburgh University's worldwide earthquake locator and analyse and make predictions for occurrences as a group.	Which data is relevant to your subject area and where can students find it?
See the worldwide earthquake locator at: **http://tsunami.geo.ed.ac.uk/local-bin/quakes/mapscript/home.pl**			

Activity type	Supporting technology	Teaching example	Tips
Exploring real cases and problems: students engage with real world problems and scenarios in order to practice decision making skills, apply methods studied	Discussion board, chat, wiki	Case study of a death row inmate in which students explore perceptions of mental illness.	Ask yourself which aspects of your course relate best to the real world.
See example at: **http://www.sciencecases.org/artificial_sanity/artificial_sanity.asp**			
Travelling virtually: students take part in online expeditions collecting data, learning about different cultures and places	Video animation software, simulations, websites with relevant info and examples	Students virtually climb Mount Everest in order to collect expedition data	Be sure a virtual tour or travel experience really adds value to your lesson.
See example at: **http://dsc.discovery.com/everesttheexperience/interactive/interactive.html?clik=www_ifun_1**			
Creating a product or presentation: students share resources and exchange documents with the common goal of producing an end product.	Web page editors, PowerPoint®, wikis, whiteboards, desktop application software	Visit the first link below for a set of tutorials designed, developed and created by history students. See the second link for 'Why is the Mona Lisa Smiling?, an international collaborative web project between an American and a Swedish high school class	Ask yourself whether your subject area lends itself to creating a collaborative product - this could simply be a power point presentation, for example.
See examples at: **http://www.ucalgary.ca/applied_history/tutor/** and **http://library.thinkquest.org/13681/data/davin2.shtml**			
Tutorials, self-tests	Will vary depending on the application	Download a cashflow statement tutorial from the first link below.	There are hundreds of online tutorials available for every subject area-search for an appropriate one at the second link below.
See examples at: **http://www.athabascau.ca/html/staff/academic/ccas/davida.htm** and **http://www.thegateway.org/**			

Activity type	Supporting technology	Teaching example	Tips
Supporting a global partner or peer	Discussion board, e-mail, chat with whiteboard, wiki, audio-video conferencing	Students learning English as a second language support one another and monitor the others' skills from around the world.	Be sure to remind students of language and cultural considerations of written communication
See example at: **http://schmooze.hunter.cuny.edu/**			

3.2.2 Assessment online

Tutors delivering on fully online programmes, for example, do not have the face-to-face opportunities of campus-based lecturers to communicate with students on academic performance or formative feedback. Alternatively, creating a self-test tool online may not be accessible to all students of a face-to-face lecture. Both examples demonstrate just some of the circumstances to be aware of in the online assessment planning phase in order to ensure fair and consistent use.

The fully online mode of delivery in particular does not lend itself well to summative assessment, as opportunities for reinforcing learning or measuring performance are absent in an environment in which students need additional learner support. In addition to objective assessment, there are a wide range of assessed online activities that also lend themselves to the enhancement of face-to-face lectures and seminars. Examples include:

- Peer assessment of student publications
- Electronically submitted essays, reflective learning journals, blogs
- Collaborative projects
- Student created tests, tutorials, presentations (graphic/audio/video/text)
- Mandatory discussion participation
- Graded discussion moderation, summary or reflection

► **See Unit 6 for further guidance on coursework and assessment for blended and online learning.**

3.3   The content and file formats

If you expect to assign regular readings as a part of the coursework then you may want to consider picking a current, hard-copy core textbook for your students to refer to rather than putting effort into creating pages and pages of text online. Publishers today offer valuable online resources for both staff and students alongside the printed book (eg Houghton Mifflin Online Geology Study Center at **http://college.hmco.com/geology/resources/geologylink/fieldtrips.html**)

Anything from an online databank of quiz questions, crossword puzzles and lecture notes outlines are made available by many book publishers today and it pays to search for an appropriate book first before beginning to write content from scratch (see section 4.0 below).

Nevertheless, creating quality online learning materials gives learners added flexibility to study where and when they want and at their own pace. By no means, however, does online material need to be made available in print format as well. Your online content could complement printed hard-copy text by linking to relevant web resources (see section 3.3.1 below) or simply provide an audio overview of the weekly reading assignments. This is up to you and will depend on a range of factors.

3.3.1 Hyperlinking

A hyperlink is a reference in a written document to another resource such as a another document, web page or image. The following example from the School of Nursing, Midwifery and Social Care demonstrates how including a few hyperlinks enriches an online lesson where valuable web resources are made available to students literally at the click of a mouse.

Ethical Issues and Research Governance

Ethical issues are an important element in any research project. The topic of **ethics** has been burgeoning for now what seems a long time. After starting with the **Hippocratic Oath** for doctors, the other professions that are related to the care of people have also gone down the road of devising codes of behaviour (**RCN Code of Ethics, 1997**). These were drawn up to protect vulnerable people as well as staff members. Groups have from time immemorial agreed either tacitly or in a more overt way the rules by which they want to operate their lives.

| website | PDF file | glossary term |

3.3.2 General guidance

When preparing online material it is important to bear in mind that students will need more explicit guidance and information than for a traditionally delivered lecture or seminar. Without the visual and oral cues from the tutor students may struggle with the intent and meaning of an online text. It could be a lesson, instructions, coursework or merely a reference page for future use. Clearly distinguishing between different types of information from the outset benefits the non-native English speaker as much as the anxious online learner.

Consider the following key points when preparing online material:

- Add a descriptive heading (eg Unit 1 Introduction, Reading Assignment 3) to the written text which makes the nature of the content clear and be consistent in its repeated use (or of a descriptive icon) for subsequent units.

- Include due dates within the body of written assignments. Repeat this information in a timeline/planner, calendar and as an announcement.

- Write in a clear, succinct and lively manner. Remember, you are not writing a textbook. Finding your own, personal online voice is half the battle!

- Chunk your online texts into shorter, more easily read pieces of work (eg Introduction, Unit learning outcomes; Reading assignment; Lesson; Discussion activity are five separate online documents).

- Pitch your material at the appropriate level of study and be stylistically consistent throughout.

- Ensure just-in-time guidance**.** Explicit task-related pointers and instructions embedded within the written online text itself serve as additional guidance that is offered at the point in time it is most relevant (for example, discussion task requirements repeated in an introductory message from the tutor, a simple reminder to make sure the student 'has read and understood sections x or y' before using a specific self-test feature.)

The following example from an undergraduate online module being offered in the School of Nursing, Midwifery and Social Care highlights an online lesson that demonstrates all the above points nicely. Reading assignments are drawn from the core text book and relevant journal articles. Notice the explicit guidance at the beginning and the end of the lesson-the lecturer concludes all online lessons with the 'What do I do next' sections.

Example

6.1.3 Systematic Reviews

This section will prepare you for Activity 6.1.

There are numerous websites that provide invaluable information about systematic reviews. Within this page we are going to introduce you briefly to systematic reviews and then we are going to ask you to seek further information from these websites and participate in Activity 6.1.

As you will all acknowledge from undertaking this module and your brief exploration of the library databases in Unit 2 there is a wealth of research literature available to all health care professionals. Individual pieces of research are useful, but, alone they do not offer a great insight to their effectiveness, together they sometimes offer contradictory advice. Systematic Reviews are needed to assist practitioners make decisions about their evidence based practice. In response to a therapeutic question they collate all the evidence available, assess the evidence collated, combine the results and place the findings in context. A systematic review if undertaken adequately provides an unbiased answer to a therapeutic question.

What do I do next?
Participate in Discussion Activity 6.1. You can do this by pressing the Next icon in the action menu above and following the instruction under 6.1.4. Please remember the online activities are an important part of your learning too. If you do not participate in the activities then you will not gain the most from the unit.

► **See Unit 4 section 2 and Unit 8 section 3.1 for additional guidance.**

3.4   Formats for publishing in the VLE

When developing content for the VLE it is important to be aware of the issues concerning file format that will affect the accessibility and usability of the content for the student. Common file formats include: HTML (hypertext mark up language), Word, PDF (Portable Document Format), and PowerPoint® (also plain text (ASCII) and RTF (Rich Text Format) but less common due to formatting limitations.)

3.4.1   HTML
The most universally accessible file format across all types of machines and operating systems is HTML (or XHTML) and always the preferred format for publishing on the VLE. Here are the reasons why:

File size
HTML files are smaller than any of the other file formats. The bigger the file, the longer it will take the end-user to download. It's as simple as that! Students with slow connections will wait and possibly be paying on the basis of that time they must wait before they can read your file. An average user begins to get impatient after waiting 10 seconds.

Rule of thumb: 1 MB file size increases download time on a 28 kB modem by 5-10 minutes.

Comparison of file sizes:
- HTML: 2-5 kB/page
- Word and PDF (without graphics): 40kB-600kB/page
- PowerPoint®: 60 kB/slide
- Images: GIF or JPEG: 60kB/image
- Scanned texts: can reach file sizes of 5-6 MB!

MB = megabyte
kB = kilobyte

Software Requirements
HTML files do not require specialist software to be viewed-most web browsers can be downloaded for free (Internet Explorer, FireFox, Netscape) and every browser can read HTML. While the suite of Microsoft® products is the standard on most UK university operating systems this may not be the case for international partner institutions or their students. In order to read a Word or PowerPoint® document users may have to download a viewer plugin.

Certain document types, such as PDF, require additional software or plugins which the end-user either may not be authorised to install (eg at place of work), or may simply not be capable of installing. Furthermore, the user's operating system may or may not support the required plugin or software.

Accessibility

HTML code files are plain text files, so they can be composed and edited on any type of computer (Windows®, Mac, UNIX). HTML is coded to enable users to easily change the look and feel of a document to best suite their individual needs. In HTML, headings can be explicitly marked up with a particular heading level which screen readers (used by the visually impaired student) can easily navigate through. HTML provides the ability to add alternate text to images, which is read aloud by screen readers. HTML also provides extensive mark-up that allows users to easily understand relationships in tables.

For all its advantages, creating an HTML file, however, isn't as straightforward as creating any of the other file formats. But, learning HTML really isn't that hard and there are tutorials available on the web (eg **http://www.davesite.com/webstation/html**. Commercial web authoring tools such as Microsoft® FrontPage® and Macromedia Dreamweaver, for example, allow you to create accessible HTML pages or you can use the Seamonkey suite at **http://www.seamonkey-project.org/** for free.

WebCT has a built-in HTML creator which makes creating simple HTML files for the VLE as easy as writing a Word document (see Appendix 6 for guidance).

3.4.2 File formats other than HTML

Nevertheless, more likely than not you already have material in non-HTML formats and may be struggling for time to convert to HTML. Word, PDF and PowerPoint® files are easily uploaded into WebCT , and here are a few quick things you can do to improve accessibility and usability for the end-user also bearing in mind the tips provided in Appendix 5.

Microsoft® Word

Plain text document without images or tables are nearly as accessible as HTML, but

- Use the Word styles and formatting functions rather than highlighting to change Font size or style. This gives the text true structure which screen readers will recognise.
- Add alternative text when embedding an image by right clicking on the image, then select 'Format Picture', choose the Web tag and then type in the description.
- You can export any word document you create to an HTML file (click 'save as web page, filtered'), but often much of the web content ('junk' HTML) created is inaccessible to users with disabilities. Office 2000 users can install the added HTML filter at **http://www.microsoft.com/downloads/details.aspx?FamilyID=209ADB EE-3FBD-482C-83B0-96FB79B74DED&displaylang=EN** which removes the Office specific 'junk' HTML tags.
- In WebCT you can easily create HTML files from your existing Word document. See Appendix 6 for detailed instructions.

PDF

PDF preserves any document of any content (including fonts and graphics) exactly as the original, regardless of machine or operating system. PDF is a good choice particularly for files that include specialist symbols that are hard to convert to HTML. Converting a standard Word document (without graphics) to PDF can reduce file size by 75%. Please note that the belief that putting information online in PDF format protects your work from misuse is wrong-any content put online is at risk of being copied or manipulated.

To create PDF files:
- Download the Docudesk PDF Writer on a trial basis for free at **http://www.docudesk.com/support_files.shtml** Download the Adobe Acrobat 9.0 PDF Writer at **http://www.adobe.com/uk/products/acrobatpro/tryout.html** for a 30-trial
- There are three PDF document types: unstructured, structured, and tagged. When creating PDF files choose the tagged option as the one optimised best for accessibility.

Although PDF documents created with the Adobe Acrobat 5.0 and higher are generally accessible (provided Windows® users are equipped with the appropriate Adobe Acrobat Reader at **http://get.adobe.com/uk/reader/**) user groups recommend that PDF documents be accompanied by more universally accessible formats, such as HTML. To convert a PDF file to HTML or text go to **http://www.adobe.com/products/acrobat/access_onlinetools.html** and type in the URL of the PDF file.

PowerPoint®

Microsoft® PowerPoint® has become established as the most popular format for creating and presenting slideshows, but for complex applications file size and accessibility concerns may arise. In order to reduce the file size of your PowerPoint® slides consider the following before uploading your presentation into the VLE:
- Avoid animations or unnecessary images
- Disable 'Allow Fast Saves'. Choose Tools>Options (Tools, Preferences or PowerPoint®, Preferences on the Mac). On the Save tab, remove the checkmark next to 'Allow Fast Saves'.
- Change 'Maximum Number of Undos' to 10 or less. Choose Tools> Options (Tools, Preferences or PowerPoint®, Preferences on the Mac). On the Edit tab, change the number of undos to 10 or less.
- Don't drag and drop files into PowerPoint® (images are not compressed) Instead save your image as a JPG, PNG, or other file type, then use Insert>Picture>From>File.
- If you are only presenting text consider creating an HTML or Word file instead.
- Only content visible in the outline view can be read by screen readers-don't create additional text boxes
- Careful of colour contrast
- Be sure to describe graphics in the notes area

- If you have the Adobe PDF Maker plugin for Microsoft® Office you can export your PowerPoint® to a tagged (accessible) PDF file
- Star Office (download at **http://www.downloadstaroffice.com/impress.html**) is free and lets you create accessible narrated PowerPoint® slide shows
- Free software from the W3 Consortium for creating accessible PowerPoint® available at **http://www.w3.org/Talks/slidemaker/YYMMsub/**

You are also encouraged to read the TechDis Guiding Principles for the development of accessible e-content at **http://new.techdis.ac.uk/index.php?p=6_6** and guidelines for e-learning content at **http://new.techdis.ac.uk/index.php?p=6_6_1** for a list of the minimum requirements for creating accessible text, images, audio, video, and animated content.

Alternatively you may find that presentation software such as Slideshare (**http://www.slideshare.net/**) or prezi (**http://prezi.com/**) offer you more creative possibilities which students can then access via a dedicated hyperlink.

4.0 Rethinking content

> Every word and phrase should have to fight for its life. That means writing 'use' instead of 'utilize' which is identical in meaning, but has two more syllables.
>
> Crawford Kilian, 'Effective Web Writing', *Web Techniques*, Feb 2001

As it has become increasingly straightforward to make files of nearly any format available online, a common misconception about the role of the VLE persists as that of a content repository. This doesn't always make the best use of the online teaching and learning environment, however, and content-driven fully online modules are at risk of boring and de-motivating learners.

Reading lengthy lessons online is more strenuous and time-consuming than reading on paper. Ideally, when writing online content ask yourself, 'Is this text really something my students can't get from a lecture, journal article or textbook?' There are examples of content, of course, that you will find can't be presented in any other way: Instructions for the correct use of a fluid pump enriched with hypertext that links to a glossary of technical terms; an introduction to a topic that hasn't been discussed otherwise in its current currency; a case study that you have created especially for this cohort of students.

4.1 Alternatives to content

Nevertheless, the inherent strength of the online teaching and learning environment is the added opportunities for communication and collaboration using

asynchronous discussion boards, synchronous chats and whiteboards, e-mail, blogs and wikis.

Generally speaking higher levels of understanding are achieved when students are actively and collaboratively engaged in critical analysis, application, evaluation or synthesis rather than merely reading content. With this in mind, you might consider taking an activity-driven rather than a content-driven approach to your module design. To get it right (it won't be picture-perfect the first time, but that's ok!) think about the following before developing any content:

- Select the subject matter for the course.
- Translate content into learning outcomes.
- Explore activities and experiences to achieve the outcomes: How can the interactive and collaborative attributes of online technology assist?
- Finally, formulate unit introductions and online lessons (is there a book to support you?) that will prepare students to engage meaningfully with the activities.
- Carefully align learning outcomes and activities to assessment.

By focusing on the activities that support the student reach a learning outcome your students become active learners rather than passive readers, taking on more responsibility for their learning. Rather than *deliver* information, find here some teaching strategies that may help your students achieve higher level learning outcomes:

- Could your students seek out required information elsewhere, eg by consulting a journal, book, newspaper, website, online repository?
- Could your students construct new knowledge collaboratively in an asynchronous discussion area or blog?
- Rather than posting lecture notes, post questions to your lecture first and allow a few days before posting the answers.
- Consider omitting a further references list and let students create a collaborative subject related reference list in a wiki or social bookmarking site instead.
- Rather than upload unit summaries, assign different students each week to summarise content and reward them for it.
- Instead of uploading completed tables upload incomplete/jumbled up tables and tell students to complete/fix as an assignment.
- Rather than feed students statistics, prompt them to find the data and share with the class.
- Have your students formulate a quiz for the others which tests for understanding of the last unit.
- Send your students to audio/videotape interviews and upload the clip with others online.
- Have your students review video clips of statements by business experts and critically evaluate their opinions.
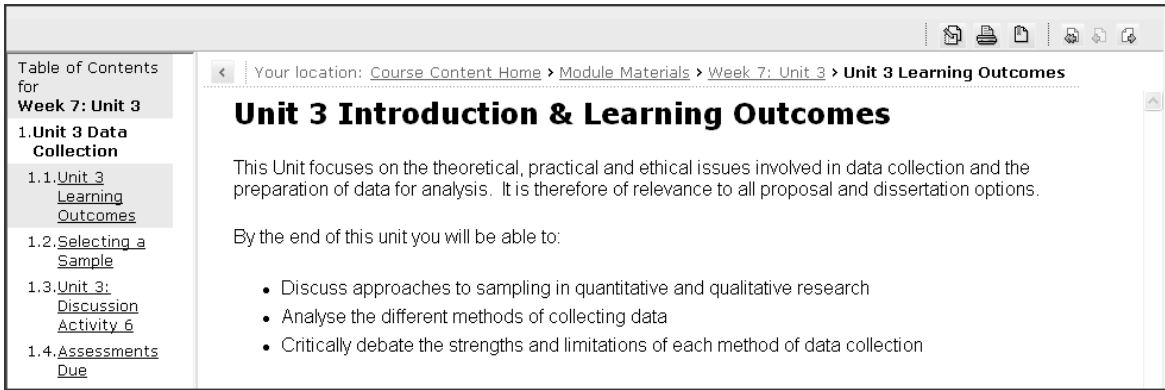
Example

Creating an activity driven lesson

In a fully online Research Methods module, students were previously expected to critically evaluate selected literature in their summative assessment. There was no opportunity to prepare for or practice critical evaluation skills beforehand and hence no online engagement evident during the term whatsoever. In an effort to engage students more online and improve the level of understanding a core textbook was chosen to replace the lengthy online lessons and to add regular opportunities for student-student and student-tutor interaction in a series of meaningful online activities. Close alignment between the LOs and TLAs assured that students understood the purpose of the TLA which made it relevant to their learning.

For one particular LO (eg 'Determine the structure and value of selected pieces of literature') students were paired up into online groups where they assessed each other's literature reviews. The peer assessments were then published alongside the reviews in the VLE and in a class discussion moderated by the tutor compared and commented on. The online content in preparation for this activity was a short introduction to qualitative and quantitative research methods, and a set of evaluation criteria and peer review guidelines. Further readings were assigned in the core text book. After the discussion activity students were given the opportunity to take the core textbook publisher's self-test quiz for reaffirmation of basic research methods and terminology.

The lively participation in the discussion demonstrated the effectiveness of this simple activity redesign. Tutors reported a higher level of understanding of research methods and literature reviews as demonstrated in the final assessments.

Table of Contents for Week 7: Unit 3

1. **Unit 3 Data Collection**
   1.1. Unit 3 Learning Outcomes
   1.2. Selecting a Sample
   1.3. Unit 3: Discussion Activity 6
   1.4. Assessments Due

Your location: Course Content Home ▸ Module Materials ▸ Week 7: Unit 3 ▸ Unit 3 Learning Outcomes

Unit 3 Introduction & Learning Outcomes

This Unit focuses on the theoretical, practical and ethical issues involved in data collection and the preparation of data for analysis. It is therefore of relevance to all proposal and dissertation options.

By the end of this unit you will be able to:

- Discuss approaches to sampling in quantitative and qualitative research
- Analyse the different methods of collecting data
- Critically debate the strengths and limitations of each method of data collection

► **See Unit 6 for further guidance on online activities.**

5.0   Online course design timeline of events

The following timeline will give you a rough idea of the stages involved in the design and development of a predominantly online module *from scratch*, and approximate timescale of events over a period of six months. This is clearly an ideal scenario which doesn't take into account the likely potential constraints of your teaching situation.

Six months before module delivery

- Contact faculty ADA (**http://www2.napier.ac.uk/webct/staff/training.html**) and arrange for start-up meeting to discuss learning model (pedagogic design) and timetabling
- Begin module validation process (consult Quality Framework)
- Begin organising teaching team
- Research publishers for core text with online support material
- Consult library for relevant teaching and learning resources and licensing arrangements (see also Unit 11)
- Consult VLE staff support page at **http://www2.napier.ac.uk/webct/staff/**
-

Four to five months before module delivery

- Register for relevant online learning teaching seminars and workshops run by Professional Development at **http://www2.napier.ac.uk/ed/profdev/overviewTechnology.htm**
- Log in to WebCT at **http://www2.napier.ac.uk/webct/staff/** and explore your 'sandpit'
- Begin developing course and exploring ideas for activities and assessment around learning outcomes.

Three months before module delivery

- Consult module evaluation checklist (Appendix 7) for initial monitoring of online activities, assessment, content, multimedia
- Begin building fully online course (later if including online elements for blended approach), including homepage header, introduction, content, online activities, glossary for the first 1 or 2 units, contact information, digital photo.

Two months before module delivery

- Online module design review by tutor and peers
- Add assessment specifications, assignment guidelines, grading criteria, references, online learning guidance etc
- Consider contingency arrangements should VLE become unavailable
- If team-teaching consider induction, training needs of teaching team – it's never too early!!

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2-3 weeks before module delivery
- Begin writing timetable, module overview, uploading self-test quiz questions, discussion activities
- Tutor to proofread, evaluate module, check student view and access of online activities and assessments
- Ask a colleague and/or faculty ADA to peer review fully clarity, appropriateness, navigation and ease of use (see online module peer review checklist in Appendix 7)
- Hide module units, assessments etc from student view (students may be enrolled at this time).

One week before module delivery
- Enquire about student module enrolment
- Finalise module header, welcome message
- Hold face-to-face/online student induction
- Address outstanding system/settings requirements.

First day of module delivery
- Post welcome announcement
- Respond to student introductions in introduction discussion board
- Monitor activity in week 1 orientation and bonding activities
- Check student list and logins. Test availability of guest account login if necessary

► **See Unit 4 and Unit 8 for further guidance on student support strategies during the term.**

6.0   Further reading

Anderson, T. (2008) Athabasca University *Theory and Practice of Online Learning (2nd ed.)*Part III Design and development of online courses. E-book available for free download at **http://www.aupress.ca/index.php/books/120146**

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Garrison, D.R., & Anderson, T. (2003). *E-learning in the 21st century: a framework for research and practice*. Ch. 10 Organisational issues. New York: RoutledgeFalmer. Available at Edinburgh Napier library in print and as an e-book via Netlibrary.

La Trobe University's Inclusive teaching practices web pages, which includes the 'Developing an inclusive curriculum' guideline available at **http://www.latrobe.edu.au/equity/disas/inclusiv.htm**

Lockwood, F. and Gooley, A. (2003) *Innovation in open and distance learning: successful development of online and web-based learning*. London: Kogan Page.

Jochems, W., van Merrienboer, J., Koper, R. (Eds) (2004) *Integrated e-learning*: *Implications for pedagogy, technology and organization.* Ch 8 Usability evaluation of integrated e-learning by Paas, F, & Firssova, O. RoutledgeFalmer.

Porter, L.R. (2004) *Developing an online curriculum: Technologies and techniques*. Ch. 2 Adding a course to the curriculum; Ch. 8 Managing program and faculty concerns. Hershey, PA: Infosci Publishing. Available at Edinburgh Napier library in print and as an e-book (2004) via Netlibrary.

Seale, J., & Cooper, M. (2009), E-learning and accessibility: An exploration of the potential role of generic pedagogical tools. *Computers& Education.*1107-1116*.*

Smyth, K. (2007). TESEP in Practice: The 3E Approach. Transform website. Available online at
http://www2.napier.ac.uk/transform/TESEP_3E_Approach.pdf

Accessibility Issues

Edinburgh Napier WebCT Accessibility Matters website available at
http://www2.napier.ac.uk/ed/accessibility-matters/creators/index.htm

Freedom Scientific's screen reader JAWS 40 minute demo at
http://www.freedomscientific.com/jaws-hq.asp

Regional support centre (RSC) NE Scotland AccessApps resource available at
http://www.rsc-ne-scotland.ac.uk/eduapps/accessapps.php

Regional support centre (RSC) NE Scotland e-inclusivity blog available at
http://www.rsc-ne-scotland.org.uk/e-inclusion/

TechDis (UK's accessibility advisory service) homepage at
http://www.techdis.ac.uk/

TechDis list of free assistive software list at
http://www.techdis.ac.uk/getfreesoftware

TechDis 'Creation of learning materials' resource at
http://www.techdis.ac.uk/index.php?p=9_7

Vischeck: to check and correct a web page for colour-blind vision
http://www.vischeck.com/

Unit 4 The role of the tutor

Initially, the role of a tutor using online technology in teaching is hardly different than the role of the traditional tutor who in the first instance is preparing for good teaching. But using *online* technology in teaching is not necessarily a straightforward task and does place added responsibility on the tutor, who will need time to acquire new technical and pedagogic skills and become aware of new approaches to teaching that support online learning better. Preparedness for online or blended teaching involves a wide range of activities that can seem daunting, and the following sections are an effort to not only assist in the planning of being as best prepared as possible but also to ensure consistent quality in the use of online technologies overall.

1.0   Why bother?

As a traditional tutor, you may be asking yourself 'Why should I go to the trouble of incorporating technology into my lecture in the first place?' or 'How can my teaching style be carried over to the online classroom?' These are valid questions, but consider the following before saying no to technology:

- Do you find you don't have the time for problem-based learning?
- Is it always the same handful of students who answer your questions?
- Do your students lack opportunity to practice skills with feedback?
- Is collaborative work among students too difficult for them to manage due to vocational and family commitments?
- Are your students asking you the same questions again and again, or finding it increasingly difficult to consult you during office hours only?

If you answered yes to any one of the above questions, online technology may be an opportunity for you to enhance your teaching and support your students better in one of the following ways:

- Online resources, such as images, video clips, flash animations and interactivities are freely available on the web (subject to permissions) which you can hyperlink to on a webpage as a meaningful supplement to your delivered lecture material.
- All students have a voice online and often engage in an online discussion better than in public. Making one available to a current topic extends lecture time and promotes deep thought.
- Groups can meet online at their leisure given the online communication tools to do so
- An online Problems Forum will see students helping each other rather than relying solely on you.

- Automatic feedback and computerised scoring on online exams gives students the opportunity to monitor progress on their own throughout the term
- The online assignment dropbox makes it convenient for you and your students to process assignments.

These are just a few examples of how online technology can be used to assist you in your teaching.

2.0 Teacher, moderator, facilitator, coach……?

Current literature around teaching with online technologies is certainly not consistent in the role ascribed to the person carrying out that role. The fully online tutor in particular may be assigned anything from being designer and learning technologist over to moderator, trainer, coach and finally, co-learner. The truth for individual tutors seems to lie somewhere in between all of these identities, rather than being pressed into one label for all and it may take some time to find out exactly what your role evolves into.

The truth is also, however, that once you decide to implement technology into your teaching, your role as a tutor will change. As demonstrated in Unit 3 already there are things to be aware of and to put in place that were not the case in your traditional teaching (ah, bliss!), ranging from access issues to appropriate training and induction of the teaching team and students. No, technology is not the focus, but there is work involved in preventing it from becoming a barrier. Luckily at Edinburgh Napier we have a network of support in place to assist you on what should become a worthwhile and rewarding endeavour rather than an unavoidable chore. You are encouraged to seek out the wide range of institutional help in place as highlighted in section 6.5 if you haven't done so already. The focus of the remaining unit will be on *you* and what your students may be looking to you for once the teaching term is underway.

► **See <u>Unit 1 section 6.5</u> for detailed list of available support.**

3.0 Things to do

In Unit 3 of this guide the focus was on module design and development issues for modules enhanced by the use of technology in blended or online delivery. Our focus here is on the work that begins once the students start populating your classes. Designing a technologically enhanced module with the learner in mind is only half the battle and part of a persistent misconception that "once it's up online, the tutor has much more time". Little could be further from the truth as all students –traditional, blended or online-need their tutors. The difference lies in the nature and location of that support and in the range of tasks that you will find yourself doing. Let's begin with the start of the term.

3.1 The term begins

Inadequate online support is closely linked to poor student attrition rates, but as demonstrated previously support of the student begins long before online or blended learning module delivery in order to assure seamless module access on day one of the term or to provide opportunities for practice and familiarisation. At no other time is the student more vulnerable than in the very first week, ie, at his/her very first login to the online learning environment. Studies in the UK, Australia, Canada and the US all confirm this. Here administrative and technical support play key roles as well. Judith Hughes of Athabasca University, Canada writes recently, 'Institutions engaged in distance and online education know that smooth administrative processes can be as much a factor in learner success as the design of learning resources.'(Hughes, 2004)

Subsequently, aside from creating material upfront for a 12 or 16-week course, administrative processes will have to be completed, such as book orders and matriculation. Once this is in place and you have double checked the timeline dates, embedded hyperlinks and contact details-let the term begin!

3.2 The term is underway

Students are often anxious about the online learning environment, but your consistent online presence from the start will encourage students to log in as well. Needless to say this will require timetabling on your part and there may be workload issues to address in relation to your new role.

Beginning the term with a warm welcome message on the module homepage invites the student to probe further. Ensuring timely and supportive responses to e-mails and conference discussion posts acknowledges the students' effort and time spent online.

Here are some further general online student support tips that you may find helpful:
- Be there!
- Maintain an encouraging, friendly online voice.
- Share technical difficulties and e-mail students in case of technical problems-let them know you are aware and care.
- Remember you can never give students enough guidance or instructions online. Post reminders of due dates on the Noticeboard or Announcements area, for example
- Request feedback and use it to improve delivery during the term
- Respond promptly to all enquiries
- Set and communicate strict e-mail parameters (tutor time management)
- Set and enforce assignment deadlines (student study-skills support).

4.0   Supporting the learner community

In addition to establishing your online presence, designing an online module in such a way that is supportive of a community of online learners is also paramount to dispelling online learning anxieties and subsequently fostering online engagement. This sees a range of communication technologies in use in order to enable peer-peer and peer-tutor support and discourse. By considering the social dimension of online interaction and creating opportunities for gaining trust for effective and rich online communication and collaboration once the term is underway-you will help your students not only feel comfortable but they may even reach better learning outcomes. Read on for a few ideas on how this can be accomplished.

4.1   Tutor online presence

The tutor initially lays the foundation for an online learning community by careful design of and preparation of the learning environment (see Unit 3). As mentioned before the first login to the module homepage leaves a lasting impression and can raise a mixture of emotions with the student. A thoughtful choice of icons, fonts, colour combinations and straightforward design can avoid initial disorientation. Let's look into the finer details in the next sections.

4.1.1 Welcome
A warm and inviting welcome message helps make the student feel more at ease and already sets the personal tone for online delivery by the tutor. This is best followed up in a tutor introduction (including photo) and subsequent 'Introduction' conference and other bonding activities in the first week of class in which students can then introduce themselves and become familiar with the online learning environment. By acknowledging each introduction with a short but cordial greeting ('*Hello Sheila, welcome on board!'),* the tutor establishes visibility to each student who feels reassured of tutor support and guidance within the online learner community.

4.1.2 Additional communication spaces
Helping students *help each other* can be achieved by creating a 'Problems Forum' discussion for posting questions technological or academic in nature. Consider making it clear that e-mail communication is reserved for questions of private nature only (see Appendix 11).
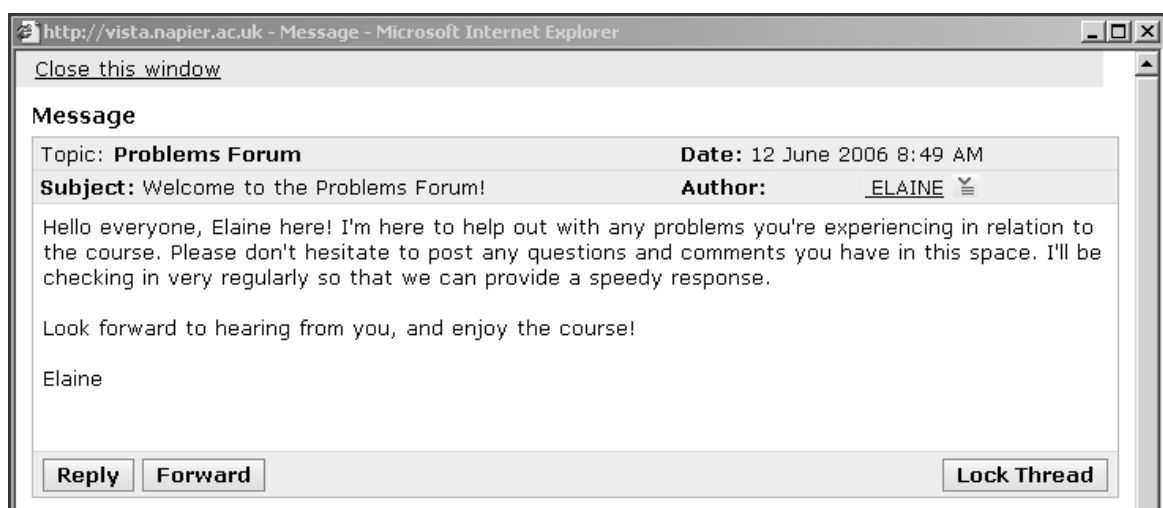
Figure 6: Example of an opening text in the Problems Forum of a WebCT module

Finally, creating an informal discussion or chat for students, gives them the opportunity to let off steam and get to know one another better 'outside' of the classroom. Establish the informal atmosphere by labelling it 'Teatime' or 'Coffee, anyone?' and watch students share jokes, compare hairdressers, and point out a really bad book.

In an e-mail, gently persuade non-participants early in the term to login, reminding them of the learning opportunities missed. Offer help, always maintaining an encouraging voice.

► **See Unit 5 for an overview of the asynchronous and synchronous communication tools.**

4.2   Online discussion moderation

In addition to the more informal discussion areas described above the asynchronous conference is central to collaborative learning and knowledge construction. Making a formal discussion area available can extend classroom time to allow for more reflection on a topic addressed in class. Integrated into the fully online lesson students have read and then reflect, share and respond to one another facilitated by the mindful tutor.

4.2.1   Managerial tips
- In order to ensure the expected quality of discussion it is recommended that the maximum class size not exceed 20 for language skills modules and 30 for all others per tutor. The online tutor will require support for larger class sizes, best split up into discussion cohorts each led by the tutor or an assistant.
- Choose the question for discussion carefully. Open-ended, provocative questions, addressing themes relevant to students' lives are a good starting point.

- Support time management skills by imposing open/closed window time frames for discussion posts (ie 7-14 days). Make this clear in the module timeline/handbook/guide. Repeat dates within the assignment itself.
- Avoid discussion overload - one discussion topic/week or 14 days is usually sufficient for all.
- Always begin the discussion thread - nothing more off-putting than an empty discussion board!
- Limit the word count of responses (200–350)
- Add student name in the subject heading *('Re.: Leadership/Response to Paul')* to improve navigation of discussion threads.

4.2.2 Pedagogical tips
Furthermore it is important to keep in mind that the tutor naturally leads by example, and very soon the style and tone of student responses will reflect what is put forth by the tutor.

- Always reread responses before submitting, checking for spelling errors, correct student name etc.
- Make it worth the students' while by incorporating online discussion participation into the grading scale
- Create an online participation assessment rubric for quick feedback to student
- Always address students by their preferred name (established in introduction conference) to show interest in the student as an individual.
- Acknowledge the student's response by referring to it *('Thank you, Kevin, for this helpful definition...'* or *'Rory, in your post you refer to...')*
- Responding immediately in a private e-mail to any offensive/problematic online communication whatsoever. See section 5.0 below for further advice on this issue.

► **See Unit 6 section 5.4 for further guidance on online discussion grading.**

4.2.3 Supporting rich online discussion
Research shows that while the majority of all students feels uncomfortable speaking in public (in front of the class or in a seminar), most students feel less inhibited communicating their views online, in an asynchronous discussion environment. Here, the tutor is challenged to acknowledge, encourage, redirect, prompt and guide trains of thought-without dominating and while maintaining a friendly and supportive tone throughout.

The tutor is not only the content expert but the catalyst for online interaction.

Tips for supporting bustling online discussion activity include:

- Be there without barging in! The tutor is the pro-active moderator who: acknowledges, redirects/corrects, affirms, guides, encourages, and summarises.

But, this takes some practice to do. Therefore, for the first day or so, taking a back seat and watching carefully, taking notes is good advice, before joining with an opening like,*' Thank you to all discussion participants so far! I can tell you have done your research. Let's take a closer look at Andrew's response, however, in which he…'*

- Try not to write like a textbook. Maintaining a professional voice does not require sounding like the *Encyclopaedia Britannica* and will make the student feel more at ease with written language skills. Students like your stories, anecdotes and links to current events.

- Be personal but avoid emoticons and be cautious of using humour in formal online discussion environment.

- Acknowledge discussion participant's presence by directly referring to a contribution in the response. (*Maurice, it is evident that you have carefully weighed both sides…*).

- Encourage further response, always maintaining a supportive, albeit, guiding voice, *('I can see why you may have come to that conclusion, but if you take a closer look at…you may find you have overlooked…')*

- Excite the students by sending them to a relevant website or current news headline in response to a post (*'Dear All, I do see your point but have you ever considered what this means for…..take a look at www… and let me know if you still feel the same way about…..)'.*

- Probe with a follow up question, promoting more critical thought ('*Mary, careful! While you have carefully assessed the organisation's apparent motive, in the light of…what must be the underlying hidden agenda?').*

- Provoke the student by questioning findings ('*Heather, you maintain that…, but if we recall what we learned last week, isn't your statement in contradiction?')*

- Challenge the non-participants to voice their views as well ('*Sam and Clara have come to an interesting conclusion. Does everyone agree with them?'*

- Weave unifying themes together/point out disagreements to give the discussion meaning and bring students back on track, especially after a confusing round of posts.

- Never jump to conclusions. Before over-reacting to a seemingly thoughtless response, ask for clarification, eg '*I am sorry, Mark, but I don't quite understand your answer. Would you mind explaining what you mean by…'*

4.2.4 Managing the challenging student

No two students are alike and while most adapt well to the online learning community others do so only poorly and can jeopardise the harmony and success of the online learning environment for all. The pro-active tutor recognises a potentially problematic student scenario and addresses the problem immediately.

The following list highlights six key characteristics the online tutor may need to pro-actively address, never in public, but rather in a private e-mail note to the student.

Lurking

Signs: There are none. The enrolled student is not an active discussion participant. More recent literature acknowledges the value of non-participation which is not seen only as a disadvantage to the non-participating student. However, this impedes management of group-work activities that would normally include the student later on and puts peers at an unfair disadvantage.

Reasons for a student's absence might be:

- login difficulties
- unexpected personal problems
- discomfort with using computers, online discussion board
- fear of revealing poor writing skills
- fear of the permanency of written record.

Suggested response: Check the student tracking record to trace passive online activity. You may find that the student in fact reads all the discussion threads. This could indicate either a preference for learning from the responses of others or a high level of online anxiety. It is a situation that needs to be sensitively addressed such as in a friendly, personal e-mail/phone to offer support. (eg *'Dear Sharon, you have not participated in any of the online discussions so far. Are you having technical difficulties? Possibly you are feeling uncomfortable about sharing ideas and thoughts online? I am more than happy to discuss these issues with you and we are sure to find a working solution. Cordially, Your Tutor*).

Bullying

Signs: This student is intolerant of opposing viewpoints. He or she provokes aggression by making inflammatory remarks or responding in an emotional or irrational manner.

Suggested response: Initially, this student should be given the benefit of the doubt and prompted in the discussion board, in a friendly tone, to further explain the remark. Should the tutor feel affirmed of intentional misconduct, however, this student will need to be warned immediately in a personal e-mail that previous comments have offended other students and that this behaviour is unacceptable. He or she is reminded of the class code of conduct/ netiquette guidelines and it

should be stressed that the student is risking expulsion from the class pending further disciplinary action by the school if the behaviour persists.

Overachieving
Signs: This student over fulfils the online participation requirement by far, responding not only to every question but to every student post as well-often before the tutor. In responses this student seemingly displays expertise and assumes the role of moderator, but often adds topic-unrelated material, which can include personal anecdotes, or irrelevant follow-up questions, which can become very confusing and overpowering for the other students.

Suggested response: In a friendly, but clear e-mail message point out to the student that while the student's knowledge and communication skills are impressive, other less confident students may feel somewhat intimidated. Offer the student the opportunity to moderate a discussion later on in the term. Point out that the displayed leadership skills are sought after in the assigned group-work activity.

Underachieving
Signs: This student waits for the very last minute to contribute to the online discussion, usually paraphrasing what another has written or reaffirming a statement made previously. The student shows little sign of original thought in responses and seemingly participates strategically only to fulfil an online participation requirement.

Suggested response: In a private e-mail carefully enquiring about the reasons may reveal that the student seemingly only has time on those days. Point out to the student that online participation is being graded according to a number of criteria which include research depth, originality of thought, and engagement which is not being fulfilled well and will be reflected in the online participation grade.

Whining
Signs: This student challenges the expertise of the tutor, doubts the purpose of the tutor's assignments and activities, and complains excessively. This student publicly criticises the quality of course materials and may even question the tutor's authority. Comments can include, 'I thought this was a science class?' 'I may be stepping out on a limb here, but something tells me our instructor has never taught online before.' 'You're the expert, not me, so don't expect me to know.' 'Have you ever considered how unreasonable it is to expect a working adult to actually read all of this?'

Suggested response: As long as the workload and expected time commitment have been clearly communicated on the first day of the term, the student is being unreasonable. Remind the student of the workload commitment in a friendly and empathetic e-mail. Acknowledging the online learner's effort but requesting that

complaints of any nature to be reserved for private e-mail communication only, will help keep topic-related online discussions focused.

Dropping Out
Signs: On occasion, despite meticulous preparation and well-established ground rules, students may react hurt or feel offended by comments made either by fellow students or even the tutor himself, both parties completely unaware of the offence. This is usually made evident by a sudden disappearance of an otherwise engaged student.

Suggested response: As soon as an otherwise active student goes missing he or she should be contacted by e-mail as the chances of the student withdrawing completely are high at this point. Explain that there has been a misunderstanding and there was no intention to offend, whatsoever. Written responses are easily misunderstood and encourage the student to enquire (to tutor or student) about a dubious remark made first, before assuming bad intentions.

5.0   Managing conflicts

Most students will be unaccustomed to online communication and unaware that it can be more prone to misunderstandings than face-to-face dialogue. In the absence of visual and oral cues constructive criticism may be perceived as unfairly critical and differences of opinion easily escalate to 'flaming'.

Despite clear netiquette guidelines (see Appendix 8) and all your efforts to role model good online conversant behaviour, online conflicts can arise and it is important to manage them as quickly and sensitively as possible in order to build and maintain a welcoming and trusting online learning environment for your students. Additionally, not addressing conflicts promptly can potentially have legal consequences if students feel inflammatory remarks are being ignored.

5.1   Strategies for avoiding conflict

5.1.1 Online discussion
In all modes of online communication, the golden rule is to be considerate of others. Aside from pointing out netiquette guidelines (see Appendix 8) the following recommendations are made in order to best maintain a supportive asynchronous learning environment:

- Be online regularly throughout the week
- Respond to queries within 24–48 hour (let students know in the Module Guide how quickly they can expect your response)
- Allow enough time for students to feel comfortable with one another (eg in week 1 induction activities) before assigning module related discussion assignments
- Don't allow anonymous or editable posts.

5.1.2 Chat

In synchronous modes of communication it is important for students primarily to be aware of differences in connection and typing speeds. Those students with superior writing skills will be at more of a communicative advantage in the synchronous environment than in the asynchronous environment where all participants have time to revise and rewrite.

Chat room activities are best restricted to five or less students. Consider making use of the 'handraise mode' feature. For the sake of avoiding misunderstandings in written communication guidelines it is recommended to insist that student adhere to chatroom guidelines that emphasise:

- Patience, patience, patience
- Proper introductions upon entering the chatroom
- Extra consideration for non-native speakers
- Proper punctuation
- Brevity
- Proper farewells upon exiting the chatroom.

5.1.3 Group-work

Conflicts in the online group scenario usually arise due to lack of participation by one or two group members which causes feelings of resentment and anger in the rest of the group. Aside from concise group-work guidelines (see Appendix 9) the following managerial steps can help avoid problems:

- Keep group size at 5-7 students
- For ease of connecting make as many modes of online communication (group chat/discussion/e-mail) as possible available to the group
- Wait to assign group-work tasks until a few weeks (3-4) into the term
- Give the groups enough time to connect (1-2 weeks) before working on the assignment (taking time zone differences and work schedules into account)
- Require that all contributions to and decisions about the assignment be either recorded or repeated publicly in the asynchronous discussion area on a regular (weekly) basis which you monitor
- Send the chairperson a friendly e-mail on a regular basis enquiring about the progress of the assignment or any problems
- Assign different students each week to post weekly updates of progress (in a blog, for example).

5.2   Conflict handling tips

Despite all precautionary measures, misunderstandings and conflicts will still arise. In order to resolve conflicts online it is important to be as careful in tone and as explicit in meaning as possible.

The following are tips for handling conflicts online:

- Stop, reread the post and think about the possible reasons for the inappropriate behaviour displayed. Does the student have a reason to be angry? What might you have failed to recognise beforehand?
- Ask a peer you trust to read the post and comment on it and your proposed reaction.
- How a person reads and perceives a written message may not be what it was intended to mean by the author. In a private e-mail ask the student, '*When you remarked…what exactly did you mean…'* or *'Is it possible that you meant…?'*
- Remind the class in the online announcements area how difficult it can be to express oneself well online and to be patient and tolerant of one another.
- In the rare cases of repeatedly inappropriate, offensive or hostile remarks the student should be denied access to the discussion board or chat room and his or her remarks removed. In such a case it is best to seek advice from the school's academic conduct officer (ACO) on how to proceed further.
- If a non-participating group member fails to respond to efforts of the group chairperson you may decide to intervene. In a private e-mail to the student first express your concern, 'Your fellow group members look forward to working with you-are you having connection problems…?' or 'Is there anything I can do to help you contribute to your group?' If the student fails to respond, follow up with a polite but clear explanation of the purpose of the group-work task and the consequences of failing to participate. To the rest of the group it is vital that you share your empathy with them as it will have been a disappointing and frustrating experience for them.

5.2.1 Flaming e-mails to the tutor

In addition to conflicts between students, students may act inappropriately to you. Students frustrated by administrative or technical problems may turn to you the tutor to vent anger inappropriately in an e-mail, for example. Hostile, provocative ('flaming') e-mail including abusive, inappropriate language and/or accusations should be dealt with as soon as possible (ie, within 24 hours). See Appendix 10 for a list of flaming mail handling tips.

► **See Unit 8 for further guidance and examples of how best to support students.**

6.0   Further reading

Anderson, T. (Ed) (2008) *Theory and practice of online learning (2nd ed).* Ch. 14 Teaching in an online learning context. Available online at **http://www.aupress.ca/index.php/books/120146**

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Unit 5 Communication and collaboration

Online communication (also referred to as computer-mediated communication, CMC) is classified as either asynchronous (time-delayed) or synchronous (real-time). Asynchronous modes of communication include the discussion board, e-mail, mailing lists, and blogs. Microblogging (eg Twitter) is a relatively new form of asynchronous communication characterised by a maximum character limit per message featured widely in Higher Education already. The synchronous tools include chat, whiteboard, instant messaging (IM) and video or audio conferencing. Furthermore, announcement tools (noticeboards) are useful to deliver information to students, such as reminders of looming assignment deadlines and student presentation areas give students the opportunity to share with their classmates their photo and personal details.

In addition, the internet makes social networking tools available that support interaction and foster the emergence of user communities. Students may already be familiar with social networking communities such as Facebook and bebo for staying in touch, Flickr for sharing photographs, YouTube for sharing videos, or social bookmarking sites for sharing web resources (eg, del.icio.us). Most social networking services support instant messaging and technologies for users to share blogs and files. Commonly referred to as social software (also social computing) these predominantly open source applications are also emerging rapidly in teaching and learning contexts to facilitate collaboration and working in groups (eg Wetpaint, Elgg, Joomla). In fact, even Edinburgh Napier has harnessed social networking technology and boasts an institutional presence on the likes of Bebo, YouTube and Twitter (have a look at **http://www.napier.ac.uk/prospectivestudents/Pages/SocialNetworking.aspx**)

Online communication tools intended for use with students need to be employed thoughtfully, however, and with a real purpose in mind. Otherwise, students will simply ignore them. A common complaint from some tutors is, 'Online discussions don't work.' or 'My chatroom is always empty' or from students, 'No one is reading my blog'. Online discussions or chats don't just happen by making the tool available to students-just like lecture halls don't fill by unlocking the doors. All online communication needs careful preparation, clear guidelines and most importantly, you there for support.

Using online communication tools brings with it a range of advantages such as:

- Flexibility for both you and your students-benefit from moderating a chat session bathrobed and barefooted.
- Participants are granted an equal voice, undistracted by visual cues. This often encourages even the most reticent of students to contribute.
- Global outreach - how else to link a student in New Zealand to the guest speaker in Osaka in a module delivered from Glasgow?

In this section you are introduced to:

- The most common modes of online communication used in education,
- Activities each communications tool supports well online
- Online collaboration guidelines and supporting collaborative tools
- A brief introduction to social software applications

1.0   Asynchronous discussion

The asynchronous discussion (also referred to as discussion board, discussion forum, online conference, bulletin board, message board) is the most common form of online communication. Each participant can write and post messages, usually in response to a prescribed discussion question or task at their convenience. The submitted posts form so-called discussion threads, each post bearing a date and time stamp as well as its author's name. Online discussions do not take place at any one time, but rather over a period of time, remaining open for posts from participants for 1 week, for example. Participants often have the option of attaching files to their posts or including images and hyperlinks to their written messages.

Asynchronous discussion areas can be structured in different ways depending on the software used. The discussion area or folder is usually the highest level in the hierarchy of messages, the compiled list of which forms the so-called discussion thread. Discussion threads can become increasingly branched depending on the nature of the discussion activity, ie as responses to previous posts or as new topics. Discussion threads over 20 or more posts can quickly become overwhelming. See Unit 4 section 4.2 for discussion time management tips.

Subject	🖉	Messages	Author	Date
Discussion activity 6			L(	20 March 2006 10:49 PM
sampling			M	25 March 2006 8:46 PM
⊟ Sampling 🖉		2	S	26 March 2006 6:54 PM
⌊ Re:Sampling			L(	28 March 2006 1:54 PM
⊟ Sampling discussion 🖉		2	H	27 March 2006 8:50 AM
⌊ Re:Sampling discussion			S	28 March 2006 8:00 PM
⊟ Discussion activity 6 🖉	🖉	6	G	27 March 2006 11:18 AM
⌊ Re:Discussion activity 6			L(	28 March 2006 2:03 PM
⌊ Re:Discussion activity 6			G	28 March 2006 2:43 PM
⌊ Re:Discussion activity 6			S	28 March 2006 7:52 PM
⌊ Re:Discussion activity 6			H	29 March 2006 9:54 AM
⌊ Re:Discussion activity 6			G	30 March 2006 4:26 PM

Figure7: Example discussion thread

1.1   Why would I use it?

The online discussion is very much like a seminar discussion in which students share their views with one another (orally) and with the tutor. The difference is the time span during which (written) thought exchanges take place. A classroom discussion takes place within a short time (45 minutes), each participant responding immediately to the comments of the other. Online, discussions take place over the course of many days, each participant responding to posts at very different times.

This mode of communication bears with it a number of advantages that include:

- A means of extending lecture or seminar discussion time adding time to reflect which can enhance the quality of discussions
- Students can include links to web resources in their posts
- Invited guests can enrich discussions
- Written archives of discussions available for study, research and review.

Online discussions can be used to support a sheer endless number of online activities either to support a lecture or within a fully online module! Regardless of how you choose to use the discussion tool remember to:

- Point out netiquette guidelines (see Appendix 8),
- Always state the purpose of the discussion clearly to your students
- Post the first message-nothing more uninviting than an empty discussion board. Imagine being asked to reflect out loud to a desolate lecture theatre!

► See Unit 4 and Unit 8 for more guidance on preparing and supporting online discussions.

1.2   Uses of the asynchronous discussion

1.2.1 Informal social space (eg Chatterbox, Teatime)
This one requires nearly no moderation activity from you at all, but goes a long way to foster a supportive learner community. Keep an informal discussion area open for your students to socialise beyond module related material and watch them chit-chat and 'gel'!

1.2.2 Problems forum
A painless way to familiarise yourself with the discussion tool and really reduces e-mail traffic from students. Create a Problems Forum right on the Homepage of your VLE and invite students to post module related questions there, encouraging them to help each other out (students as mentors). Let your students know when they can expect to here back from you (eg 'I will do my best to respond to your queries within 24 hours.')
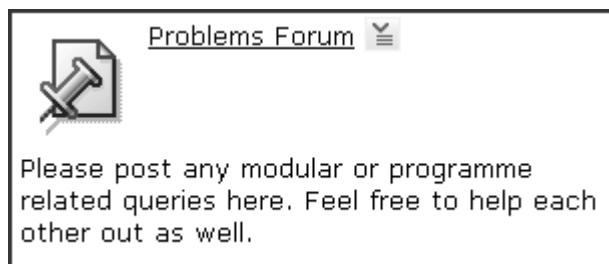
Figure 8: Problems Forum discussion icon and annotation in WebCT

1.2.3 Directed Discussion

A directed discussion is kick-started by one person (usually the tutor, but can also be a student) who asks a question to an assigned reading, current events issue or case study, for example. Discussion questions are best kept open-ended in order to invite a wide range of ideas and perspectives. Students will either respond directly to the question or to the response of another student. The tutor's primary role is to prompt further thought, and to encourage engagement.

Example

'The World Commission on Environment and Development states, *'At a minimum, sustainable development must not endanger the natural systems that support life on Earth'.*

'Discuss ways in which some of our present modes of development violate this prescription.'

1.2.4 Debate

For an online debate the instructor will set the scene by describing a scenario or by sharing a real case study to comment on. (Consult online case study repositories such as The Case Studies in Science databank at **http://ublib.buffalo.edv/libraries/projects/cases/ubcase.htm** for ideas.) Debates work especially well with smaller groups of students, each group being assigned a role or task etc. Your role as moderator would be to chair and manage the debate and then summarise points made at the end.

Example 1

Exploring Ecotourism
'Trucks carrying sight-seers through the African savannah may be missing the ecological point. When is a tour an 'ecotour' and not just a green label for an average beach resort holiday? Is travelling thousands of miles by plane to a mud hut for one week a sustainable form of vacationing?
In order to explore the weaknesses and strengths of ecotourism. for this activity you are split into four groups. Group 1 represents the tourists, group 2 the native townsfolk, group 3 an environmentalist and group 4 the travel agent. Research the pros and cons this week from your assigned perspective in order to take a firm and informed stand next week in a town hall meeting at which all interest groups have been invited to

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express their views about opening a previously protected rainforest area to ecotourism. Your tutor will chair the meeting.'

Example 2

'Using your critical thinking skills, debate this statement: 'A sustainable energy strategy won't work. It will cost money and lose jobs.' Provide examples to support your stand.'

1.2.5 Peer review
The online discussion board lends itself well to the constructive criticism of peers to each other's written work previously submitted and published for public viewing. Be sure to hold a sample session beforehand in which all students are asked to critically review an essay you have uploaded for practice purposes. Provide peer review guidelines and explain the value of a peer review activity.

1.2.6 Student led discussion activity
Rather than moderate each discussion yourself, consider letting your students have a go! Not in the first weeks of the term, but by midterm, you may find a student-led discussion an appropriate activity to support a learning outcome. It can be an opportunity for students to practice a range of social skills such as giving constructive feedback, reconciling differences, and promoting communication.

2.0   Chat tool and whiteboard

The chat tool is a synchronous communications tool which allows for immediate written interaction between participants. Usually, all users are listed in a column on the right side of the chat interface. A whiteboard is often made available together with the chat tool which is a shared space for creating images, drawing graphs, or uploading files for general viewing. The difference between the chat tool and the discussion board lies in the time frame of communication. A chat takes place in actual real-time, in other words, participants post messages to one another which appear within seconds on the screen to anyone in the chat room. Some chat tools allow for private chats as well.

'Whiteboarding' can become quite sophisticated depending on the software used. In addition to shared mouse controlled sketching and typing some packages include application sharing, audio and video conferencing. Not yet common in education, but useful to be aware of are the visual chats or avatar chats that allow users to communicate not merely using written words but graphically. Users adopt visual features, customise the appearance of the chat room and move about in it, speech bubbles, for example, appearing alongside a chosen figure rather than in the text entry bar (find a free multimedia chat at Palace, **http://practice.chatserve.com/**).
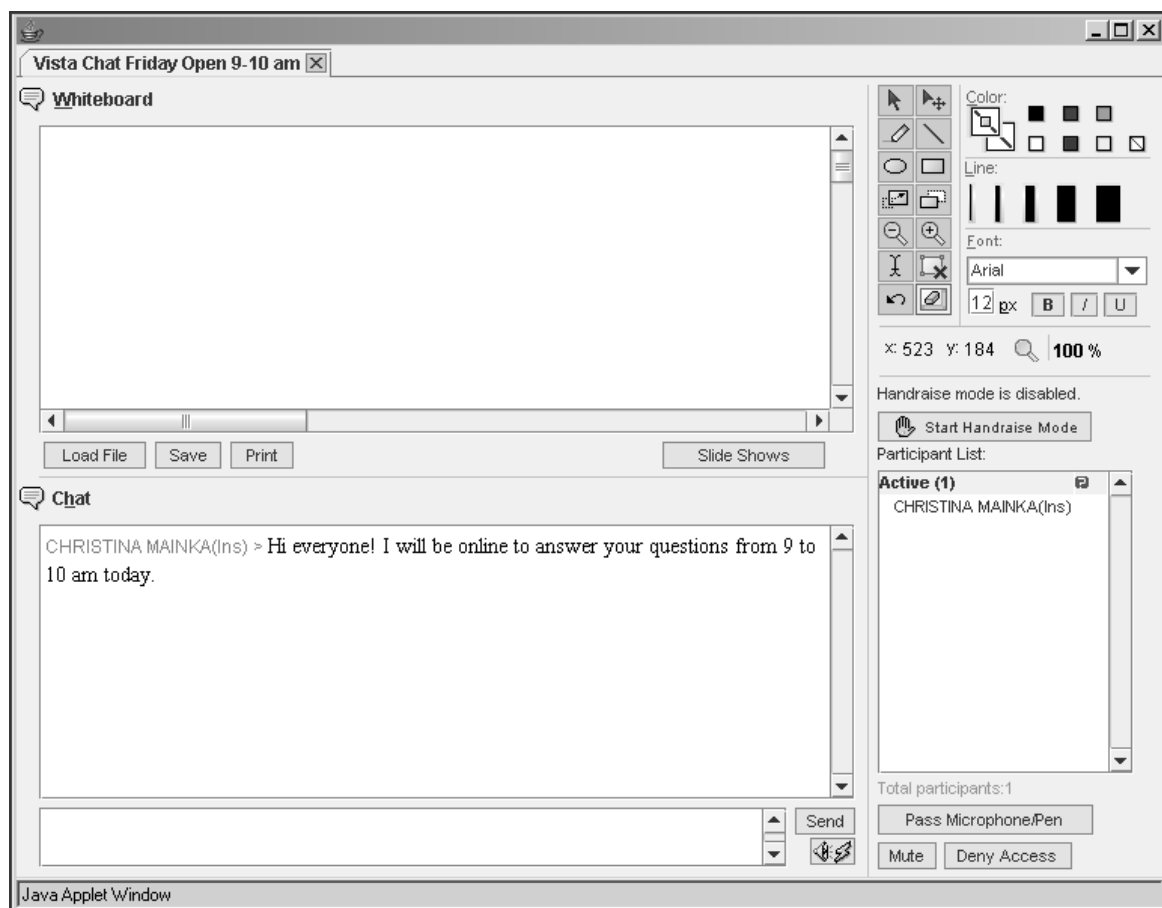
Figure 9: WebCT chat tool and whiteboard

2.1   Why would I use it?

The chat room, as a common form of real-time online communication, adds immediacy to communication in the VLE. Using it alongside the discussion board lends online interaction a more personal tone and enlivens online education. One complements the other and together they ensure that students have ample opportunity to grow as a community of learners.

2.2   Uses of the chat tool

2.2.1   Socialisation space
Similar to the informal discussion board, students welcome the opportunity to socialise given a synchronous space such as an informal chat room to do so. Create a space for them and label it accordingly (eg 'Take a break') to set it off from other more formal chat spaces and remind them that in order to use it they will have to meet at an agreed time.

2.2.2   Virtual office hours

Creating a chat tool to extend general office hours virtually gives the student an added opportunity to contact you from any location for immediate feedback and provides you with a less onerous way of advising students. In individual chat sessions aided by a whiteboard you may be able to assist a student struggling with a certain concept, better than in an e-mail. Consider using the chat tool to follow up a submitted assignment with a question to a student. By announcing office hour chat sessions you can enter the chat room and then focus on other tasks until a student enters the room.

2.2.3   Group-work activities

Group-work activities are supported well by the availability of a chat room. Some VLEs have group-work areas that include discussion, chat and e-mail as modes of group communication. The chat lends itself well for brainstorming ideas, making quick decisions within the group (picking a chairperson, dividing up tasks, finalising a document) and discussing controversial current events issues that relate to the task.
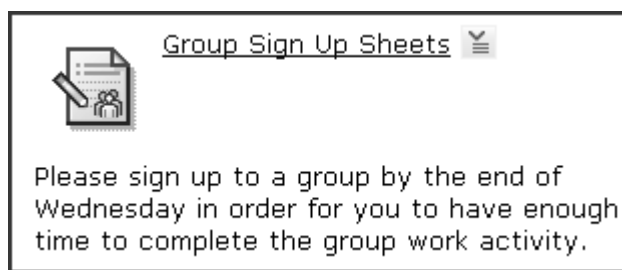
Figure 10: Group sign up sheets in WebCT

2.2.4   Online learning activity

Activities such as role-play, debates, guest sessions can be carried out in the chat room with 4-5 students. Sessions should be no longer than 45-60 minutes. allowing for extra time in the beginning for greetings and introductions. Give students the assignment, readings, questions or task to think about for the chat session beforehand. For example, for a role play activity students would research a position or perspective before the chat then discuss issues with students playing other roles in the chat room, moderated by the instructor who asks questions, or prompts 'players' to ask questions of one another.

Used in conjunction with the discussion tool it complements the discussion forum well by offering a more spontaneous mode of communication for expressing opinions about a current controversy or policy decision related to the subject matter under study, for example. Keep a log for the benefit of those who could not attend.

There are a number of freely available chat tools on the web such as chatzy at **http://www.chatzy.com/**. Internet telephony tools such as SKYPE (see section 5.3) and web conferencing tools (eg Elluminate®, Wimba®) support synchronous chats as well.

► **See Unit 3 section 3.3 and Unit 6 for more examples of online activities.**

3.0   E-mail

Hard to imagine e-mail used to support teaching and learning beyond answering student queries about assignment dues dates? Using e-mail to support student learning is easy and needn't end as an FAQ session for you, so please read on!

As an asynchronous communications tool e-mail shares some of the benefits of the discussion board and early online courses were in fact e-mail communications driven. If designing and developing a VLE is beyond your reach for now, consider using e-mail to encourage contact to partner institutions, for example, or experts from the industry who might then join the class for an e-mail FAQs session (let the guest answer!). Have your students practice foreign language written communication skills in e-mail communications to a foreign pen pal. Assign smaller groups of students to work collaboratively in a wiki (see [section 6.2](#)) on a group project using e-mail to maintain regular contact.

4.0   Online collaboration

Online collaboration offers the convenience of meeting as a group from a range of different locations, the university, work or even from the comfort of the students' own homes. Group-work in general is a highly recommended undertaking, promoting the development of multiple perspectives and shared understandings between students. Online, however, group-work activity can bear unsuspecting challenges and pit falls for students and tutor alike.

4.1   Online myths

Four common myths about online group-work include:

1.   **The student knows how to collaborate in the group**. Not true. Students are poor collaborators and without explicit written guidelines to the nature and purpose of the assignment, assessment specifications, role of individual group members, group communication timeline, writing plan, methodology of writing, choice of references etc the students will not manage the group-work appropriately.

2.   **Students enjoy group-work**. No, they don't. Students work and have families and lead busy lives. Group-work projects require additional planning and co-ordination and are often associated with conflict and resentment. Online, being asked to co-operate closely with peers without having met face-to-face proves to remain a daunting task for some students. Be absolutely sure the intended project is meaningful and serves a purpose within the learning outcomes and goals.

3.   **A group-work project results in less work for the tutor**. Not necessarily. The student requires more explicit written guidance. Online students feel challenged to communicate well with each other and may require

encouragement and monitoring by the tutor throughout their discussions to ensure fair, polite and meaningful communication.

4. **Online teaching should always include a collaborative group assignment**. While it is undisputed that collaborative learning fosters team work skills and enhances understanding, there are situations in which group-work is best omitted in the online environment. A student body largely unfamiliar or uncomfortable with the online environment, web research skills, and nature of asynchronous communication is overwhelmed and easily discouraged in the face of the more frequent communication expected for a collaborative assignment. An inexperienced online tutor may not appreciate the time commitment associated with collaborative work and could easily find him or herself unprepared to handle precarious student situations arising within the group.

Nevertheless, there are many examples of modules in which online group-work has proven to be a very rewarding experience. Take a look at the group-work activity in the BSc Complementary Therapy module below.

Example

Group-work activity in the blended module: Neuromuscular principles of movement and therapy

Edinburgh Napier first year students on this module attended one lecture and one practical per week. WebCT was used predominantly to support online assessment and discussion activity. By week 12 of the module students were expected to have worked collaboratively in groups of 4-5 students to produce an online presentation for the class which was subsequently published on the discussion board for peer review upon completion of the projects. Each group was assigned a different topic. The group-work assignment was worth 50% of the students' final grade.

The groups were identified early in week 1 of the module, giving all group members enough time to get to know one another. The Module Overview made it very clear to the students that aside from familiarising themselves with WebCT, learning to work as part of a team was crucial to the success of the assignment. Any student who failed to take his/her fair share of the workload, or to meet the commitments as identified by the team, would fail the assessment; The peer assessment of another group's work took place online. Detailed guidelines for honest, critical feedback were provided by the tutor to the students by week 10.

According to the tutor the assignment worked extremely well. She was very impressed by the quality of work produced by first year students. Their ability to organise their work online and produce professional, PowerPoint® submissions was exemplary. The online peer assessment was more difficult to manage and there was a tendency for some students to give good results, but these were balanced by the tutor marks.

The students initially were very apprehensive at the thought of peer assessment but in their reflective diaries they all identified how much fun they had had. They loved seeing the other group presentations and became quite competitive with each other. They also commented that they were grateful for the chance to get to engage with online technology in their first year

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Mail	Group	Description
🖃	Group01	Explain Neuromuscular Specific Conditioning
🖃	Group02	Explain Neuromuscular Patterning Conditioning
🖃	Group03	Explain the concept of adaptive tissue

Figure 11: Groups in WebCT module: Neuromuscular principles of movement and therapy

4.2   Teaching tips

In order to improve the chances of a successful group-work activity consider the following:

- Save time by consulting online resources such as the Intute Virtual Training Suite at **http://www.vts.intute.ac.uk/** for examples of group-work activities that have already worked.
- In particular for fully online modules, timetable the group-work activity for mid-term or later in order to give students enough time to get to know one another
- Assign groups at least one week before the activity commences in order for group members to introduce each other and choose a chairperson.
- Create an appropriate assignment with clear learning outcomes and explicit study group guidelines (see Appendix 9)
- Create a system to monitor team work activity in order to incorporate fair assessment of individual contributions.
- Explain to the students the benefits of group-work over individual work such as:
  - A group of people has more ideas than an individual
  - A group is more likely to spot mistakes
  - Students often communicate better than tutors to students
  - Learning is done best by teaching others
  - A group lends support and encouragement
  - A group get the job done faster.

5.0   Online collaboration tools

Let's take a look at some tools that support online collaboration. In addition to the asynchronous discussion, synchronous, text-based chat and instant messaging there are collaboration tools (eg web conferencing tools) that can support synchronous interaction of higher degrees of complexity allowing users to see and hear each other and to share documents and presentations, for example.

Before deciding to use one over the other, however, it is important (again!) to match the intended purpose carefully with the features of the tool. To support a collaborative activity assigned in a course delivered face-to-face, you would hardly choose video conferencing over chat for a virtual group meeting, for example. On the other hand international students on a fully online module will embrace the opportunity to see and hear peers at a meeting they might otherwise only know from written communication. The increased complexity of the so-called interaction 'rich' technology tools might be warranted for a virtual lecture demonstration of a particularly difficult concept, during which students have the opportunity to interrupt and ask questions and to hear contributions from their peers. Whether or not students need to share documents during this virtual lecture, has further implications still for your final choice of software, as will the cost, hardware and software requirements, and ease of use.

Find below a short presentation of the most common technologies to support online collaboration. One drawback of each application is the potential cost of the commercial software and recommended high band width internet connection speed (DSL) that not all users will have access to.

Social computing applications are discussed in the next section.

5.1   Desktop sharing applications

Desktop sharing applications allow multiple users to write and draw on the same display screen as well as share applications such as a PowerPoint® presentation or audio clip. The supporting software is required by all users, for example, Festoon (**http://www.festooninc.com/**).

5.2   Audio conferencing

Audio conferencing (Internet Telephony also referred to as Voice over internet protocol, VoIP), allows multiple users to hold a real-time phone conversation over the internet.

Audio (and video technologies) used within the online teaching and learning environment lend to it some of the familiarity and comfort of the traditional classroom. Distance learners in particular are often at risk of feeling isolated and are comforted by hearing the voice of their tutor or seeing their peers.

Audio is finding increasing use in education not only to deliver short lectures, but to facilitate student presentations, question answer sessions with expert guests, practice foreign language conversation skills, and to hold group meetings.

All users must download the supporting free software such as SKYPE (**http://www.skype.com/intl/en-gb/get-skype/**), GoogleTalk (**http://www.google.com/talk/**) or commercial software, for example, Polycom (**http://www.polycom.com/**).

5.3   Video conferencing

Video conferencing allows multiple users to see and speak to each other using streaming video and audio over the internet.

All users will require supporting software such as SKYPE (free download at **http://www.skype.com/intl/en-gb/get-skype/**) or WEBEX (free trial at **http://www.webex.co.uk**/) for one-to-one or one-to-many video conferencing.

5.4   Interaction 'rich' web collaboration tools

Finally, web collaborative tools exist that offer a combination of the above listed applications for you and your students-and more. These interaction 'rich' web collaboration tools allow instant messaging, document and multi media-sharing, audio and video conferencing.

Only the presenter of content requires the collaboration software such as for the commercial software, ElluminateLive!$^®$ (**http://www.elluminate.com/**), for example, which Edinburgh Napier University has subscribed to. For more information you are referred to the Professional Development team's ElluminateLive!$^®$ support page at **http://staff.napier.ac.uk/services/academicdevelopment/professionaldevelopment/TEL/elluminate/**

6.0   Social computing

Increasingly popular and easy to use are the freely available social computing tools (also known as social networking tools or social software) such as blogs, wikis and social networking platforms such as Bebo, Facebook, and Twitter. These are essentially web publishing tools that allow for single or multiple authors, respectively and which collectively fall under the heading 'web 2.0' also known as the 'social web' in stark contrast to the original static web pages of web 1.0.

Judging by the sheer explosion of use of these tools in the public domain and the subsequent spontaneous development of communities of shared practice, it is fair to say that the promise of social computing to foster more effective knowledge generation, creation and sharing, collective decision making and collaboration is

not yet even close to reaching its full potential in research and educational settings. In other words: Watch this web 2.0 space! In the meantime should you decide to use web 2.0 tools in your teaching do consult Edinburgh Napier's web 2.0 guidelines for staff and students as there are things to be aware of when using non-institutional web services for teaching purposes. Explicit guidance is available at **http://staff.napier.ac.uk/services/CorporateAffairs/governance/DataProtection/Pages/InternetServices.aspx**

6.1   Blogs

A blog (short for web log) is a website that requires no special technical knowledge to create where the author can publish thoughts or ideas that make up timely entries appearing linearly, in chronological order. A blog is interactive and most commonly open to comments by other readers, but not to edits. The newest type of blog is the video blog or vlog. Blogs are text-based, where as vlogs include multimedia files such as video clips.

Early blogs (mid 1990's) were created to share current event issues, their authors posting links, personal thoughts and commentaries. Today, however, blogs are poorly described as merely online journals or personal diaries – they are much more as the examples below show:

- Businesses and learning technology units alike, for example, maintain blogs to keep staff up to date with training and useful resources (see eg **http://ltd-edgehill.blogspot.com/**).

- The State University of California at Chico's Information Literacy librarian maintains five (!) subject related blogs which she updates on a weekly basis in order to ensure that she reaches all academics with new books, services or training dates. Interestingly she avoids using the term blog to describe her information pages but labels them 'news' in order to draw those people in who feel negatively about blogs.

- A number of US universities are using blogs as recruitment tools. Once a week selected first years update blogs in which they write about their lives as students, ie being the authentic student voice to the potential university entrant (see **http://www.scu.edu/blogSCU/**).

- Blogs are an effective means of sharing information with likeminded individuals such as a Hungarian doctor is doing on his blog at **http://scienceroll.com/** in which he shares relevant emergent web 2.0 developments related to medicine and genetics with the wider healthcare community.

- Educational blogs ('edublogs') are blogs dedicated to educational themes and issues and well worth revisiting. Examples of edublogs include Weblogs in Higher education at **http://mchron.net/site/edublog.php** and

one of the most popular by Stephen Downes at
http://www.downes.ca/news/OLDaily.htm. Search for education blogs
using the blog search engine at
http://www.blogsearchengine.com/education_blogs

**Figure12: Example of a blog created to support an Online Taster course at
Edinburgh Napier (blog provider: WordPress)**

6.1.1 Why use blogs?

Having a dialogue with a community wider than the classroom is empowering for
the student, and educators who have their students maintain blogs have observed
that students often give public writing more thought than writing for the classroom
audience. Furthermore, blogging keeps you involved in a wider dialogue as well!

Benefits of blogs:

- They're free!
- Easy to create and easy to include images, links (to other posts)
- Accessible through the internet
- Automatic knowledge management and archiving (online filing cabinet)
- Easier to invite a guest speaker to join than to the VLE.
- Students reflect more on their written work for a wider audience
- Extends classroom beyond the school

- Facilitates community building
- Promotes peer review
- Fosters relationships beyond the duration of a course.

Instructional blogging is steadily becoming increasingly popular in subject areas from engineering to written composition. Some examples of how blogs are being used by instructors and students include:

- To post assignments, articles, announcements and lesson summaries by instructor
- To host student project development sites,
- to support discussions on course lectures
- for book reviews (including comments by book author),
- for critical literature reviews
- to create student newspapers
- to create business manuals with international business contacts
- as a writing portfolio
- as a peer assessment tool.

A number of nursing programmes in the US are using course blogs very successfully to encourage nurse practitioners to share first work related experiences. 'Professor's blogs' are maintained by teaching staff to share thoughts, resources and ideas beyond the scope of the course and to role model good blogging behaviour.

Example

In a German Conversation course, originally delivered face to face, the instructor created a course blog, replacing one lecture in order for students to practice reading and writing skills in weekly theme related blogs which she kick-started with a series of questions. The lecture and seminar time was then restricted for practicing listening and conversation skills. Invited German guest students from partner institutions contributed to the course blog helping students refine written conversational etiquette even further.

6.1.2 Teaching tips
For a rewarding blogging experience:

- Remind students of netiquette guidelines before they begin blogging
- Provide clear instructions not only of the task but also of how to create the blog.
- Consider requiring mandatory writing assignments and regular commentaries in order to ensure that all students are blogging.
- Be there

As for any communications tool, without a clear purpose blogs will not be used by students. Students want to know that their blog is being read by their peers!

Which blogging software you choose will depend on what you expect to get and which task you have in mind for your students. Before you recommend a blog to your students ask yourself: 'Are you looking for a blog that best supports discussions or that serves as a personal journal?' 'Do you expect the technology to support uploading photos, video and audio clips?'

Evaluate free blogging software such as:

Blogger: **http://www.blogger.com**
Livejournal: **http://www.livejournal.com/**
WordPress at: **http://wordpress.org/**

Search for themed blogs using a blog search engine at **http://www.technorati.com/**. Aggregate your blog feeds using Bloglines at **http://www.bloglines.com/**.

If you're not convinced by now might you be inspired by a blog kept by a student on the MSc BOE programme as a reflective learning journal at **http://etreflections.wordpress.com/** or by the MSc BOE tutors themselves as their reflective teaching journal at **http://iboe.wordpress.com/**?

6.2   Wiki

A wiki is a website, actually similar to a blog in structure and logic, but allows for edits to content by any user via any browser. The first wiki created was in 1995 for the Portland Patterns Repository. Wikis are organised by content, an edit trail built in, and inadvertent deletes can be salvaged. Papers uploaded to a wiki can be edited by any of the authors at any time or from any location.

6.2.1   Why use wikis?
Well, it just sounds like a fun thing to do, doesn't it?!

Seriously, wiki spaces are free and straightforward to use and give students ownership of their collaborative learning experience. Whether in a face-to-face course or fully online module consider using wikis for your students to organise a group-work activity, for example. Whether to share lab data or on-site notes, create a photo journal or plan a project, wikis offer versatile collaborative teaching and learning opportunities.

Further uses of wikis include:

- Individual or group reflection in student journals
- Collection and organisation of course related digital material in personal portfolios
- Creation of collaborative knowledge base and related resources
- Maintaining a course website
- Research co-ordination and collaboration.

But wikis are not just for students! Staff development units use wikis to co-ordinate training timetabling. In schools wikis provide spaces for module leaders to share revisions of common course assets such as assessments, office hours, module handbooks, learning activities without having to meet face-to-face. International research papers are easily prepared in a wiki by the authors regardless of their location. Conference administrators are increasingly recognising the wiki as a valuable resource to organise the event.

Example

Wikis support inquiry-based learning activities particularly well. In a project carried out at a South Dakota middle school (Under Control, The Damming of the Missouri River) students were assigned to groups and used wiki spaces for communication, collaborative knowledge building and problem solving in preparation for the final policy statement for river management.
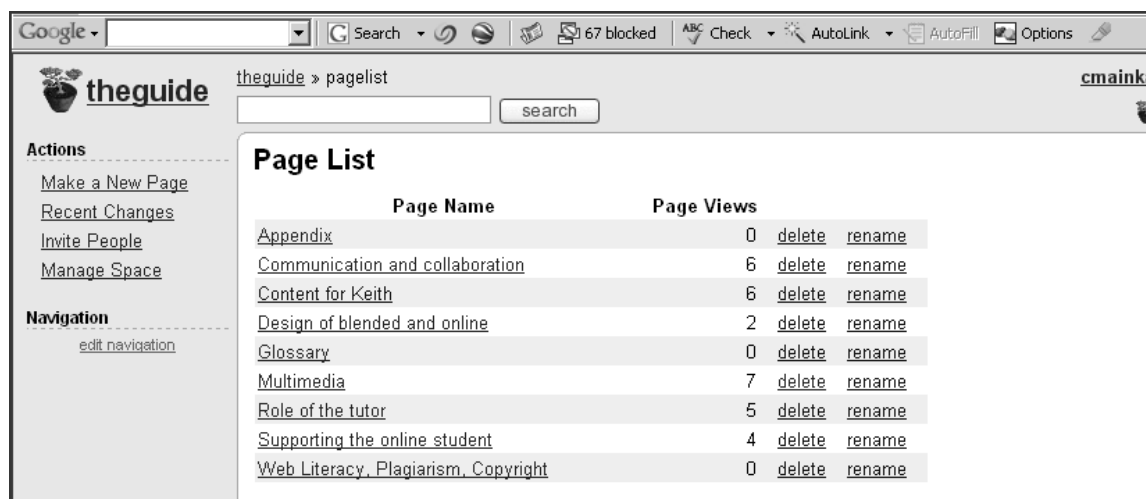
Figure 13: Example of a wiki created to support writing this guide (Wiki provider: wikispaces)

Freely available wikis for you to review:

Wikispaces: **http://www.wikispaces.com/**
Peanut butter wiki: **http://pbworks.com/**
Tikiwiki: **http://info.tikiwiki.org/tiki-index.php**

Find a comparison of wikis at **http://www.wikimatrix.org/**.

See a recent example of a wiki used by one of the authors to create a conference website at **http://lick2008.wikispaces.com/.**

► See Unit 4 and Unit 8 for further guidance on the role of the tutor and student support issues around online communication.

7.0 Further reading

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Unit 6 Coursework and assessment for blended and online learning

This part of the guide is intended to outline the rationale and some possible options for the kinds of coursework that are particularly well-suited to blended and online learning, as well as highlighting some key issues in designing appropriate forms of coursework, and the practicalities of administering it.

1.0　Why is a separate approach needed?

Having a unit titled 'coursework and assessment for blended and online learning' immediately suggests that the way in which tutors need to think about coursework that students are to undertake working in online-supported contexts somehow needs to be different. It does need to be different, and there are many reasons for this that relate to the nature and challenges of blended and online learning, and the issues that arise when there is an over-reliance on traditional forms of coursework and assessment in blended and online courses.

1.1　The reality of online student engagement

So why is it necessary to think differently about the kinds of coursework suitable for blended and online learning? One reason is the reality of how many students have been found to manage their studying and engage with the resources that are available to them in blended and online contexts.

Despite the many benefits of blended and online learning, unless they are explicitly required to do so, only more naturally pro-active students will tend to interact with a good range of online resources in a constructive way.

The temptation for students who are less pro-active, or who are simply juggling many other studying and other commitments, is to only access online resources with a serious intent to learn immediately prior to formal course deadlines. The potential problem with this being that students may not have time to use anything but the core resources, or participate effectively in online discussions.

1.2　Exploiting the opportunities for realistic tasks

Having access to a wealth of information, communication tools, and other technologies and resources that can be freely utilised at any time, means that blended and online learning is particularly well suited to tasks that require students to source information, and develop and use knowledge in many ways

that are similar to the inquiry-based, collaborative ways in which knowledge is generated and used in professional contexts and environments.

The use of multimedia and simulations, where possible and appropriate, adds a further dimension to this by allowing students to view and interact with real (eg a video of a medical procedure) or more realistic (eg an interactive model of the human heart) depictions of objects, processes and phenomena.

1.3   Engagement, collaboration and rich interactions

Related to both of the above is the idea that to get the most out of the benefits associated with blended and online learning, the coursework and activities that students undertake have to play several roles in addition to providing a focus for learning and a basis for assessment. These additional roles include: ensuring the use of a valuable breadth of resources; supporting community building and encouraging purposeful collaboration, allowing the monitoring of progress; and providing a course structure that is conducive to effective ongoing engagement.

1.4   The problem with summative assessment

Although there is no reason why summative forms of coursework and assessment should not play a part in blended and online courses, their use as the main kind of coursework and assessment is very problematic. One reason for this is that the online environment has fewer opportunities for the student to gauge their progress than a 'traditional' course does, in which there tends to be a higher level of regular structured interaction with tutors and peers, as well as more informal opportunities to seek guidance and feedback.

Another reason is that summative assessment, when used alone, does not give the student much incentive to be actively engaged online until the point in time where it is clear that the work must now be undertaken. In this respect, an over-reliance on summative assessment can be a major contributing factor to procrastination, and also poor retention, in blended and online courses.

Consider the following student scenario, based on a genuine student account:

Student scenario

Gary is just entering his second year of an undergraduate programme. He entered university straight from school partly because it was expected, but also partly because he can see the value of getting a degree in the area he would like to work in. Gary attends most of his lectures and seminars, but by how his own admission could also be better motivated and manage his studies more effectively. Although he gets reasonable grades, Gary tends to leave his coursework until fairly late on, sometimes beginning it at the last opportunity, and prefers to be told exactly what has to be done to get through an assessment. He is currently having some difficulty with a group-work project, as his fellow group members feel he is not contributing as he should be. This

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situation is not helped by his part-time work commitments outside of his course

Aside from using e-mail for contact with the tutor, and having occasionally used discussion boards as part of particular modules, Gary does not have much experience of studying online. One of his core modules for this trimester does not have any lectures and all the basic course material is provided online, along with a rich range of links to further readings and interactive examples available on the web. Students are to study this at their own pace, and will be assessed through submitting an essay mid-way through the trimester, and sitting an exam at the end. Some of the time that the tutor would have allocated to lectures and seminars is being used for individual tutorials that the students can sign up for after viewing the available times online. The tutor has also set-up a series of online discussion topics that he has introduced with key questions for consideration, although the decision on whether to engage in discussion around these questions is being left to the students, and is not mandatory.

Although it is clear that Gary could perhaps be more pro-active in his approach to studying, the challenges he is facing, including getting motivated and balancing his course with other commitments, are obviously not uncommon. Of course Gary is also a campus-based student, with one year's HE experience after having come from school, and has not self-selected to study online.

How then might Gary, or colleagues like him, fare in the module described in the scenario? Is Gary likely to benefit from the increased opportunities for self-paced studying that exist online in this particular module? What use is he likely to have made of the links to readings and other resources provided by the tutor? What are the chances of him participating in the asynchronous discussion, where he would have more time to reflect upon the views of himself and others, and engage in a deeper exchange than might happen face-to-face?

The reality is that Gary only went online a handful of times. Initially he went online out of curiosity as to what he could find in the module's VLE site. Gary then returned online towards the time of the essay being due, when he printed out the essay specification and the basic course notes that related to the question he chose. He also printed out the content of a couple of the links to use as possible references, picking those to print based on their title and a very quick scan of the content. Gary returned again nearer the time of the exam to print the rest of the basic course notes, and a few more of the recommended links. Only once did Gary go into the discussion board, just to see if anyone had said anything that might help him with his essay. He didn't find many contributions there, and had no intention of contributing himself as he wasn't actually required to. The few discussion posts Gary did find he noticed had come from a couple of the more studious folk in his class, who he figured would have contributed anyway as they were always putting in that extra effort.

In the end Gary did OK on the essay and exam – probably about the same as he would have had the course just been lecture-based. The feedback he received made it clear he'd overlooked a lot though, and this made Gary think about how much better he might have done had he made fuller use of the resources that were available, and been more organised in his online studying.

2.0   Key characteristics of good online coursework

Given the above, what are the general characteristics for the tutor to keep in mind when thinking about the kinds of coursework that will engage students with the subject matter and each other, and therefore increase the likelihood of effective learning occurring, in blended and online course contexts?

Before looking at some types of coursework that work well in blended and online courses, let's touch upon some of the main characteristics.

Although there is no one definitive list, there is a consensus on the following:

- **Student ownership and control**. In blended and online contexts, where the increased flexibility offered is ideal to supporting independence in learning, coursework activities that provide students with a degree of choice in what they learn, when they learn, and the resources they use plays to the strengths of the medium. Increased ownership and control can also make learning more motivating and personally meaningful.

  However, it is critical that these opportunities are offered within a course structure that does not allow increased flexibility to translate into increased procrastination, as in the above student scenario.

- **Multiple perspectives**. Exposure to multiple perspectives is important to developing critical thinking ability. This is easily enabled online through access to web-based subject material, the links to which can easily be organised according to competing and increasingly complex views. It is also made possible where effective online communication occurs.

- **Range of relevant resources**. As appropriate, this could include topic overviews and coursework activity descriptors, starter links to relevant online readings and subject repositories, multimedia examples, communication tools and shared workspaces, and physical resources and environments, all of which combined could support learning, and individual learning preferences, in a diversity of valuable ways.

- **Opportunities for collaboration**. To allow students to benefit from sharing their understanding, and arriving at deeper understanding through this process, as well as for developing communication and collaborative skills, and being able to undertake and learn from complicated tasks too challenging for the individual working alone.

- **Space for self-reflection**. Deliberate inclusion of opportunities for students to reflect on their progress, and identify possible shortcomings in their understanding, at pertinent points throughout their learning.

- **Continuous engagement**. Coursework in blended and online contexts should require the student to be active throughout, and reduce any possible temptation to delay learning by having periodic deadlines.

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- **Constructive alignment**. Like all well-designed coursework, there needs to be a high level of coherence between the stated learning outcomes, the content of the learning to be undertaken, and the criteria for assessment. For example, if students were required to undertake a collaborative online project on a particular topic, it would not make sense, or provide much motivation to complete the project properly, if they were to be assessed via an individual essay on the topic in question.

- **Task to technology appropriateness**. A particular challenge of blended and online learning is in whether the resources available to the students are suitable to the task they are being required to undertake. If they are to investigate a particular topic to a particular depth, are there the sources of information available to do this? Similarly, if a group of students is to collaborate online on a project that requires rapid decision-making at certain points, then they are probably going to need a mixture of real-time and asynchronous communication options.

3.0   Forms of coursework for online learning

There are many kinds of coursework that work well in blended and online learning, due to being consistent with the general characteristics outlined above. However, the need to be constructively aligned and appropriate to the available technology and resources, it is important to remember that no one coursework activity is likely to embody all of the aforementioned, or be made to where this is not appropriate. Instead, many good blended and online courses use a combination of different kinds of coursework, often including a selection of those described below, to ensure a rich and engaging learning experience.

3.1   Case-based learning

In case-based learning a student, or typically a group of students, is presented with an account of an event that has occurred, or a particular set of conditions. They are then required to apply their knowledge of the concepts and principles they have been studying to explore and debate the situation, before arriving at a reasonable and defensible view or decision. Technology-supported case-based learning is commonly used in medical education. Here, the case material presented includes the medical history and symptoms of the patient, often with visual evidence, information about conditions commonly linked to the symptoms in question, and links to a range of specialist views about the case. The students view and discuss all the evidence presented, before reaching their final view.

Example

A 'part-virtual' case study in office ergonomics. Students read transcripts of interviews with key personnel, view photos of the environment, consult policy documents, then visit the site before preparing and uploading a group report in the form of a digital documentary.

Case-based learning has potential uses in many other disciplines where a range of factors have to be considered to understand and then make an informed decision in particular situations. Because case-based learning tends to require students to have a lot or relevant resources to hand, it is an excellent way of enabling learning in blended and online contexts, after there has been some initial opportunities for students to engage with the subject matter.

Of course the tutor doesn't need to create all the relevant resources themselves, as in any discipline there is typically a lot of good quality material to be found on the web already. This may mean that the tutor needs to create little more than the case narrative itself (the case description and question), and within this simply provide links to further information about the relevant concepts, other similar examples, and possible explanations for what is happening or needs to happen in the given situation (being mindful, of course, that the material you are linking to is cleared for such use). Beyond this, the students will require some means of communicating in a reflective way, which may suggest that an asynchronous discussion board is going to be valuable.
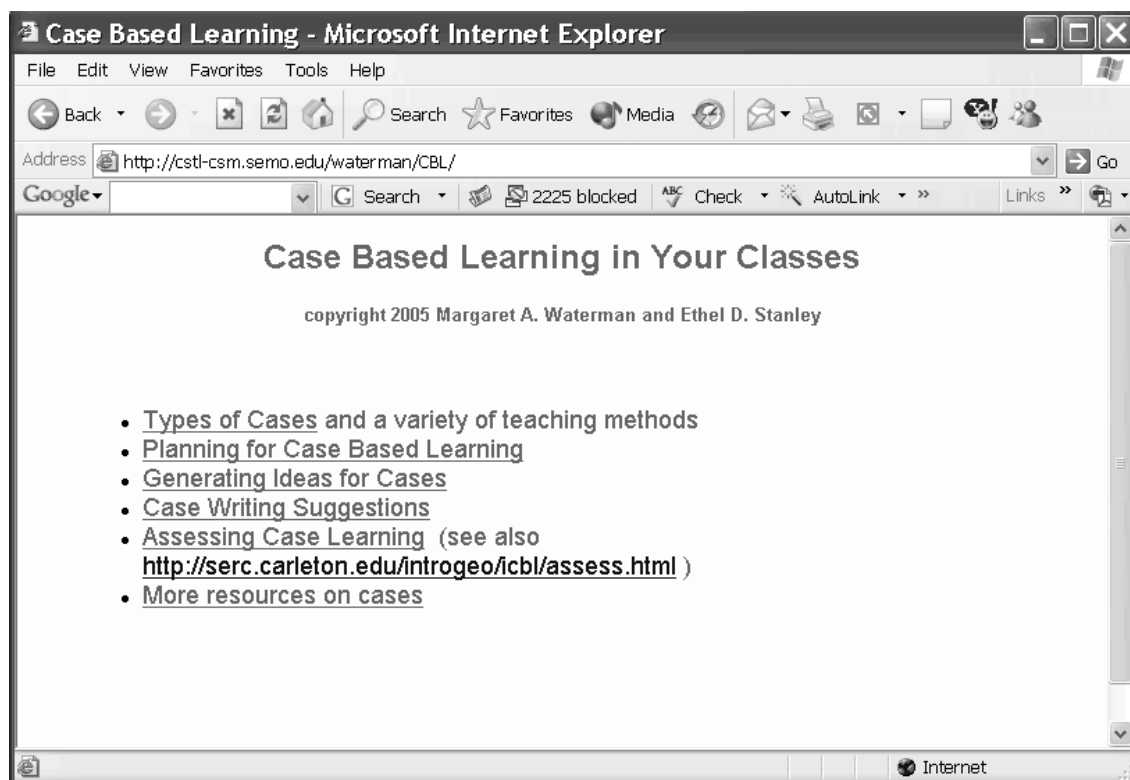
Figure 14: For more information on how to design case-based learning, with examples and assessment tips, see Waterman and Stanley's concise but informative tutorial at http://cstl-csm.semo.edu/waterman/CBL/

3.2   Problem-based learning

Unlike case-based learning, problem-based activities are often undertaken without much prior exposure to the subject matter in question, and do not always require a great deal of resources to be provided for the students at the outset. Instead

small groups are presented with a problem situation or scenario. They then analyse this to identify the key areas to focus upon, investigate these areas, and then apply and debate what they have found out as they work through proposed solutions in order to arrive at the optimum one.

Figure 15: The Problem Based Learning website from Australia's Central Queensland University has links to examples of online PBL approaches, alongside information about designing PBL (http://www.pbl.cqu.edu.au/)

In blended and online learning, problem-based approaches are very easy to implement, with the main requirement of the tutor being to produce the problem scenario, possibly provide some starter links and guidance on how to find quality information online, and ensure students have appropriate online collaborative spaces. Students will need a means to communicate and pool their resources effectively, which means blogs or wikis might be good options here, or group-working and discussion areas established within the VLE.

3.2.1 WebQuests
A WebQuest is a particular type of online problem-based approach that was first developed at San Diego State University, and is now popular worldwide with teachers and tutors working at all levels of education. WebQuests provide students with a task or problem scenario, a starter set of usually web-based resources, task support guidance (eg roles to be assigned within the group, format for the final output), and the criteria against which the students final output

will be assessed. WebQuests often involve the students presenting their findings to the tutor or other groups online, and defending them in debate.

Figure 16: Visit the Searching for China WebQuest by Tom March at Pacific Bell for a good example of what a WebQuest looks like and involves for students http://www.kn.pacbell.com/wired/China/ChinaQuest.html

For more information on using WebQuests to encourage higher order learning in blended and online courses, see the WebQuest Portal at **http://webquest.org/**, which has a searchable archive of example Webquests for various subjects.

3.3   Student-led seminars and debates

Having students lead, moderate and contribute to online seminars and debates as part of their formal coursework is an excellent means of getting students to engage with their subject early on in blended and online courses, and also to engage with and appreciate the views of others. The asynchronous conference provides a safe environment for doing this, through the opportunity for the student to fully reflect on their own view and those of others before contributing.

Example

Student-led online seminar in second year politics course

Weeks 6 to 8 online seminar

For this week's seminar, the two seminar leaders (see attached list for who is leading which seminar) will work as a pair to research UK political policy on immigration.

By the start of week 6 (Monday 12th March) the seminar leaders, who have received further instructions via e-mail, will have investigated the government stance as well as the corresponding policies of the shadow government and one other opposition party of their choice. By noon on the 12th March they will have posted a short summary of each perspective, including links to further reading about the respective policies, to the discussion board topic titled 'Week 6 Seminar: Immigration policy'.

Your task as participants

Read the seminar leaders' opening contribution. On the basis of their policy summaries and the further reading they provide links to, pick the policy that you most agree with (even if you don't agree entirely). By Friday 16th March, post up to 250 words describing why you opted to side with that view, and why you feel it is more appropriate than the other two policies that were presented.

During Week 7, beginning 19th March, read through the contributions from the class. At a minimum, pick at least one point from a classmate on which you agree, and another point from a different classmate on which you disagree. Reply to your colleagues in the discussion board, explaining why you agree or disagree with their views.

For the start of Week 8, beginning 26th March, the seminar leaders will post a summary of the consensus view on each policy. By Friday 30th March you should post a closing account identifying the policy view you agreed with at the start of the seminar, and what your perspective is now (eg Do you still agree with your original choice? Where do you now see additional strengths or weaknesses in the policy you chose, or the other two policies presented? What points raised by others informed your final view?).

Remember this is a student-led seminar, although the tutor will be online to raise pertinent questions, and comment on the range of views expressed.

Your participation in our 4 online seminars accounts for 20% of your final mark.

However, despite the potential benefits of online seminars, careful thought has to be given to the assessment of online discussion participation for this kind of activity. Assessment will certainly encourage participation, but there is a need for clear criteria that explicitly emphasise the quality of contributions, and the importance of the student engaging with others rather than simply communicating their views. For more guidance see section 5.4.

3.4   Web-based presentations

The visual strengths of the web, along with the ease with which a range of file formats can be shared online, means web-based presentations are a good option to for individuals or groups to undertake. But what might these entail?

It really depends upon the skills of the student(s), and the task in question. Usually the student would first be required to research a particular issue, or undertake a piece of work that they would then have to report back on. The presentation itself could take the form of a PowerPoint® slideshow, perhaps narrated, or perhaps a web page presented in the form of a 'digital documentary'.

Fellow students and the tutor would then have a period of time in which to view the presentation after it has been uploaded, and then ask questions of the student presenter(s) who would then respond online. This may be in real-time or via a discussion board. There are particular advantages to the latter, especially in fully online courses where a number of students might be studying in a second language to that of the course in question.

3.5   Research and report

This can be a variation on, or aspect of, any of the kind of blended and online coursework listed so far. Usually undertaken individually or in pairs, this is a simple but effective form of inquiry-based learning where the student might decide upon, or be given, a particular question or issue to look into before sharing their findings with the rest of the class, or with fellow members of a project group that are undertaking research and report exercises as part of a larger activity. Research and report exercises can be a good precursor to online discussion (as the example in 3.3 indicates), and a good way for new students to get valuable practise in developing online search and retrieval skills.

3.6   Design projects

In subject areas where students are working in a visual medium, for example art and photography, architecture or any subject that uses aspects of computer-aided design, then the online environment is ideal for facilitating the sharing and critiquing of original work and ideas amongst groups of students who may not be able to physically meet at the same time. Even where this is not the case, the web can make the work available to view and discuss at any point out with the classroom environment, rather than simply within it. Where students are working on producing software environments and applications, these can be distributed online for others to easily interact with and feedback on.

3.7   Portfolios

Portfolios are essentially collections of individual work, typically associated with a particular subject or course, and often threaded together with a commentary by the student on the work undertaken and the resulting learning. Portfolios, or individual pieces of the work undertaken for it, are often made available to view by tutors, and sometimes fellow students, while the portfolio is in progress. For the end of a course, or an agreed time, the portfolio is submitted for final review.

Because portfolios are a varied collection of coursework built up incrementally, they are an excellent option to ensure continuous learning occurs in blended and online courses, in which the portfolio might also be submitted electronically and perhaps even include evidence of online discussion participations. WebCT at Edinburgh Napier offers an electronic Portfolio tool which you can learn more

about at **http://www2.napier.ac.uk/webct/staff/resources1.html#portfolio** and **http://www2.napier.ac.uk/ed/portfolio/**.

Figure 17: The ePortfolio Portal at danwilton.com provides a wealth of information and advice about e-portfolios, and is open to comments and contributions from those who share an interest in the use of e-portfolios. You can find the site at http://www.danwilton.com/eportfolios

In submitting portfolios electronically, simple solutions include the creation of a CD-ROM, or a simple web page with an overview commentary and links to the pieces of work. E-portfolios are becoming increasingly popular as a more sophisticated way of handling portfolios. E-portfolios are more dynamic than CD-ROMs or web pages. They essentially allow students to load all their work into an online database that is more flexible to maintain and update than a static web page. The database of work sits behind and is accessible via a website, but has the additional advantage of others being able to add comments easily.

3.8   Reflective journals

In blended and online courses, where increased time for reflection exists but the opportunities to do this do not occur as naturally as in face-to-face courses, requiring students to maintain a reflective journal of what they have learned and the issues they have encountered is a simple but potentially effective option.

Example

Excerpt from a reflective journal specification for a Masters level module in palliative care. Note how the final submission comprises different kinds of activities undertaken throughout the module. These included completed self-reflection activities built into the online module, and also contributions to online discussions:

Purpose
The purpose of this portfolio style journal is to assist you to develop a cumulative document which includes the evidence/activities you have been engaged in throughout the module. The journal may be presented in your own style/lay-out-but should follow the sequence of the units-building up the evidence of reflection and learning.

Objectives
To develop critical thinking and a questioning attitude
Enhance reflection, analytical, metacognition and writing skills.
Development of self within the subject matter
Provide a therapeutic purpose by supporting a behaviour change
Encourage creativity
Develop self-expression by promoting the journal as an alternative voice.

Evidence
The Reflective Learning Journal should include evidence of:

Application of theories and concepts
The use of formal and informal resources
Communication strategies/approaches
Group discussions
Observations/awareness in relation to own practice area.

The evidence might include the following;

Additional reading identified beyond the essential websites/reading
Copies of e-mails/discussion threads
Completed activities
Media accounts etc
Unit questionnaires.

It's important that students are required to update their journal regularly, perhaps on a weekly basis, otherwise it will not be particularly useful to them. It will also be important that reflective journals have a clear focus, for example being tied to a specific project they are undertaking online, or their developing understanding of

certain key issues. As for options for keeping these, it could be as simple as a word document, or preferably a running commentary online either in a dedicated discussion board thread, or even a personal blog.

Of course, reflective journals need not just be a simple narrative of the tasks undertaken and the learning that resulted. The reflective narrative can be constructed around a collection of reflective tasks that were undertaken, as in the above example, which combines a reflective journal approach with aspects of the portfolio approach, and results in kind of reflective 'mini-portfolio'.

3.9   Critical essays

The critical essay is well established means of individual assessment, can be very effective at consolidating the students understanding, and can be assessed by the tutor relatively easily. They certainly have their place in blended and online courses, but for the reasons highlighted in 1.4 and 2.0 should not be used as the sole or main method of summative assessment.

3.10   Objective self-tests and exams

Objective self-testing is an excellent means for testing factual knowledge, including understanding of formulae and terminology. It is also ideally suited to the online environment, where the administration and marking of objective self-tests can easily be automated. Short objective self-tests at pertinent points throughout an online course also provide a very good opportunity for students to assess the development of their basic understanding as they go along.

► **See Unit 3 section 3.3 for more examples of online activities.**

4.0   Key issues in designing online coursework

Although there is not scope here to provide detailed guidance on how to design each of the kinds of coursework described above, there are some general principles to follow when designing coursework for blended and online learning.

4.1   Consider what is realistic and possible

In blended and online contexts, it will be critical that the coursework you ask students to undertake will effectively engage them with the online environment and each other, and do so continuously over the duration of a course.

That might imply having a range of coursework activities for your students to undertake and complete at various points, which in turn perhaps suggests more work for you as the tutor to produce, support, and grade this work.

For this reason it's important to consider what is realistic and achievable both for yourself and your students. Here are some tips for ensuring that coursework for blended and online contexts effectively engages your students, but without becoming problematic for you to administer:

- **Think about the kinds of coursework activities that are most appropriate for your students and your subject area**. What level are your students, and what can they realistically undertake if working more autonomously online? Is problem-solving a key skill in your subject? Perhaps a case-based approach reflects how students will be required to work in their chosen profession? Perhaps the need for them to be able to analyse, articulate and defend particular arguments and views suggests graded online discussion participation is the way to go?

- **Don't think you need to assess everything!** Period deadlines are important online, but that doesn't need to mean receiving multiple submissions of several pieces of coursework for assessment. Perhaps you could set deadlines for receiving key parts of a continuous assignment or project for formative comments, with final assessment to come when the completed piece is submitted? Not assessing everything is a particularly important point when dealing with contributions to online discussions and debates. See section 5.2 below for more advice on this issue.

- **Use the subject material that's out there.** You will of course need to write your assignment specifications and assessment criteria, but the fact that good blended and online coursework tends to rely on a rich range of subject material doesn't mean you need to produce it all. Problem-based projects are a great example of this, and can be supported by students actively exploring a range of relevant online subject-related resources (bearing in mind the need to ensure materials are free to use in this way, see Unit 10 sections 1 and 2 for guidance).

- **If the VLE doesn't have the tools, someone else usually will.** Very often the VLE will provide all the tools your students are likely to need to support their coursework (eg a discussion board, a means to link to subject-related resources, and also a means for contacting yourself). However sometimes it might not. Let's say your students would benefit from a way of efficiently sharing and authoring group reports before final submission. Well, perhaps then you might point them towards one of the many reputable wiki hosting services? Want to use a reflective journal approach, then maybe each student could set up a blog to enable this (see Unit 5 section 6 for guidance)?

- **Keep it simple.** There's a need to keep students engaged online, but it can be tempting to try and ensure this by presenting a wider array of coursework activities than are actually needed, or that your students will be able to cope with. If students are overburdened online, that can impact upon the increased potential for them to learn reflectively at their own pace that exists online, as they simply won't have the time and space to do this. Instead have them complete no more than three major pieces of

coursework at the most for a standard module, and ensure that between them they provide good opportunities for individual and collaborative work, and that deadlines are appropriately staggered.

4.2   Provide clear assessment criteria

This is important good practice for any course, but can be particularly critical in blended and online contexts as students may not have as many opportunities to seek quick clarification of requirements as they would in a lecture-based course.

Clear assessment criteria are also particularly important in blended and online courses where students are being assessed on ways of working that may well be new to them, eg producing a web-based presentation, undertaking an online problem-based exercise, or contributing to an online debate or seminar.

Example

In addition to the 80% allocation for your individual project submission, 20% of your final grade will be based on your participation in our online seminars.

Your participation in the online discussions will be assessed by the overall quality of your four best contributions (selected by yourself) to one of our online discussions (selected by myself). Contributions will be assessed against the following criteria:

Relevance: Relevance of the points made, issues raised or questions asked to the topic under discussion, and for which a good understanding of the subject material should be evident. Originality of contributions is important in this context, and so where an individual has attempted to introduce new ideas, or offer alternative perspectives and interpretations on previous points, this will be noted.

Elaboration: Based on the extent to which contributors go beyond simply stating opinions or asking questions, and include an explanation of why the point or issue raised is an important one. Where appropriate, explanations should be backed up with reference to other sources (eg print or online articles and essays) to give credence to the points being made. Where references are used, source details including author, title and publication should be provided - including full URLs for online sources.

Interaction: Based on the extent to which contributors acknowledge, where appropriate, the views of other participants in the discussion (for example, making reference to a colleague's or the tutor's point where you want to indicate your agreement or disagreement with what they said, or where you want to expand upon their original point).

Clarity: Of written content, including grammar and spelling.

Timeliness: Within the parameters of the formal discussion activities, whether opening and any follow-up contributions are made prior to the specified deadlines.

Consider the above criteria, which emphasise the basis on which students will be assessed on the quality of their contributions to online discussion.

4.3   Provide clear guidance

This should be seen as separate to the assessment criteria, and is concerned with clearly communicating the kind of guidance that your students will require to undertake the task that they have been set. This could cover:

- The assignment specification itself
- Problem or case scenarios to be presented
- Allocation of group roles and responsibilities
- Deadlines for completing the coursework or parts thereof
- Where to find any required reference material or documents
- Information about required tools and where to find them (which could include guidance about accessing a private group discussion area, or for setting up a blog or wiki using a reliable hosting service).

This list is indicative not exhaustive, but provides a good idea of what to cover.

4.4   Make support options explicit

What means of support will you provide for your students when they are undertaking their assessed work in blended and online contexts, and more importantly how can they access it? Perhaps you'll have a problems forum for handling general queries about what the coursework involves, and reserve e-mail for direct contact regarding more sensitive problems and issues?

If your students are undertaking collaborative coursework online, then you might decide to provide them with a link to a set practical tips for doing so on a reputable study-skills website? If they are working on a project in a format that's likely to be new to them, for example if they are producing an online presentation or digital case study, then perhaps you might decide to provide access to a couple of illustrative examples produced by the previous class?

Whatever support options you are providing to assist students in undertaking their assessed work in a blended or online course, make these transparent.

4.5   Think inclusively

When dealing with online courses, or indeed in blended approaches where there is collaboration between different student cohorts or which involve part-time or CPD students, there is an increased likelihood that you will be dealing with quite a diverse group of students. This has particular implications for the coursework you design for blended and online learning contexts.

With this in mind, consider the following when thinking about online coursework:

- **Don't use examples in coursework that are culturally biased** (eg in a fully online distance course in marketing, students should not be asked to critique television campaigns that have only run in the UK)

- **Avoid provincial language and abbreviations** (eg non-UK students might be more familiar with the term 'truck' than 'lorry' or 'HGV', or at least find it easier to translate the term 'truck' if they are not familiar with it)

- **Define key subject-related terms and abbreviations.** Actually, defining key subject-related terms will benefit all students, but particularly those studying in a second language. Consider defining terms when they are introduced in coursework specifications (especially if you are presenting a problem scenario to enable students to explore a particular issue and produce a solution on which they are assessed). Also, try and avoid abbreviations in coursework specifications. Access to a good glossary of subject-related terms will be of benefit here.

- **Don't assume students have the IT they need.** If students are required to use specific software tools or programmes to produce a piece of work, be sure from the outset that they either already have these resources, or that you can provide easy access to them. This is particularly important in fully online distance courses where students are working from home.

► **See Unit 8 section 5 for further guidance on supporting the international student.**

5.0   Practicalities in submission and assessment

Let's assume that, mindful of the general advice above, you've set your students coursework that you are confident will effectively engage them with one another and the rich range of subject resources they have access to within your blended or online course. You've also made the support options that are available to them in undertaking the work very clear. So what next?

There are a number of issues for the tutor to think about in relation to the submission and assessment of coursework in blended and online courses.

5.1   Electronic submission issues

If it's a predominantly or fully online course, and many of your students are at a distance, you need to think about the best way for your students to submit their coursework, as well as what is convenient for you. Key considerations are:

- **Collating and storage** How will they receive the work? Conventional post is impractical over long distances, and may reduce the time that those

further afield have to produce their work in comparison to less-distant classmates. E-mail is an option, but you would need to think carefully about keeping track of submissions particularly if you have large cohorts.

Most VLEs, including WebCT, have very good assignment tools. These can be used to make assignment specifications available for download by the student, and to allow students to upload their completed work. The advantage here is that all the coursework is collected at one central point. The tutor can easily retrieve it from here, and also readily see who has yet to submit and who submitted beyond the deadline.

- **Digital format** When receiving work electronically, what format will be most appropriate? This will depend upon the type of work students are producing (eg if they are using a specialist application), as well as what applications the students are expected or likely to have access to. If it's written work then perhaps you can specify Word as the acceptable format, or PowerPoint$^{®}$ where students are to produce an online presentation. Once you've considered these issues, make the format requirements clear to the students to avoid any problems later.

- **Time zone differences** Are something to be mindful of, especially if you've got students who are distributed over the globe. Be clear in stating the time for deadlines, eg Friday 16th June 4.00pm GMT. You can even usefully provide a link to the Greenwich Mean Time website within assignment specifications or elsewhere on your VLE site, as an aid to those overseas. **http://wwp.greenwichmeantime.com/**

5.2   Handling increased marking load

In section 4.0 above, the prospect of being faced with handling an increased marking load in blended and online courses was discussed, along with the need to be mindful of not necessarily having to assess all aspects of the formal work your students undertake online. Providing formative feedback at key points in the completion of coursework was mentioned as one option here, but there are other options that are worth considering if you feel an increased marking load might result from taking a blended or online approach to your courses.

One is to think about whether help might be available from a colleague or a graduate assistant. If you are assessing contributions to online seminars and debates, a good option here is to assess only a selection of contributions from each student. You might ask them to submit their best four or five contributions, with the proviso that the examples they submit are from different discussions.

Peer assessment, though it needs to be used carefully and be supported by clear peer assessment criteria, is another possibility. It is certainly one that makes sense where collaborative projects have been undertaken, and to avoid the possibility of collusion within groups, it may be that you can get one group to review the work of another group (eg an online presentation, collaborative report

or problem solution). The following example provides the peer review criteria for a group digital documentary project, which the tutor in question found to work well.

Example

Peer review criteria for a collaborative digital documentary (abridged)

Aim
The purpose of the digital documentary is to enable you to present the key issues for your case study in an electronic form within the module's learning environment.

You are required to present the issues which your group has identified as being of particular importance to the organisation you have studied. The digital documentary should be presented as a case study for use by future users of the online learning environment. In presenting the case study "human factors issues" must be taken into consideration, and the documentary should be presented in a professional style.

Peer assessment of digital documentary
To ensure that you have a look at the human factors issues in organisations other than the one you studied, you are to assess the digital documentaries of the other groups.

Criteria for assessment are as you will already have seen in the specification, but are summarised below as a reminder:

Content
Presentation of the issues
Comment and analysis of the issues
Structure and presentation

Clarity
Usability
Must incorporate text and relevant images

Innovative developments
eg links to external WWW sites, multimedia aspects, aesthetics of design

We want you individually to rank the documentaries rather than giving an actual mark (the final marks will be determined by the tutor based on a tally of ranking positions). Print out this page and fill in the table below. Put 1 for the best documentary, 2 for the second and so on. No ties please.

Organisation/case study name	Authors	Ranking	Comments
Marked by:			

(Originally written by Kathy Buckner and Mark Gillham for a module delivered at Queen Margaret University College, Edinburgh)

5.3   Assessing originality of coursework

Assessing the originality of coursework has become an increasingly important issue due to the ease with which subject material can be accessed on the web, and the proliferation of essay repositories and writing services that are to be found online. The use of text matching services like Turnitin®UK provide a valuable means by which students can ensure, and if required to, demonstrate the originality of their own work, and the accuracy of their citations. If necessary, the tutor can also use services like Turnitin®UK to check the validity of work submitted (see Unit 10 section 3).

5.4   Assessing online discussion participation

Tutors who are new to teaching in blended and online contexts can often see the potential for more reflective, inclusive exchanges of views that asynchronous online discussion offers, but are sometimes unsure of how to assess participation. Assuming the discussion activity is appropriately set up and the focus and any key deadlines for participating are well understood by the students, the concern is with ensuring that students understand they are being assessed on the quality not quantity of their contributions, and that this message is reflected in the grading scheme they are presented with.

The example in section 4.2 above illustrates the kind of general criteria that might be used to explain the basis on which students will be assessed for their participation in online discussion. The example also indicates that a selection of their contributions (remember, you don't have to assess everything!) will be evaluated against these criteria to account for up to 20% of the final grade.

In the previous example, the actual marks awarded by the tutor are based on their judgement of the overall quality of a sample of contributions. Another way of approaching the assessment of online discussion participation is to use a points system to assess individual contributions. The example below is a good illustration of how qualitative criteria can be aligned with a clear points system:

Example

Sample online participation grading guidelines

There will be a total of 10 online discussion activities which you are expected to engage in 2-3 times/week. You receive maximum credit not for a right or wrong answer to the assigned question, but rather for the critical analysis, research depth, engagement and insight of your topic related responses-this requires a lot of reading and critical thought!

In addition you are expected to respond to at least one other student's post. Your online participation is worth a total of 60 pts (max. of 5 pts awarded/week).
You are reminded of maintaining a professional and cordial tone at all times.

Grading Criteria
- **0 points:** Student either does not participate or repeats and/or affirms statements made.
- **1-2 points:** Student introduces and summarises assigned readings related to the questions posted.
- **3-4 points:** Student analyses questions, identifies patterns and engages fellow learners
- **5 points:** Student consistently challenges existing theories, researches new ideas and engages and is responsive to fellow learners.

(Originally written for modules delivered for University of Maryland University College, UMUC, USA.)

6.0   Further reading

Bryan, C. and Clegg, K.(Eds) (2006) *Innovative assessment in higher education,* Ch. 5 Rethinking technology supported assessment practices in relation to the seven principles of good feedback practice by D. Nicol and C. Milligan. Routledge. Available at Edinburgh Napier library in print and as an e-book via MyiLibrary.

Conrad, R.M. and Donaldson, A. (2004) *Engaging the online learner: activities and resources for creative instruction.* San Francisco, Calif.: Jossey-Bass.

Lee, M.J.W., McLoughlin, C. and Chan, A. (2008) Talk the talk: learner-generated podcasts as catalysts for knowledge creation. *British Journal of Educational Technology*, (39)3, 501-521.

Lockwood, F. and Gooley, A. (2003) *Innovation in open & distance learning: successful development of online and web-based learning.* London: Kogan Page.

Palloff, R. and Pratt, K. (2010) *Assessing the online learner: Resources and strategies for faculty.* San Fransisco-California:Jossey-Bass. Available at Edinburgh Napier library as an e-book via Dawson Books.

Race, P. (2009) Designing assessment to improve physical sciences learning. HEA Physical Sciences Centre. Available online at **http://www.heacademy.ac.uk/physsci/resources/detail/publications/practice guides/designing_assessment_to_improve_physical_sciences_learning**

Roberts, T.S. (2006) *Self, peer, and group assessment in e-learning.* Hershey, Pa: Information Science Publishing. Available at Edinburgh Napier only as an e-book via MyiLibrary.

Savin-Baden, M. and Wilkie, K. (Eds) (2006) *Problem based learning online.* Maidenhead:Open University Press. Available at Edinburgh Napier in print and as an e-book via Dawson Books.

Watkins, R. (2005) *75 e-learning activities: Making online learning interactive.* San Fransisco, California: Pfeiffer.

Unit 7 Educational multimedia

What is multimedia? Multimedia can mean many different things. Taken literally, the term multimedia really only means to communicate in more than one way. Jumping up and down while singing praise for the winning rugby team is providing onlookers around you a multimedia presentation (movement + sound). In education multimedia might be the presentation of line graphs with an overhead projector to support the oral delivery of an economics lesson. It could be using e-mail to supplement communication in a face-to-face group-work activity. Students downloading and revisiting audiotaped lessons on their iPods are using a form of multimedia to reinforce what they have been assigned to read in their course textbook.

According to Wikipedia, 'multimedia is the use of several different media (eg text, audio, graphics, animation, video, and interactivity) to convey information.' Educational multimedia is understood to be multimedia which provides learning resources by using a variety of media in an integrated way for the purpose of instruction. By doing so we provide resources to students in ways that best suit their learning needs and capture their interest.

This chapter will provide:

- An overview of the main types of educational multimedia
- A rationale for the use of multimedia in teaching including examples and
- Good practice guidelines.

1.0   Why use multimedia?

Incorporating multimedia into teaching requires extra time and effort – so, really, why even bother? The case for multimedia in education is quite simply an enhanced learner experience. If implemented thoughtfully multimedia can facilitate a richer learning experience and promote deeper understanding. Using multimedia also supports students with different preferences for how information is presented. In other words two formats for presentation are better than one (Mayer, 2009).

Pictures convey information more quickly than words. Virtual worlds enable learners to actively participate in authentic tasks, empowering them to do things in an environment that provides a level of complexity and information representative of the actual setting rather than be passive onlookers. Interactive animations can create more exciting and captivating learning experiences. Students can choose, start and stop simulations at their own pace. They can view and scrutinise images as often as they like, repeat practice quizzes or audiotaped lessons for clarification of topics. Presenting information by using more than one format

caters to the different ways in which students learn. In addition by providing more than one way for students to gain information we are improving accessibility.

Unfortunately, the past has seen many inappropriate uses of multimedia in teaching due to a preoccupation with the technology rather than with the learner. Technologically dazzling multimedia has rarely lived up to the expectations of its creators and has hardly influenced the learning process or transformed practice or effectiveness of teaching. When considering multimedia for teaching the aim must not be to showcase cutting-edge technology, but rather to adapt technology to enhance the student learning experience. A range of stunning animations created to deliver vast quantities of information can easily become distracting, whereas one semi-interactive tutorial has the potential of maintaining attention while helping consolidate knowledge and skills introduced to the learner elsewhere.

1.1   When to use multimedia

Some subject areas lend themselves seemingly naturally to the incorporation of multimedia. Contemporary lessons in art design have never been only text-based, of course. Chemistry students benefit hugely in their spatial understanding from building and manipulating 3D computer graphic models of molecules (eg Figure 19) and are better prepared for actual quantitative analysis by calculating appropriate concentrations of reactants in virtual lab experiments. The health field sees everything from heart sound tutorials to digestion video clips support understanding and provide opportunity to practice key skills. But how might English as a second language, history, law or business studies benefit? Let's explore just a few examples which might give you an idea or two of your own.

Case Study

Doris, a French studies tutor, is frustrated by the poor aural comprehension skills of her students. She feels limited in what she can do to support them better given the sheer number of students and a bare minimum of contact hours with them. After consulting the faculty's online learning adviser she feels encouraged to create weekly audio-introductions to lessons online in addition to uploading written lecture notes. Using freely available audio recording software she records weekly lesson outlines but soon adds announcements and 'phrases of the day' to the VLE for students to correctly translate in the following face-to-face lecture. Doris has not only incorporated multimedia meaningfully into her teaching but has managed to link online activity directly to the face-to-face lecture adding relevance and purpose to both. Her students are pleased about the additional and flexible opportunity to refine their listening skills.

Now is the time to reflect on your teaching and ask yourself:

- Is there a complex process you would like your students to see?
- Are there problem-solving skills your students need more opportunities to practice?

- Do your students need to become better prepared for labs or for workplace related assignments?
- Have you considered the benefits of engaging your students in an otherwise inaccessible authentic environment (such as on the moon, at the bottom of the ocean)?
- Would your students benefit from more interactive self-assessment opportunities?
- Have you been thinking about making your students feel more comfortable learning online?

If your answer to only one of the questions above was yes, then you may very well find that a form of multimedia could enhance your students' learning experience.

2.0   Educational multimedia technology

Let's take a look at some of the most frequently used technologies and review key educational benefits of incorporating these into your teaching. Through examples you will see how each might be used to accomplish a specific learning outcome defined beforehand for that particular multimedia application.

The main elements of multimedia applications include graphics, video, audio, animations and interactive technologies, which are described below. Also find a short introduction to the emerging technologies of m-learning, wireless technologies, podcasting, augmented realities and educational gaming.

Figure 18: Map of Europe from pics4learning repository at
http://www.pics4learning.com/details.php?img=europe.jpg

2.1   Graphics

Graphics are visual elements that include everything from still images, icons, graphs, diagrams, illustrations, photographs, artwork, to maps and more.

2.1.1 Benefits of graphics
Information presented in an alternative format enhances written text; aids visualisation and supports conceptual learning. Object analysis is enabled.

2.1.2 Teaching example
Writing composition students are sent to pick one painting of their choice by Paul Cezanne at **http://www.ibiblio.org/wm/paint/auth/cezanne/** and describe it in a written essay.

2.1.3 Web resources for graphics
- SCRAN at **http://www.scran.ac.uk/** (Edinburgh Napier subscription)
- JISC BIO Science Image Bank at **http://www.bioscience.heacademy.ac.uk/imagebank/**
- Flickr at **http://flickrcc.bluemountains.net/**

2.1.4 Implementation tips
- To save an image, right click on it with your mouse and click on 'save image as'
- Download Picasa from **http://picasa.google.com/** to find and organise all your pictures on your PC.
- Use Picnik at **http://www.picnik.com** for easy editing

2.2   Video

Video refers to the 'technology of capturing, recording, processing, transmitting, and reconstructing moving pictures' (definition in Wikipedia at **http://en.wikipedia.org/wiki/Main_Page**).

2.2.1 Benefits of video
Portrays authentic learning situations enhancing the authenticity of computer-based learning environment; presents scenarios otherwise inaccessible to traditional classroom (operating theatre, historic landmark etc).

2.2.2 Teaching example
Link a descriptive video clip to a written paragraph about the shortage of potable water in Lesotho (eg countries around the world video clips at **http://www.peacecorps.gov/wws/multimedia/videos/**

2.2.3 Web resources for video
- Visit the Moving Image Gateway (MIG) for educational video and audio resources at **http://www.bufvc.ac.uk/gateway/**

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- HERMES is the British Universities Film & Video Council's (BUFVC) central database at **http://www.jisc-collections.ac.uk/catalogue/coll_hermes**
- EMOL (Education Media Online) database with over 300 hours of film related to every subject area at **http://bufvc.ac.uk/** (completion of licence agreement required)

2.2.4 Implementation tips

- Use Viddler (**http://www.viddler.com/**) or Vimeo (**http://vimeo.com/**) to create video presentations yourself.
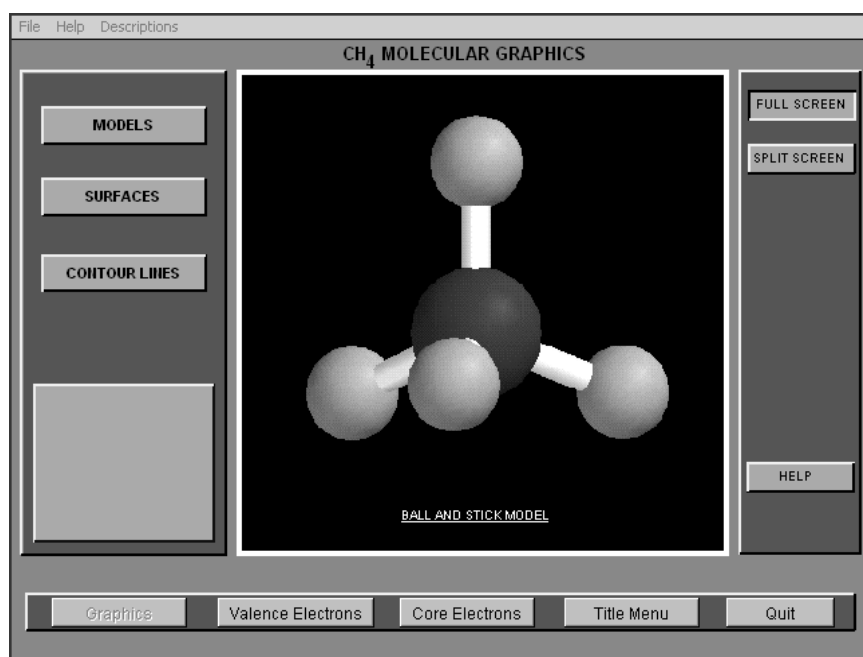
Figure 19: Ball and stick model of methane, CH4. Image from http://treefrog.fullerton.edu/chem/mog/ch4.htm

2.3 Audio

Audio refers to sound recording and its reproduction where sound can mean voice, music and sound effects (see also section 4.2 below).

2.3.1 Benefits of audio

Simple to create with freely available software. Audio introductions personalise online modules, audio recordings help students recognise sounds, improve listening (music) and pronunciation (foreign language studies) skills. Tutors can highlight course content in preparation for an exam.

2.3.2 Teaching example

Short (1 minute) audio introduction to weekly online lessons, staged audio debate as an introduction to a controversial current events topic, audio recordings of correct pronunciation of objects displayed in pictures in a foreign language course.

2.3.3 Web resources for audio
- Freeware odeo at **http://www.odeo.com/** and a headset lets you create your own audio files (stored as MP3 files) within minutes.
- Free desktop audio editing programmes also include Audacity (at **http://audacity.sourceforge.net/**) or Sound Recorder (**http://www.sound-recorder.info/**)
- Recorded documentaries freely available from Discovery Channel at **http://www.discovery.com/radio/podcasts.html** or find documentaries from pbs at **http://feeds.pbs.org/pbs/pov-audio**
- Go to SCOLA at **http://www.scola.org/scola/SampleWTO.aspx** to hear televised programmes from around the world in native languages
- Berklee College of Music offers free music resources at **http://www.berkleeshares.com/**

2.4 Animations

Animations are simulations of movement of graphic images.

2.4.1 Benefits of animations
Processes (over time) otherwise invisible to the human eye are made visible. Animations add impact to presentations, enliven a message, illustrate individual steps making complex information appear simple.

2.4.2 Teaching example
A biology professor links to a photosynthesis animation to assist students in their understanding of the complex chemical processes involved (eg photosynthesis animation at **http://www.johnkyrk.com/photosynthesis.html**

2.4.3 Web resources for animations
- Try **http://www.miniclip.com/sketch-star/en/** or **GoAnimate** at **http://www.miniclip.com/sketch-star/en/** for free animations and instructions on how to create simple animations.

3.0 Interactive technologies

3.1 Courseware

Courseware here refers to educational applications within an online lesson (eg multiple choice quiz (MCQ), 'fill-in-the-blank' activity).

3.1.1 Benefits of courseware
Interactive demonstrations of the concepts under study; consolidate or test knowledge.

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3.1.2 Teaching example

An economics professor makes a supply and demand interactive graph available to his students to reinforce market dynamics (eg **http://www.bized.co.uk/learn/economics/markets/mechanism/interactive/part1.htm**)

3.1.3 Web resources for courseware

- Create interactive puzzles for your students at **http://www.univie.ac.at/future.media/moe/testpuzzle/testpuzzle.html**
- Sensory processing case study at **http://classes.kumc.edu/sah/resources/sensory_processing/learning_opportunities/case_studies/myagrace/case_intro_frameset.htm**

3.1.4 Implementation tip

- Many book publishers make interactive courseware (and other web resources) available to support hard copy book content-be sure to ask and potentially save loads of time.
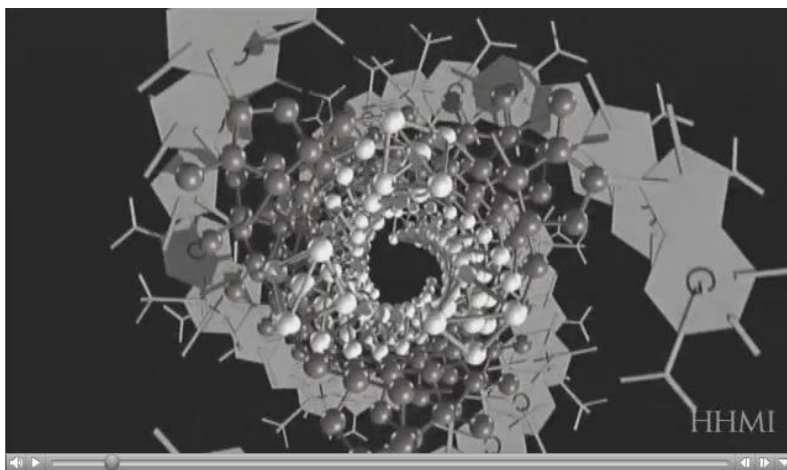
Figure 20: Example of a Flash animation from http://www.hhmi.org/biointeractive/dna/DNAi_pauling_triple_helix.html

3.2   Tutorials

Interactive tutorials mimic situations representative of the actual setting in which learners are able to apply problem-solving skills in accomplishing the tasks as if they had been in the actual environment.

3.2.1 Benefits of tutorials

Interactive demonstrations of the concepts under study prepare students for real world learning activities; opportunity for refining skills improved; time on task in lectures improved.

3.2.2 Teaching example
In order to give students the added opportunity to practice monitoring heart sounds students are sent to the Heartsounds tutorial at **http://www.blaufuss.org/**

3.2.3 Web resources for tutorials
- Microscope
- Tutorial at **http://www.udel.edu/Biology/ketcham/microscope/** (requires Macromedia Flash available at **http://get.adobe.com/flashplayer/**)

3.3 Virtual worlds

Virtual worlds refer to interactive simulated 3D virtual spaces in which many users can participate (also referred to as 'digital worlds'). Currently the most popular virtual worlds in use in education are Second Life (SL) (**http://secondlife.com/**) and OpenSim (**http://opensimulator.org/wiki/**).

3.3.1 Benefits of virtual worlds
Students freed from the need to be situated within the real environment can learn and receive feedback while interacting within recreated 3D environments such as museums, historical events, crime scenes, hospital wards, chemistry labs.

3.3.2 Teaching example
In an arts lecture students are charged with visiting a virtual art museum and finding 10 works of art that best reflect a chosen theme (eg walk around the Van Gogh Exhibition at **http://www.nga.gov/exhibitions/vgwel.htm** requires RealPlayer at **http://uk.real.com/realplayer/**

3.3.3 Web resources for virtual worlds
- Review the many educational applications of Second Life at **http://education.secondlife.com/** including courses run entirely in SL
- Read the Anne Myers medical center in SL support blog at **http://ammc.wordpress.com/** for an authentic look at how virtual worlds are being used to support health science studies.

3.4 Virtual labs

A virtual lab is a virtual world within which students can engage specifically in science lab activities such as microscopy or compound synthesis.

3.4.1 Benefits of virtual labs
Aids student preparedness; time on task in real lab setting improved; encourages authentic inquiry (data gathering, synthesis); fosters critical thinking skills.

3.4.2 Teaching example

A chemistry teacher sends students to a virtual chemistry lab in order for them to learn lab equipment terminology and become aware of safety hazards (eg Virtual ChemLab Community at **http://chemlab.byu.edu/tour/Chemistry**

3.4.3 Web resources for virtual labs

- Fluffy the Virtual Frog Dissection kit at **http://froggy.lbl.gov/virtual/**
- Free trial of virtual biology labs from **http://www.sciencecourseware.org/BLOL/**
- Carnegie Mellon's Virtual Lab Simulator at **http://www.chemcollective.org/vlab/vlab.php**.
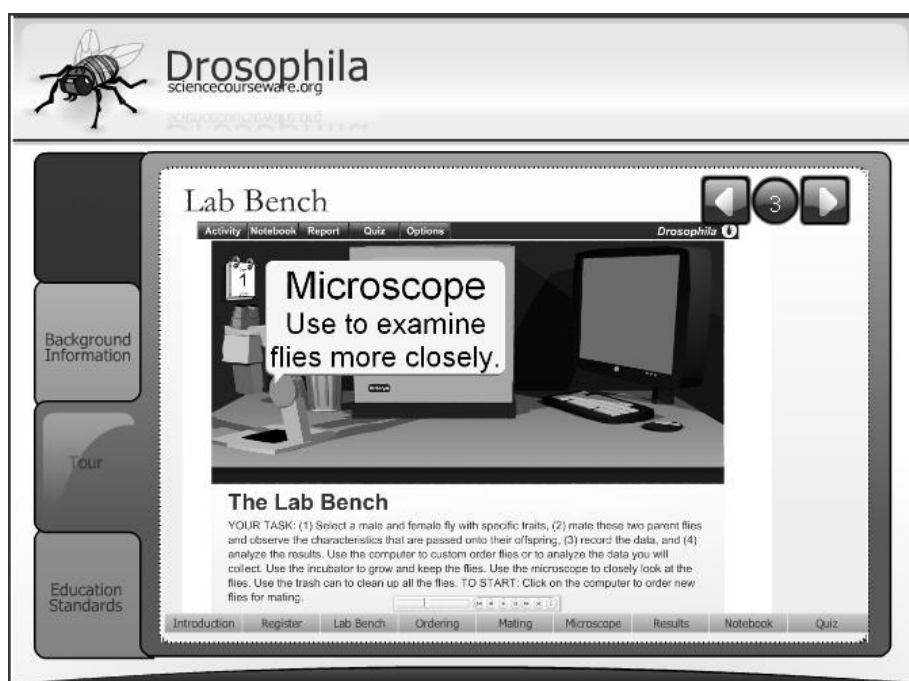
Figure 21: A virtual biology lab from http://www.sciencecourseware.org/vcise/

3.5 Virtual field trips

A virtual field trip is a virtual world within which the student takes part in an exploration or expedition such as of a volcano, Stonehenge or a dairy farm.

3.5.1 Benefits of virtual field trips

Active, student-centred learning facilitated. Virtual field trips provide project-based learning environments that support exploration and discovery, foster curiosity and raise awareness for issues students are often detached from.

3.5.2 Teaching example

Biology students join the virtual explorers to study the river dolphins in Peru at **http://www.virtualexplorers.org/ARD/index.htm**.

3.5.3 Web resources for virtual field trips

- Discover the Galapagos Islands at **http://www.geo.cornell.edu/geology/GalapagosWWW/GalapagosMap. html**
- Have students explore the Aral Sea at **http://visearth.ucsd.edu:16080/VisE_Int/aralsea/aral_map.html**
- For a harrowing tour of the concentration camps Auschwitz and Birkenau see **http://remember.org/educate/intro.html**

3.6   Simulations

Simulations refer to safe virtual environments that provide users with real-life situations to practice skills.

3.6.1 Benefits of simulations
Simulations support exploration otherwise inaccessible because of risk or cost (eg flight simulator, combat zone, earthquake).

3.6.2 Teaching example
A civil engineering lesson about mechanical stress and strain on elements of construction is accompanied by a simulation of the application of varying degrees of stress and strain on a steel support beam (eg the pbs site, 'Why the towers fell' at **http://www.pbs.org/wgbh/nova/wtc/metal.html**).

3.6.3 Web resources for simulations
- Virtual developing country at **http://www.bized.co.uk/virtual/dc/**
- Rice Virtual Statistics Lab at **http://onlinestatbook.com/rvls.html**

► **See Unit 10 for guidance on third party material and copyright issues.**

4.0   Emerging technologies

In a period of rapid developments in wireless local area networks (WLANs), increasing networking speeds, refined screen technology and software trends, it is difficult to accurately choose and expand upon those new technologies that may one day prove most influential in education. Of the five emerging technologies below, wireless, m-learning and podcasting have been chosen as emergent technologies of not yet widespread applications but for which pilot studies promise more accessible, flexible and active learning experiences. Educational gaming and augmented realities are at earlier stages still in their educational applications and hence only introduced briefly.

4.1   Wireless and m-learning

Wireless and m-learning (short for mobile learning) refer to internet technologies that support online teaching and learning applications with access via mobile

devices or wireless networks rather than cable-based networks. Wireless and m-learning are not yet established as mainstream practice in higher and further education, but increasingly mobile devices used together with wireless networks will break down further barriers to deliver educational content, enabling multimedia experiences from anywhere and at anytime.

There is some dispute over what exactly constitutes a mobile device. Most commonly mobile devices include mobile phones, the hand held devices, personal digital assistants (PDAs) and personal media players (eg Apple iPods, iPad, MP3 Players). Mobile devices themselves are increasingly diverging into hybrid devices which integrate multiple functions (eg 'smartphones' which include video capture functions).

4.1.1   Teaching examples for wireless and m-learning

At City College in Southhampton camera phones are used together with a web-based multi media message board in an activity that requires international students to build a photo story that introduces the campus to newly enrolled students in pictures, text and sound. At Thomas Danby College interactive 'drill for skill' tutorials have been developed for the PDA giving students the added opportunity to practice basic skills.

4.1.2   Benefits of the use of mobile technologies

- Portable access to activities and learning resources
- Support active learning approaches such as work-based learning and field work
- Enable richer learning experiences (data, sound, image capture)
- Students take ownership of their learning
- Facilitate information sharing and discussion
- Learning situated in a wide variety of locations in support of lifelong learning.

4.2   Podcasting

Podcasting is the 'method of distributing multimedia files, such as audio programs or music videos, over the Internet for playback on mobile devices and personal computers.' (Definition in Wikipedia at **http://en.wikipedia.org/wiki/Podcast**). Podcasting supports mobile learning – students can listen to a lesson outside the classroom, on a bus on their way home from classes. Edinburgh Napier's latest podcasting initiative at **http://edinburghnapier.podbean.com**, for example, was developed to offer additional and timely support to its first year students who have responded very positively to the useful study tips and hints 'on the go'.

Podcasting (from iPod and broadcasting) does not require an iPod! The iPod has simply become established as the most popular portable digital audio player. Podcasts (nothing more than an MP3 audio file) can be produced with a standard computer, microphone, and free software in order to upload the audio file to your VLE, webpage or portable digital audio player, for example. To create a podcast all you (or your students) need is a headset, computer connected to the Internet

and (freely available) software (eg Audacity at **http://audacity.sourceforge.net/**) to record, save and play standard MP3 audio files (see section 2.3.3).

Video podcasting is referred to as vodcasting. Ohio University offers weekly informative vodcasts ('Ask the Techies') on issues covering a wide range of technology topics, available to anyone at **http://cscwww.cats.ohiou.edu/aac/lab/techies/**. A wide range of educational podcasts such as documentaries, recorded speeches, interviews, but also city walking tours (listen for example to a guided walk through a major UK city at **http://www.walktalktour.com/**) are available on the internet to support your teaching but may incur a fee (always be mindful of copyright, see Unit 10).

4.3   Augmented realities

An augmented reality is created by merging virtual images with the real view. In other words graphics, audio, or text is superimposed on a real world environment-such as every night on the news meteorologist's weather map. Augmented realities have been piloted to assist surgeons during operations and soldiers train for war. In education the PDA has been identified as a cost-effective platform for augmented realities.

4.3.1   Teaching example
See **http://education.mit.edu/drupal/ar** for an example of using handhelds to engage students in simulated realities in order to uncover the source of a toxic spill that has caused serious environmental damage. Students walk right into the environmental investigation led by a GPS (global positioning system) enabled handheld to interview virtual witnesses and measure and analyse simulated data.

4.4   Educational gaming

Educational games can provide a safe, fun environment for students to learn. Online games immerse students in the material within a competitive or challenging context motivating them more to learn, (often the 'hook' to engage at-risk students), and encouraging students to learn from their mistakes. Despite these benefits educational gaming has only recently gained recognition by academics as a potentially effective means of facilitating comprehension and knowledge retention.

4.4.1   Teaching examples
- Games can include real world simulations (medical applications, conflict resolution, ecosystems) and player interaction. 'Live Long and Prosper' is a game developed at MIT for use on a PDA in which students are challenged to breed genetic traits that will result in longest life (available at **http://education.mit.edu/pda/igenetics.htm**).

- In the Virtual Oil Well game developed at the University of Texas (available at **http://www.beg.utexas.edu/vow/index.html**) players are prospectors with a limited budget who must interpret seismic data to search for oil traps. Students learn about the geological and managerial issues involved with oil exploration.

5.0   Incorporating multimedia

5.1   Using third party material

As you may have noticed in some of the examples above, incorporating multimedia into teaching does not necessarily require specialised software or programming expertise. You can upload images and link to freely available multimedia applications by using software you will most likely already have, your institution's VLE provides or which it is freely available on the web (subject to permissions). In fact the range of and ease with which web-based media is made available at no cost to the user can easily become too tempting, which is why it is worth reminding that incorporating technology must always serve a purpose toward the students' learning experience.

Collections of learning objects have made it easier to search for freely available multimedia resources. Digital repositories such as MERLOT (Multimedia educational resource for learning and online teaching, **http://www.merlot.org/**) and JORUM (**http://www.jorum.ac.uk/**) allow you to search for civil engineering simulations, interactive tutorials for creative writing courses, or animations for a thermodynamics lesson. The UK national electronic repositories EMOL (**http://www.filmandsound.ac.uk/**) and Edina (at **http://edina.ac.uk/**) are also searchable sources of multimedia applications for your teaching.

Note: Multimedia you did not create that is derived from web sources is subject to copyright provisions. Be sure to check! Generally, educational, not-for-profit use of content is endorsed by the author subject to attribution.

► See Unit 10 sections 1 and 2 for more examples of web resources and for guidance on third party material and copyright issues.

5.2   User generated multimedia

Multimedia applications, such as video or audio recordings, animations and narrated presentations require less specialist knowledge than ever before, thanks to emergent web 2.0 technologies and tools that are often free, accessible and easy to use. You don't always need a graphics artist, computer programmer or media production personnel to create multimedia. Have a go at creating graphics, video or audio applications, a simple game or even an educational puzzle using software that is opensource and easy to learn. See section 6.0 below for further advice on this issue.

For the creation of high quality graphics, Flash simulations or interactive animations, however, a skilled multi media developer is indispensable.

5.2.1   The design pitfalls

While principles of multimedia design extend beyond the scope of this chapter, it does pay to be aware of the fundamental design pitfalls – whether you are reusing an application from the web or creating one from scratch:

- The use of multimedia, interactive elements and graphics needs to be considered as early as possible in case there is no appropriate web resource available and these elements need to be produced.
- Be aware that multimedia files are usually very big and will take longer to download. Narrow use of multimedia down to those elements that will clearly add benefit for your students.
- Multimedia will often require students to install software-try staying a version or two behind the most current as users are usually slow to upgrade.
- Let the student know what the learning outcome for the application is
- Indicate clearly the time requirement for the video, audio or interactive application.
- Ensure simple navigation and avoid automatic playing which can be distracting. Include start/stop/rewind functions.
- Ensure that the multimedia application is working and that the student has been informed of any additional software/hardware requirements
- Provide a help facility in case of technical questions.
- Be sure to consult the excellent accessibility guidelines for e-learning from JISC's Tech Dis at **http://www.techdis.ac.uk/** in order to make the application as accessible as possible for all users.

5.2.2   Accessibility considerations for multimedia

Very briefly, things to be concerned about are:

Graphics
- always provide a text alternative
- ensure colour contrast
- avoid visual effects that flicker (can cause seizures!).

Audio/video
- provide transcripts
- provide captions and video descriptions.

Animations/simulations

Provide an alternative accessible format to Flash applications (for those giving it a go see **http://www.adobe.com/accessibility/products/flash/tutorial/** for guidelines).

Proprietary software

Be sure to be aware of accessibility functions/limitations of any software packages you may use to develop multimedia.

5.3   Multimedia created by the student

Instead of asking your students to write a report the next time, might there be scope for them to use their mobile phones to videotape each other's oral presentation and upload to a video sharing site? Language students could be assigned to audiotape a staged conversation or interview to demonstrate pronunciation skills. You or your students can create simple interactive exercises and games with Hot Potatoes software available for free at **http://hotpot.uvic.ca/** to reinforce the week's lesson. Assign students to create a digitised photo gallery of native plants under study in a collaborative (social) working space.

Students equipped with handhelds (PDAs) can go out into the field and record and collect data, which is uploaded to the VLE or wiki for further analysis and study. Interviews with classmates can be recorded and saved as MP3 files to iTunes. A collection of digital photos could be captured over time and presented in a blog to document the progress of a project or an exploratory field trip. Have students host weekly podcasts in the foreign language under study – the possibilities are endless for the students to create their own learning experience!

6.0   Selection of multimedia development tools

6.1   Graphics and slideshows

Development: requires beginner technological/developer skills.

Use Adobe Photoshop at **http://tryit.adobe.com/uk/cs5/photoshop/** or Macromedia Fireworks (**http://www.adobe.com/products/fireworks/**) to create simple graphics. Other commonly used packages include Adobe Illustrator and Macromedia Freehand. Opensourceware includes Flickrcc at **http://flickrcc.bluemountains.net/** for a growing collection of photographs that can be incorporated, for example, into a slideshow presentation using Splashr at **http://splashr.com/**

Save digital photographs and works of art as JPEG files. Save flat colour graphics or line images as GIF files.

6.2   Video

Development: requires beginner multimedia developmental skills

Hardware/software requirements; mobile phone, basic camcorder, microphone and tripod; Microsoft® Producer (free at **http://www.microsoft.com/windows/windowsmedia/technologies/producer.mspx**); commercial software Elluminate® at **http://www.elluminate.com/** (Edinburgh Napier has a licence) and video editing software such as:
- iMovie (**http://www.apple.com/ilife/imovie/**)
- Viddler at **http://www.viddler.com**; Vimeo at **http://vimeo.com**.
- Adobe Premiere (**http://www.adobe.com/products/premiere/index.html**)

6.3   Audio

Development: requires beginner multimedia developmental skills

Hardware/software requirements: microphone and speakers or headset.

Freely available audio recording software to record, save and play standard MP3 audio files:

- ODEO at **http://www.odeo.com**
- Audacity at **http://audacity.sourceforge.net** (also available to staff at Edinburgh Napier on the server. See guidelines at)
- Apple iTunes (**http://www.apple.com/itunes/**) to play and organise podcasts, audio files.

6.3.1 Narrated screencasts

A screencast is a recording of activity on your computer screen and is often created for more illustrative guidance or training. Examples of narrated screencasts at Edinburgh Napier include the WebCT staff help resources at **http://www2.napier.ac.uk/webct/staff/resources1.html**. Screencasts can be created using commercial software such as Camtasia (free trial available at **http://www.techsmith.com/camtasia.asp**) and PowerPoint® (**http://office.microsoft.com/en-us/powerpoint-help/**), but many easy to use opensourceware tools are available as well (Jing at **http://www.jingproject.com/** and Screenr at **http://screenr.com/**) including helpful instructions and guidance.

6.3.2   Extras
Software to convert text to audio:
- TextAloud at **http://www.nextup.com/** (free trial)

Software to create podcasts of blogs:
- Talkr at **http://new.talkr.com/**

Software to capture podcasts to create custom online audio
- Juice at **http://juicereceiver.sourceforge.net/**

Note: Audio clips are saved in one of the following formats.

- AU: larger file than MP3 and RA, compatible with most web browsers
- MP3 (MPEG Audio): like RA a smaller file and common format (best for uploading into WebCT)
- WAV: format for Windows®, large file
- Real Audio (RA or RM): compressed file, requires the Real Player plugin.

6.4   Animations, interactive courseware, tutorials, simulations

Development: requires intermediate/advanced technology developer skills

Usually developed in applications such as:

- Macromedia Flash (**http://www.macromedia.com/software/flash/**). See also Macromedia Director and Authorware as alternative development environments. Free 30 day trial Macromedia Flashdownload at **https://www.adobe.com/cfusion/tdrc/index.cfm?product=flash&promo id=FDTFP**.
- Java (**http://java.sun.com/**) for mathematical and scientific animations
- Mathsonline Puzzlemaker makes creating simple games and puzzles easy **http://www.univie.ac.at/future.media/moe/testpuzzle/testpuzzle.html**
- Hot Potatoes at **http://hotpot.uvic.ca/** for creating a wide range interactive exercises (free of charge for educational purposes).
- The commercial software Sitepal (**http://www.sitepal.com/**) allows the creation of speaking avatars using your voice and photographic or cartoon facial features. Free 15-day trial available.

7.0   Further reading

Aldrich, C. (2009) *Learning online with games, simulations, and virtual worlds: strategies for online instruction.* San Francisco, California: Jossey-Bass.

Anderson, P. and Blackwood, A. (2004) Mobile Technologies and their future use in education. *JISC Technology and standards watch*, 03-04 (Nov.). Available at **http://www.jisc.ac.uk/uploaded_documents/ACF11B0.pdf**

Beetham, H. and Sharpe, R. (Eds) (2007) *Rethinking pedagogy for a digital age: designing and delivering e-learning* Ch. 14 Designing for mobile and wireless learning by A. Kukulska-Hulme and J. Traxler. Routledge.

Campbell, G. (2005) There's something in the air: Podcasting in education. *Educause review* (Nov/Dec). Available online at **http://www.educause.edu/ir/library/pdf/erm0561.pdf**

Danaher, P.A. (2009) *Mobile learning communities :creating new educational futures*. New York-London: Routledge.

Eduserve (2010) Virtual world watch project and UK HE FE snapshot reports by J. Kirriemuir. Available at **http://virtualworldwatch.net/**

Keen, A. (2010) *The cult of the amateur :how blogs, MySpace, YouTube, and the rest of today's user-generated media are destroying our economy, our culture, and our values.* Dawson Books. Available at Edinburgh Napier library only as an e-book via Dawson Books.

Mayer, R.E. (2009) *Multimedia learning (2nd ed).* Cambridge: Cambridge University Press

Salmon, G. and Edirisingha, P. (Eds) (2008) *Podcasting for learning in universities.* Maidenhead: McGraw Hill/Open University.

Wankel,C. and Kingsley, J. (Eds) (2010) *Higher education in virtual worlds: Teaching and learning in Second Life.* Dawson Books. Available at Edinburgh Napier only as an ebook via Dawson Books.

Accessibility issues resources

TechDis Creation of Learning Materials at
http://www.techdis.ac.uk/index.php?p=9_7

WebAim Creating accessible images at
http://www.webaim.org/techniques/images/

Further multimedia resources (in addition to resources listed in Unit 7 and Unit 10)

Video web resources
Search for educational video clips at the pbs teachers' resource site,
http://www.pbs.org/wgbh/nova/teachers/video.html

TedTalks for recorded speeches by famous figures in science, media and politics.
http://www.ted.com/

BUND British Universities Newsreel Database at
http://bufvc.ac.uk/newsonscreen

The University of Washington offers a library of educational videos in nearly every subject area at **http://www.uwtv.org/**

Images collections
Pics4Learning for free images at **http://www.pics4learning.com/**
Flickrcc Creative Commons photo collection at
http://flickrcc.bluemountains.net/

Audio multimedia web resource collections

Find recordings of politically significant speeches at History out loud at
http://www.hpol.org/

For freely available podcasts for your teaching visit PodcastCom at
http://podcast.com or Podcast Alley at **http://www.podcastalley.com**/

EPN: The Education Podcast Network at
http://epnweb.org/index.php?view_mode=about

The Digital media archive offers video, movies, radio shows, concerts, podcasts
http://www.archive.org/index.php

Miscellaneous

BBC multimedia learning gallery:
http://www.bbc.co.uk/learning/

University of South Carolina's multimedia stratigraphy web page at
http://sepmstrata.org/index.html

See the whole world virtually at **http://www.virtualtourist.com**

See the whole world with Google Earth available at **http://earth.google.com/**

Unit 8 Issues in student support

One of the most common misconceptions tutors have about their students is that they will know exactly what to do after logging on and feel inherently comfortable engaging online. Really, nothing could be further from the truth!

Students come from different academic, cultural and ethnic backgrounds with different areas of expertise and a wide range of expectations. Some are familiar with educational technology while others may have never even sent an e-mail. A significant number of students are not necessarily experienced and skilled online learners nor necessarily at ease with the use of web 2.0 technologies for academic purposes (Cowan et al, 2009). Furthermore, not all students are self-directed learners and will require more online guidance and support than others.

The written mode of online communication has been shown to support the reticent student especially well, but proves particularly challenging for the visually impaired, dyslexic or non-native speaking student. Work and family-related commitments have more serious time management implications for the mature student members of a class. The overseas student may be struggling with time zone differences and online assignment due dates or simply a slow internet connection. Indeed, the online learner community is one of unrivalled diversity and poses new challenges for the tutor.

1.0   Individual differences

Whether teaching fully online or using online tools to support a face-to-face lecture, it is important to recognise and identify the differences among learners as early as possible in the term in order to accommodate their individual needs better. Learners who feel that their abilities and backgrounds are valued and accounted for are more likely to be highly motivated and engaging.

1.1   Getting to know your students

In the first week of the term making a few simple, but purposeful activities available online will not only help you to get to know your students better, but will give your student the opportunity to familiarise themselves with you, one another, the online tools and their online classroom without the pressure of looming assignment deadlines.

1.2   Welcoming and student bonding strategies

In week 1 of the term:

1.2.1 Create an introduction (asynchronous) discussion

Create an introduction discussion in which the students are requested to supply not only name, but also IT experience to date, academic or vocational background, reasons for taking the module, and expectations of it. The students should be gently encouraged to respond to fellow students online at this time. The discussion message might sound something like this:

Example

Dear Class!

Let us use this opportunity to get to know one another. In a direct response to this discussion message, please introduce yourself. In your response, include

- your name (how would you like to be addressed?)
- reasons for taking this course
- academic background
- online learning experience to date
- fears and/or expectations of this course.

You are encouraged to respond to each other – it's great practice for the online discussions yet to come!

I look forward to meeting and working with everyone,

Your tutor

Intended purpose:

Tutor: can identify and address degree of language skills, IT expertise, anxieties, and misconceptions early on in the term. For example, to an especially worried student, the tutor might respond:

Example

Thank you, Paula, and welcome to class!

I understand your concerns and encourage you to contact me at anytime for support- remember, that's what I am here for. And by the way, you have already successfully used one of the most important online communication tools by simply introducing yourself here. You're well on your way!

Your tutor

Student: builds sense of classroom community, opportunity to practice use of asynchronous communication tool in informal setting, ie, without looming assignment deadlines.

1.2.2 Create a fun discussion area

Create a fun discussion area in order to demonstrate the functionalities of online discussion boards to your students. Uploading a humorous image from an image repository (eg SCRAN) and asking for caption suggestions (alias Caption Competition) quickly draws in all students and fuels the growth of a discussion thread, often new to students.

1.2.3 Create a virtual scavenger hunt

Create a Virtual Scavenger Hunt in which ten questions navigate the student to either the online tools the student will be expected to use or to information student is expected to be well familiar with. The questions can be tailored to the fully online or blended module.

Example

Virtual Scavenger Hunt

For your first assignment, please answer the following questions in a Word document save it and submit it to the Assignment Dropbox. Then send me an e-mail letting me know you have submitted your answers. This is an ungraded assignment intended to fine tune your online orientation skills and give you the opportunity to practice using two important tools, the Assignment Dropbox and e-mail. I will return the assignment with only brief comments which I ask you to check for in your Gradebook. This will ensure that we are communicating!

The questions are:

1. Who are the members of the module leader team?
2. When and where is the final exam?
3. Where do you post questions to the module content or assignments?
4. Online discussion participation makes up what percent of your final grade?
5. Where will we meet for the second on-site study day?
6. Which online features are you expected to use?
7. Where can you find peer reviewed articles on the web/in the library that address…?

…and so on, depending the way in which you are using the online classroom to support your teaching and what you expect your students to have read and understood before lessons begin.

(Originally written for modules delivered for University of Maryland University College, UMUC, USA.)

Intended purpose:
Tutor: Quick way to identify and address student's navigational (IT) and conceptual problems. Prevents misunderstandings later on in term. Also tests electronic submission and e-mail tool within the VLE.

Student: Encourages student to read thoroughly module overview, guidelines, assignment specifications and study time commitment. May prompt student to withdraw at this time due to prior false module expectations. Opportunity to practice using assignment submission box and e-mail tool early for use later on. Builds confidence.

1.2.4   Other welcoming and bonding strategies

- Have learners interview each other via e-mail and then post introductions for each other on the introductory discussion board.
- Assign students to create a personal homepage including a photo.
- Create an informal area of communication for students to share their favourite web links, books or movies. Be sure to call it 'Chatterbox' or 'TeaTime'. Keep open for contributions throughout course. (Reinforces bonding between learners.)
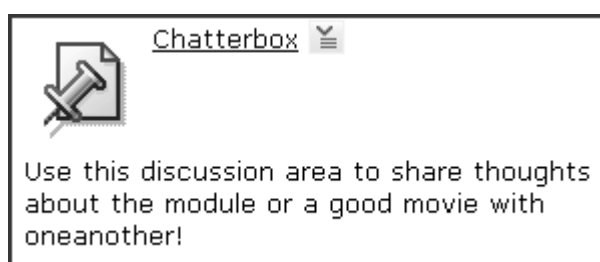
Figure 22: Informal communications area for students in a WebCT module

- Create a Problems Forum for technical, module content, assessment related queries. Keep it open for the duration of the course (ensures continuous support and more peer and topic focused posts in the discussion areas, enables peer mentoring).

2.0   Online learning orientation

Those students new to educational technology often have grave misconceptions about studying online, mistaking online learning solely as a self-paced, independent form of study. Although online learning is not fully independent study, it does require independent study-skills, self-directed learning and more self-discipline than studying face to face.

It is important that you assist students understand the nature and demands of studying online, particularly in relation to:

- **Expectations:** Think about the purpose of online technology for your course. Are you using it to make administrative information such as your contact details and office hours available online? Or have you created self-test quizzes for the students to monitor their learning? Whatever you decide to use online technology for be sure to let the student know on the very first day and avoid students' disappointment! For example, on the

homepage of your module list exactly what they can expect to find from you online (eg *'In this module you will find web resources and weekly self-test quizzes…'*)

- **Time management**: Students who don't have good time management skills will struggle to study effectively online unless you provide them with more than just a specific timeline. Opportunities for checking their progress, discussion participation deadlines, and prompt feedback are just a few examples of effective measures to compensate for the lack of visual and oral cues of lecture based instruction. Encourage students not to fall behind by requiring regular logins, keeping written material relevant and up to date, aligning reading assignments to tasks such as open ended questions for collaborative online discussion with peers. Create self-tests or draft submission opportunities in order to provide support throughout the term. Inquire about the absence of unengaged students in a private e-mail.

- **IT skills**: Students will be coming to Higher Education with a wide range of IT-skills and it is important to recognise extra support needs early in the term. Probe for your students' IT confidence by simply asking them! The introduction discussion is a good opportunity for students to not only reveal their names and interests but also their experience using the computer. Have them use the online features that you will require in the following weeks such as electronic assignment submission or e-mailing with attachments in order to give them opportunity to practice and flag problems early on. Provide links to the student help sheets available from C&IT services and Professional Development's WebCT Student help page (available through the student portal at **https://studentportal.napier.ac.uk**)*.* Encourage the more IT-literate to assist the others.

- **Web literacy skills:** While students will be all too familiar with 'googling' they will not necessarily have the web searching, researching or evaluation skills to find, retrieve and critically evaluate information on the web. Web literacy skills are invaluable, but often underrated. There are wonderful online tutorials (see, eg **http://www.vts.intute.ac.uk/** and **http://www.intute.ac.uk/socialsciences/** available for students to learn to understand and use a wide range of formats of information from a wide range of internet sources.

- **Netiquette:** E-mail, listservs, chat rooms, discussion boards, blogs and wikis are all valuable tools for supporting communication online. Students who are unfamiliar with these modes of online communication are usually unaware of the extra care that must be given to written expression to avoid misunderstandings. It is imperative that students are directed to online communication rules such as the netiquette guidelines (see Appendix 8) before engaging in online communication with their peers. Potential problems are magnified in classes of native and non-native speakers. It is important that you, the tutor, always maintain a warm and encouraging tone in all your online communication. Address any problems with students in private e-mail messages.

- **Effective use of online tools:** As indicated above, giving students opportunity to practice using the online tools you expect them to use during the term will ensure that they use them effectively when it is required of them. Be sure to provide a mini-quiz for example, if an objective assessment is planned. This will give students the opportunity to check server and connection requirements beforehand and adjust accordingly. Have students engage in an informal discussion or chat in week one to familiarise them with the intricacies of discussion threads or chatroom activity. Require of your students an e-mail or electronic assignment submission to ensure all modes of communication are working. Be sure that online help documents and help contact numbers are available for assistance with the tools.

- **The nature of the learning**: Learning online can take many different forms and it is important that it is made clear to the students how they are expected to engage with a task. A group-work assignment is clearly a collaborative form of learning-do your students understand the benefits of group-work? Should the group submit one joint assignment or are students expected to write up and submit individually? Would you encourage students to work together on self-test quizzes or is it important that they reinforce individual understanding? Reading is an individual effort but sharing thoughts in a discussion area online provides a valuable opportunity for collaborative learning online. What is required of the student at the face-to-face tutorial sessions? Do the students know what level of support and feedback they can expect from you at all times? Let them know and avoid misunderstandings.

- **The benefits of self-paced learning**: Learning online is a means of enabling self-paced learning as it is a more flexible delivery than lecture based delivery. It allows for 'Just-In-Time' learning which means students can access learning materials and engage in online activities from anywhere at anytime. Enabling features such as self-test quizzes, which return results on demand, for example, give students the opportunity to measure the progress of their learning on their own. Referring to e-books and journals ensures availability of learning resources to all regardless of library opening hours!

Tip: Provide a document that defines the students' own responsibilities as learners, such as 'The successful online learner' sample document in Appendix 3, free for you to use and tailor accordingly.

2.1 Technological support

While it is true that technology should not be the focus of online learning, certainly the student must be adequately prepared for using online tools and carrying out relevant online tasks and assured of technological support throughout the term. Students are exceptionally vulnerable in the first week of a new term and special care should be taken to prepare and support the student for the technological

challenges of online learning. Frank Rennie of UHI writes, 'In situations where technical support is minimal or absent, there can be considerable extra stress placed upon users' which has a direct affect on student retention (Rennie, 2003).

2.2   Programme and module level guidance

Effective and meaningful online learning begins with clear communication to the student of the programme and modular approach to online learning. In the fully online module, especially, where all instruction is in written format, students rely even more so on explicit and comprehensive guidelines to all online components that support their learning from day one of the term.

The online Module Guide (ie, module handbook or syllabus) will usually encompass module overview, planner, timeline and/or module team element of the online classroom. Its content will depend largely on the way in which you are using online components, whether to enhance a lecture or to a support fully online module. The online module guide is particularly relevant to the student for planning his study and should be as complete and as accurate as possible. It is the student's 'lifeline' to online learning.

► **See Unit 3 for further guidance on recommended Module Guide content.**

3.0   Continuous facilitation

You are your student's best online role model and by being pro-active and 'visible' throughout the term you are not only enhancing the student's learning experience, but demonstrating good online practice as well.

Good visibility already begins with contact details (location, e-mail, telephone) and a photo in the Module Guide. Beginning the term with a warm and inviting welcome message on the module' homepage encourages the student to probe further. Ensuring timely and supportive responses to e-mails and conference discussion posts acknowledges student activity and engagement.

3.1   Key considerations

3.1.1   Clarity, depth and usability of course materials
Building the student's confidence as an online learner wherever the opportunity arises is a key objective. This begins with the actual writing of course material. When writing course material such as an introduction to a new topic or an assignment specification, it is important for you to bear a few things in mind.

- Most students are unaccustomed to learning from written lessons. Create clear and concise written material.
- The online reader is a picky one. It is important to pay particular attention to accuracy and grammatical quality of the written work.
- Students will not read 12 pages of lecture notes online. Short bits of information are less strenuous and hence more likely to be read and understood. Send student to a good book instead of expecting them to read reams of lecture notes.
- Online material need not be static. Including relevant hyperlinks to websites or online reading material exposes the learner to subject-related, elaborative and/or contrasting information. Doing so brings the lesson to life and enhances student outreach to relevant and enriched course material. (See also Unit 3 section 3.6 and Appendix 5.)

Examples of links to include:
- Text links to e-books, e-journals, repositories, online newspaper articles
- Website links to educational, commercial, government, non-profit organisational, publisher site pages. (Links should always open in a new browser window and allow the student to return to the homepage.)

3.1.2 Accessibility considerations
When writing online content bear in mind that a not insignificant number of students may have special needs due to visual impairments or dyslexia, for example. Some may be reliant on assistive technologies to access the information in your written material. It is all of our responsibility to make learning material as readable as possible for a larger number of people.

As a rule stick to web pages (HTML, XTML file format) for online content. When producing online content the biggest accessibility gain is by ensuring that the user can amend the look and feel of the content to suite individual needs. By following a few simple font and structural techniques you can improve the accessibility and usability of your written electronic material:

- Keep font style and size consistent. Edinburgh Napier standard is Arial, 12 pt
- Avoid overuse of italics/underlining
- Avoid overuse of font/background colour.
- Keep variety of icons to a minimum.
- Keep writing and references current
- Proofread and double check for spelling mistakes
- Set up hyperlinks to open up in new browser window
- Check for broken links regularly
- Check for coherence with all other written material
- Where ever possible make Word documents available in PDF format as well
- When reading a document in your browser (eg Microsoft[®] Internet Explorer) be aware that you (and your students) can change font size, style, and background colour of a written electronic text by choosing Tools and then Internet Options on the browser menu bar. Within the menu bars

of Word and PDF docs there are functions to increase text size and change background colour as well.

Furthermore, in order to ensure ease of access for all to online module content and tools the following recommendations also apply:

- Provide clear navigational guidance in the homepage welcome message: 'Begin this module by clicking on…first. Then proceed to…'
- Label links appropriately
- Make key topics for study easily accessible in the module overview
- Make content searchable
- Include a glossary
- Enable a compile and print tool
- Allow for electronic and paper-based submission format.

Refer to the UK's accessibility advisory service, TechDis at **http://www.techdis.ac.uk/index.php?p=1** for further guidance in issues of accessible design for all users as well as the Edinburgh Napier Professional Development team's guidelines for WebCT at **http://www2.napier.ac.uk/webct/staff/documents/accessibility.pdf**.

► See Unit 3 section 3.7 for further guidance on accessible online content.

3.1.3 Just-in-time guidance
Students studying online benefit greatly from reminders, instructions and task-related guidance to assist them deliver an assignment to the best of their ability. Never hesitate within the module to direct students to the next task, remind them of expected reference styles or minimum word requirements. Despite the guidance provided in your Module Overview, for example, additional guidance embedded within the appropriate assignment or task, will support the online student even better.

Some examples include:

- Remind of deadlines for online discussion participation right within your opening post, *'We look forward to hearing from you, but remember you will need to post by…'*
- Post weekly notices or reminders on the Noticeboard or Announcements area *(eg 'Reminder! We will meet in room 201 on Wednesday' or Just a wee reminder that Assignment 2 is due midnight tonight to the Dropbox'* or *'Remember to contact your group members as soon as possible.' Today we begin with Unit 2' etc.)*
- At the bottom of the instructions of an assignment direct the student to the next task: *'After you have submitted your answers please proceed to the Reading Assignment x'*
- Within the resource list add reminders to download appropriate software such as Adobe Acrobat Reader for viewing PDF files.
- Remind students of the discussion topic in the timeline as well as in the course content area.

- Praise students for tasks completed whenever you can: In an Announcement: '*Well done for your grand discussion participation last week!*', within the weekly unit introduction area: '*Judging by the quality of your answers last week you will find this week's topic easy to understand…*' or in an encouraging e-mail, '*Jill, I know you are disappointed that your grade is not quite as high as you had hoped, but by paying closer attention to…*'
- Contact 'absent' students in a private e-mail gently enquiring if they need any assistance*.*
- Respond to enquiries in a timely manner (ie 24-48 hours, even if it is only to say the enquiry is being looked into.)
- Admit defeat when technology fails and openly share online learner grief, eg in e-mail message to all students: '*Dear student, as you are aware, we are experiencing technical difficulties. Please know everything is being done to resolve the problem and your patience is greatly appreciated. This will not affect your grade in any way. Do not hesitate to contact me if you have any questions.*'

3.2   Supporting student flexibility in ways of working

Learners learn and work differently!

As educators, you will be fully aware of the different ways in which students approach their studies. By creating different opportunities online for learning you will give learners the chance to learn in ways that suit them best. Learners can be seen to adopt any one or combination of four approaches to learning which are:

1.   Auditory and verbal: preference for spoken or written words
2.   Reflective: preference for observation or reflection
3.   Visual: preference for charts, maps, images, diagrams, films
4.   Tactile, kinesthetic : preference for active engagement, role play, simulations, games.

In other words, some learners learn best while reading, others need graphics to enhance their understanding, hence multiple approaches to online design and delivery accommodates different approaches and better learning.

Generally speaking covering less content and actively engaging students more has been shown to achieve higher levels of understanding-all the more reason to offer plenty of opportunity for activities such as:

- a visit to the local library, planetarium or botanic garden.
- interviewing a patient
- videotaping a field study
- e-mailing a publisher
- studying the phases of the moon
- following and recording the stock market trends
- evaluating a website, podcast or video clip

- chairing a study group activity
- downloading a paper
- evaluating a TV/radio advertisement – and much, much more!

Using a wide variety of online activities, assessment types, navigational paths, reading and researching assignments will ensure that the learner has sufficient opportunities to learn and subsequently to demonstrate learning. Muddling through alone at home with a stack of downloaded lecture notes is not good online learning, and doing so can easily lead to feelings of student isolation and stress. Making a wide variety of material and support available to the student (which may include face-to-face tutorials) accounts for differences between learners.

► See Unit 6 for further guidance on designing a variety of online activities.

A range of environments stimulates learning. Using a combination of verbal/visual/graphical/audio/written representation for delivering content material establishes a blend of information formats which best account for different talents, preferences and approaches to learning.

For example
- A short web video-clip or narrated screencast can reinforce a written lesson
- A graphical representation of data will support the recognition of trends
- Audio instruction assists the visually impaired and breaks up the monotony of written text for all.

► See Unit 7 for further guidance on use of multimedia to support learning.

4.0   Communication

The online teaching and learning environment provides many opportunities for communication and collaboration such as in an asynchronous discussion board, by using e-mail, holding synchronous chats, or asking students to create blogs or wikis.

Online, all students have a 'voice' and can benefit from the advantages of online communication which include

- no need to fight for air-time
- more time for reflection, research, evaluation
- non-native speakers given more equal footing
- reticent student given time to build confidence.

Nevertheless, it is important to be aware that most students are not experienced online learners and may never have used online tools to communicate. In this section you can find advice and guidelines to best prepare your students for the asynchronous discussion and synchronous chat.

► See Unit 5 for information on additional modes of online communication such as audio and video teleconferencing, blogs and wikis.

4.1   The asynchronous discussion

The asynchronous discussion is one of the most common modes of communicating online and it is recommended to make use of it to support activities that require time for research and reflection, often resulting in richer and deeper levels of understanding than in the face-to-face equivalent.

By making three different asynchronous conference types available, each with its specific purpose, for example, the online learner is supported in formal and informal modes of communication either with one another or with the tutor.

The three types might include:

- Social Space (also known as Chatterbox, Teatime, Lounge etc): informal online discussion area for students to talk about non-modular related issues such as the latest movie or new book. Often the first instance a student new to online learning will respond
- Problems Forum: direct students to post course content or administrative questions here rather than in private e-mails. Eventually an FAQ file can be made available
- Weekly Topic Discussion: for weekly discussions in which knowledge is applied, contested and constructed in a collaborative online environment, moderated by the tutor. The first weekly discussion should be an introduction session (see section 1.1 Getting to know your students).

4.1.1   Preparing for the online discussion
The success of the formal online discussion begins with its organisation which include:

- An opportunity to practice using the discussion tool before the formal discussion activities (eg week 1 orientation)
- Documentation about functionality of the tool (in Module Guide, see Unit 3)
- Learning outcomes and timetable for discussions
- Establishing participation ground rules, ie, a mutual code of conduct (netiquette guidelines, see Appendix 8)
- Establishing a participation requirement
- Establishing the relevance of online communication and social skills to the student not only for the module but also for the workplace.

4.1.2   Stages of the asynchronous discussion
An online discussion does not begin with the discussion question itself, but rather long before in a stage of knowledge acquisition. When preparing an online discussion activity ask yourself: 'Have I given the student enough opportunity to learn about a topic well enough to critically discuss it with others?' Giving the

student these learning opportunities in a preparatory stage lays the foundation for rich discussion activity later on.

The preparatory phase can be regarded as the first of three stages of the online discussion in each of which the tutor plays a central role:

Stage 1. Preparatory phase in which the student accumulates knowledge and information
- The student reads, researches, interviews
- Tutor as facilitator of knowledge.

Stage 2: Discussion phase in which student applies and creates knowledge, prompted by, for example, an open-ended, thought-stimulating or even provocative question
- The student ponders, reflects, compares, analyses, contrasts in mutual critical discourse with peers
- Tutor as moderator of knowledge.

Stage 3: Post discussion phase in which tutor summarises, emphasises, affirms, adds, concludes.
- Tutor as mediator of knowledge.

► See Unit 4 section 4.2 for online moderation guidance.

4.1.3 Online discussion assessment strategies
It is recommended to encourage and reward online discussion participation by assessing it, provided the assessment is closely related to the learning outcomes of the course. There are several strategies that lend themselves equally well to the assessment of a student's online participation. Common to each is the emphasis on quality rather than quantity of a response. It is common for online discussion participation to make up 10–50% of a student's final grade, depending on the mode of delivery, subject and learning objectives, aims and goals for that particular course. Assessing online discussion participation is a form of continuous assessment and therefore supports and reassures the online learner particularly well.

Assessment techniques are not restricted to awarding points based on a set of content criteria/rubric for discussion posts (see Unit 6 section 5.4) but could include:

- Assessing as one element of a Reflective Learning Journal: Student submits transcripts of posts as evidence for a summative assignment/essay.
- Count choice of best participation only
- Peer assessment assignment
- Reflective account of online participation experience by student at the end of the term.

4.2   Synchronous chat

Using the chat tool to carry out teaching and learning activities raises a whole new set of issues to be aware of than when considering use of the discussion tool. Students spread apart geographically will need to be made aware of time zone differences which can seriously impede opportunities for some students to participate in a chat activity. In order to avoid confusion chats are usually not recommended with more than five students at any one time. Some chat tools offer hand raise functions (crowd control) which enable individual responses from students picked by the tutor and support a more controlled mode of interaction. Furthermore, the chat tool as a communications tool is notorious for bad spelling and digressing conversation and it is easy as moderator to lose track if typing speeds vary greatly. Nevertheless, the chat room is a valuable venue for

4.2.1 Preparing for a chat activity

Before the chat
In order for a chat activity to be a rewarding learning experience for the student, as with the asynchronous discussion, you must clearly indicate the nature, use and purpose of the tool to them.

- Give your students the opportunity to try out the chat tool before the formal chat activity (as a week 1 orientation activity, for example).
- Make documentation available about the functionality of the tool
- In the Module Guide establish clearly: learning outcomes and timetable for chat activities; participation ground rules ie a mutual code of conduct (netiquette guidelines, see Appendix 8)*;* participation requirement; relevance of online communication and social skills not only for the module but also for the workplace.

The chat activity
There are a wide range of activities that can be accomplished in the chat room, its synchronous (instantaneous) nature, however, lends itself particularly well for brainstorming, clarifying misconceptions and quick decision-making (between group members, for example). Carrying out a role-play or debate is also often done in the chat room and whatever the activity, it is of paramount importance that students are well prepared, well ahead of time, for the particular task.

► See Unit 5 section 2 for more examples of using the chatroom to support teaching and learning.

Avoid the frustrations and confusion chat activities can bring by
- Limiting chats to 4–5 students
- Limiting chat sessions to 30–60 minutes
- Sharing assigned readings, resources, chat instructions and guidelines to students one week in advance.

Recommended guidelines for students include
- Enter the chat room by greeting the others
- Be considerate at all time of others and be patient
- Come prepared to take notes
- Complete the assigned readings before the chat session
- Write in complete sentences
- Limit your response to 6-8 lines.
- Keep sentences as short as possible.
- Adhere to any hand-raise agreements.
- Leave the chat room by saying goodbye.

During the chat
Students with poor typing skills and international students will have difficulty keeping up with a quickly unfolding chat thread. On the other hand you may have to deal with pro-active students and time-delays caused by different internet speed connections. As a chat moderator there are a number of strategies you can adopt in order to make it a worthwhile experience for all.

- Be sure you are there on time!
- Allow a few minutes for students to settle down.
- Open the chat session officially ('I see everyone is present and we can begin...').
- Remind students of the chat room guidelines.
- Respond to each student by name.
- Use the hand raise mode to structure the chat and to ensure that 'loud' participants don't overpower the rest. Otherwise, require students to raise hands by typing two exclamation points (no text) and posting if they would like to respond.
- Pace the chat by splitting your response to a student into two or three messages.
- Don't hesitate to exclude a student not adhering to agreed guidelines
- Have a contingency plan in place! In case of internet disconnections be sure students know what to do and what to expect in terms of alternatives for the chat activity.

4.3   E-mail

E-mail is also well suited to support teaching and learning activities but more often than not you will be faced with queries, panic attacks or requests for guidance and advice. The seeming immediacy of online communication, but especially for e-mail, may tempt students to follow up their original mail with another merely a few hours later, often unaware of time zone differences (or your 100 other commitments!).

In the interest of your own time management (and sanity), it will be up to you to put forward the terms and conditions for e-mail communication with your students. For a list of suggested **e-mail rules** to post in the Module Guide folder of your VLE see Appendix 11.

► See **Unit 5** for further guidance on using online communication tools to support student learning.

5.0   The international student

A course that involves international students can benefit enormously from the cross-cultural exchange, but there are barriers to be aware of-especially if the course includes an online component.

5.1   Online content and design

The most obvious barrier to understanding content of course is language. Most non-native English speakers will have achieved the language proficiency requirement upon enrolment in your course. Their language skills may be rudimentary, however, and they will rely on concise and explicitly written guidance as well as straightforward online navigation. It is important to be consistent with terminology (eg use course, module or class; use assignment, assessment or essay etc) and to be careful not to unintentionally offend certain cultural groups with the choice of icons and images.

Careful consideration must also be given to the prescribed core text and other reading assignments. Can the international students keep up with the pace of the reading? Are the readings comparable to the level of reading comprehension and if not, is there assistance available for that group of students? What are the alternatives to reading for understanding?

Technology may assist you in finding ways to enhance an idea or concept, enabling better reading understanding. For example:

- Is there an image, audio or video clip available that might complement the reading?
- Could pairing up a non-native speaker with a native speaker in an online chat allow for peer-peer support and better understanding?
- Consider making short online self-test quizzes available after reading assignments to ensure basic knowledge level of understanding.
- An online glossary also helps reinforce knowledge and build vocabulary.
- Be aware of avoiding culture specific examples in course materials
- Finally, be sure to capture the interest of all students by referring to global topics, events, laws and celebrities in your assignments whenever possible rather than focussing only on national issues.

► See **Unit 6 section 4.5** for further guidance on inclusive design.

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5.2   Online communication

Far more challenging to enable is rich online communication between native and non-native speakers. While the asynchronous discussion in particular offers advantages for the non-native speakers who can take time to read and reread posts and then also to double-check their own written statements, they still often feel inhibited to share their thoughts online for fear of being misunderstood or ridiculed. It is solely up to you to create a supportive and safe online learning environment from the outset, one in which it is clear that all contributions are valued and all participants are expected to treat each other with respect. Let your students know that they are a diverse group and that you ask to avoid using slang, dialect or idiomatic expressions for better understanding. Avoid sarcasm and use humour sparingly yourself, as it can cause unnecessary confusion among the non-native speaking cohort.

It is important to be aware that synchronous forms of communication such as chat rooms are particularly problematic for non-native speakers who usually cannot keep up with the reading or writing pace of the others. It is recommended to keep chat room sizes to 5 or less contributors and to avoid making the chat a part of the formal assessment in classes with international students.

5.3   Teaching style

The cultural patterns of learning that exist may differ from the Western idea of instruction which sees the engaged student, and not the master teacher, at the centre of teaching. It will completely overwhelm some international students accustomed to having knowledge delivered to them, to be asked to share views with others in an online discussion, to collaborate with peers in a group or to be prompted by you to post thoughts to an open-ended question. Be sure to give all students the opportunity to practice any of the above forms of learning in an induction week activity and provide lots of positive feedback and encouragement when they get it right. Instead of using prompts like, 'Anyone with an idea?' formulate a clear statement such as, 'Please post your response to my question by 6 pm (CET) Thursday'.

It is imperative that all students and international students in particular, are given the opportunity to familiarise themselves with and practice proper referencing and citation skills before writing essays or assignments. Furthermore, practice opportunities for correct citation, paraphrasing and referencing will help students understand that practices such as copying expert knowledge to 'honour the master' are deemed plagiarism in Western cultures. Consider using the text matching software, Turnitin®UK, as a diagnostic tool to assist international students identify referencing problems and learn to remedy them (see Unit 10 section 3.2).

► **See Unit 10 section 3 for further guidance on encouraging proper referencing.**

5.4   Studying at a distance

International students studying from abroad on fully online courses are challenged additionally by time zone differences, different holiday schedules and unreliable internet connections. Scheduling real-time (synchronous) activities may not be feasible for the whole class, but possibly for smaller groups. Coursework deadlines must take the range of working hours into account and online exams should be made available for at least a 24–48 hour period (with a 3 hour submission limit for example). Furthermore, be aware of the hardware and software implications for your students before relying too heavily on multimedia elements in your course. Is the software freely available for downloading on the web? Can you expect students to purchase additional software or hardware and if so where have they been instructed to do so? Will the students' connections speeds allow for reasonable downloading times? Are there low-tech alternatives?

► **See Unit 7 for further advice on creating multimedia for teaching.**

5.5   Conclusion

While it is always important to clearly delineate terms, conditions, expectations and guidelines of a course to students, this is especially true for classes with international students. Therefore, if you expect international students in your blended or online class be sure to share with them as early in the term as possible:

- Language skills resources
- Software/hardware requirements
- Core module materials such as books and journals
- Online participation guidelines
- Role of the VLE/student/tutor (underpinning learning model)
- Tutor/Help contact information readily available
- Library access.
- Academic support provision for international students at **http://www.napier.ac.uk/napierlife/campuslife/Pages/AcademicStudySupport.aspx**

6.0   Further reading

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Unit 9 Evaluating technology-supported learning

As the use of technology in education has continued to develop apace, the evaluation of technology-supported teaching and learning has emerged as a specialist area of evaluation practice within education. It has also become an increasingly common concern for practitioners on the ground who simply want to assess aspects of their current approaches to using technology in their teaching, and ensure the effectiveness of their future approaches.

With the focus very much on the practitioner rather than the evaluation specialist, this part of the guide aims to provide an overview of key issues in the evaluation of technology-supported learning, including the different contexts for evaluation, the main forms of evaluation, common data collection methods, some useful evaluation resources, and important practical considerations.

1.0 Why evaluate technology-supported learning?

The basic rationale for evaluating technology-supported teaching and learning is the same for evaluating any educational intervention. Typically we are either interested in understanding whether a current approach works, whether a planned approach is likely to work, and how practice could be further improved.

However there is a further reason why evaluating the use and impact of technology in teaching and learning is particularly important and is to be encouraged. Most tutors are still relatively new to using technology in their teaching, just as many students are only just becoming accustomed to studying in blended and online contexts. Many tutors therefore don't have the same kind of intuitive, expert understanding about the kinds of technology-supported approaches that will work for their own courses and students as they do about the non technology-supported approaches they are highly experienced in using.

Of course, guidance on good practice in designing and facilitating technology-supported learning can help inform the approach to be taken, but increased confidence and expertise in teaching using technology comes not just from following good practice principles and gaining more experience in applying them, but also from looking directly into the effectiveness of what we do.

2.0 Contexts for evaluation

Just as there are several contexts in which technology can be used to support learning, as outlined in Unit 1, there are also several contexts for evaluating the use of technology in teaching and learning. As you might expect, the different

contexts for using technology are closely mirrored by the contexts for evaluation. However there are also additional, broader contexts for evaluating the effectiveness and impact of educational technology. A range of possible contexts in which to evaluate technology-supported learning include:

- **Specific applications**: Here the evaluation context would concern one particular approach or intervention, eg the use and effectiveness of skeleton online lecture notes, online seminars, or self-test features.
- **Blended approaches**: Where the evaluation context is a blended course, usually in terms of overall design, delivery and experiences
- **Online approaches**: As for the above, except that the course in question is a predominantly or fully online one, including distance courses
- **Programmes**: Evaluation within a programme context may cover approaches to the use of technology to support learning across all the modules in a campus-based or online programme, and could also include programme-level resource provision and administrative support
- **Departmental**: This could concern the use of, and impact, that educational technology has had across a department or school
- **Institutional**: Where evaluation is concerned with the deployment, use, and effectiveness of institutional practice or initiatives in the area of educational technology (eg the cross-faculty evaluations of WebCT use involving staff and students that have been conducted here at Napier).

3.0 Finding a focus for evaluation

As the above overview of evaluation contexts begins to suggest, there are a range of factors and issues that might provide the focus for evaluating technology-supported teaching and learning. Not all of those that follow will be relevant to the individual tutor seeking to evaluate their current or planned approaches to using educational technology, although many could be.

It should also be pointed out that no small-scale evaluation would realistically be expected to cover more than two or three of these factors at the most.

3.1 Student experiences

Most evaluations that the tutor would undertake of their own practice would seek the views of their students on some aspect of their experience, including:

- Perceptions on the design, content and usefulness of online resources
- Views on the coursework undertaken in blended and online contexts
- The effectiveness of the guidance the student received to prepare them for studying online, and the quality of support from the tutor thereafter
- Level and clarity of online course materials, assignment specs etc
- Future improvements covering any or all of the above areas
- Which tools and resources students used, how often, and why.

This list is not exhaustive, but gives a flavour of potential issues to focus on.

3.2   Learning outcomes

When evaluating the impact of technology-supported learning, either in relation to a single intervention or more typically at the level of a blended or online course, it can be useful to look at the quality of the resulting learning outcomes.

This is most commonly measured via achievement on assessed coursework, and can be based on average grades for the class, but also individual grades. Looking at average grades can be a useful indicator where a significant use of educational technology has been introduced to a course that has previously taken a traditional classroom-based approach, whereas individual grades can provide some insight when looking at differences between students who made good use of online resources compared with those who did not.

It is also possible to ask students to self-rate the overall quality of their learning on a blended or online course, or in relation to a specific intervention (eg the extent to which participating in online seminars aided their understanding).

3.3   Tutor experiences

The perspectives of tutors are a valuable focus for evaluating technology-supported learning, particularly in contexts where team teaching is involved, or where evaluating a programme, departmental or institutional approach to educational technology is concerned. Possible issues to cover can include:

- How and why tutors are using educational technology
- Perceived effectiveness of blended and online teaching approaches
- Tutor support and training needs relating to the use of technology
- Perceptions on departmental or institutional initiatives.

3.4   Usability and accessibility

As a specialist area of evaluation practice, the evaluation of technology-supported learning is a multi-disciplinary concern which is strongly influenced by the computer science discipline of human-computer interaction because, ultimately, educational technologies are end-user applications.

So what does this mean in practice? Basically just that evaluation of technology-supported learning may often need to address usability and accessibility issues. This is especially so where the tools and resources that the students are provided with have been designed especially for a particular context (eg a custom course website, original multimedia elements etc).

As touched upon previously some of the key issues in usability include:

- Ease and intuitiveness of navigation
- Clarity of interface layout
- Readability of online text
- Colour scheme and contrast
- Size of buttons and other clickable areas
- Meaningfulness of icon design
- Ability to pause and resume video and animations
- Ensuring content is viewable on all major platforms.

Some of the key issues in accessibility have been discussed earlier and include

- Providing text alternatives to interactive content
- Ensuring page layout can be read by text-based browsers
- Providing alternative (ALT) text descriptions for icons
- Using sans serif fonts (eg Arial) at 12 point minimum.

3.5   Course and resource development process

Where the focus is on the efficiency of team approaches to developing blended and online courses and resources, with a view to improving this process.

3.6   Widening access and retention

In which the focus of evaluation is on the extent to which departmental and institutional approaches to using technology to widen access to education, and improve retention and achievement rates, have been successful.

3.7   Infrastructure and support

Issues of interest in evaluation here might be the general robustness and reliability of the institutional MLE, including the integration of the VLE with other systems, C&IT services support for online learning, and the provision of general student support services for online and other non-attendance students.

4.0   Forms of evaluation

At a general level, it is possible to distinguish between three main forms of, or approaches to, evaluating technology-supported teaching and learning. Most tutors will already be familiar with the ideas of formative and summative evaluation, to which we can also usefully add diagnostic evaluation.

4.1   Diagnostic evaluation

In relation to technology-based teaching and learning, diagnostic evaluation can essentially be thought of as an evaluation of teaching and learning needs in order to determine where educational technology might usefully play a part in supporting or enhancing learning. For example, a tutor might begin by canvassing opinion from their students on possible general improvements to a course, or they may already have identified a particular issue or problem that they would like to address (eg making better use of limited face-to-face contact time, or encouraging more participation in subject-related debate).

Identification of issues of this kind provides the basis for thinking about where technology might help, which might be further explored in consultation with a knowledgeable colleague or specialist adviser (eg your faculty's ADA). On the basis of this, an appropriate role for educational technology would then be identified (eg extending face-to-face seminars with online follow-up sessions).

4.2   Formative evaluation

Formative evaluation is carried out either during the development of a particular technology-supported approach to teaching, for example when a VLE site is being put together, or may be conducted following initial implementation to gauge the effectiveness of a particular approach and make adjustments as necessary. Actually, formative evaluation of educational technology often involves at least both these stages as part of an iterative approach to design and development. This is to be recommended when educational technology is being developed or used for the first time in a particular context.

This may sound like a lot of work, but really need not be. Consider the example of a tutor who develops their VLE site, and prior to it being made available to students asks a colleague to spend a short while looking over it, paying particular attention to the clarity and structure of the site and the material within it. On the basis of their colleague's feedback they make a few adjustments. A couple of weeks into the trimester, they use some time at the end of a seminar to check how their students are finding working on the VLE. There's a little bit of confusion over what's required for some of the discussions tasks, on the basis of which the tutor amends the task instructions that are provided online.

Formative evaluation is not always done quite as informally as this, depending upon the scale at which you want to run an evaluation, but it very often can be.

4.3   Summative evaluation

Summative evaluation typically comes at the end of a particular implementation, as a means of assessing the success of an initiative. This could mean conducting a student evaluation at the end of a blended or online module, or at the end of a

particular technology-supported activity (eg following the completion of an online collaborative project, or series of online seminars).

5.0   Common data collection methods

There are a number of options open to you when thinking about how to generate and gather evaluation data. Your choice of method(s) will often depend upon the exact focus of your evaluation, as well as what is feasible in your evaluation context. Some of the main options include:

5.1   Questionnaires

Well-designed self-completion questionnaires are a very good means of gauging opinion on a range of issues. They can be administered prior to the design of a technology-supported learning approach, and in this respect may play a part in diagnostic evaluation. They can be administered following implementation as a means of taking stock of how well students are being supported, or at the end of a blended or online learning context to establish how effective the approach was overall, and whether the original aims were met.

Although questionnaires can be useful for putting a common set of questions to a group of students, for example a series of value judgements covering the online resources and support they were provided with, one inherent limitation of questionnaires is that they only ask the questions that the survey designer feels are relevant. The particular problem with this in technology-supported learning contexts goes back to the fact that many tutors and students are still becoming accustomed to blended and online learning, and there may be much more of interest happening in these contexts than a pre-designed questionnaire can provide an insight into. For this reason it is often useful to combine the use of questionnaires with some interview-based data collection, if this is possible, so that all or at least more issues of potential relevance are covered in evaluation.

Of course, an obvious advantage of questionnaires over interview-based approaches is that questionnaires are ideal for gauging the opinion of large student groups. They can also be distributed electronically, which is particularly useful in predominantly online and online distance course contexts.

► See Appendix 12 for an example of a student opinion questionnaire that contains some common kinds of questions and value statements relating to the use and perceived effectiveness of blended and online learning tools, support and resources. This questionnaire is here for you to adapt and use accordingly.

5.2   Interviews and focus groups

As indicated above, interview-based approaches to evaluation are excellent for gaining a real insight into how students, and tutors and relevant others, feel about

the use and effectiveness of technology-supported learning in any given context, and often highlight issues that the evaluator had not anticipated.

For both interviews and focus groups, it's important to have a semi-structure of key themes and broad, open-ended questions you want to cover, but don't stick to this too rigidly – the best interviews and focus groups are led by what the participants are saying, with the evaluator prompting as required.

One-to-one interviews are good for exploring the experience of the individual in-depth, and may be useful where you are interested in the views of particular individuals (eg the tutor for a particular course, a department head, students with specific backgrounds or support needs, or who have had particular experiences in a blended or online course). Focus groups are particularly good for exploring a range of issues from different perspectives. If nothing else focus groups may be a better option than interviews for gauging the general views of students, as focus groups can feel more relaxed than interviews, and often comments from one student will spark thoughts and comments from another.

Interviews and focus groups can be time consuming to arrange and conduct, and for practical reasons you may find you need to think carefully about when to use them. However their use can't be recommended enough where a rich look into the experience of technology-supported learning is required.

5.3   Tracking data

In relation both to how much time students spend online, and more importantly how they spend this time in terms of the tools and resources used, most VLEs automatically track online activity, and allow the tutor to generate all kinds of usage statistics both for the class as a whole, and for individual students.
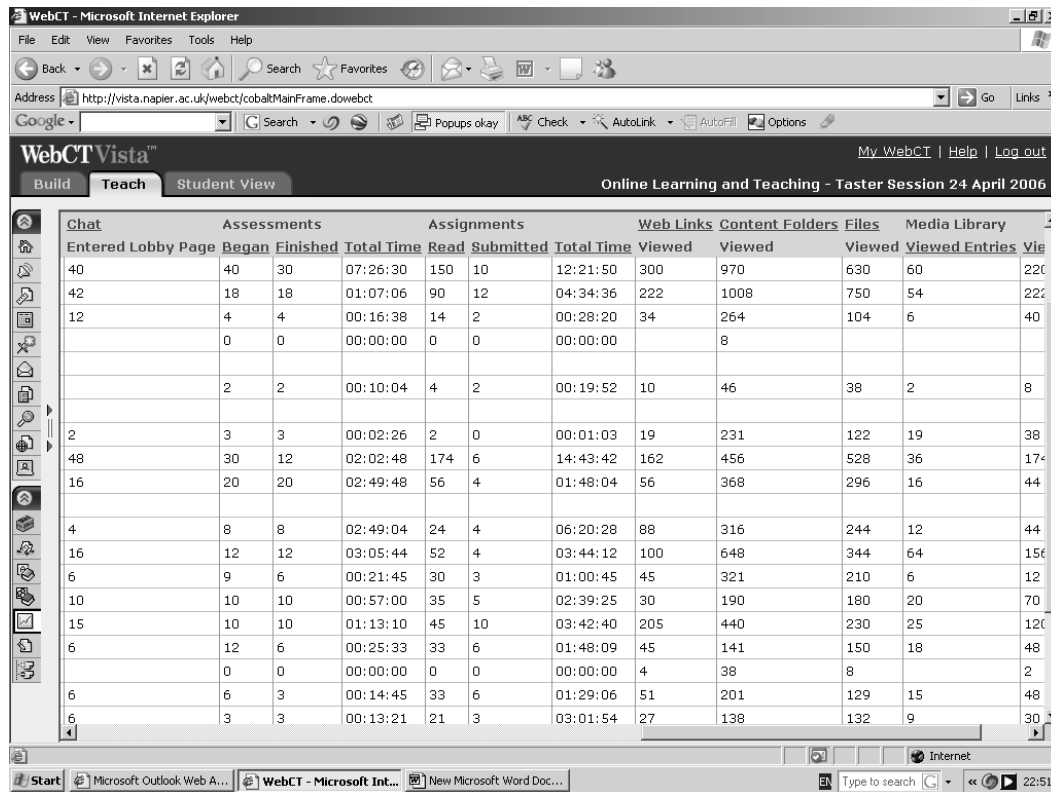
Figure 23: A screen shot from WebCT showing the kind of general tracking data available for the tutor to view for each student
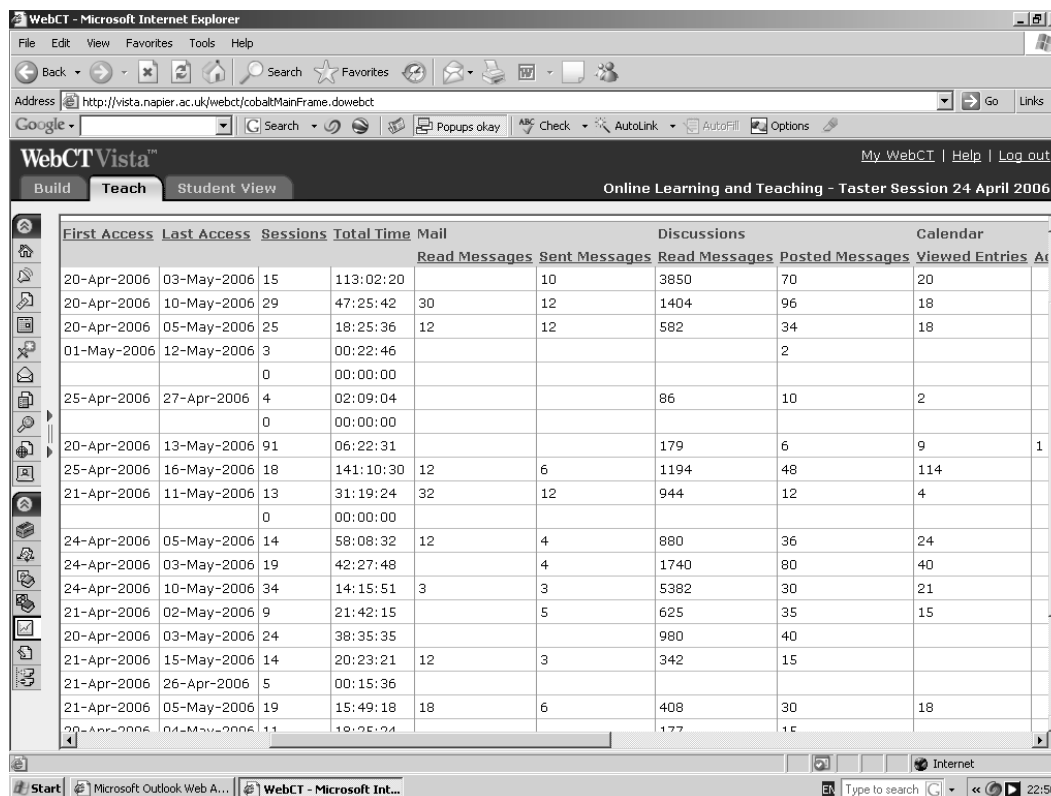

Figure 24: Screenshot from WebCT showing tracking data for chat and discussion board activity, including discussion messages read and posted

Obviously tracking data of this kind can provide a very useful picture of online activity, as well as being useful for identifying those students who may be having difficulty engaging effectively in a blended or online course.

However, a slight word of caution is necessary when using tracking data to help evaluate what your students do online. The time they have spent online, particularly in relation to accessing course materials, cannot necessarily be taken as an indication of individual studying effort. Many students will opt to work with printed copies of VLE materials. They may also be consulting other resources out with the VLE, including other online materials and printed texts. Furthermore, the total time recorded for online activity will not be accurate if the student has left the workstation while still logged on. Remember then that VLE tracking data only indicates what students are doing within a VLE course site, and is just a snapshot of their total learning activity.

5.4   Observations

Physically observing what students do when they are utilising educational technology can often lead to additional insights into how effectively they are using the resources provided, and the ease with which they are able to navigate and interact with them. Simply arranging to sit in on a session can be problematic though, as the student can often be wondering 'have they seen enough yet?', and may start interacting with resources in non purposeful ways.

It is better then to use observation in a structured way, perhaps by providing the student with a particular task, or tasks, to undertake. This provides a useful focus both for what they will attempt, and what you will be able to observe. You could also combine this approach with a 'think aloud' element, and ask the student to verbalise what they are doing and any difficulty encountered.

As an alternative way of using observation, consider having a colleague 'shadow' one of your 'live' blended or online courses, or a particular aspect of it, and then have them provide feedback on the design, tasks set, and particularly what they see as being positive or not in terms of the likely student experience.

5.5   Peer review

Peer review is a more formal evaluation option than having a colleague shadow a course, and would typically involve having either a colleague or other expert with relevant experience critique your approach for a planned blended or online course. They would typically be provided with or be involved in setting some criteria for the review, perhaps making use of an existing quality matrix or rubric (see section 7.0 below). Peer review is an excellent means of ensuring the appropriateness and robustness of a blended or online course, and is particularly good practice when the course in question is running for the first time, or is about to run for the first time in a blended or online format.

The assumption of peer review as described above is that you are going beyond introducing one or two appropriate uses of educational technology into an existing course, and taking a fairly rich technology-supported approach (refer to online module peer review checklist available in [Appendix 7](#)).

5.6   Study diaries

Study diaries can be a useful way for students, or a few selected and willing students, to record thoughts about their blended and online learning experiences as they have them. In this respect they can be a very useful source of evaluation data. The trouble arises if students either don't get into the habit of writing entries as and when they should, or attempt to write from memory prior to their submission. If you can be confident that the selected students will use them effectively, then they are definitely worth considering.

You as the tutor may also want to keep a diary of your technology-supported teaching experiences, particularly the first time round, as a means of recording what worked well and what could have worked better as it actually happens.

5.7   Course grades

As discussed in section 3.2 above, average and individual coursework and exam grades can be a valuable general indicator of learning effectiveness in any course context, and may help in comparing different iterations of a course.

6.0   Practicalities in evaluation

When evaluating any approach to technology-supported learning, particularly in blended and online contexts, there are several practical considerations to be than need to be taken into account. Chief amongst these are access to participants, sampling, ethical considerations, and piloting.

6.1   Access to participants

In blended and online courses, access to students for the purposes of evaluation might not be straightforward. This is especially so in part-time and distance learning contexts. It is less of a concern in campus-based courses that take a blended approach, or which make some particular use of technology.

If you are dealing with a geographically dispersed group of students, you may find that certain data collection methods (eg interviews or focus groups) prove impossible, or need to be re-thought for the online medium (eg using discussion boards for group discussion, or internet telephony for one-to-one interviews).

If your evaluation does involve distance learners, or students who rarely attend campus, you'll almost certainly want to make use of an online questionnaire. Actually, whether it's a campus-based or online context in which you are evaluating, administering questionnaires online is both convenient, and will allow you to automatically collate the feedback received. Consider then using the VLE's assessment feature to create and distribute your evaluation questionnaire.

Alternatively, use a web-based survey tool to produce and administer your survey. Ultimate Survey is a popular and affordable option, which is also available through C&IT. You can find out more about Checkbox (formerly Ultimate Survey) at: **http://www.checkbox.com/** and on the Edinburgh Napier WebCT staff help pages at **http://www2.napier.ac.uk/webct/staff/resources2.html**.

6.2   Sampling

If we're talking student involvement in a course evaluation, or even the numbers of tutors who might be involved in a broader evaluation, then how many participants are likely to be enough? That really depends on how big the group in question is to start with. Consider the following general pointers though:

- After two or three focus groups involving even just four or five participants each, there will be diminishing returns in terms of the feedback received. If you've got a particularly small class of students, one focus group or a few interviews will be enough.
- For observations and other evaluation techniques that are focused on the usability and ease of interacting with online resources, four or five participants are likely to uncover the majority of any problem issues.
- When administering questionnaires to large groups online, a 20% response rate may sound low but is actually not a bad minimum.

6.3   Ethical considerations

Consider whether ethical clearance is likely to be required for the kind of evaluation you have in mind. If you are canvassing opinion from your own students to inform future course provision it may not be. If you are planning to contact students other than your own, or will be audio recording interviews or videoing observation sessions, then it may well be. Check just in case.

This issue aside, always make sure those involved in the evaluation know the purpose of it, how their feedback will be used, if their identify will be protected, and have the option not to be involved. Where recording interviews and focus groups, be sure to seek the consent of the participants to do so, and have them sign an appropriately worded consent form to document their agreement.

6.4   Piloting

If time permits, and you are working on a substantial technology-based learning development including a fully online course, or a suite of interactive course materials, then you should consider piloting and evaluating the development, or representative parts of it. Involve real students wherever possible.

7.0   Useful evaluation resources

There are a number of good sources of technology-based learning evaluation guidance on the web, and many tools that are available to use (but be sure to check that permission to do so is provided, and what restrictions may apply).

7.1   General information on good evaluation practice

The LTDI (Learning Technology Dissemination Initiative) Evaluation Cookbook is an excellent starting point for further information and advice on a range of relevant approaches to, and techniques for, evaluating technology-supported teaching and learning. It is available in print, and online at:
http://www.icbl.hw.ac.uk/ltdi/cookbook/

7.2   Rubrics

Many educational institutions, and other agencies involved in the area of online learning, have developed rubrics against which to evaluate or ensure the quality of blended and online courses. A rubric is essentially a matrix-like framework that lists desirable criteria for blended and online courses that are based on established good practice principles, and against these criteria provides a means for determining the extent to which these criteria are being met.

California State University, at Chico, have one of the more established tools of this kind. Their Rubric for Online Instruction (ROI) contains six categories of online course delivery and support, and within each category defines the criteria for 'baseline', 'effective' and 'exemplary' practice. This is illustrated below:

Figure 25: Excerpt from the CSU Chico Rubric for Online Instruction, showing the baseline, effective, and exemplary criteria for the third of the six categories in the rubric, which concerns Instructional Design and Delivery (available online at http://www.csuchico.edu/celt/roi/)

Rubrics like this are excellent tools both for the tutor to use in evaluating their current or planned practice, and also for use by external reviewers.

7.3   Toolkits

There are some very good evaluation planning toolkits available online. These not only offer general advice, but also provide template evaluation plans and other tools and resources that you can adapt for your own purposes.

See in particular:
- JISC infoNet evalkit: **http://www.jiscinfonet.ac.uk/Resources/evalkit**
- The Evaluation of Learning and Media Toolkit from LTSS Bristol at **http://www.bris.ac.uk/esu/elearning/** (free sign-up required).

8.0   A note on quality assurance

At many institutions, internal quality assurance documentation contains guidance on, and describes processes for, ensuring the standard or blended and online courses. At Edinburgh Napier, you should consult section A.9 of the Quality Framework: Assuring quality and standards in online learning, which is currently being updated and soon to be made available on the Quality Framework website at **http://staff.napier.ac.uk/services/academicdevelopment/QualityEnhancement/QualityFramework/Pages/QualityFramework.aspx**.

9.0   Further reading

Benyon, D. Harper, S. and Harper, P. (2010) *Designing interactive systems: a comprehensive guide to HCI and interactive design.* Harlow,England; NY: Addison Wesley

Dix, A.J. et. al (2004) *Human-computer interaction (6th edition).* Harlow: Pearson/Prentice Hall

Ghaoui, C. (2003) *Usability evaluation of online learning programs.* Information Science Publishing.

Harper, S. (2008) *Web accessibility a foundation for research*. London: Springer

Jochems, W., van Merrienboer, J., Koper, R.(2004) *Integrated e-learning*. Ch. 8. Usability evaluation of integrated e-learning by F. Paas and O. Firssova. RoutledgeFalmer.

McPherson, M. (2004) *Developing innovation in online learning: an action research framework.* London: RoutledgeFalmer.

Mohan Mehrotra C., et al (2001) Distance learning; principles for effective design, delivery and evaluation. Thousand Oaks, Calif.; London: Sage.

Unit 10 Issues in using third party material

1.0   Copyright

The internet is growing at a rampant speed and the ease with which material can be 'clicked and picked' has fuelled a common misconception that third party material on the web is part of the public domain and always free to be used by anyone in any way. Nothing could be further from the truth!

Therefore, before using electronic material you are advised to familiarise yourself with copyright legislation which will help you learn more about:

* When you are breaking the law
* The circumstances under which you can use the material
* What material you can use.

Copyright is a 'restrictive right' that stops the use of original work by others in the absence of permission from the author. The UK law of copyright, as it is contained in the Copyright Designs and Patents Act 1988, protects the textual or literary expression of an idea and covers literary, dramatic, musical and artistic works as well as sound recordings, films, videos, broadcasts and typographical arrangements.

The information provided in sections 1.1–1.5 below is largely drawn from Pinsent Masons Out-Law websites, Copyright law: the basics at **http://out-law.com/page-5633** (last update August 2008) and also Control and exploitation of copyright material at **http://out-law.com/page-334** (last update August 2008).

1.1   Copyright infringement

When are you at risk of breaking the law? This might be the case if you fail to get permission to:

* copy work
* distribute, lend or rent work to the public
* perform, show or broadcast work in public
* adapt or amend work

that is protected by the copyright law.

1.2   Copyright myths

The most common copyright myths include:

- **If it is on the web it is not copyright** (eg PowerPoint® presentation by Professor P, striking icon by Company C, sound clip from Website W). Wrong - virtually all material on the web is subject to copyright**!**
- **If a work does not bear the copyright symbol then it is not copyright.** In the UK copyright arises as soon as the work is created, with or without the international copyright notice.
- **It is ok to copy anything provided you say where it came from**. No, unless permission was granted by the owner
- **Nobody really cares.** Oh, yes they do! Copy licensing agencies, commercial software interest groups are checking. In addition, the profession of 'copyright bounty hunter' has emerged, offenders in breach of copyright literally being trawled for by certain individuals for a substantial fee.

1.3   In the VLE

Almost every element of an e-learning system attracts an element of copyright which includes: e-mail messages, chatroom and student discussion room posts, educational materials, learning systems, computer programmes, flash animations, websites and databases.

While e-learning raises a new range of issues to be concerned about, by far the most common infringement of copyright in the VLE is unauthorised copying of third party material. In order to use third party material for teaching in the VLE there are six options:

1.   Use out of copyright material (depends on duration of copyright, usually 50–70 yrs)
2.   Use 'rights cleared' material where copyright owner has publicly stated that it can be used without the need to seek permission (eg see Creative Commons site at **http://creativecommons.org/** or MIT open courseware at **http://ocw.mit.edu/**).
3.   Seek owner's permission (time consuming but usually worth it. See example in Figure 26)
4.   Obtain licence (can be very restrictive) or check terms of agency licence institution subscribes to (eg Copyright Licensing Agency (CLA), Education recording agency (ERA))
5.   Rely on public digital collections such as learning object repositories (see section 3.0 below).
6.   Rely on special exceptions made which allow for use without reference to copyright owner at all.
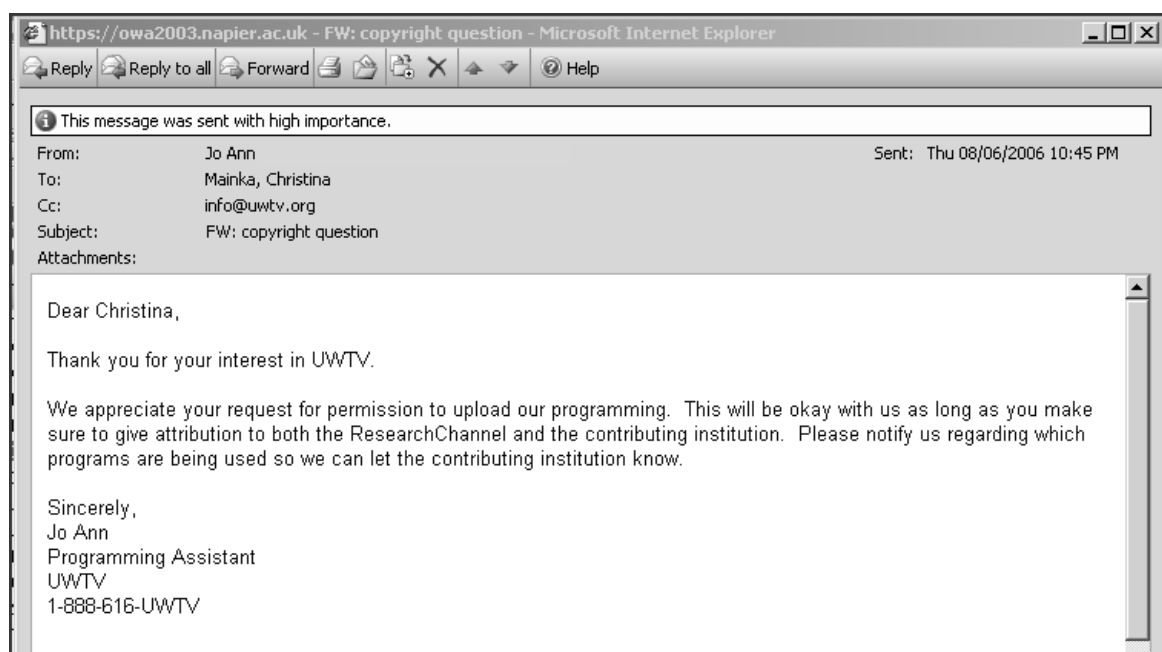
Figure 26: Example of a request granted via e-mail to upload a video clip into a VLE

The main exceptions are

- Fair dealing: using copyright material for non-commercial purposes such as:
    - private research or study.
    - criticism and review
    - reporting on a current event.

- Educational use: copyright material may be used for the purposes of instruction and examination (this includes works played, performed, recorded, or photocopied). Careful! Always read the websites' 'Terms and Conditions of Use' and 'Copyright' statement. There may or may not be exceptions for uses in education under the 'Fair dealing' provision which you are advised to read on the library's copyright pages at **http://staff.napier.ac.uk/services/library/study/Copyright/Pages/Copyright.aspx**
- Minor infringements: unauthorised use of small parts of a copyright work are acceptable (eg 1 book chapter or 10% of material).

Furthermore, if you are running an international distance education programme, be aware of:

- Territorial limitations on licences of any kind (WebCT, Athens, CLA etc)
- International copyright laws which can include registering copyright.
- Copyright of collaborative content
- Data transfer provision.

1.4   Copyright scenarios

Find a few scenarios that solicitors discussed with the audience (including one of the authors) at the JISCLegal conference in Warwick in 2005 (repeated here to help illustrate common issues around copyright and online technologies). The conference website is no longer available.

- **Scenario 1**: Despite 20 e-mails to the apparent owner of an image the tutor receives no reply. May she include the image? Answer: Actually-no. Even if every effort has been made to track the owner. That aside the request is only permissible in a non-electronic format (ie, written and signed letter).

- **Scenario 2**: A geography instructor finds an online journal article on Iceland and would like to copy parts of the text to set in an exam question. Is this in breech of copyright? Answer: No, anything may be copied for setting, communicating or answering questions (except music) in the context of an exam as long as the original author is acknowledged.

- **Scenario 3**: A member of academic staff forwards an e-mail from a peer to another colleague. Is this in breech of copyright? Answer: Yes, it is, BUT, it is such common practice to include past e-mails into new e-mails, so best to include a statement 'Not to be forwarded' or similar.

- **Scenario 4**: A chemistry lecture creates a hyperlink to an interactive acid-base tutorial buried within another university's chemistry department homepage. Anything wrong? Answer: Not really, however, good practice recommends avoiding 'deep linking' when possible and linking to the homepage instead (set to open in a new browser window) and then directing students to tools, tutorials within it.

Note: At present nothing in copyright law states that you need permission to link to a website at another website or VLE. You should, however, set the external website to open in a new browser window so it does not open within the same frame of your VLE, for example (see Figure 27 for an example). This is easily done in WebCT which your ADA can assist with.
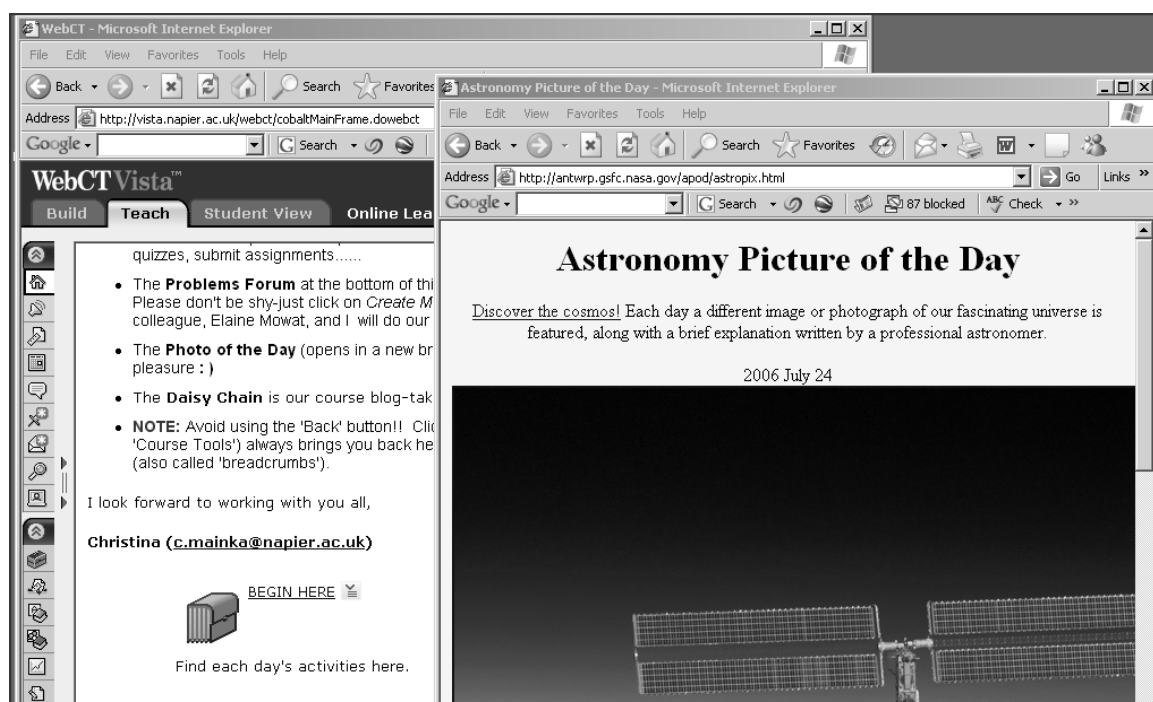
Figure 27: An example of a website link within a WebCT module set to open in a new browser window. Notice that two browser frames are being viewed

1.5   Managing copyright risk

It is important to be aware of the fact that there is indeed some uncertainty over emerging copyright legislation relating to electronic material. UK and EU Copyright law is subject to change at almost any time and while every effort has been made to provide guidance that reflects current legislation, this document cannot replace legal advise and no responsibility can be accepted for any damage arising from this information.

Furthermore, in order to best protect yourself against unintended infringement of copyright we recommend the following when preparing your online learning material:

- Keep abreast of the currently evolving legislation relating to electronic material
- Routinely check for copyright statements in material you intend to use
- Keep records of all copyright requests you make and of any permissions you have received
- If challenged over the permission to use material, remove the material in question from your website/VLE until the matter is resolved.

1.6   Further reading

JISCLegal (Office in Glasgow) at **http://www.jisclegal.ac.uk**

For more info on Fair Dealing and Use with example scenarios see the British Library copyright pages at
http://www.bl.uk/reshelp/atyourdesk/docsupply/publisher/copyright/index.html

Copyright, Design and Patents Act 1988 available online at
http://www.opsi.gov.uk/acts/acts1988/Ukpga_19880048_en_1.htm

Concessions for education at the intellectual property office for education at
http://www.ipo.gov.uk/education.htm

For resources with more flexible copyright licences visit Creative Commons at
http://creativecommons.org/

Edinburgh Napier library copyright FAQ at
http://staff.napier.ac.uk/services/library/study/Copyright/Pages/Copyright.aspx
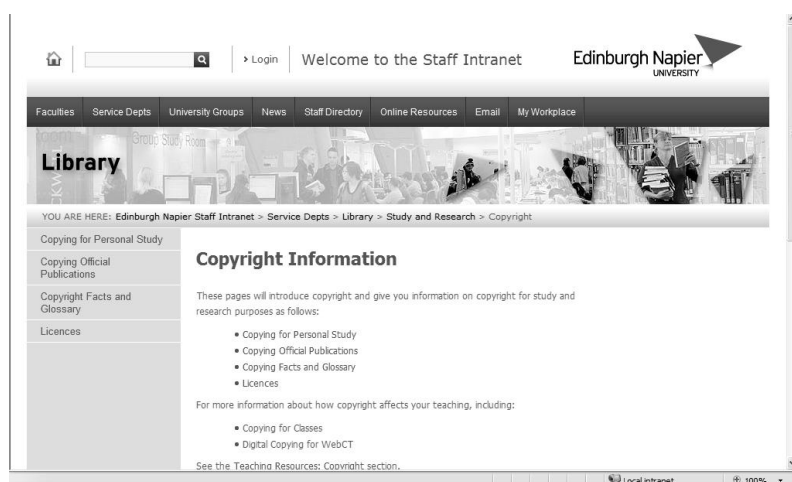
Figure 28: Edinburgh Napier Copyright Facts website

2.0   Third party resource collections

In the awareness of copyright issues that could arise, before you develop your own learning materials it is always worthwhile to spend some time searching for resources available for re-use. This could include text based material, PowerPoint® slides, quizzes, etc as well as web-based resources/materials.

The focus of this section is on introducing strategies to finding and evaluating freely available web-based material for your teaching. This could be a self-test quiz, online newspaper editorial, national statistics table, greenhouse gas concentration bar graph, e-book chapter or virtual lab tutorial.

Using existing material makes sense as it saves time and expense of developing the same materials yourself. Even if you don't find anything useful you may still get some useful ideas for developing your own materials.

Easy examples of enhancing lessons with web-based resources include:

- An ethics professor directs her students to read a chapter in an easily accessible NetLibrary (**http://www.netlibrary.com/**) book her institution has subscribed to
- The biomedical faculty directs students on the faculty home website to the Virtual Training Suite at **http://www.vts.intute.ac.uk/** for an internet bio-researcher tutorial to raise awareness of available online biomedical resources.

So where exactly can you find these materials? Let's look at the following options:

- local resource collections
- national resource collections
- world wide web (www).

2.1   Local resource collections

Your first point of call for finding quality information might be the library (**http://staff.napier.ac.uk/services/library/Pages/Library.aspx**). The Edinburgh Napier library's electronic resources includes e-books, e-journals, online tutorials as well as subscriptions to electronic resource collections (eg Netlibrary, MyiLibrary, Safari etc.) and password protected databases (eg Proquest, Emerald) and so-called learning object repositories such as SCRAN (at **http://www.scran.ac.uk/**) and JORUM (**http://www.jorum.ac.uk/**). These are available to the institution's staff and students after going through the appropriate authentication process.

A learning object is commonly understood to be any digital resource that is used to mediate learning. The idea behind the learning object is that it is a (small) chunk of learning that ideally can be reused in different modules, VLEs or institutions. Learning objects are referred to with so called metadata which is a set of words, phrases or sentences that summarises and describes a learning object and is used to classify content so as to enable efficient searching in the database. The more descriptive the metadata the more efficient the search.

Learning objects raise issues of interoperability (content from multiple sources, eg institutions, working equally well with different learning systems, eg WebCT and Moodle) and reusability (content developed in one context, eg business toolkit, being transferable to another context, eg health toolkit).

Reusable learning objects present a whole new (but increasingly common) approach to online content development in which content designers build courses by 'mixing and matching' from a repository of learning objects rather than

developing all elements of course content from scratch. Reusing and/or repurposing content in this way is potentially a cost and resource saving measure.

2.2   National resource collections

Further recommended sources of information on the internet include national resources collections quite a number of which are available at no cost. These are non-commercial directories of scholarly information usually arranged in a hierarchical fashion according to subject area. The freely available resources are carefully selected and evaluated by subject experts and unlike search engines (see below), maintained by people rather than algorithms. Compared to some library resources collections there is no tedious registration process involved.

Examples of national resource directories include:

- INTUTE at **http://www.intute.ac.uk/** (JISC supported UK national gateway to subject specific internet resources)
- Bulletin board for Libraries (BUBL) at **http://bubl.ac.uk/** (UK nationally funded information service for HE community)
- Economic and Social Data Service (ESDS) provides access to key economic and social data and surveys at **http://www.esds.ac.uk/**
- Project Gutenberg at **http://www.gutenberg.org/**. The oldest collection of e-books and e-texts is made freely available.
- ARIADNE: **http://www.ariadne-eu.org/** (educational resources collection in a wide variety of interactivity levels in many European languages, primarily English, French, Italian, German, and Dutch. Requires registration)
- MERLOT: **http://www.merlot.org/** (peer reviewed repository of online learning materials for HE to which individual members can contribute)
- PubMed at **http://www.ncbi.nlm.nih.gov/pmc/** (online archive of biomedical and life sciences journal literature)
- INFOMINE at **http://infomine.ucr.edu/** (academic internet resources collection from University California at Riverside)
- Case Studies in Science from The State University of New York at Buffalo at **http://ublib.buffalo.edu/libraries/projects/cases/ubcase.htm**

Figure 29: JISC BioScience ImageBank at http://bio.ltsn.ac.uk/imagebank/

Select UK nationally funded online repositories hold collections of not only quality text-based resources but also images and multimedia such as

- JISC BioScience ImageBank at **http://bio.ltsn.ac.uk/imagebank/**
- Edina at **http://edina.ac.uk/index.shtml**)
- Moving Image Gateway (MIG) for educational video and audio resources at **http://www.bufvc.ac.uk/gateway/**
- HERMES is the British Universities Film & Video Council's (BUFVC) central database at **http://www.jisc-collections.ac.uk/catalogue/coll_hermes**
- EMOL (Education Media Online) database with over 300 hours of film related to every subject area at **http://www.filmandsound.ac.uk/** (completion of licence agreement required)
- British University Newsreel Database (BUND) reels of news coverage from 1910-1979 **http://www.jisc-collections.ac.uk/catalogue/coll_newsreels**
- Tip:
  - For an A-Z catalogue of JISC funded subject specific e-resources see **http://www.jisc-collections.ac.uk/**

CETIS is the UK's Center for Educational Technology Interoperability Standards (at **http://jisc.cetis.ac.uk/**) A subscription-based non-profit organisation with members from all the leading technology system suppliers, publishers and many user organisations active in e-Learning working together to develop specifications and standards for learning technology interoperability.

2.3   World wide web

2.3.1   Search engines

Showing students an image of the moon from a website such as **http://www.nineplanets.org/** or linking to a physics applet from **http://www.walter-fendt.de/ph14e** into an online lesson is reusing a learning object found on the web, rather than in a digital repository. To find objects on the world wide web you will need to use what is called a search engine. A search engine is a programme designed to store text-based web information in an index database which can be retrieved based on the results of a query.

Despite their popularity search engines are limited in that they do not find most of the information available on the web. The web that remains invisible to search engines ('deep' web) includes library databases, intranet resources, password protected resources such as journals, and proprietary file types (eg PDF files, spreadsheets), for example. Therefore, the search engine search basically serves only *select* information needs (ie, fact-finding or locating known items rather than and investigative information needs).

Google (**http://www.google.com**) remains the most popular search engine and has the largest database of web pages. Other common search engines include

- AllTheWeb, (**http://www.alltheweb.com/**)
- Alta Vista (**http://www.altavista.com/**)

- Yahoo (**http://www.yahoo.com/**)
- Teoma/AskJeeves (**http://www.teoma.com/**)

Finding information on the web is getting easier but the number of websites is growing rapidly. It is a good idea to narrow your search by figuring out what you want to find and then deciding what key words will help you locate that information. You may have to do multiple searches to find the information you are looking for.

2.3.2 Hints for effective web searching

Make use of the search engine's *advanced search features* and other *search tools*:

- Use lower case letters for a broad search
- Do not use a, an, or the
- Be specific. Use all significant terms in your search.
- Use quotation marks around a phrase to search for adjacent terms
- Use quotation marks around a word for an exact match (otherwise search engines may stem)
- Use from..to for a number range (eg 1979..1999)
- Use BOOLEAN logic to eliminate irrelevant concepts (+/- available in most search engines).

Make use of your search engine's *field searching* capabilities:

- Instruct the search engine to search only for UK school, university, or government sites, for example, by typing: search term site:sch.uk; search term site:ac.uk; search term site:gov.uk
- Instruct search engine to search only for resources of a certain filetype (eg search term filetype:doc). All major search engines such as Google, Yahoo, Alta Vista, have this facility.

Note: It may also be useful to expand searches. Use wildcard searches (* in Google) to *expand* your search to include unknown terms such as in 'school * lessons'. Use ~ to let Google find synonyms (~ice finds pages with cold, freezing etc).

Make use of your search engine's *search services* such as in Google:

- Google Scholar (**http://scholar.google.co.uk**) with advertisement free access links to peer reviewed journal and book content.
- Google Directory **(http://dir.google.com/**) lets you search from within subject categories
- Google News (**http://news.google.com/**) for finding the most current information on a topic.

For more web search features see **http://www.google.com/help/features.html**

2.3.3 Evaluating web resources for use in your teaching

The library and information directories and gateways and peer reviewed learning object repositories do the resource evaluation for you. The web, however, has no 'editor' to send back unreliable resources. Would you really recommend the information on this web page about Attention Deficit Disorder at **http://www.all-natural.com/add.html** to your students for their research? (No! The author is affiliated with an advertised company.) Or what about linking to The ChemBalancer online activities at **http://funbasedlearning.com/chemistry/default.htm**? (No! Navigation is very poor.) Testing the activities first will uncover mediocre navigation which would quickly frustrate rather than assist the science student.

The criteria by which search engines list search results varies widely and gives no indication of usability, quality or credibility. Remember that anyone can produce anything on the web! Regardless of how you are using a web resource in your teaching, however, you must be assured not only of its credibility, but also of its usefulness and relevance for your students.

Be consistent in your evaluation! Be sure to browse the site thoroughly, testing any interactive features or targeted links while taking the following questions into consideration:

1.   Does the material have a clear purpose and add value to your lesson?

- Who is the material aimed at?
- Does the information given seem objective or biased?
- Is there a site sponsor? Look at the domain name:
  edu for educational sites
  gov for government sites
  com/net for commercial sites
  org for non commercial sites
  mil for military
  au, ca, uk for country codes
- Are the terms used and explanations given appropriate for your students?

2.   Is the material current?

- This is a non-negotiable!
- When was the site updated last?
- Is there out of date information?
- Are links broken?

3.   Who is the author?

- Again this is a non-negotiable!
- What is their subject expertise?
- Do they belong to an organisation?
- How can they be contacted?

4.   Is the material accurate?

- Is it factually accurate?
- Is the material well-written? Proper grammar and punctuation can be expected with the availability of spell-checkers and software language tools.
- Are the primary sources clearly stated?
- How thorough is the subject coverage?

5.   Is the material easy to navigate?

- Is there a site map or menu?
- Is there a search facility provided?
- Are the diagrams clearly explained?
- Can the site be reached reliable and quickly?
- Does it meet with current accessibility guidelines?

Finally: Once you have picked out a web resource to include in your teaching, do ensure that it really 'fits' Is it consistent with the subject matter? Is it aligned to a learning outcome? Does it complement the other material? Don't use a web resource just for the sake of it-use it only if it serves a clear purpose. Assured of that, if necessary, be sure to obtain copyright permission from the web authors or publishers to use and

3.0   Plagiarism

According to a 2002 survey at a UK institution, 40% of students and 35% of academic staff approached attributed plagiarism to the ease with which material can be copy-pasted from the web (Dordoy, 2002). While it is widely acknowledged that internet technology has made it easier to plagiarise than ever before, very often students are not even aware that copy-pasting from a webpage is unacceptable practice nor do they understand what it means to paraphrase (Dawson & Overfield, 2006). Edinburgh Napier University emphasises educating students first to help prevent and deter plagiarism, before systematic detection and finally disciplinary action and punishment.

Plagiarism at Edinburgh Napier is defined as the 'unacknowledged incorporation in a student's work either in an examination or assessment of material derived from the work (published or unpublished) of another. Plagiarism is a form of Academic Misconduct or 'any attempt by a student to gain an unfair advantage in assessments and/or examinations'. Plagiarism is considered a serious offence and is dealt with according to the University's Plagiarism Policy and Handling Procedures which can be found in the Student Disciplinary Regulations document from Student Affairs website.

Your school's Academic Conduct Officer (ACO) is charged with supporting you in dealing with all forms of academic misconduct and should be referred to when cases of suspected plagiarism arise.

The University has subscribed to the text matching software, Turnitin®UK, hosted by nlearning at **http://www.submit.ac.uk/static_jisc/ac_uk_index.html** which enables the comparison of electronically submitted written text against the internet, archived internet, a growing number of databases and previously submitted work. Its use is recommended with the student as an educative tool rather than solely as a punitive tool. Enrolling students on the service allows them to submit their own work and monitor their referencing skills, assisted by colour-coded 'originality reports'. The software also includes tools such as a gradebook, mark-up feature, discussion board, calendar, peer review tool, paper revision function, library database of metrics, topic questions and rubrics to support peer- and tutor-evaluation of written work. A plugin to WebCT has proven very successful at Edinburgh Napier (see the WebCT resources page at **http://www2.napier.ac.uk/webct/staff/resources1.html** for user guidelines).

> The key to avoiding the possibility of plagiarism is the setting of the right assignments in the first place.
>
> Brown 2002

For recommendations and guidance on how to create coursework and rethink assessment strategies in order to deter plagiarism, or to stay informed of issues and developments around academic integrity in Higher Education consider the following:

- Read this guide's Unit 6: Coursework and Assessment, for a range of ideas for creative coursework and diverse assessment strategies
- Visit the Edinburgh Napier 'Be wise, don't plagiarise' website at
- Inquire about Professional Development plagiarism seminars and workshops for staff, including Turnitin®UK training sessions at **http://www2.napier.ac.uk/ed/profdev/customised.asp**
- Visit the nlearning Plagiarism Advisory Service website (formerly JISCiPAS) regularly at **http://www.plagiarismadvice.org/**
- Join the PLAGIARISM@jiscmail.ac.uk mailing list at **https://www.jiscmail.ac.uk/cgi-bin/webadmin?A0=PLAGIARISM**

3.1   For more information on Turnitin®UK

Turnitin®UK service overview by JISC PAS at
http://www.submit.ac.uk/static_jisc/ac_uk_index.html
- Turnitin®UK service overview at Edinburgh Napier:
http://www2.napier.ac.uk/ed/plagiarism/jiscTurnitinUK.htm
- Turnitin® Resources page at **http://www.plagiarism.org/**
- Turnitin® Training videos at **http://www.turnitin.com/static/support.html**

3.2   Be sure your students are aware of:

- Edinburgh Napier plagiarism website
http://www2.napier.ac.uk/ed/plagiarism/

- Edinburgh Napier student disciplinary regulations at
  http://staff.napier.ac.uk/services/studentaffairs/StudentAdministration/RegulationsandPolicies/Pages/200910Regulations.aspx
- Turnitin[®]UK Plagiarism detection Service Information for Students document (lecturers using the service *must* make this document available to students) available from
  http://www2.napier.ac.uk/ed/plagiarism/infoStudents.htm
- Edinburgh Napier plagiarism podcast at
  http://edinburghnapier.podbean.com/2009/10/12/week-6-be-wise-dont-plagiarise/
- Acadia University Plagiarism tutorial, You Quote it, you note it
  http://library.acadiau.ca/tutorials/plagiarism/ (press restart for a really fun and informative tutorial for students)

3.3   Be sure you are aware of:

- Ghost writing services such as
  http://www.elizabethhall.com/
  http://essays-r-us.co.uk/

- Essay banks
  http://nursing-essays.com/
  http://www.cheathouse.com

- Bid for dissertations at eBay
  http://www.ebay.co.uk/

- Translation services, eg, Alta Vista's Babelfish at
  http://uk.babelfish.yahoo.com/

4.0   Further reading

Angélil-Carter, S. (2000) *Stolen language? Plagiarism in writing*. Pearson Education Limited

Brown, S. (2002) TechLearn Senior Management Briefing on Online Tutoring, JISC Technologies Centre. Available at
http://www.jisc.ac.uk/uploaded_documents/ebriefingshort.doc

Carroll, J. (2002). *A Handbook for Deterring Plagiarism in Higher Education.* Oxford: The Oxford Centre for Staff and Learning Development

Carroll, J. (Jan. 2005). Handling student plagiarism: moving to mainstream. *Brookes eJournal of Learning and Teaching, 1*(2). Available at
http://bejlt.brookes.ac.uk/vol1/volume1issue2/perspective/carroll.html

Dawson, M. and Overfield, J. (2006). Plagiarism, do students know what it is? *Bioscience education e-journal*, 8(2), Available at
http://www.bioscience.heacademy.ac.uk/journal/vol8/beej-8-1.aspx

Dordoy, A. (2002). Cheating and Plagiarism: Staff and Student Perceptions at Northumbria. *Northumbria University Conference Proceedings*.

International Journal for Educational Integrity (IJEI) available at
http://www.ojs.unisa.edu.au/index.php/IJEI

JISC (2005) Deterring, detecting and dealing with student plagiarism available at:
http://www.jisc.ac.uk/uploaded_documents/plagFinal.doc

JISC (2006/2008) JISC PAS International Plagiarism Conference Proceedings available at **http://www.plagiarismadvice.org/conference/previous-plagiarism-conferences--inluding-keynotes-workshop-a-speakers/2nd-plagiarism-conference-2006**
and
http://www.plagiarismadvice.org/conference/previous-plagiarism-conferences--inluding-keynotes-workshop-a-speakers/3rd-plagiarism-conference-2008

Littlejohn, A. (Ed) (2003) *Reusing online resources: a sustainable approach to e-learning*.Open and flexible learning series, London:Kogan Page.

Sauers, M. (2009) *Searching 2.0*. London: Facet.

Williams, K. (2009) *Referencing and understanding plagiarism*. Basingstoke : Palgrave Macmillan

Unit 11 Further books and resources related to educational technology

1.0   Introduction

The list of books and e-books in the Further reading sections of each unit were carefully selected from the Edinburgh Napier library catalogue and usually relate directly to the topics introduced there in order for the interested reader to explore new concepts further. Every effort was made to highlight availability of an e-book format.

The resources listed in section 1.1 below were chosen by the authors from a wider search also outside the institution for their currency and relevance to the topics covered in this guide but which offer a more in depth coverage of the underpinning theory and educational research that inform the good practice guidelines and advice found in this guide. In addition selected resources expand on topics further to critically discuss impact and implications of emergent technologies on the manner in which students learn, the role of educational policy, and the outlook for society as a whole. These might be resources available in the public domain of the web or may only be available for purchase via book vendors.

1.1   Further recommended readings

Bonk, C. (2010) *The world is open: How web technology is revolutionalizing education*. Dawson Books. Available in print (2009) at Edinburgh Napier and as an e-book via Dawson Books.

Carr, N. (2009) *The big switch: Rewiring the world from Edison to Google.*New York: Norton and Company.

Cousin, G. (2009) *Researching learning in higher education : An introduction to contemporary methods and approaches.* New York; Abingdon: Routledge.

Duffy, T.M. and Jonassen, D.H, (1992) *Constructivism and the technology of instruction.* NJ-London: Lawrence Erlbaum Ass.

Ehlers, U-D. and Pawlowski, I-M. (Eds) (2006) *Handbook on quality and standardisation in e-learning*. Berlin-Heidelberg: Springer Verlag

Entwistle, N. (2009) *Teaching for Understanding at University : Deep Approaches and Distinctive Ways of Thinking.* Basingstoke: Palgrave-Macmillan.

Evans, A. (2010) *Introduction to web 2.0.* Upper Saddle River, NJ; London: Prentice Hall.

Fosnot, C.T. (Ed) (2005) *Constructivism (2^(nd) ed). New* York: Teachers College Press.

Friedman, T.L. (2005) *The world is flat. A brief history of the 21^(st) century.* Douglas MacIntyre Ltd.

Jonassen, D. and Land S. (2000) *Theoretical foundations of learning environments.* NJ-London: Lawrence Erlbaum Ass.

Leadbeater, C. (2009) *We think: Mass innovation not mass production.* London: Profile Books Ltd.

Martin, A. and Madigan D. (Eds) (2006) *Digital literacies for learning.* London: Facet Publishing

Salmon, G. (2004) *e-Moderating: The key to teaching and learning online (2^(nd) ed).* London-New York: RoutledgeFalmer.

Steeples, C. and Jones, C. (Eds) *(2003) Networked learning: Perspectives and issues.* London-Berlin-Heidelberg: Springer

Wenger, E., White, N. and Smith, J. (2009) *Digital habitats: Stewarding technology for communities.* Portland, OR: CPsquare.

Whitton, N. (2009) *Learning with digital games. A practical guide to engaging students in higher education.* Open and flexible learning series. London: Routledge.

2.0   E-books and e-journals at Edinburgh Napier

For information on Net Library, MyiLibrary, Safari and other e-book vendors including a complete list of the e-books that Edinburgh Napier has subscribed to through these vendors please see
http://staff.napier.ac.uk/services/library/electronicresources/Pages/ElectronicResources.aspx

For a complete list of the databases available through the Edinburgh Napier library please visit NUINlink at
http://nuinlink.napier.ac.uk/V

3.0   Selected periodicals

Find here only a small selection of educational technology related journals (including e-journals) available at Edinburgh Napier library.

Assessment and evaluation in HE
British journal of educational technology
Computers and education
Educational technology
Information and software technology
IT week
Journal of computer assisted learning
Journal of computer science and technology
Journal of educational technology systems
Journal of information technology
Journal of systems and software
Multimedia information & technology
Open learning: The journal of open and distance learning
The internet and higher education
Virtual reality
Web builder
Wireless networks.

Appendix 1

Sample text for tailoring and re-use (eg in Module Guide)

Online learning guidance for fully online module

As the MSc International Communication is an entirely online programme, you will naturally have more personal control over your studying than is typical in campus-based programmes. To make the most of the flexibility this entails, and to help aid your progress through this particular module, the following advice is offered:

- At the outset, read all the information that is provided about the module, and familiarise yourself with the content and features of the module website. If you are new to the programme, or the modules that NU provides for it, please ensure that you have read the technical guides on the Programme site before you begin studying.

- Read all assignment specifications and activity descriptions well in advance of deadlines to ensure you understand what is required by when.

- The content in the Module Materials section is organised into trimester weeks. At a minimum, ensure that you have covered all the material for a particular week by the time that week has ended. As well as keeping you on track, this will be necessary for completing the discussion activities. It is also highly recommended that you undertake the 'reflective activities' within the weekly materials, as these will help you to form a better understanding of the topics and issues you will be reading about.

- Follow-up on any recommended print or online readings, and familiarise yourself with the content of websites that you have been provided with links to. All readings and additional resources have been selected because they either expand upon or complement the core content provided in the Module Materials section.

- Manage your study time effectively by studying, wherever possible, during periods of the day or week when you feel most open and alert to learning. Between your module deadlines work at a pace that best suits yourself.

- Only use the Self-Test features after studying the relevant sections of material. The feedback provided will then be a more valuable indicator of what you have learned.

- Seek assistance when you feel you need it, either by e-mailing the tutor or requesting assistance from your tutor and/or fellow students via the Discussion Board.

- In using the Discussion Board, be courteous and also respectful of other opinions. Take time to read and appreciate what is being said, and reflect upon your own opinions before contributing, to help yourself and others benefit as fully as possible.

Appendix 2

Case study

Providing a blended learning approach for a postgraduate module

Abstract
This mini case study explains how teaching and learning on a face to face postgraduate module was augmented by the introduction of VLE-based activities.

Background
The module is SE72311 Information Technology Management and Applications, which is taught as part of several Master's degrees within the School of Engineering, including the MSc in Engineering. It was originally part of the MSc in Information Technology, and was first introduced around 1998.

Cohort profile
There used to be a mix of mainly UK and EU students, with a few from overseas, but in recent years the cohort profile has changed dramatically, with almost no UK students (typically one or two per year), and a vastly increased number of overseas students, notably from India. This has affected the operation of the module in that many more people come with a very different background and culture of learning, and lack of English language skills are more obvious, though this problem was always there to some degree in the past. There are typically 30 to 40 students in the class, which is taught in trimester 1 of the academic session. As such, most students have just joined the university, though some taking the module will have started in February of the previous academic session and will be in their second trimester.

Delivery arrangements
Students have three hours per week contact time with the lecturer, comprising one hour of lecture and two of computer laboratory based tutorial, and this extends over a 12-week pattern, with a slight change in week 13 to incorporate a class test. In addition, two hours of unsupervised directed study time is booked is a lab so students are guaranteed access to a computer to complete practical work required for the class.

Assessment

Summative assessment
The module is continuously assessed and has no formal examinations. However, a class test was introduced in session 2004/05 to replace one of two assignments. This was done in recognition of the different learning cultures referred to above, specifically that some students found large reports on scenarios difficult, and were

more used to examinations. Providing variety in assessment offered these students the chance to perform better by using their knowledge in a more familiar way, though many students of all backgrounds said that revising for a test helped them engage with the materials and learn more effectively.

Formative assessment
For some time the teaching schedule had offered students the opportunity to think about assessment criteria from the marker's point of view, and to test their knowledge at three specific points in the module, which mapped on to three main topics. In each case this was done as a peer assessment, with some preparatory work being done outside class time, and discussions taking pace in class with the tutor.

Use of VLE to support the approach
The module first used WebCT (Campus Edition) in session 2003/04, though the approach was basic at that point, being little more than a repository of notes, assessment materials and module administrative information. In subsequent sessions lecture notes continued to be posted, usually after the lecture was delivered, as were tutorial materials and supplementary resources, including the module guide. Various web links were added to the Resources section of the site, some generic, such as NULIS study-skills and NUINlink, and some subject specific. Standard minimum presence data was included, ie links to timetables and the module descriptor, as well as the teaching schedule.

In session 2004/05 the class test referred to above was created as a WebCT quiz and ran in a closed-book, invigilated format, with all students taking the test in together in the same computer lab. In 2004/05 there were 30 questions and in 2005/06 this was increased to 40. The questions were a mix of yes/no, multiple choice and paragraph (free text) types so WebCT automatically marked most of the test and the tutor manually marked the paragraph answers. Respondus was used to create and edit the quiz, which was then published to WebCT. This was much easier than creating the questions on WebCT directly.

The peer assessment requirements (ie the task descriptions and marking schedules) were posted on WebCT as before but in session 2004/05 the module leader started to use the group facility to allow students in a group of 4 or 5 to see all of the peer assessed materials produced by that group and to make comment on them. The formation of groups was done as a combination of student self selection and tutor input, and the tutor created the groups on WebCT. In addition, students were asked to submit their work through the WebCT Assignment facility.

Results and issues arising
The quiz facility worked well in effectively supporting learning and the revised assessment strategy. It was more efficient for the tutor as well, saving marking time. Using Respondus for the test creation was much easier than doing this directly on WebCT.

The discussion tool was used to some degree though some students still struggled to understand its role, eg one or two consistently put private messages

about reasons for absence on the board rather than sending this to the tutor via e-mail.

Class list accuracy was very poor in 2003/04 and 2004/05; it improved in 2005/06 though there were still some access problems, especially early on in the module. This makes all aspects of managing the class effectively time-consuming and inefficient and it makes VLE-supported group-work difficult to organise.

Allowing multiple attempts at quizzes is helpful as a technique to reinforce learning but is problematic if the number of attempts is unlimited and tutor marking is required. The system required all to be marked to accurately reflect scores in 'My Grades' tool, even when 'show highest' was selected. Therefore it is suggested that tests requiring tutor marking are limited to a maximum of three attempts or perhaps two for large classes. Unlimited only multiple choice and yes/no questions for formative assessment.

Lack of student willingness to complete the tutorial tasks in timely fashion and to engage in the assessment process limited the effectiveness of peer assessment. This was a characteristic of the class and not a function of the VLE or it use. Also a culture of 'no criticism' together with an inability to accurately analyse work against set criteria made many student marks meaningless. They wanted tutor input, which was problematic from a time point of view, but in the end the two tutors did mark one of the peer assessments and use the results to diagnose general and specific student problems and to engage with each student in a discussion on their progress. On reflection it was a mistake to ask for individuals to submit peer assessments as well as viewing them in their groups as this perpetuated a dependence on the tutor and delayed the process of the students taking responsibility for their own learning, including getting to grips with the assessment criteria.

Solutions and future plans
Although it is important to have each student practice with the Assignment facility prior to formal submission, another approach will be used in future, perhaps where students upload their comments only and not the work itself.

The Registry and C&IT have taken a different approach to class list generation and maintenance in session 2005/06 and this has helped to produce more accurate lists. However, more still needs to be done to ensure that lists become100% accurate within at least the first two or three weeks at most.

The module has now been migrated to WebCT which will provide a more user-friendly interface for staff and students. It will also better support group-work, with options for automatic creation of groups (using tutor input on number of groups required and an accurate class list), or for students to self-select and register on line themselves, which was used as a technique in trimester 2 of SE72305 in session 2005/06.

More quizzes (now called Assessments in WebCT) will be used in next session, and designed so that formative assessment requires little tutor interaction, eg feedback comments will be built into MC answers in advance.

Work done in the TESEP[1] project by the ML will help form the approach to teaching and learning, eg it is hoped to introduce audio feedback as a technique to reduce staff time on written feedback. Also recent work done in the School with input from Professional Development on use of video for teaching may well be used to help students develop their presentation skills, perhaps by creating presentations using Microsoft® Producer. Wikis, ie editable, web-based collaborative document, may also be used to support group-working.

The enhanced web links facility in WebCT will be used to point students towards helpful resources for learning.

Consideration will be given to grading some discussions, perhaps around the peer assessments.

More formal directed study will be required and this will be supported by the WebCT Assignments feature, with formal submissions being required regularly.

It is hoped that WebCT will help support an active learning approach, though success depends in large part on the students and their basic commitment to their studies, and also on effective support from Registry and C&IT Service.

[1] Transforming and Enhancing the Student Experience Through Pedagogy
http://www2.napier.ac.uk/transform/

Appendix 3

Sample text for tailoring and re-use (eg in Module Guide)

The successful online learner

Learning online is a skill that some students feel more comfortable with than others. While it is a more flexible mode of learning, it does require more self-discipline than studying the traditional way of attending lectures and seminars. It does not, however, require less time than a lecture delivered course, and it is important to be aware that reading, researching, online activities and discussion, and collaborative group-work be completed in a timely manner. This does take commitment and here's how to do it best:

The successful online learner in module...is someone who:

- Has a busy schedule but sets aside a specified time for study everyday which is aligned with family and work responsibilities
- Carefully reads the module overview and assignment specifications on day one of the term and asks questions immediately.
- Identifies and practices use of the online tools required for completion of activities
- Plans ahead and prints out the weekly timeline and list of required readings for ease of access regardless of location.
- Carefully follows directions given in assignments and completes them on time.
- Is an active and courteous member of the online discussion board.
- Adheres to the netiquette guidelines (see below) in all online communication to fellow students or to tutor (e-mail, discussions, chat room) which dictate courtesy, tolerance and respect for others.
- Logs on regularly (2-3 times per week) to check for important notices from the tutor on the Noticeboard or participate in online discussions or activities as directed.
- Completes his/her share of work in the group-work activity.
- Does not wait until the last minute to begin an assignment and has read and understands the university's plagiarism policy including the Turnitin®UK student information sheet.

Appendix 4

Sample text for tailoring and re-use (eg in Module Overview of WebCT module)

Module Overview

Welcome to Module: Pain and Symptom Management!
Welcome to the pain and symptom management module. Some of you may have studied other modules as part of the MSc programme; some of you will be new to this style of studying. All of you have something to offer which will enhance the learning experience for us all.

We will regularly refer to reflection as a learning activity. Reflection means to bend or turn backwards such as light in a mirror. This creates some beautiful and amazing images, sometimes clear, sometimes cloudier. In educational terms, we are reflecting on ourselves and others and the actions we utilise. The opportunity to share these reflections with others is highly valuable, allowing confirmation and acknowledgement of ideas and the forum to explore fresh approaches. This can be quite daunting at first but with your participation a wealth of experience can be shared and built on.

This module runs for 12 weeks with the opportunity for face to face meetings occurring on the study days. We expect you to read all the messages posed on the discussion board and participate in all the e-activities in the learning materials. A timetable is provided to guide you through the workload in a flexible but structured way. If you have any difficulties please contact your lecturer who will respond promptly.

Introduction to Module
It is a requirement of study at Master's Level that you search for, and utilise, material from a wide range of academically-credible sources. This is a prerequisite for acquisition of breadth and depth of knowledge and subsequent evaluation of its application to health care.

Whilst the recommended reading activities provide a useful overview of a wide range of Pain & Symptom Management issues and strategies, you will need to access additional source in relation to your own specific professional role. You should, therefore, regard the material provided on WebCT as the starting point for your studies. Please refer to the MSc Programme Level information, including Library and internet access, in order to identify and access the wide range of information sources which are available to you. The Module Level information also provides a useful resource list.

The Pain and Symptom Module comprises four sequential units, which are supplemented by attendance at 2 mandatory study days with an optional ½ day available to attend group tutorial support.

The time taken to complete each Unit, and to complete the activities identified within the Units, will vary from one student to another. Please refer, however, to the Module timetable (opens in a new browser window) for suggested completion times and for the assignment submission dates.

The Units contain activities that are designed to assist you in preparation of the module assignment. Some activities are undertaken on your own, whilst others involve an electronic discussion with other students and/or your academic supervisor. Use of discussion rooms is optional, but they can provide a useful contact with other students. Whilst the prospect of placing your ideas in front of other people is perhaps daunting (and even threatening!), the perspective of other people is extremely important in the development of advanced practice. It is obviously important, when the students provide feedback about other students' work, that they do so in a manner which is constructive and takes into account the potential impact of their comments on the recipient.

Please also remember that your tutor should be used as a resource and it is strongly recommended that you contact them for advice during the preparation of your assignment.

Aims of Module
- To examine the physiological, psychological, social and spiritual dimensions of pain and other common symptoms of advanced disease.
- To critically evaluate assessment and management strategies employed in pain and symptom management.

Description of Module Content
- Aetiology, Pathophysiology, mortality and morbidity of pain and common symptoms
- Assessment tools and strategies
- Pharmacological and non-pharmacological approaches to pain and symptom management
- Psychological, social, cultural and spiritual aspects of pain and other symptoms of advanced disease
- Ethical dilemmas facing the multi-professional team in managing pain and other symptoms
- Influencing change in pain and symptom management.

Assessment
Summative assessment has 3 dimensions:

Abstract – requires students to choose an area of practice in pain and symptom management they wish to change incorporating the relevant theories of pain and

symptom management and a brief literature review relating to the area chosen (200 words)

Poster – from the abstract, student are required to produce a poster (A1 or A0 size) including a rationale for change, background literature, any applicable pain or symptom theories and the specific strategies utilised to implement the change in practice. Any further recommendations for practice should be included.

Reflective account – in addition, the students are required to submit a reflective account of their experience in preparing the poster, analysing their approach and identifying areas for their own future development (2000 words).

LTA Approach
Student directed flexible learning through the use of a range of web based activities where students will reflect on practice issues in relation to pain and symptom management that are directly related to the participant's area of professional practice.

In addition, critical examination of the literature will be supplemented by key lectures provided by expert practitioners, group discussions and case study analysis. Electronic discussion rooms and e-mail will facilitate both lecturer and peer support.

Online Learning Guidance for this Module
WebCT is being used on this module to support student learning by providing you with:

- Module lecturers' contact information
- Access to module learning materials
- Learning material compilation and printing feature
- Discussion forums
- E-mail facility
- Self assessment features
- Access to a comprehensive glossary
- Assessment specifications
- Guidance for preparation of assignment materials
- Module evaluation and feedback mechanism.

Within the module learning materials **you are expected to perform a variety of activities**:

- Reflective activities
- Discussion activities
- Case scenarios
- Guided reading
- Self assessments.

Additionally, **you are expected to attend the on-site study days as timetabled in the planner**.

The reflective activities are optional activities which are integrated into the learning materials as a way to consolidate your learning whilst integrating it into your own fields of work.

The case scenarios are available to guide your learning through a variety of topics.

Whilst you may incorporate an alternative scenario from your own experience, it is important these activities are completed in order to fully cover all the learning outcomes.

Guided reading activities are offered throughout each unit. This recommended reading is only a small selection of core literature on specific topics and it is fully expected you will conduct a larger review of the literature in relation to your own area of practice and identified learning requirements.

Self assessment activities are available in each unit of learning materials. These comprise of multiple-choice or self-selected answer quizzes which allow you the opportunity to review your learning achievements and identify any areas requiring further study. This form of reflection on your learning is essential and it is expected that all students will complete these short quizzes.

Online communication
In addition to accessing the learning materials within the module units, it is expected you will log on to the module site 2-3 times per week in order to visit the notice board, check your emails and engage in the on line discussions.

The notice board will be used by the lecturer to communicate changes or points of interest during the module. It is important this platform is reviewed regularly as individual emails from the lecturer will be reserved for matters private in nature. The e-mail feature within WebCT however, does provide a convenient means of communicating with other class members individually and use of this facility is encouraged.

The Discussion feature, however, provides an asynchronous communication area for both students and lecturers. The online discussion facilitates exchanges of thoughts, questions and answers, with all module participants regardless of their location or the time of day. It also allows teaching staff access to a log of all students' online activity.

The discussion facility includes 3 different discussion topics:

- Learning materials
- Assignment
- General.

The 'learning material' discussions are topic related. You are expected to participate in the specified discussion activities in the module materials. You will only be able to contribute to these discussions for a limited time. Please check your planner for availability. However, they will remain accessible for you to read and reflect on at a later date.

Although contributions to the online discussions are not assessed formally, they are an integral and essential part of the course and may contribute considerably to the students' resources when completing their final assessment.

Whilst the prospect of placing one's ideas in front of other people is perhaps daunting, the perspective of other professionals, particularly from a multi-professional cohort, is extremely important in the development of advanced practice. Therefore, it is fundamental, when providing feedback on other student's work that is done in a constructive manner which takes into account the potential impact these comments may have on the recipient.

The 'general' and 'assignment' discussion topics will be available for the duration of the module to allow any general questions or thoughts to be posted and discussed which may contribute to the learning experience or the final assignment submission.

Netiquette
To promote a supportive online learning community, online contributions are always expected to be topic related and polite, just as you would expect in a face to face classroom setting. It is advised the netiquette guidelines are reviewed by all students which can be found in the WebCT guide on the MSc Palliative Care Pathway site.

The role of the lecturers
The lecturers are one of your most valuable resources! It is strongly recommended that you contact the lecturers for advice at any time, either in person or in the online discussions. However, although e-mail contact is available if the advice is of a more personal or private nature, this form of communication is discouraged for more general enquiries.

Apart from being present at the optional tutorial day or the two study days, the lecturers aim to ensure a regular online presence also. You may find the lecturers will moderate, guide and encourage critical thought in the online discussions. However, it is our intention that any questions raised within the discussions or via e-mail will be responded to within 24-48 hours.

Appendix 5

Guidance for academic staff

Writing for online and distance learners

The following set of tips for writing for online and distance learners, developed by Margaret Nairn in Academic Development, provide a useful checklist when writing.

1.   Decide on an appropriate style of language for your target students and use it throughout your writing. A non-academic, conversational and informal style can still be grammatically correct and may be more appropriate for your materials than a 'text-book' style. It's ok to use contractions such as 'let's do something', 'if you're having difficulty', 'now I'd like you to read this' and so on.

2.   Use a 12 point sans-serif font like Arial as standard for body text, and have a high level of contrast between foreground text and background colour.

3.   Keep sentences short. Avoid writing clauses that require lots of commas to make them coherent. Try sticking to one fact per sentence then use the remainder of the paragraph for explanation. Start a new paragraph for the next fact.

4.   It's ok to write a beginning, a middle and an end; in other words write an introduction to the subject, followed by the facts, tasks and so on, followed by a conclusion. It sounds simple but it's easy to get side-tracked from this basic formula.

5.   Ensure your own course materials are structured in a logical order, are easy to navigate, and have no more than 2–3 screen lengths of content to a page.

6.   Always, always, keep a copy of all written work (H-Drive/Floppy/CD-ROM/memory stick).

7.   Review the order in which you've presented your materials; make a table of contents to help you organise your paragraphs and sections and you'll soon see if your materials are in a logical order or not.

8.   Consider using tables, simple diagrams or graphs to explain information – it's easier than writing long, complex paragraphs.

9.   Be consistent in your terminology. It's useful to make a checklist of keywords that you'll be using repeatedly; for example you might want to

use 'tutor' instead of 'lecturer'; you might always want to capitalise 'Senior Lecturer'; you might always want to refer to the UK, not Britain, or you might want to use 'eg' instead of 'e.g.'.

10.   When using visual and other multimedia content to present subject material, ensure that equivalent text-based material is available for any students with visual impairments, or who will otherwise have difficulty viewing the content.

11.   Beware of spell-checkers! They're useful but don't rely on them. Take the time to check each red-underlined word before accepting the suggested alternative word or spelling otherwise you will end up with some very odd sentences. Remember it's still ok to use a dictionary! If you let the spell checker make changes automatically for you, you may find American spellings creeping in to your writing; for example 'realization' instead of 'realisation', 'humor' instead of 'humour' and so on. It is, however, appropriate to spell proper names according to national custom, for example 'Pearl Harbor' or 'Rockefeller Center'.

12.   Avoid ambiguity; for example when you say 'Europe' do you mean the European continent or do you mean the EU?

13.   Beware of humour as it can be unintentionally offensive and jokes don't always cross cultural and national boundaries.

14.   Be prepared to review and amend your materials regularly for factual accuracy, legal changes, programme and policy changes, up-to-date information and recent references.

15.   If you're not sure how your materials will come across to your target students, it's a good idea to read them out loud or ask a colleague or friend to read them out loud while you listen. You'll be surprised what different meanings your words can take on when you hear them in this way and it's a good way of ironing out ambiguities and inconsistencies.

16.   'Test run' your materials by asking a colleague or friend to take on the role of one of your target students. Ask them to follow any instructions or tasks to ensure that they're logical and easy to follow. Ask them to check that any URLs are online.

17.   Build in enough time in your writing schedule to set your materials aside for a day or two then return to them afresh. This way, if you do have to do your own editing and proof reading, for example, then you'll be coming to the materials with a fresher eye.

18.   Worth repeating: Always, always keep a copy of all written work (H-Drive/Floppy/CD-ROM/memory stick).

19   Module authors are responsible for identifying materials or graphics within the materials for which copyright clearance is required. This includes

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third-party text, images, and multimedia. If in doubt as to whether copyright clearance is required, it should be investigated as a matter of course. It is important that copyright permission is sought at the earliest possible stage, as this allows time to source alternative materials where copyright permission is denied or the price requested is uneconomic.

It is also of prime importance that good practice is modelled by ensuring that citation and referencing is used consistently and correctly throughout the module.

Appendix 6

Guidance for academic staff

Converting your Word doc to an HTML file in WebCT

The most universally accessible file format across all types of machines and operating systems is HTML (or XHTML) and always the preferred format for publishing on the VLE. In WebCT, creating an HTML file from your existing Word docs is easy:

1.   Login to WebCT and enter your module. In the *Build mode*, go to the page on which the HTML file should be created. Minimise the screen (simply click on the little minus symbol in the top right hand corner). Your WebCT page is temporarily on the bottom browser menu bar. Open the appropriate Word document.
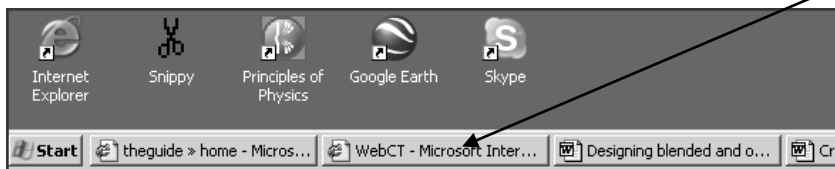
2.   Left click over the text in Word you want to copy in order to highlight it. Release the mouse, right click over the highlighted portion and select Copy from the pulldown menu.
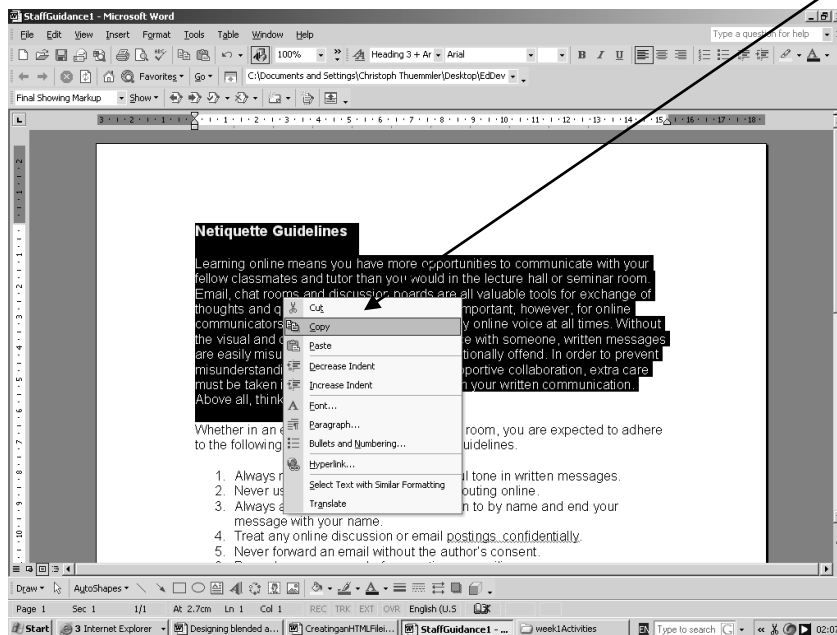
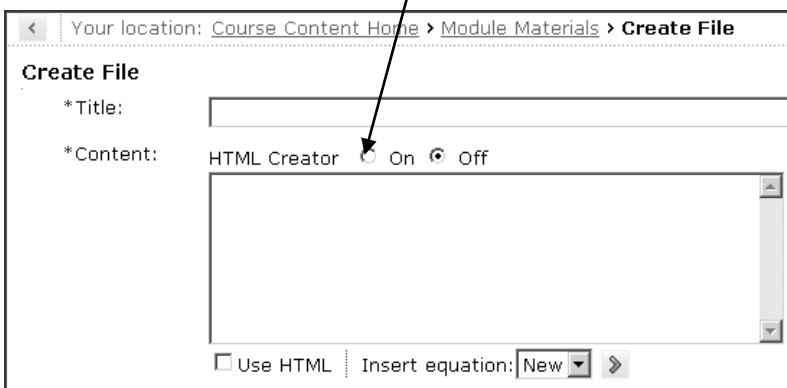3.   This portion of the Word document can now be pasted to the HTML
        Creator in WebCT Click on WebCT bar at the bottom of your screen to
        enlarge the WebCT page again. From the top menu bar choose Add File
        and then Create File
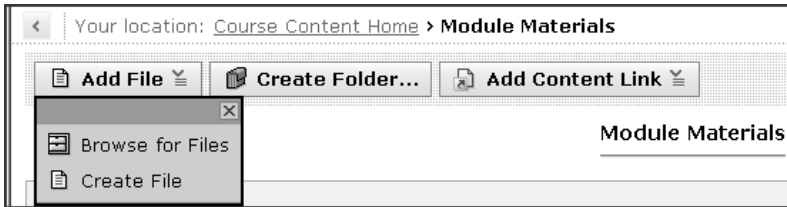
4.   Choose HTML creator 'on'

5.   Left click your mouse cursor in the edit box, right click and choose Paste
        and the highlighted Word text will appear. Add a title.

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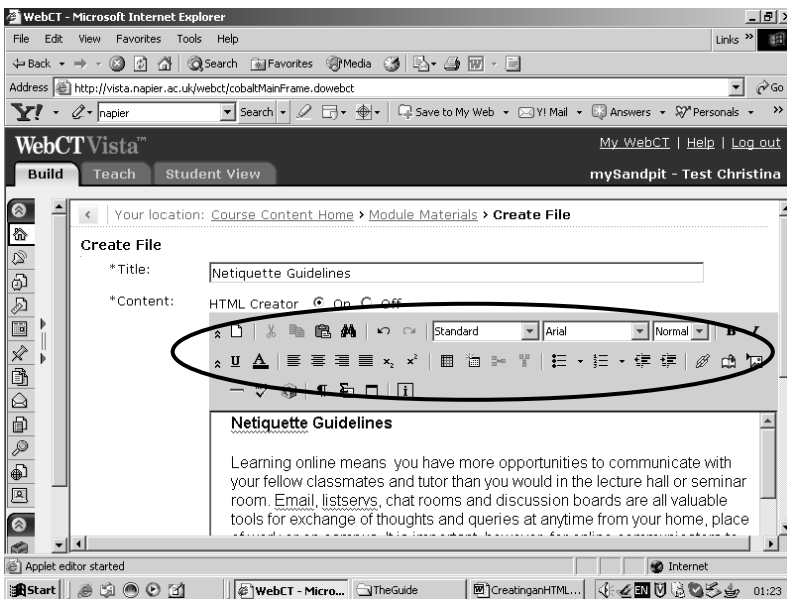
6.   Carry out any formatting. Notice you can create tables, hyperlinks, upload images and change font style, size and colour, as you would in Word. Click on Save. The content file icon will appear on the page.

Appendix 7

Module evaluation checklist

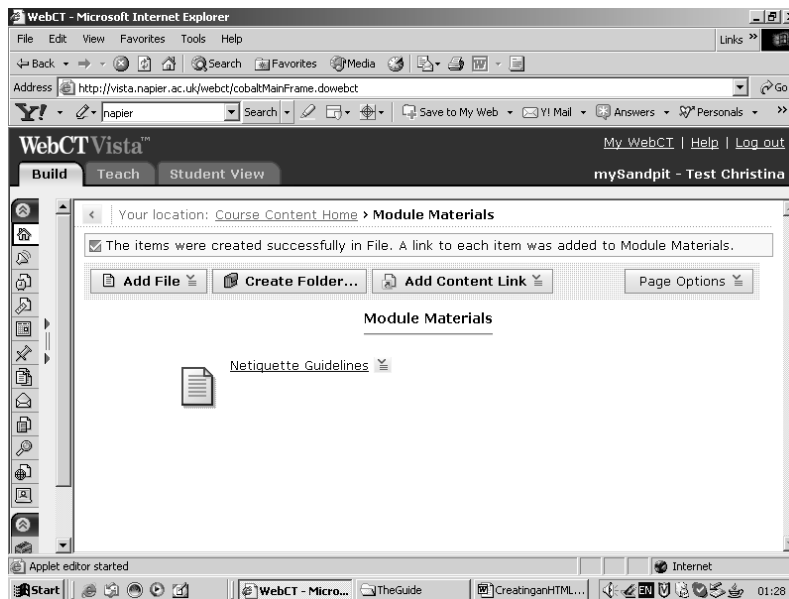This checklist should be completed prior to the first time a module is implemented in blended or fully online format, as part of the quality assurance procedures for blended and online delivery that are described in the Quality Framework (for the definition of a blended module see section A9). The criteria within this checklist correspond to the main tenets of good practice described in this guide, which are expanded upon more fully in the Edinburgh Napier publication *Pedagogy and learning technology: a practical guide*.

This checklist should be used in an independent review of a blended or online module to be conducted by an Academic Development Adviser (ADA) Online Learning who has not been involved in the development of the module, or by an appropriately experienced tutor or reviewer from outwith the module team. In addition, the checklist can serve as a reference to module developers during the online module design and development stage.

It is not expected that all criteria are met for all modules. Fully online modules should meet the majority of the criteria. It is left to the discretion of the knowledgeable reviewer which criteria to fulfil.

Instructions to reviewer: please tick the appropriate box against each of the criteria provided, and write any additional comments or recommendations you have in the space provided. If N/A has been selected please explain why. Return checklist to module leader who can seek additional support and guidance from the faculty's Academic Development Adviser (ADA) Online Learning. Please remember to sign and date this form.

Module title: _____

Reviewed by: _____

1) Module material

Criteria	YES	NO	N/A
Learning outcomes are stated wherever appropriate	☐	☐	☐
Subject material (in introductions, units) is clearly written	☐	☐	☐
Subject material is written inclusively (eg culturally biased terms and examples are avoided wherever possible)	☐	☐	☐
The structure and organisation of the module (eg dates and deadlines, the sequence of events) is explicitly stated	☐	☐	☐
Full details of all core texts and resources are provided	☐	☐	☐
External links lead to relevant and reputable resources	☐	☐	☐
Third party material is copyright cleared	☐	☐	☐
Additional notes and recommendations:			

2) Coursework and assessment

Criteria	YES	NO	N/A
Assessment specifications and criteria are clear and explicit	☐	☐	☐
Periodic deadlines are in place to help ensure engagement	☐	☐	☐
There is an appropriate mix of individual and collaborative pieces of coursework	☐	☐	☐
There are opportunities for periodic self-testing and/or suggested self-reflective tasks and activities	☐	☐	☐
The assessed work is likely to be well-supported by the range of tools and resources provided online	☐	☐	☐
The work to be undertaken is likely to be engaging without overloading students	☐	☐	☐
Additional notes and recommendations:			

3) Communication and collaboration

Criteria	YES	NO	N/A
Students are required to collaborate on key tasks	☐	☐	☐
There is a means for students to ask general questions of the tutor and each other (eg a problems forum)	☐	☐	☐
There are opportunities to communicate synchronously (eg using a chat tool) where this would be beneficial	☐	☐	☐
Requirements for communicating and collaborating online are clearly stated (eg where optional and not, guidelines)	☐	☐	☐
Students are provided with appropriate online spaces to support group work (eg private discussion areas, wikis)	☐	☐	☐
There are online social spaces provided for non-assessed, informal discussion and communication	☐	☐	☐
Additional notes and recommendations:			

4) Student support

Criteria	YES	NO	N/A
Students are provided with clear information about how to study effectively in the context of this module, including how to make good use of the online tools and resources	☐	☐	☐
Introductory icebreaking/bonding activities are in place	☐	☐	☐
Just-in-time guidance (eg that reinforce task requirements or provide useful study tips) is embedded at appropriate points in subject materials and activity descriptors	☐	☐	☐
What the student can expect from the tutor (eg in terms of response rate, when they will be online) is clearly stated	☐	☐	☐
VLE/other technical specifications are provided or linked to	☐	☐	☐
Additional support features (eg glossary, calendar, announcements, world clock) are provided where useful	☐	☐	☐
Additional notes and recommendations:			

5) Use of multimedia (visual and/or audio, static and/or interactive)

Criteria	YES	NO	N/A
Multimedia is used appropriately to present subject material and/or to complement text-based explanations	☐	☐	☐
Multimedia elements are easy to use and interact with	☐	☐	☐
Additional notes and recommendations:			

6) Usability and accessibility

Criteria	YES	NO	N/A
The online module environment is easy to navigate	☐	☐	☐
Information-equivalent alternatives to static and interactive multimedia content are provided	☐	☐	☐
Links to any browser plug-ins required are provided	☐	☐	☐
Appropriate alternative means for navigating content (eg search, site index, activities-view) are in place	☐	☐	☐
Visual design is clear and non-distracting	☐	☐	☐
Text is readable and presented in non-serif fonts	☐	☐	☐
Links to external websites or content files open up in a new browser window	☐	☐	☐
Additional notes and recommendations:			

A note on programme level online provision

It is noted that guidance and materials might be more appropriately placed on the programme home rather than on the module site. Material there could include, but is not restricted to:

- Teaching team.
- Module descriptors.
- Programme level online problems forum.
- Programme level online induction activities and documentation.
- Links to Edinburgh Napier library, C&IT, Student Affairs, SSCC (Student staff consultative committee), class representatives, plagiarism website.
- General study skills advice.

- Technical guides.

7) Final comments and recommendations
Please use the space below to make any final comments you have and include any changes you would recommend be made to the module prior to its implementation.

Signed: _____

Date reviewed: _____

Appendix 8

Student guidelines to be included in Module Guide

Online communication (netiquette) guidelines for Edinburgh Napier University students

Higher education institutions increasingly rely on electronic tools for communication among students and between students and instructors. If you are enrolled in an online module or programme, you will soon discover that you have more opportunities to communicate with your fellow classmates and tutor than you would in the lecture theatre or seminar room. E-mail, listservs, chat rooms and discussion boards are all valuable tools for exchange of thoughts and queries at anytime from your home, place of work or on campus. It is important, however, for online communicators to maintain a respectful online voice at all times. Without the visual and oral cues of standing face to face with someone, written messages are easily misunderstood or may even unintentionally offend. In order to prevent misunderstandings and promote engaging and meaningful collaboration, extra care must be taken into how you express yourself in your written communication.

Above all, remember that there is a human being at the receiving end!
Whether in an e-mail, online discussion or chat room, you are expected to adhere to the following online etiquette or 'netiquette' guidelines.

The right tone

1.   Always maintain a cordial and respectful tone in written messages. When in doubt, ask yourself, 'Would I feel comfortable saying this to the person standing in front of me?'

2.   Make life easier for the recipient: Always address the person being written to by name, clearly indicate who the message or post is coming from and add a descriptive subject heading.

3.   Never use BLOCK capitals, which is shouting online.

4.   Treat any online discussions, chats or e-mail contributions confidentially. Remember, however, that e-mail messages in general are not secure. Don't reveal more than you would on a postcard, for example!

5.   Reread your written text before posting or emailing.

6.   Wait 24 hours before responding to a seemingly inflammatory message or post. Online conflicts unnecessarily tend to get blown out of proportion. A

good rule of thumb is to give the author the benefit of the doubt and to end your response with a positive statement.

Cultural considerations

Edinburgh Napier University is proud of its diverse student body, but it is important to recognise that the challenges of online communication are magnified in classes of native and non-native speakers. While international collaboration undoubtedly enriches learning by exposing students to different cultures, beliefs and values, the non-native speaker is usually less confident and can easily feel uncomfortable among native speaking online communicators, especially in the synchronous setting of a chat room. In addition different cultures bring different points of reference, different understandings of humour and different expectations of online communication.

In order to avoid misunderstandings and to promote an encouraging environment for all communicators always take the following guidelines into consideration before posting or sending your message:

1.   Avoid using complicated language, terminology, slang, idioms or local acronyms.
2.   Be aware of differences in date formats and measurements.
3.   Be careful with sarcasm and humour, avoid ridicule.
4.   Allow extra time for responses, especially in chats.
5.   Remember that language fluency does not reflect intelligence.
6.   Admit mistakes and apologise.

Communication management

Good online communication practice is also about being mindful of online communicators' ownership, time and bandwidth. The following tips will help keep online communication manageable and enjoyable for all involved.

1.   Be aware of the copyright on the material you are posting or sending. Acknowledge the owner of any material that is not your own.

2.   Never forward a written text without the author's consent.

3.   Avoid replying directly to emails containing file attachments-this unnecessarily fills up the original sender's mailbox.

4.   Be careful when using the reply feature in listservs or the 'cc' button when sending your e-mail. Ask yourself if your message is really relevant to all recipients.

5. Check for the validity of e-mail. Realise that hoaxes, spam mail, forgery and viruses are easily sent via e-mail. When in doubt the mail is best left unopened and then deleted.

6. In an online discussion, reply to an existing post only if your thoughts are directly related to it. Otherwise create a new message. This eases threading for all later on.

7. In general, keep your online texts as short as possible without being terse or evasive. Your instructor may provide you with word count guidelines for the discussion board.

8. Use the online discussion board's 'compile' feature for ease of reading long discussion threads.

References

Lynch McVay, M. (2004) *Learning online*, Routledge NY

Myers, S. and Filner, B. (1997) *Conflict resolution across cultures: From taking it out to mediation*, Amherst MA: Amherst Educational

Shea, V. (2004) The core rules of netiquette available online at **http://www.albion.com/netiquette/corerules.html**

Appendix 9

Sample text for tailoring and re-use

Study group guidelines

Please read these guidelines before engaging in study group related work!

The study group assignment is a collaborative or team effort where all team members contribute to the content and decisions made regarding the final written piece of work. You are expected to contribute to the collaborative study group discussion area, which will be regularly monitored by your lecturer to ensure your active participation. Study group assignments in the past have proven to be rewarding experiences for most and frustrating dilemmas for some. Bear in mind that key to a successful project is not only careful planning, effective communication, equal division of labour and sharing of responsibilities, but dependability, courtesy and thoughtfulness as well.

Be sure to keep the following in mind:

1. Go to the Study Group area of the classroom where you will find your study group name, assignment and members posted. Contact your study group members immediately via e-mail – **do not wait to be contacted!** Be sure to relate any scheduling problems to your fellow members **at this time** already.

2. Select a chairperson. The chairperson is the group leader but does **not** do most of the work. He/she a) communicates study group related problems to me, b) co-ordinates deadlines and c) is responsible for submitting the final draft to the study group conference area on time by...(week 7).

3. While emailing is convenient, remember I expect to see the bulk of communication proceedings in the collaborative study group discussion area (rough drafts, comments, analysis, decisions, etc). Should I fail to see a student participating by the end of week 6, I will contact the student via e-mail. While this is a joint effort your grade will also reflect your active and equal role in accomplishing the task.

4. Please be polite and treat each other with respect (as you all have been doing all along). Make use of each other's expertise and build on existing knowledge. Some of you may be more familiar with the library databases. Teach the others. Listen to each other. Be kind. Resort to a gentle suggestion, point out an inconsistency, never simply disregard a submission. Help each other. Never, ever rewrite another student's work without permission. Proofread each others' work, usually overworked, tired and ready for the island in the sun.

5. Realise that you must introduce your assignment to the rest of the class in the study group conference, as your group assignment is not communicated to the other groups.

6. Remember that everything that has been said about plagiarism applies to this written assignment also. If you are not sure be sure to review the plagiarism guidelines. I will not accept an assignment composed of more than 10% quotations.

7. Before you begin go to read the library's web literacy and research skills guide. This guide will help you to devise a research strategy, choose a database, learn the search features of the library, manage your results, and **evaluate** the materials you find. I expect at least five sources from the expansive library databases.

8. We have four great books already for this course: **USE THEM!**

9. You must cite your sources using…

10. Your report should be 2000 words plus reference list. You will receive a maximum of 25 points for full contribution to the collaborative report as follows:

- Bibliography: 5 points
- Language skills: 5 points
- Research depth: 5 points
- Discussion quality: 5 points
- Analysis: 5 points.

This study group assignment counts 10% towards your final grade.

(Originally written for modules delivered for University of Maryland University College, UMUC, USA.)

Appendix 10

Guidelines for academic staff

Flaming mail management

Hostile, provocative ('flaming') e-mail including abusive, inappropriate language and/or accusations should be dealt with as soon as possible (ie, within 24 hours).

For a first time offender:

1.   Rule of Thumb: The student is not angry at you, but at failing administrative and technical processes. You are his or her lifeline.

2.   Address student formally in your response. Role model respectful communication, regardless of the circumstances. This already often softens student's tone ('Dear Valerie....If you have further inquiries…Regards...') Offer additional telephone number/office hours to sort problem out.

3.   Apologise for any inconvenience caused. Be sympathetic. First time online learners are at great risk to drop out the very instant things go wrong. Probe further, what exactly is the problem? It may have been blown out of proportion in a panic attack.

4.   In a polite but firm tone point out that despite the inconvenience caused, the tone of the sender's mail is inappropriate and unacceptable according to academic conduct policy and the netiquette guidelines posted in your module. Should it be repeated, academic misconduct procedures may have to take effect.

5.   Remind students that only emails sent from Edinburgh Napier e-mail accounts (**matricnumber@napier.ac.uk**) can be accepted for reasons of security.

6.   Keep a record of all correspondence with the student.

Appendix 11

Sample text for tailoring and re-use (eg in Module Guide)

E-mail rules

- Be sure to include the intent of your e-mail under subject-I will not open it otherwise.

- I will always strive to respond to your e-mail within one day. Please be patient and wait at least 24 hours before emailing again about the same issue.

- Do not e-mail questions about the programme, module assignments, activities, due dates, assessment details or any administrative issues. That's what the Problems Forum in the VLE is for.

- Do not e-mail me for clarification of a particular assignment or discussion question or post. Respond directly to the discussion board or Problems Forum.

- Do not e-mail me with a complaint about a grade. Sign up for a slot in the Grade Query Chat Room.

- Do e-mail me if you are troubled by a personal problem or expect to be offline unexpectedly for a longer period of time.

- Do e-mail me if you feel intimidated by the online activity of others in the VLE.

- Do e-mail me if you are having technical problems.

Appendix 12

Example end of course survey for tailoring and re-use

Name of module or course: online learning and support survey

Dear student, the purpose of this questionnaire is to gain an insight into your experiences of online learning on [name of module/course], including how effectively you feel the various online resources, activities and communications supported your learning, and any areas in which you feel the online support for [name of module/course] could be improved for the next group of students.

It would therefore be much appreciated if you could assist by taking the time to complete the questions that follow. Please note that any feedback you provide will be treated confidentially. Once you have completed this questionnaire, please [insert instructions for returning completed questionnaire form].

[The general content of this questionnaire has been adapted from a set of questionnaires in Smyth, K. (2006). *Approaches to networked learning: an investigation into the nature of autonomous student interaction with web-based educational environments* (unpublished PhD thesis). This particular questionnaire has been produced specifically for this guide, as a possible starting point for developing a student questionnaire for a particular course context.

All or parts of this example can be freely adapted by Edinburgh Napier staff without acknowledgement]

A.   General use of online resources

1.   Please indicate where you most frequently accessed the online resources from (tick one only):

   From within university   ❑
   From home/outwith university   ❑

2.   How much time, on average, do you think you spent using the online resources each week?

   Under 1.5 hours   ❑
   More than 1.5 hours but less than 3 hours   ❑
   More than 3 hours but less than 4.5 hours   ❑
   More than 4.5 hours but less than 6 hours   ❑
   More than 6 hours   ❑

3.   Which one of the following best describes how you used the online course materials (eg module notes, assignment descriptors, and the content of any external websites)?

   I only ever read material when I was online   ❑
   I read material online, and also printed out paper copies to read   ❑
   I never read material online, and always printed out paper copies to read ❑
   Other (if any, please state) _____

4.   If you kept paper copies of online materials, please indicate your reason(s) for doing so:

I kept paper copies as a general back-up   ❑
I prefer reading from paper to reading from a computer screen   ❑
I like to be able to underline passages or make annotations   ❑
So that my studying was not restricted by when I could access a computer   ❑
University IT workshops are not always good environments to work in   ❑
Other (if any, please state) _____

5.   Which online resources and tools did you use to support your studying on the module?

❑   Course/lecture notes
❑   Recommended online readings
❑   Discussion board
❑   Chat room
❑   Whiteboard
❑   E-mail for contacting tutor
❑   Self-tests
❑   Multimedia (video, animations, simulations)
❑   Web or online databases for sourcing additional reading
❑   Course blog or wiki (or one set-up for group-working purposes)
❑   Internet telephone conferencing
❑   Other(s) _____

[Note several possible variations on this question. This includes asking students to select the top 3 or 5 features used most frequently; or to rate all features numerically starting with 1 for most used or most valuable. It could also cover particular sections of online course material. In VLEs, tracking data is readily available that to provide precise data on features used, although this obviously only covers features within the VLE itself, and not those external to it].

B.   **Your views and experiences**

Please indicate the extent to which agree with the following statements by ticking the relevant box. Only select 'unsure' where you genuinely have no view either way.

[Note that this section has a randomised list of statements, so that students are less tempted to try and answer consistently to statements that relate to aspects of the same issue. The examples here cover what students thought about particular tools and resources, and whether they aided their learning. The statements below are intended to provide a few starter ideas about the kinds of blended/online learning issues that a questionnaire like this might cover]

SA = Strongly Agree **A** = Agree **U** = Unsure **D** = Disagree **SD** = Strongly Disagree

	SA	A	U	D	SD
1. The Glossary feature provided clear and understandable definitions.	❑	❑	❑	❑	❑
2. The tutor responded in good time to questions that were raised online.	❑	❑	❑	❑	❑
3. I participated more in the online discussions than I would do in class.	❑	❑	❑	❑	❑
4. I found the self-tests were valuable for monitoring my own progress.	❑	❑	❑	❑	❑
5. The course website was well organised and easy to get around.	❑	❑	❑	❑	❑
6. The recommended online readings I used tended to be very useful.	❑	❑	❑	❑	❑
7. I would have benefited from more class-based contact with the tutor.	❑	❑	❑	❑	❑

	SA	A	U	D	SD
8. The animations in the course material enhanced my understanding.	❑	❑	❑	❑	❑
9. The guidance provided on how to use the online resources was good.	❑	❑	❑	❑	❑
10. The discussion tasks played an important part in my learning.	❑	❑	❑	❑	❑
11. The coursework specifications clearly described what was required.	❑	❑	❑	❑	❑
12. I felt there was an appropriate mix of online and class-based activity.	❑	❑	❑	❑	❑
13. The level of debate in the discussion board was better than in class.	❑	❑	❑	❑	❑
14. The tutor prepared us well for the work we would be doing online.	❑	❑	❑	❑	❑
15. I used the course website to study at the best times for me to learn.	❑	❑	❑	❑	❑
16. From a technical point of view the online tools were easy to operate.	❑	❑	❑	❑	❑
17. The coursework undertaken kept me continually engaged online.	❑	❑	❑	❑	❑
18. The course planner clearly indicated what we needed to do by when.	❑	❑	❑	❑	❑
19. I would have learned more if this course had been class-based only.	❑	❑	❑	❑	❑
20. The course units provided understandable explanations of topics.	❑	❑	❑	❑	❑
21. The reduced face-to-face contact with classmates limited my learning.	❑	❑	❑	❑	❑
22. The quality of feedback received from the tutor online was good.	❑	❑	❑	❑	❑
23. Help from the tutor or classmates always felt easily available online.	❑	❑	❑	❑	❑
24. The work we did online was good preparation for the assessed work.	❑	❑	❑	❑	❑
25. I would like my other courses to offer a similar kind of online support.	❑	❑	❑	❑	❑

C.   Other feedback

1.   Please use the space below to detail anything that you particularly liked about this module

----

--- -----------

2.   Please use the space below to detail anything that you particularly disliked about this module

----

-- -----------

3.   In what ways could the online support and resources for this module be improved?

-- -------------------
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Thank you for taking the time to complete this survey

[Note: you may want to ask for contact details if follow-up evaluation activity is planned]

Appendix 13

Sample text for tailoring and re-use (eg in Module Guide, student welcome letter or induction documentation)

Online communications guidelines

Dear student,

Learning online means you have more opportunities to communicate with your fellow classmates and tutor than you would in the lecture theatre or seminar room. E-mail, chat rooms and discussion boards are all valuable tools for exchange of thoughts and queries anytime, anyplace. It is important, however, for online communicators to maintain a warm and friendly online voice, whether in our module or your future place of employment. Without the visual and oral cues of standing face to face with someone, written messages are easily misunderstood or may even unintentionally offend. In order to prevent misunderstandings and promote open and supportive collaboration, extra care must be taken into how you express yourself in your written communication. Above all, think before you post!

Whether in an e-mail, online discussion or chat room, you are expected to adhere to the following online etiquette or netiquette guidelines…(from school).

Glossary

Accessibility
Most commonly refers to the full availability of online resources on websites and in virtual learning environments (VLE) to people with disabilities. Relevant accessibility guidelines for educational technology can be found at TechDis at
http://www.techdis.ac.uk

See also WebCT accessibility guidelines available at
http://www2.napier.ac.uk/webct/staff/documents/accessibility.pdf

and the Edinburgh Napier 'Accessibility Matters' website at
http://www2.napier.ac.uk/ed/accessibility-matters/

ADA
Academic Development Adviser: for contact details of the Professional Development's online learning team see
http://www2.napier.ac.uk/webct/staff/training.html

ACO
Acronym for academic conduct officer. First appointed to a UK HEI at Oxford Brookes University in 2000. Since 2004 each school at Edinburgh Napier University has a designated ACO, a member of academic staff charged with responsibility for the consistent application of guidelines on academic conduct and investigating cases identified by colleagues.

Animations
Simulations of movement of graphic images.

ASCII (American Standard Code for Information Interchange)
A standard coding system for use in digital data transfer and storage that represents English characters as numbers and can be read on any type of computer.

Asynchronous
Not happening at the same time. Asynchronous discussion boards and e-mail are a form of online communication that does not require participants to be logged on at the same time to read and/or post messages to one another. In addition to Unit 5, for quick tips on how to create and support engaging discussions see the 'Supporting the online discussion' document at
http://www2.napier.ac.uk/webct/staff/documents/online_discussion.pdf

Athens
An access management system used to control secure access to collections of electronic resources. For further information about access to e-resources at Edinburgh Napier see
http://staff.napier.ac.uk/services/library/electronicresources/Pages/Accessa ndpasswords.aspx

Audio
Relating to sound. Audio on the world wide web (www) includes resources such as online music repositories, online radio, audio clip sites, audio books, sound archives, voice libraries, newsgroups and audio recording and editing software.

Augmented reality
A reality created by merging virtual images with the real view.

AVI (audio visual interleave)
Common video file format for storing video/audio files on Microsoft® Windows®.

Blended learning
The use of a combination of online, flexible, and face to face teaching methods to provide learning materials, student support and assessment.

Blog
A contraction of the term 'web log' first used in 1999. A web based communications tool which users engage with to collaborate, share knowledge, reflect or debate with the potential as learning spaces for students in the education sector. Blogging software is available at no charge (open source) from providers such as WordPress, for example (**http://wordpress.com/**).

Blogosphere
The blogging community.

Bluetooth
A wireless technology that enables the transmission of information over short distances between fixed or mobile devices.

Browser
A software application used to navigate and read world wide web (www) pages. Examples include Internet Explorer, Netscape, Firefox.

The expression, 'opens in a new browser window' indicates that a webpage will become available in a new frame on the computer desktop.

CAA (Computer aided assessment)
Formative or summative assessment supported or delivered by computer technology such as computer marked multiple choice questions exams.

Chat
Refers to a synchronous form of online communication commonly made available in virtual learning environments, but also available on the internet often at no charge.

CLA (Copyright Licensing Agency)
A UK agency (**http://www.cla.co.uk/**) that arranges for licences which allow photocopying and scanning of copyright printed material (ie, books, magazines, journals).

Class-voting system
See student response system.

Clog
A contraction of the term 'concert blog' A blog dedicated to the discussion and sharing of music concert related information.

CMC (computer-mediated communication)
More commonly used expression in the US referring to communication between users supported by computer technology

Community of practice
A term coined by Etienne Wenger (**http://www.ewenger.com/theory/**) that describes a group of people who share an interest for something they do and which they learn how to do better through regular interaction within their group. Communities of practice have become more prominent with the onset of web 2.0 technologies which enable and promote interaction and collaboration at a distance via web 2.0 communication tools. A relevant example of a community of practice is the NMC (new media consortium at **http://www.nmc.org**) which is a community of universities, museums and research institutes dedicated to the exploration of new media in the advancement of learning and creativity.

Creative commons
An alternative approach to copyright licensing. A non-profit organisation of authors who do not exercise all of the intellectual property rights the law affords them. Authors are offered free public licences to enable them to share their work with others. (**http://creativecommons.org/**).

CSS (cascading stylesheet)
A style sheet language that allows users to add style (fonts, colours, size, margination etc) to web pages.

Copyright
The legal right of an author to retain ownership of original work, eg text, photo, recordings, software. Copyright does not have to be registered, it is an automatic right. All material on the web is subject to copyright. Concessions are often made for educational purposes which is usually indicated in a site's 'terms of use' statement. Copyright in the UK is governed by the Copyright, Design and Patents Act 1988, available online at
http://www.opsi.gov.uk/acts/acts1988/Ukpga_19880048_en_1.htm

Database
A searchable electronic storage medium.

Deep linking
Bypassing a website's homepage by creating a hyperlink in written electronic material that points to a page embedded one or more pages beyond the homepage. Deep linking is typically regarded as poor practice and best avoided by linking to the site's homepage and providing navigation to the appropriate web resource.

Diagnostic evaluation
Here an evaluation of teaching and learning needs in order to determine where educational technology might usefully play a part in supporting or enhancing learning.

DSL (digital subscriber line)
A technology for moving high-bandwidth data over regular phone lines.

E-book
A piece of electronic text, except a journal publication, that is made available for reading on a desktop or handheld computer. Edinburgh Napier University subscribes to the e-book vendors, Net Library, Safari, MyiLibrary and others.

Edublog
A contraction of the terms 'education blog'. A blog dedicated to educational themes and issues. A popular edublog can be found at
http://www.downes.ca/news/OLDaily.htm by Stephen Downes or
http://cogdogblog.com by Alan Levine.

E-learning
Any learning that uses ICT. (Definition from: British Standard 8426:2003 A code of practice for e-learning and e-learning systems).

Emoticon
Contraction of the terms 'emotional icons'. A sequence of characters that make up a facial expression used in online communication to convey an emotion, eg :-) (happy), : -((sad), ;-) (winky smile).

ERA (**Educational Recording Agency**)
UK licensing agency (**http://www.era.org.uk/**) which provides and manages licences that allow recordings to be made of television, radio and Internet broadcasts for educational purposes (eg, BBC, ITV companies, and Channel 4 are covered by the license).

Face-to-face (f2f)
Refers to the traditional form of teaching in a classroom or lecture hall to an audience of students.

Fair dealing
Limitations and exceptions to copyright, most commonly for education purposes. Concessions for education are described online at
http://www.ipo.gov.uk/education.htm

Flaming
Refers to posting hostile, inflammatory online messages and demonstrates poor netiquette skills. Find flaming mail guidelines in Appendix 10.

Folksonomy
A taxonomy (classification system) that is not created by an expert but by any number of users on sites (eg the social bookmarking site del.icio.us or the photosharing site flickr) that allow information to be labelled or 'tagged' and as such organised into searchable content for retrieval by other users.

Formative assessment
Form of ongoing assessment and feedback designed to indicate student learning progress during a course for which the student does not usually receive a formal grade.

Formative evaluation
Type of evaluation carried out either during the development of a particular technology-supported approach to teaching or following initial implementation to

gauge the effectiveness of a particular approach and make adjustments as necessary.

Freeware
Software made available through the internet that is offered for free but for which the author retains the copyright. Freeware may be redistributed but not modified.

Gateway
Refers here to resource or information gateway which is a catalogue of subject-related, usually evaluated internet resources (eg OMNI at **http://www.intute.ac.uk/medicine/** BIORES at **http://www.intute.ac.uk/biologicalsciences/**)

GIF (graphics interchange format)
Common file format usually used for graphics (file extension .gif).

HTML (hypertext mark up language)
The coding language use to create web pages for the web. Compatible with all systems.

http (hyper text transfer protocol)
A set of rules used to transfer data across the internet.

Hyperlink
In an online document a way of connecting to another document or web resource. Clicking on the hyperlink quickly takes the user to the new information page. Hyperlinks are usually characterised by a differently coloured, sometimes underlined word or words such as Edinburgh Napier University.

See also deep linking.

ICT (Information and Communication Technology)
Refers here to a range of digital technologies (eg, computers, satellite, mobile phones, Internet) that supports all forms of communication online.

Instant messaging (IM)
A form of chat that usually takes place using a PC and only between users who know each other (friends, buddies) by subscription to a common software client.

Interoperability
The concept of content from multiple sources, eg institutions, working equally well in different learning platforms.

iPad
A tablet computer introduced by Apple Computers in 2010 that is described as being a cross between a smartphone and laptop.

iPod
The product, iPod, is a device marketed by Apple Computers, but the term iPod is understood to be a generic term for a class of portable digital audio players.

Internet
A system of interconnected computer networks initially created by the US military in 1962 that currently facilitates data transmission and communication around the world between over 200 million of users.

JAWS (Job access with speech)
popular screen reader software program, using a synthetic voice to read a computer screen out loud.

JISC
Joint information systems committee. Offers UK higher and further education institutions guidance and resources to use information and communications technology in teaching (website at **http://www.jisc.ac.uk**).

JISC PAS
JISC plagiarism advisory service (at **http://www.plagiarismadvice.org/**

).Supports UK higher and further education institutions in their efforts to address

plagiarism by providing study-skills resources, good practice guidelines and hosting the text matching service, Turnitin®UK.

JORUM
JISC online repository for learning and teaching materials (Jorum means 'collecting bowl'). Online since January 2006. Materials free for re-use by practitioners in HE and FE until 2007. Available at **http://www.jorum.ac.uk/**

JPEG (Joint Photographic Experts Group)
Common file format best used for photographs (file extension .jpg).

LAMS
Learning activity management system (**http://www.lamsinternational.com/**). A VLE created by Macquarie University, Australia to support flexible design of sequences of collaborative learning activities rather than to upload content.

Learning Object
Any digital resource that is used to mediate learning. Learning object collections include repositories such as JORUM (at **http://www.jorum.ac.uk/**) and MERLOT (at **http://www.merlot.org/merlot/indes.htm**, for example.

Metadata
A set of words, phrases or sentences that summarises and describes a learning object and is used to classify content so as to enable efficient searching in the database.

Microblog
A service that allows its subscribers to broadcast only short text messages. These have become to be known as 'tweets' due to the popularity of the microblog, Twitter (**http://twitter.com**).

Milblog
Contraction of the term 'military blog'. A blog usually created by a soldier in military action. For a current example of a milblog about the Iraq War read **http://www.cbftw.blogspot.com/**

MLE (Managed Learning Environment)
Often confused with VLE. MLE, however, refers to the range of information systems and processes (of which the VLE, ie, WebCT at Edinburgh Napier, is a component) that contribute to learning and the management of that learning at a higher or further education institution.

m-learning (mobile learning)
Internet technologies that support online teaching and learning applications with access via mobile devices.

Mobile devices
Most commonly mobile devices include mobile phones, the hand held devices, personal digital assistants (PDAs) and personal media players (eg, Apple iPods, MP3 Players).

MP3
The acronym for MPEG (Motion pictures experts group) audio layer-3, the standard compression format for audio files which can be played using most operating systems software.

Multimedia
The use of several different media (eg, text, audio, graphics, animation, video, and interactivity) to convey information. Educational multimedia is understood to be multimedia which provides learning resources by using a variety of media in an integrated way for the purpose of instruction.

Neo-millennial learner
Coined by Prof Chris Dede of Harvard University to describe the new generation of learners growing up with emergent technologies which he believes will reshape the manner in which learning and teaching takes place.

Netiquette
Contraction of the terms 'network etiquette'. The recognised conventions of courteous behaviour for online communication as on mailing lists, e-mail, discussion boards, chats, and blogs. Edinburgh Napier's Netiquette guidelines are available in Appendix 8.

NULIS
Previous acronym for (Edinburgh) Napier university library information services.

Objective testing
Testing method that uses question types such as multiple choice, true/false, matching for which there are predetermined sets of alternative answers the student must choose from. Common form of computer aided assessment (CAA).

Online learning
The use of the Internet, particularly the world wide web, to support teaching, learning and assessment.

OKI (Open knowledge initiative)
A multi-institutional, collaborative effort led by MIT and Stanford universities to enhance learning by creating an open programming environment that supports sharing and pedagogical experimentation by developing fully public software standards. See also **http://www.okiproject.org/**

Open-source
An approach to software development that sees programme code made publicly available, but for which the conventional avenues for support are not provided. See also **http://opensource.org/**

PDA (Portable digital assistant)
Handheld personal computer (eg Palm Pilot, Blackberry).

PDF (Portable Document Format)
Commonly used file format that allows complex formatting and pagination to be retained.

Podcasting
Contraction of the term 'iPod broadcasting'. The method of distributing multimedia files over the Internet for playback on mobile devices and personal computers. Podcasting does not require an iPod.

PBL (Problem-based learning)
Method of learning where typically small groups of students engage with constructed, real life problems and situations which call for collaborative problem solving efforts and minimum input from the tutor.

Plagiarism
The unacknowledged incorporation in a student's work either in an examination or assessment of material derived from the work (published or unpublished) of another. Edinburgh Napier University has subscribed to the text matching software, Turnitin®UK to assist staff encourage better student referencing skills.

Plugin
A small computer programme integrated into a main application. The plugin provides additional functionality other wise unavailable.

Public domain
Not copyrighted. Work in the public domain is not subject to copyright, which will be clearly stated, eg 'The materials on this website are in the public domain'.

Reusability
The concept of content developed in one context, eg business toolkit, being transferable to another context, eg health toolkit.

Role play

A learning activity in which participants take on different characters in order to enact a real life scenario. Provides a creative opportunity for students to immerse themselves into real life situations in order to perform a task or solve a problem. See also **http://www2.napier.ac.uk/webct/staff/documents/role_play.pdf** for an introduction to using roleplay online.

RSS feeds (Really simple syndication)

An XML file used to distribute information from a website, providing an alternative to the user browsing the web for information.

Repository

A central location where digital information is stored, maintained and accessed.

RTF (Rich Text Format)

A file format that allows for easy transfer of data between different word processing systems. (File extension .rtf).

Rubric

A scoring guide in which the criteria for levels of performance are defined for fair and concise assessment and/or evaluation. The CHICO rubric (available at **http://www.csuchico.edu/celt/roi/** for downloading) is an example of a rubric for online instruction developed by the California State University at Chico. NULIS has a limited number of CHICO exemplary online instruction DVD's available as well.

Search engine

A programme designed to store text-based web information in an index database which can be retrieved based on the results of a query (eg Google, Yahoo, AltaVista, AskJeeves).

Simulations

Simulations here refer to safe virtual environments that provide users with real-life situations to practice skills.

Shareware

Software made freely available to users on a trial basis, after which a fee is usually charged.

Smartphone

A handheld device that integrates the personal management tools of a PDA with mobile phone communication features.

Social bookmarking
The practice of bookmarking that allows any number of users to search for, tag and save website urls to a public website such as del.icio.us (**http://delicious.com**) or diigo (**http://www.diigo.com**) where they can be searched for, organised and managed by the user community.

Social software
Software that facilitates the connection, communication and collaboration of online users to form virtual communities. Examples include mailing lists, blogs, microblogs, social networking platforms and wikis.

Streaming media
The simultaneous delivery and display of video or audio that doesn't require downloading the media file first (eg common formats include RealMedia, QuickTime and Windows® Media).

Student response systems
Also referred to as classroom performance system and student-voting system. Wireless hand held interactive classroom communications system that allows large groups of students to respond to questions posed by the tutor. The answers are typically published as a histogramme in class indicating immediately to the lecturer whether or not students have grasped meaning. Edinburgh Napier has subscribed to the student response system TurningPoint®.

Summative assessment
Form of assessment typically conducted at the end of a period of instruction designed to measure students' success in reaching learning outcomes, for which a mark is assigned and counted toward a final grade.

Summative evaluation
Form of evaluation that typically comes at the end of a particular implementation, as a means of assessing the success of an initiative (eg, student evaluation).

Synchronous
Occurring at the same time. Online synchronous communication tools include, chat and video conferencing where participants must be present at the same time in order to communicate.

Tagging
The process of assigning a keyword or other descriptive term to a piece of information such as a website url for example, for categorisation in a social bookmarking site. Tags as referred to here are a form of machine readable data also known as metadata.

Third party material

Refers here to material for which the copyright belongs to someone other than yourself or your institution and for which legal restrictions may apply for its use.

Turnitin®UK

An online text-matching service hosted at **http://www.submit.ac.uk** that enables staff and students to carry out comparison of electronically submitted written text against the internet, archived internet, Proquest database, Gale InfoTrac OneFile and previously submitted work. Edinburgh Napier University has subscribed to the service since 2005.

URL (uniform resource locator)

The address of a resource on the internet. The URL of the Edinburgh Napier homepage, for example, is **http://www.napier.ac.uk**

Video conferencing (also web conferencing)

Synchronous communication to support conferencing between 2 (point to point) or more (multipoint) users at different locations via the internet using video and audio. An example of video (web) conferencing software is ElluminateLive!® which Edinburgh Napier has subscribed to. For more details see **http://staff.napier.ac.uk/services/academicdevelopment/professionaldevelopment/TEL/elluminate/Pages/welcome.aspx. for more information**

Webinar

Term commonly used to describe a web presentation by one to many using web conferencing software.

Video telephony

Related to synchronous, audio-visual communication.

Vlog

Contraction of the terms 'video blog'. A blog dedicated to the discussion and sharing of video and related technologies.

W3C

World wide web consortium. An international consortium with a stated remit 'To lead the world wide web to its full potential by developing protocols and guidelines that ensure long-term growth for the Web.' (**http://www.w3.org/**)

Web 2.0

Also known as the 'read-write web', 'the web by the people for the people' and 'the social web'. A term that refers to applications such as blogs, wikis, or social

bookmarking tools, that enable a website visitor to interact with or edit the site. Traditional (web 1.0) websites were static and designed mainly for passive acquisition of information.

Web 3.0
Also known as the semantic web. The next stage in the evolution of the web thought to be characterised by computers capable of reading and recognising information not restricted to text. Increased pervasiveness of computers would see phones, household items, clothes etc. web enabled to 'act' upon new information (eg windows closing at storm forecast).

WebCT
Edinburgh Napier University's virtual learning environment. For more information see **http://www2.napier.ac.uk/webct/staff/index.htm**

Web literacy
The skill of knowing how to locate, access, evaluate and use web resources and information.

WebQuest
An online problem-based approach that was first developed at San Diego State University which provide students with a task or problem scenario, a starter set of usually web-based resources, task support guidance and the criteria against which the students final output will be assessed. Visit **http://webquest.org/** for examples of WebQuests.

Wiki
A type of website that serves as a working space which allows multiple users to add and edit content, with the potential as a collaborative learning area for students in the education sector. wiki software is available at no charge (open source) from providers such as Wikispaces (**http://www.wikispaces.com/**). A famous wiki is the online encyclopaedia, Wikipedia at **http://www.wikipedia.org**, continually updated by the internet community.

'Wiki-wiki' means 'fast' in the Hawaiian language.

Wireless
Data transmission via high frequency radio waves rather than network cabling over a distance of a few hundred feet.

WLAN (wireless local area network)
A wireless data-transmission system in which a mobile user can connect to the LAN and communicate via high-frequency radio waves at speeds of 3-4 Mbps.

World wide web (www, w3)
A hypertext based, distributed information system within the Internet created in 1989. '*The World Wide Web is the universe of network-accessible information, an embodiment of human knowledge.*' - Tim Berners-Lee, inventor of the world wide web.

For further info about the work of Academic Development at Edinburgh Napier University, please contact **ccr@napier.ac.uk** or visit **www.napier.ac.uk/ccr**