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<th>Description</th>
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<td>New environments for teaching and learning</td>
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<td>Intellectual property issues online</td>
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The extent to which you may view elearning as a threat or opportunity within your own institution is probably determined by concerns about how it will impact on the teaching and learning environment. Will it provide new opportunities through mobile learning or by improving accessibility of your course material or will it result in a one-size-fits-all virtual learning straightjacket? Will there be greater opportunities for informal and flexible learning, or is this an opening of the floodgates for abuse? Will students start buying their essays over the internet and how can you be confident that high quality elearning is possible? Is the UK government's £64m investment in creating an eUniversity for the UK a logical next step or an ill-judged initiative?

This selection of learning objects introduces a variety of topics relating to the environmental threats and opportunities afforded by elearning. As much of the most innovative work in elearning has, so far, occurred in the corporate or training sectors you may find yourself presented with a model of learning which is very different from your current experience. How far is what is talked of here relevant to your own practice? This is an important question, and one which is not easy to answer. For example you may see blogging as a tool which can support portfolio assessment, or a valuable flexible tool to support professional development or you could see it a vanity publishing and unrelated to teaching and learning.

Feel free to select the learning objects which most interest you. Most include at least one activity which will encourage you to explore the topic in more depth or test some of the principles expounded. Many offer further reading or links to external websites to support wider investigation.

I have grouped the topics within this part of the course into four 'collections':

- introduction
- new styles of educational providers (such as corporate universities)
- new technical environments and tools
- issues arising from new teaching and learning environments.

Feel free to sample from amongst these or browse through them all. They are intended to complement the collection provided in elearning 1: New types of learners, new forms of learning?
by Chris Pegler

This part of the course is available online as a series of digital 'learning objects'. In arranging the content in this way, so that each short section can be accessed separately and (largely) independently, we hope to encourage flexible use of the material. You may be interested and currently involved in addressing some of the issues raised here - for example the intellectual property issues raised by online teaching - or you may wish to broaden your awareness of the impact of elearning in general, or the potential of one aspect in particular, even if this is not currently be part of your remit. You may have experience of teaching or learning online yourself, or this course may be your first experience of 'elearning'.

We hope that you will find what you need by browsing the sections of the website that interest them, picking and choosing amongst the topics here.

As emphasised in the overview for this part of the course the website is intended to be a flexible resource to suit your requirements. You are not required to read all the pages, or to follow a set sequence in your reading. How much or how little you use or refer to this material is a matter of personal preference or interest. This flexible approach to use is also supported in the other online sections of Pack 5.
You may be unfamiliar with some of the terms used in writing about eLearning. Some of these terms are highly technical and others are acronyms describing technologies or bodies connected with online education or the wider Internet.

This short activity introduces you to four different online glossaries that provide valuable aids whenever you encounter a term you are unfamiliar with during the course. There is considerable overlap between the coverage of these glossaries.

### Activity: Introducing some glossaries

1. Spend a short time exploring each of these four glossaries:
   - [Learning Circuits glossary](http://www.learningcircuits.com/glossary/) (provided by the online magazine Learning Circuits)
   - [JISC glossary of acronyms](http://www.jisc.ac.uk/) hosted by the JISC (Joint Information Systems committee)
   - The CETIS encyclopedia; maintained by CETIS (the Centre for Educational Technology Interoperability Standards).
   - The [glossary on the LTSN (Learning and Teaching Subject Network)](http://ltsn.org.uk/glossary) Generic Centre site. This includes a wide range of words and acronyms used in education, including eLearning terms.

2. Use these four glossaries to find definitions of the following terms: PDA (personal digital assistant), videoconferencing, metadata and IMs.

3. Bookmark the glossary or glossaries that you prefer. This will make reference easier whenever you are online.

4. If you have used or generated bespoke glossaries for particular courses or subjects before, how satisfactory do you find the use of online glossaries here?

5. Would you consider use of online glossaries to support your own teaching?
by Robin Mason

The last ten years have seen increasing challenges to the conventional model of the university, as defined in traditional terms by research and liberal education. New providers of higher education are emerging, and increasingly these are privately owned and operating 'for profit'. Sometimes they use the title 'university' (e.g. the UK eUniversities) and often they operate globally with the help of information and communications technologies. Of course, many of these new start-ups collapsed after the dot com boom. Nevertheless, the national predominance of long-established universities is seen to be on the decline. There is increasing permeability of borders in higher education, both geographical and conceptual, which results in boundaries that are less strongly delineated than before.

Training providers have also undergone a transformation with the advent of connectivity and the growth in outsourcing of training. Much of the interest in learning objects has been driven by training providers who see an expanding market in personalized courses, just-in-time training and short, flexible training 'opportunities', all of which are facilitated by repositories of re-usable learning objects. The corporate universities are an example of a new provider, although, increasingly, the larger corporate universities are partnering with a wide range of older or established educational providers - both public and private.

Another apparently new class of providers are the publishing houses and similar specialist content providers. Some of these are collaborating with existing higher education institutions while others are direct competitors. Some publishers have used their international distribution chains to market existing university provision more globally; others have used partnerships with universities to gain accreditation for the development of curricula-based resources.

Brokers of educational services are also appearing in the mix of new providers. Established brokers have traditionally operated at regional or national level to offer distance education especially in large countries with dispersed populations (e.g. Canada and Australia). Newer brokerages have begun to act on behalf of institutions, often marketing courses internationally and even commissioning the development of courses which have a known market or client. Finally, some brokers offer services both to institutions (e.g. access to a learning platform, market data, consultancy in how to support online learning) and to learners (e.g. assessment services, technology support).

Larger social and economic trends lie behind this rise of new providers. The growth of knowledge-based economies and the recognition by governments that increased human capital investment is necessary for national competitiveness are two such trends. The individual desire for better employment and social mobility, as well as employees' awareness of the need for lifelong learning are other factors. Many countries regard the rise of new providers of education and training as the best way of providing additional capacity in reaching the growing pool of potential learners.

A recent World Bank (2002) report on higher education suggests that knowledge is one of the most important motors of economic growth in emerging economies and recommends that governments in developing countries should keep the regulatory regimes inhibiting virtual and private providers to a minimum. In a climate of increased global competitiveness, particularly over the means for securing economic development and prosperity, universities are seen as key elements and facilitators of the knowledge-based society. That is, rather than investing in physical or financial capital as the best route to economic pay-offs, investing in people - in enhancing their knowledge, ideas and intellectual abilities - is regarded as more effective. People need to be more skilled and businesses need to be more innovative to meet the competitive challenges of the global economy.

Universities themselves are responding to this competition by becoming more entrepreneurial and 'business-like'. Some are taking on the characteristics of the private, for-profit, sector, both in their outlook and in their management forms. It is not difficult to draw direct connections between the commodification of knowledge, the rising notion of university education as a business, and the utilitarian view of the benefits of higher education. Nevertheless, there are doubts about the ability of universities to reform their curricula and research orientations to more explicitly facilitate economic growth and to deliver what employers want. To a large extent this accounts for the rise in private and corporate universities during the 1990s.

The effect of globalization on the curriculum has been towards greater internationalization. Universities are beginning to recognize that much subject content is too domestically oriented in an era when graduates - domestic and international - are facing the prospect of more globally mobile careers. International law, global telecommunications, engineering and business are examples of sectors that require knowledge of international standards and different national cultures and codes for successful employment. The popularity of curriculum areas has changed as well. There are strong preferences for information technology and business programmes, there is reduced interest in basic or theoretical research.

Activity

This activity involves the investigation of one of these new providers. It could be a corporate university, a new training provider, an education broker or commercial arm of a university. Use the web to find documentation. Write a brief report (500-800 words) covering the following aspects:

- description of the provider
H850 New providers of education and training

- pedagogy: its avowed approach, support systems, curriculum areas
- technology: delivery medium and geographic spread
- your view about the nature, quality and potential success of this provider
- your view on how it reflects the 'connected economy'.

Reference

Introduction

As I write this in November 2002, the *Times Higher Education Supplement* reports that the government is considering changing the legal definition of a university. This has been prompted by their interest in the idea of corporate universities. For years, large companies in both the US and Europe have funded and controlled their own training facilities. However, over the last decade, many new ones were created and older ones relaunched, but carrying an academic label - as Universities, Academies, Institutes. What does this signify? Is it just a fad and how much is really new? Indeed, is a corporate university (CU) an oxymoron, debasing the language (as some in public universities have suggested)? And what are the implications for higher education, especially since many public agencies are now creating their own academies and institutes?

Aims and objectives

This activity offers a flying visit to this controversial phenomenon. It provides some general background information about CUs, but also looks in more detail at one particular case. My aims are:

1. to introduce you to the thinking behind CUs and the different forms they may take.
2. to illustrate the resources and sophistication behind leading CU initiatives.

After exploring and working with the resources provided, you should be able to:

- explain to colleagues the sorts of things that are happening under the CU label, and the respects in which they may be significant (e.g. for individuals, for the development of higher education)
- locate CU initiatives in relation both to broader economic technological developments and the challenges facing particular companies
- suggest ways in which corporate contexts and requirements influence the way learning is provided.

Activity and resources

You can achieve these objectives simply by studying the resources provided - or by completing this worksheet. It provides a structured route through the resources. It poses a series of questions, points you towards the relevant information, and suggests how long to spend on each one. However, I suggest you start by spending 10-15 minutes browsing the three documents and the websites, so you have a feel for what is there. The resources are:

3. Barclays University Centrex, the Central Police Training and Development Authority
   Motorola University
   BT Academy
   BAE Systems Virtual University
   Cap Gemini Ernst and Young University
4. Extracts from the transcript of an interview with Steven Smith, Director of Education at the CGEY University.

References


Close Window
The term 'informal learning' seems self-explanatory. It is our everyday experience of developing skills, gaining knowledge or deepening understanding from the myriad of incidents, encounters and events of our lives. Conner (2002) describes it as: ‘a lifelong process whereby individuals acquire attitudes, values, skills and knowledge from daily experience and the educative influences and resources in his or her environment, from family and neighbors, from work and play, from the market place, the library and the mass media.’

If we begin to analyse this kind of learning, however, many questions and complexities arise. For example:

- How does the nature and durability of informal learning compare with that of formal learning from school, higher degrees, continuing professional development (CPD) courses, etc?
- How can we capitalise on the ubiquity of informal learning?
- What can we discover about the nature of learning itself from our extensive experience of informal learning?

Learning in the workplace has been divided into formal and informal categories and some research has been conducted in a few organisations to determine where and how informal learning takes place. Recent research is beginning to apply the findings to the online environment in order to foster informal workplace learning using various communications media. The primary aim of this short learning object is to find out about research into informal learning in the workplace, particularly in an online environment.

The second aim is to practice a number of e-learning skills:

- skimming articles to determine the essence of their message and/or the value of the article for you
- skim-reading online (rather than printing out articles)
- following references and links to other sites without losing your main focus
- developing your ability to select useful information from different types of web material.

**Activity**

Here are some guidelines to help you:

- Give yourself one hour only to skim through the four articles listed below.
- Try to work on screen rather than printing the articles.
- Follow some of the links to other sites.
- Use the following questions to guide your reading/skimming:

  1. What does research on informal learning in the workplace say about the contribution of informal learning to overall job knowledge? Does this match your experience?
  2. List the main ways in which online media have been used for informal learning.
  3. What contribution does an online moderator make to informal adult learning? Consider how this could be applied in the workplace.
  4. Which of these four articles contains the most reliable information? Which is most useful to you? to your organisation? for detailed reading?
  5. Find three references you think are worth following up.
  6. Ask yourself what you have learned from this one-hour activity.

**Four articles:**

Informal Workplace Learning
Informal learning

Chapter 2 of *Perceptions of Public Electronic Discussion Group Moderators of their Roles, Tasks and Responsibilities*
Download draft in Word

Conner, M (2002)
Informal Learning
Agelesslearner.com, 25 November, 2002
http://agelesslearner.com/intros/informal.html

Sawchuk, P. (2001)
Online Learning for Labour Movement Activists
http://www.oise.utoronto.ca/depts/sese/csew/nall/res/46onlinelearning.htm
As e-learning is still a very new area there are no general agreed standards available. Indeed, it is difficult to envisage a single standard ever existing given the very broad scope of operation and the highly variable, often customised, nature of the product. However, perceptions of relative quality exist and a variety of standards are emerging. The following activities look at what is at the heart of these perceptions about quality and e-learning and how relevant quality standards can be derived.

Activity (alternative 1)

It is worth taking 10 minutes here to consider how you would identify who to trust if you were looking for an e-learning supplier. You could perhaps review your decision-making process in choosing this course.

List five quality indicators that you would find reassuring in an e-learning (or perhaps any learning) product or provider.

I have supplied my own list here so that you can compare the two.

There may be some overlap between the lists and we may have taken a common approach. What may strike you about all of my measures is that they reveal a view of risk-averseness in relation to new technology that brings to mind the 1980s catchphrase 'No manager was ever fired for buying IBM'. At the time, this advice, an IBM advertising slogan, struck a chord because it claimed to take the riskiness out of buying IT, it advised on caution, a known name, a big brand, etc. at a time when managers were largely ill-equipped to choose between IT products on the basis of experience or knowledge. Such caution did not necessarily reveal the best quality or most appropriate product, but it did avoid some of the biggest risks. To what extent do the perceived consequences of a risky decision affect choices you may be currently making with regard to e-learning?

Another common theme in the two lists may also be the number of factors that could also apply to traditional forms of course delivery. You may, as I did, have derived your list by thinking of what you would traditionally look for when choosing among the face-to-face, physically located forms of training and education that preceded e-learning. This may strike you as a curious approach given that the new technologies offer students or sponsors the opportunity to try before they buy, review previous presentations, shape the course through personalisation and customisation to make one-offs and on-the-fly offerings, shop around between institutions, or even combine elements from different institutions.

In this sense e-learning has, so far, followed the path of other innovations in teaching and learning in being required to prove itself against the standard of conventional education. The question most often asked of e-learning is whether it as good as the traditional alternative. This is a question that you will almost inevitably be called upon to answer at some stage, if you haven't already done so. After all, why spend money and take risks on something that is no better than what you already have?

The question is presented as though traditional education is the benchmark against which e-learning should be judged but, although you may, like me, have problems with the question, you should nonetheless have an answer.

The following two activities look at different aspects of quality. The first considers whether technologically mediated learning, and by association e-learning, is significantly different in quality (i.e. better or worse overall) than conventional modes of instruction. The second activity looks at the application of benchmarks to e-learning and what these may mean.

Activity (alternative 2)

Thomas L. Russell published in 1999 an extensive study under the title 'The No Significant Difference Phenomenon'. This publication drew on 355 research reports, summaries and papers to determine whether, very broadly, teaching that makes use of new technology is better or worse that teaching in more traditional forms.

The following websites present a database drawing on evidence from a period ranging from 1928-2002 and thus supplements and updates Russell's research. (You can browse by date to get a historical perspective or search by keyword within a variety of categories.)

The two sides represented are:

'The No Significant Difference Phenomenon'

'The Significant Difference Phenomenon'

Give yourself no more than 30 minutes to explore these sites. You should look for what you would consider convincing evidence that there is or is not a significant difference in quality between distance or online education and traditional education. Try to find two really good...
examples and in doing so consider why you may have been unconvinced by some of the research reported here. If you cannot find two examples in the time why was this?

Consider whether the absence or presence of significant difference between e-learning and traditional education has been proven. Does this tell us anything significant or helpful about the quality of e-learning? The further reading (below) contains readings which will help you to explore this question.

So far we have looked at a one measure of quality, broad equivalence with the prevailing standard. You may have felt that this was not an appropriate measure. In the next activity you are asked to derive your own benchmarks against which e-learning offerings can be assessed regardless of the existence of a traditional alternative.

**Activity (alternative 3)**

First read [Quality on the Line](https://students.open.ac.uk/desktop/h850-05k/files/elearn2.zip/H850quality.htm) (PDF format), a report of a benchmarking exercise conducted by the Institute for Higher Education Policy and sponsored by Blackboard Inc. This shows how a list of benchmarks were initially drawn up and then refined to create a final list of 24 which it considers "essential to ensuring excellence in Internet-based distance learning".

For each of this final 24 you should ask whether you agree that it is 'essential' and also whether some benchmarks that would be important to you and your own organisation are missing from this list. If you wish to add to the list, or prune it in places, or both, please feel free. This list is based on the experience of US campus-based institutions and your own organisation may be very different from this.

From your refined list please select seven benchmarks which are particularly important from your perspective. Choose those you consider absolutely essential to achieving excellence within your own organisation. When you have made your selection use these as the basis for completing the table below. (A blank version of this table in Word format is available for your use [here](#).)

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<thead>
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<th>Benchmark selected and why this is significant measure</th>
<th>What is the standard? How can this be measured or assured?</th>
<th>Which stakeholders influence attainment of this standard? How?</th>
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For each benchmark consider not only why it made your shortlist but also how you would measure it or assure the quality, and which people within and outside the organisation could make this possible or impossible to achieve. If you find that you cannot achieve the benchmark because it cannot be measured, or because you cannot influence the appropriate stakeholders, would you be prepared to change the benchmark? What other ways might there be to achieve your objectives?

If you are currently an e-learning provider, which of these significant benchmarks are you already reaching? What are the barriers to achieving the rest?

**Further reading**

The following readings provide alternative views of Russell's 'No significant difference' research (Activity, alternative 2):

- [Is "As good as face-to-face" as good as it gets?](#) by Jeannette MacDonald ([JALN Vol 6, Issue 2, Special Issue on Nursing, August 2002](#))
- [Innovations in Online Learning: Moving Beyond No Significant Difference](#) by Carol A Twigg ([The PEW Learning and Technology Program](#))
Do you own and use a mobile phone? A personal digital assistant (PDA)? A notebook computer using wireless communications? If you live in a developed country there is a high probability that you will have answered 'Yes' to at least one of these questions and that your use of this device extends to carrying it with you most of the time and using it on at least a daily basis, in and out of work. Wherever you live you are more likely to have sustained access and personal use of one of these portable computing devices than you are to have access to a desktop computer or, in some parts of the world, a landline phone. And growth in the ownership and use of mobile computing and communications devices continues to grow.

So, you can now carry personal computing power in your pocket comparable to that which would have filled an office block 30 years ago costing as little as £100 and weighing under 100g (The Guardian, November 2002) and the power of current communications devices is set to increase substantially in the near future. The proposed 3G wireless infrastructure will provide 10 times the current bandwidth (Thibeault, 2003) capable of handling real-time, streaming access to archived or live video. However, even with the constraints and frustrations of current performance, these devices can contribute to the administration, support and delivery of learning and teaching and are increasingly being used for these purposes.

As with all e-learning, m-learning has been the subject of enthusiastic hype, but some claims may be worth more detailed consideration. However evaluations of mobile technologies in learning environments are identifying consistent advantages and disadvantages to this type of learning and learning support (e.g. Becta ICT Research, 2003 (PDF)). The activities for this unit will explore the potential for language learning and compare e-books with the most successful mobile learning technology to date - the printed book.

The potential of personal learning devices

The significant opportunity that handhelds offer, whether primarily phone or PDA, is that the user can be connected or easily become connected and can use wireless communications to exchange information with other users (whether a group of individual, located at a distance or close-by). It has also been suggested that mobile devices offer a 'third place' for users which is neither home nor work but adjacent to both of these (Kopomaa, 2000). Mobile phones or PDAs are usually very personal 'places', often with customised external appearance, screen displays and ring tones and they offer a peculiarly direct and immediate means of accessing individuals or sharing information with them. There is also an increasingly mobile workforce who may already be using handhelds as 'performance support, decision support and productivity tools' in the field including 28% of physicians who use mobile devices as 'an integral part of their daily work performance' (Brandon Hall, 2002 (PDF)).

Current applications of m-learning cover support, reference, teaching and assessment. They can range from simple transfer of procedures or content from paper or computer-based systems to the creation of new learning opportunities through the use of mobile communications in simulations, role plays, on field trips or - more informally - by studying alongside friends and colleagues who are unavailable. Distance may be the main reason for using such communications rather than talking face-to-face but texting others via a mobile phone, or beaming messages using a PDA may be used where face-to-face discussion is not viable or appropriate. For example deaf students have been reported as using text messaging within lectures to pass comments to other students in the audience without signalling these to their lecturer.

Examples of the use of mobile technologies in learning range from the purely administrative (eg. departments notifying students about book availability or examination results (The Guardian, 2002) or individual and group time management), through notetaking, quizzes and revision exercises, counseling and tutorial support, access to electronic resources (PDFs and websites), to just-in-time learning or performance support and extensive multimedia learning delivery globally across an extended supply chain.

For example, in Nokia (van Hooydonk (2003), m-learning is delivered via Nokia phones to individual purchasers (sometimes using gaming formats), to repair shop staff (using streaming video or low-tech alternatives) and to Nokia employees through a range of just-in-time self-study or collaborative learning opportunities. Of course this organisation, its customers and supply chain, has an unusual level of access to the latest mobile phone technologies and very high level commitment to e-learning (as evidenced by the existence of a director of e-learning). They also have an interest in promoting and creating a market for m-learning. Nonetheless Nokia do illustrate what may be possible through
multimedia language learning tool. The following activity focuses on one of the most promising markets for m-learning, the use of handheld mobile devices as a connected multimedia language learning tool.

Activity: Language learning on the move

In preparation for the activity you will need to read about the 'ad-hoc' project (PDF). (Note: This paper, although not technically complex uses several acronyms relating telecommunications such as GPRS, UMTS, RF, Bluetooth, etc. You do not need to understand what these mean to understand the paper or to complete the activity, however explanations of technical terms can be found in online glossaries such as Netlingo.)

1. When you have read this paper draw up two separate lists of what you consider are the advantages and disadvantages of this type of tool as an aid to language learning from the perspective of two different users. One of the users should be yourself (in a specified work or leisure context) and the other user should have markedly different requirements or motives for language learning.

   Suggested users are:
   - a business user working in a multinational and traveling/communicating between sites in different European countries
   - an partially-sighted American holidaymaker touring Europe
   - a 13-year old Spanish boy on a school exchange trip to Germany and living with a host family there
   - a retired Romanian factory worker without any formal education who has moved to the Costa del Sol and cannot yet speak any Spanish.

2. Taking your two different users' lists assess the anticipated advantages and disadvantages which using ad-hoc or similar tools present when compared to the following more conventional language teaching methods:
   - face-to-face teaching in a classroom or tutorial setting before travel
   - individual use of computer-based training or audio/video learning packages
   - having the services of a fluent traveling companion or guide
   - "do-it-yourself" using a phrase book

3. You should now have a good idea of what you consider the strengths and weaknesses of this type of mobile language learning tool in a range of specific circumstances. With these clearly in mind do you feel that system as described can fulfill its requirements to be interactive, interdisciplinary, unobtrusive, available, adaptable, useful and suitable? Are these appropriate requirements? Can you suggest others or alternatives?

e-books or 'real' books?

Michael Wenger of Sun Microsystems has been reported as saying 'Mobile learning is nothing new. The difference is that a book isn't connected' (Harris, 2001).

The book is a technology with which we are already familiar in a variety of contexts. We may use it for reference, to skim or read in depth, to study as directed or dip into at will, revisit time and again for pleasure, or as a starting point to research. You may own it, borrow or lend it. It has the advantage of being more portable than many of its electronic equivalents as it does not need batteries or other power, or have a finite range. It can be annotated using a variety of easily obtainable materials (from post-its to pencil/pen and highlighters). Most can be copied by reprographic processes, or, less easily by scanning text. You can even rip out pages if you wish to reorder the contents.

The electronic equivalent of the book, the e-book, is available in a variety of formats and can generally be downloaded to be read on a PDA, notebook or desktop computer. In handing e-books rather than real books the main advantage is that it brings ease of searching on words or phrases and it can be readily linked through notes to other electronic sources, or printed (with or without your notes). It can, theoretically, be read aloud by screen-reading software and can allow you to make and retrieve or share notes, or the book, easily with others by beaming between PDAs using infra-red transmission, or by uploading copies and distributing or allowing access via the internet.

In practice the reality of using e-books is bounded by legislation - generally aimed at protecting copyright - which may prohibit you from using screen readers, or making electronic copies or printing out parts of the e-book.

Optional activity: e-books vs. 'real' books

This activity compares books and e-books and what connectivity might offer. You will need to install an ebook reader if you do not currently have one.

1. Using an eBook (either one that you already have or one downloaded as part of the installation above) compare this with an equivalent printed text. Spend up to an hour exploring each of these. Consider how you would use the current functionality in each of these. Which are the most important functions for you and would these differ from book to book (eg. non-fiction vs. fiction, illustrated vs. plain text, workbook vs. narrative)? Make up to four recommendations on how this functionality could be improved in the ebook.

2. Reflecting on your use of eBook and conventional books identify three ways in which connectivity could have a significant impact on the experience of using the ebook in a learning context.

3. The long-running UK radio show 'Desert Island Discs' offers those interviewed the chance of choosing one book to be stranded with on a desert island. Assuming no technological implications arise from your selection would you choose an ebook or a 'real' book to be stranded with?

4. Would your students make a different choice? If so why?

References

H850 From e-learning to m-learning (mobile learning)
<table>
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<tr>
<th>Author</th>
<th>Date</th>
<th>Title</th>
<th>Source</th>
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<tr>
<td>The Guardian</td>
<td>11 November 2002</td>
<td>I have seen the future - and its tiny</td>
<td><a href="http://guardian.co.uk/mobile/article/0,2763,837637,00.html">http://guardian.co.uk/mobile/article/0,2763,837637,00.html</a></td>
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<td>Justin Hunt</td>
<td>7 Feb, 2002</td>
<td>‘In the driving seat’</td>
<td><a href="http://www.guardian.co.uk/Archive/Article/0,4273,4351021,00.html">http://www.guardian.co.uk/Archive/Article/0,4273,4351021,00.html</a></td>
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<td>Perry D</td>
<td>March 2003</td>
<td>Handheld computers (PDAs) in Schools</td>
<td><a href="http://www.becta.org.uk/research/reports/docs/handhelds.pdf">http://www.becta.org.uk/research/reports/docs/handhelds.pdf</a></td>
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<td>Thibeault J</td>
<td>Undated</td>
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<td>Van Hooydonk S</td>
<td>February 2003</td>
<td>Offering e-learning throughout the customer cycle: Case Nokia</td>
<td><a href="http://www.elearninternational.co.uk/docs/presentations/speaker/stefan_v_hooydon.zip">http://www.elearninternational.co.uk/docs/presentations/speaker/stefan_v_hooydon.zip</a></td>
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The availability of VLEs and MLEs, (virtual learning environments and managed learning environments) has played a major role in the recent rapid rise of online post-compulsory education. These are new concepts in educational delivery; in fact they are so new that there is some confusion and ambiguity about what the two terms mean. The definition used here is one which has been adopted by the JISC (Joint Information Systems Committee) Steering Group. This assumes that the term virtual learning environment (VLE) refers to an online environment in which learners and tutors participate in interactions of various kinds, including online learning. The term managed learning environment (MLE) includes the whole range of information systems and processes of the institution (including its VLE if it has one) that contribute directly or indirectly to learning and learning management.

Typically developed in North America, there are now numerous platforms, but the market leaders BlackBoard and WebCT have, since 1997, built extensive customer bases of over 2500 users each and are increasingly popular outside the US. (WebCT claims customers in over 80 countries). This impressive growth has focused on higher education, but also includes corporate universities and other educational institutions. It is a phenomenon which is worth exploring in order to better understand what users are looking for from an online learning environment and, perhaps more importantly, what trade-offs they are prepared to accept.

If you look at the sort of features available in VLEs (see Edutech site for comparisons) you will see that these tend to be broadly similar and collectively offer the potential to run completely online courses at a distance, as well as a means of augmenting campus-based face-to-face teaching. At the lowest level they can function purely as an online noticeboard, or means of publishing resources online in an orderly fashion, but all also offer the potential to communicate online with the teacher and other students. Perhaps the most important change of emphasis with VLEs is that, unlike many of the earlier online initiatives, these are usually implemented at an organisational rather than individual course/programme level. At the extreme, whole states in the US have contracted with WebCT to buy licensing allowing all the educational institutions within that State to use WebCT.

So, what has been the appeal of these and similar products? To try to answer this I have prepared an extended metaphor that gives you an idea of what I consider to be the main attractions and drawbacks of using VLEs at the level of the individual user. It is important to realise that on a course-by-course basis the use of a VLE may be more or less successful, or more of less welcome to students and staff, even where at an organisational level its implementation is judged a complete success.

The appeal of the VLE 'shopping list' approach
Imagine that you are in the habit of making a regular shop for your household. This could involve shopping at market stalls or a simple one-stop shop at the local supermarket. Or you may be in the habit of ordering online, using a regular shopping list as a base and having your groceries delivered. The list of groceries varies to some degree between shopping trips but there are some regular purchases that you always make.

Now a superstore - VLE Groceries Online - is opening in your area and offering what appears to be a fabulous deal. They will make available an extensive range of products that should meet the needs of most households in your neighbourhood. However they insist that you use their shopping list. You can order any of the items on the list, which they will review and improve with new versions from time to time. However many items you order from this list there is a single total fixed price which is so attractive that it undercuts your current weekly shopping bill by more than 70%. This deal is only on offer if you and most of your neighbours agree to contract into the scheme.

What can be the catch here? Is this offer as good as it looks? These are some of the factors you may consider in deciding whether to agree:

- **Constrained choice** - You can only choose from their list. You need to buy any non-standard items from another store.
- **Time saving** - You don't need to think, make comparisons, find out about competing products or work out what is the best deal.
- **You know what your bill is** - You can budget predictably. No chance of running out of cash at the checkout.
- **Reliable delivery** - With some products you have in the past had to accept substitutes. With VLE Groceries Online you always get what you order.
- **You may need to change how you do things** - With several new ingredients, and the lack of a few old familiar ones, you may need to drop some recipes and make up some new ones. Or flavour or present foods differently.
- **It will not suit everyone** - The offer is only available if the neighbourhood as a whole agrees to the deal. However some households with special diets, environmental concerns or with cultural differences in their food requirements, will have to make a greater number of adjustments and may need to use alternatives.
- **There may be hidden costs** - You may need to buy a bigger fridge, or freezer, or a microwave or other equipment to store and prepare some of this food.
- **Are you giving up all control, forever?** - Long term, you are not acquiring or building budgeting or shopping skills through making your own choices. You may find that the switching costs are very high if you wish to change from VLE Groceries Online in the future, as you will then be deskilled and you may have to rewrite the list using different product descriptions and instructions.
- **You have little individual influence** - If the supplier decides that a certain ingredient will be popular then they will start offering it. If you don't want this you can decline, but you can't negotiate a no-cost replacement which is more to your taste.
- **You and your neighbours are now more similar** - When other people's children visit they are familiar with your food. You can walk into another person's kitchen and cook a meal there as though it were your own kitchen.
- **You may get a bit too greedy** - Like an all-you-can-eat buffet the set price could entice you to use more food that you actually need.

Perhaps you can think of other ways to extend this metaphor or another different metaphor entirely. I hope that it has helped you to understand some aspects of the VLE approach. (If you would like to look more deeply into the ways in which choices of course management system are made, refer to Bruce Landon, Why Choices are Difficult).

**Activity**

Choose an on-going course or activity which has previously been taught either face-to-face or by other means where the teacher or trainer has had direct control over the composition of the learning environment. Then:

1. Briefly describe the course and the current mix of online/off-line learning environments.
2. Assume that the organisation responsible for this course/activity is about to adopt a VLE. Using this short table of VLE features identify the costs and benefits that might result from adoption of a VLE with these features. Although there will be administrative and other overheads associated with these, the emphasis of this activity is on the direct costs and benefits arising from the type of teaching and learning environment that you will be providing. For example, for your chosen course/activity will more or less time be spent on quizzes (cost), and what will be the benefit (if any) of tracking student's progress? If you are not using any feature is there an implied cost in forgoing some of the functionality now on offer?
3. Do you expect the balance of costs/benefits to change over the next 5 years?
4. If you needed to persuade your own institution to adopt a VLE (or use its existing VLE more intensively) or, alternatively, to commission a bespoke system to deliver your course, what would be the most compelling argument that you could use? What would you anticipate the main organisational counter-argument to be?
by Martin Weller

What is data mining?

Data mining is the process of extracting information from large, complex sets of data. This can often reveal unexpected relationships between users, or certain actions and outcomes.

A common form of data mining is encountered in online retailers, such as Amazon, when they make recommendations. Users who buy a product, say a book at Amazon, will be told that customers who bought this book, also liked another book. In this way the customer can find books that are similar to their choice, and the retailer can sell more products.

When using the web each user is automatically providing a great deal of data regarding their behaviour - for example, how long they looked at a page, which links they followed, when they left the site, what time of day they are looking, how long they spend in each session, how often they log in. As soon as the user starts interacting with any elements then even more data becomes available; for instance, their responses to multiple choice questions, the number and frequency of postings to a conference, information from questionnaires, preferred navigation styles, rankings and reviews of items and so on.

Data mining and learning

For both online educators and learners, this has a number of implications, both positive and negative.

It may be a means to overcome some of the loss of information in the online environment compared with the face-to-face one. An educator in a face-to-face setting has lots of cues about student performance, beyond that of the assessment. Most obviously simple non-attendance at lectures may be a sign of difficulties; similarly, if a student frequently looks puzzled, bored or distracted these may also be a sign that intervention may be required. It is easier to drop out of an online course, partly because there is less commitment to people you know only online than those you see face to face; and there may be other factors which make it difficult for students to leave a face-to-face course, for instance if they have moved away from home to be at the university, they may feel obliged to stay for longer. However, it may also be that these subtle cues available in the face-to-face situation are acted upon by tutors, friends and the support network before they become too serious. For instance, noticing that a student is absent, or struggles in any laboratory sessions that require maths may lead the educator to approach that student privately and offer some additional help.

The use of data may help the online educator gain some of this information. For instance if a student scores poorly on certain types of multiple choice questions then a warning message could be sent to the tutor, suggesting private intervention.

Perhaps more interestingly, data mining may reveal certain behaviours that are not so obvious, but equally significant. For example students who drop out of a course may exhibit similar patterns of behaviour early in a course, and by noticing these, early intervention may resolve the problem. Similarly, it may be the case that very good students also exhibit similar forms of behaviour in their interaction with the material, which may suggest to the educator ways of structuring the material to encourage this form of behaviour for all students.

Another way in which data mining may be beneficial is in facilitating the use of online resources and databases. For example, just as Amazon might suggest related book titles when you purchase a book, an online database of journal articles might be data-mined to find relationships between articles. If you are searching for a particular article, the database can suggest similar articles that might be of interest. Given the vast resource that the internet constitutes, such aids and pathways will become increasingly important for finding relevant information.

Data mining may also be useful in developing personalised interfaces. For example, certain patterns of online behaviour might demonstrate a preference for the way in which information is presented, for example some users may prefer more visual navigation tools and others text-based, hierarchical ones. Similarly, preferences for different types of learning material might be evidence of a preferred learning style. Systems could then automatically adjust the material they present to be in the preferred style of that user, or select material from a database that matches their preference. These learning materials themselves may be linked by information gained from data mining, so the system will present sets of material that have been found to go together. In this way it may be that each student receives a different version of a course, based on their individual needs and preferences, and this course is created dynamically.

Privacy issues

One of the potential downsides of data mining relates to the issue of privacy and surveillance. While any form of traditional learning (e.g. a university course, or corporate training course) requires some form of data collection (e.g. assessment scores, attendance, personal details, etc.), working in an online environment provides the opportunity for so much more data to be collected in a convenient manner. When you are working in a virtual environment you are data essentially, since every action you perform in that environment is realised through a set of computer instructions and can be easily recorded.

Data mining is only really effective in a learning environment if it is accompanied by student tracking, that is the monitoring of student actions within that environment. The system thus has a record of all (well, most) of the actions you perform, such as which pages you opened within the platform, which external links you visited, what tests you took and the scores for these, how long you spent online, how many messages you posted etc. By combining data mining which reveals how certain behaviours might be related with student tracking, which shows how the individual student is behaving, then the system or the educator can make interventions.
When online, far more of your behaviour is potentially captured than is the case in a face-to-face setting. While one should always be wary of analogies, it is like having every action on a campus university recorded by close circuit TV. Capturing this data can be beneficial for educators and students alike, for some of the reasons outlined above. However, it also potentially an intrusion and invasion of privacy. How aware are students that every aspect of their behaviour is monitored? How is this data used? What is a legitimate use of the data to promote better learning and what is unnecessary gathering of data, simply because it is possible to do so? What data is it legitimate to gather and what should be excluded? For instance, monitoring the amount of time a user spends looking at a page might be reasonable, but the content of their private emails is definitely not so, and some elements lie in between. In addition, who should have access to this data? Should it be the course leader, administrative staff, other students, etc.?

Secondly, there is always a danger that people become over-enthusiastic with the implementation of such features. One can imagine that extensive data mining reveals certain behaviours correlate to good performance, so realising these behaviours becomes the goal (even the assessment for the course). In this instance the data becomes meaningless, because students will attempt to produce the behaviours that the educator, or system, is looking for, regardless of actual understanding of the material. For example, imagine that the time spent looking at each page correlated with final score, so the longer people spent looking at a page, the better they achieved in the final assessment on average (I use this as a simple example, although I doubt it is actually the case). As soon as students know that the system is looking for this behaviour then it is not difficult to replicate - but in this case, it is obvious that simply having a web page open for a long time does not mean the student is reading it, or understanding the content.

Reading

Data mining in higher education, used for analysis of student data or more broadly, is an area which has been the subject of some speculation and promise. However, there are still relatively few examples of implementation, and few academic articles dealing with data mining. This may suggest that the topic is either still relatively new and unexplored, or that it is an idea, that although apparently attractive, is not adopted in reality.

In Chen et al. (2001) 'Intervention and strategy analysis for web group-learning', the authors examine how data mining techniques can be used to aid intervention during online group work. They suggest two functions for data mining:

- **Observation and intervention on learning performance** - this involves setting criteria so that the system will notify the educator if a student is behaving in a way that might require intervention (an obvious example would be a student who rarely logs in).

- **Discovering the relationship between impact factors and learning situation** - this involves knowledge discovery through data mining, of the kind outlined above. So factors that might influence student performance can be revealed by examining the data of online student behaviour.

In the first category, the authors explain how their system allows educators to specify certain criteria for what they term ‘abnormal behaviour’, for example a low log-in rate, or message response rate. The system will then automatically notify the educator if a student’s behaviour meets these criteria. The educator can then choose to intervene in some way, hopefully addressing the problem before it results in the student dropping out, or failing the course.

In the second category the authors discover that there is a correlation between low assessment scores and low log-in and discussion rates.

Activity

After reading the overview above answer the following questions:

1. To what extent do you feel that data mining offers a potentially useful tool for online educators? How do you feel it will be most useful?
2. What are the potential drawbacks, or obstacles, to the implementation of data mining in online learning environments?
3. Is data mining likely to reveal any new or useful discoveries, or will the findings be largely predictable?
4. What limitations (if any) do you think should be placed on the use of data mining and student tracking? For example, should data mining and tracking be linked to assessment?
5. What are the main issues with regard to student privacy, and can these be overcome?

References


This reference is available through the OU Library's Academic Search Elite (EBSCO) database. You will need an Athens password to access this. You can read the paper if you wish, although it is summarised above. (It contains some detail regarding the database querying and statistical process, which is not required for an understanding of the issues.)
Weblogs or blogs are essentially public diaries, that is, they are open websites in which the author 'publishes' thoughts, comments, links to other sites, reflections on topical issues. It is said to be the fastest growing phenomenon on the web. Blogging is a practice which has arisen organically from the unique characteristics of the web: connectivity and ubiquity. It is a true child of the web and draws on the web's anarchic quality in championing the power of 'everyman'. Some blogging software is free and anyone can set up a website and become an instant publisher. Some blogs allow, even encourage, comments by readers, thus replicating aspects of asynchronous forums. Some bloggers have acquired huge followings, with fanmail and top listings in the major search engines.

Critics denounce blogging as uninformed rantings or idle musings, time-wasting for companies, undermining professional journalism, and mere gossipy fluff for opinion junkies or confessinals for shameless exhibitionists. Supporters claim that blogging is about community building, learning to express oneself, connecting with people and commenting on ideas, a new form of information sharing, personal ownership of the web and so on.

The question here is: what potential does blogging have as a learning medium? Certainly schools have begun to encourage blogging among children as a way of building on the value of peer learning: writing for one's peers rather than the teacher, building a network of discussion and peer comments. In a way, it is taking the 'vanity publishing' concept and turning it to educational use. In Higher Education, journalism courses have been obvious early adopters, but other subjects are also investigating the potential and trying small experiments. Likewise companies are looking into blogging as forms of knowledge building, company archiving and community exchange.

Will blogging continue to grow or will it fade out as so many other trends have? Some observers argue that blogging will continue to evolve, in fact, to become the normal way of online communication. Whether or not blogging itself is long-lived, phenomena such as blogging will continue to emerge and capture attention for varying spans of time. Being open to the potential of such phenomena is an important attribute of the connected learner.

**Activity**

1. Search on the web for recent commentaries about blogging of explore some of the references below. Look for material that focuses on blogging as a learning activity in education or corporate knowledge management.
2. Select two or three of the postings of bloggers cited in these commentaries and get a feel for the range of uses to which they are put.
3. Consider how you might use blogging personally - a teacher blog - or encourage your students to use and share blogs.
4. **Optional**: Visit one of the sites which allow you to create blogs. You may find that this facility is already offered as part of your ISP (internet service provider) package or you can try one a free blogging service such as Blogger or a paid-service on a free trial basis, eg. Sparkpod.
5. Blogging services allow you access to one of the easiest forms of web publishing. They claim that only the most basic ICT skills are necessary and no html knowledge is required to get started. How realistic did you find these claims?

**Blogs for you to explore**


The Blogging Phenomenon: An Overview and Theoretical Consideration - [http://www.ajy.net/jmb/blogphenomenon.htm](http://www.ajy.net/jmb/blogphenomenon.htm)


UC Berkeley webcast on blogging - [http://journalism.berkeley.edu/events/weblogs_is/index.html](http://journalism.berkeley.edu/events/weblogs_is/index.html)
by Chris Pegler and Martin Weller

Although e-learning often seems an attractive or cost-effective solution to the education or training demands of a particular sector or organization, it is important to realize that effective e-learning cannot be delivered without effective student support.

Learner support may not always be apparent in traditional forms of education and training. However, the potential for face-to-face interaction with the teaching staff and other learners and the natural consequences of being physically present within a specific learning environment provides learners with the opportunity to make use of a number of support mechanisms. Some of these mechanisms may be explicit, others may be unacknowledged and both types may remain unused by the student through choice, ignorance or apathy.

When you operate in a purely online environment it is necessary to establish equivalent, or new forms of learner support. It may also be necessary to provide additional support to students learning in new ways or accessing unfamiliar technologies. In this activity we will look at how learner support is provided within the OU. We are not going to address the support directly related to course-specific learning, for example how a tutor supports an online activity, but rather the wider, more generic, support that surrounds the learner.

Here are some of the main support functions that exist in traditional and e-learning - although they may take different forms in different environments.

- **Social interaction** - as well as the formal interaction that occurs within the learning context, e.g. that in the classroom, there are a number of ways that informal social interaction is facilitated. This can be through events, clubs and societies or simply through the provision of social areas such as coffee areas and bars.

- **Administrative support** - being a learner inevitably involves interacting with the administration of an organization. This can be a frustrating and time-consuming task, so there is the need to provide advice and support to make this aspect as transparent as possible to the learner, particularly where it relates to assessment, awards or fees.

- **Access to learning resources** - as well as the formal learning material, which may be in the form of a lecture or training session, there is also a need to provide learners with access to further resources. This can be through a library, databases, circulation of handouts, resource areas, etc.

- **Scheduling and planning** - it helps learners to know the timetable for their studies, and also to know what material will be covered during the course. The timetabling is a natural product of the need to schedule rooms, but beyond this there is the need to help learners structure their study time and identify any critical deadlines.

- **Technical support** - any course requiring the use of ICT or specialist equipment will require a level of technical support of learner and educator. For e-learning providers the most logical form for this support is usually online or telephone help services.

- **Pastoral support** - or general support of the learner recognises that just as a course does not exist in isolation, so a learner does not function in a vacuum. There are many ‘external’ factors that may affect a person’s capacity to learn and depending on the organization and learner and learners may need advice and support services ranging from personal counselling to coaching services to careers advice. The degree to which a learner is offered these services and the type of services offered will reflect the type of learner and the type of provider.

- **Ongoing support** - related to the above, this recognises that the learner may need support over an extended period, perhaps throughout a period of employment in a particular role or during study on a specific programme. Or even beyond student activity as an alumnus of the institution. At its most fundamental level this support recognises that a number of courses or topics may be taught by different people, so the learner may benefit from a consistent approach or link person across a variety of courses. This can be realised through a personal tutor, learning adviser or mentor who stays with the learner through their studies. This role may include the pastoral support mentioned above and could also cover areas such as advice on further courses or continuing professional development opportunities, general study help, facilitating the learner in making connections between the content of different courses, etc. Ongoing support beyond gradation or completion of studies is particularly pertinent to the notion of lifelong learning. The idea that learning is completed or finished is no longer viable, as people return to learn throughout their lives and careers.

- **Induction** - is specifically geared towards the learner who is new to a particular institution and/or type of study. It can touch on all of the above.

Reflect for a moment on the extent to which you have been satisfied with the learner support that you have received in different types of environments. For example, you might have found that the although you and your tutors were physically present in the same location for the duration of a course, the amount of face-to-face interaction was in reality very limited. Or you may have found that difficulties in accessing online resources or support has sometimes left you waiting around and using study time unproductively.

**Activity (alternative 1)**

For this activity you are invited to evaluate some of the e-learning support mechanisms implemented within H850. You are specifically asked to look at the advice provided by the [http://www.open.ac.uk/library](http://www.open.ac.uk/library) as well as that provided to registered students (eg. via the OU student home page) or the course choice, careers or information services provided as part of the Open University webpages (eg. the learner's guide). You can also draw on other online forms of student support, e.g. discussions with peers, which you have experienced during the course.

1. Choose four of the student support functions from the bulleted list above.
2. For each function briefly identify what support you would expect to be provided for an ICT-intensive campus-taught version of H850.
3. Drawing on your experience of H850 so far, and explorations of at least two of the following sites, evaluate the contribution made by each site against the four support functions that you have chosen.
   - The H850 edesktop (including FirstClass conferences)
   - Your OU student homepage
   - The OU near you (regional offices)
   - The Open University Library
   - Learning skills guide
   - The OU career planning toolkit
   - Disabled students services

4. What traditional student support mechanisms (formal and informal) is the OU mirroring in the support that it provides across these areas? Although the OU is a non-traditional institution, established as recently as 1967 do you feel that it has been influenced by learner support in traditional institutions? Has it missed anything or replicated anything unnecessarily?

5. Which student support mechanisms have been specifically developed for e-learners? Would you expect campus-based students to need the same type of support?

6. Drawing on your evaluation of the sites across your chosen category try to devise a simple set of recommendations on learner support for e-learners, incorporating your reflections on answers to Q4 and Q5.

Activity (alternative 2)

In this activity you should imagine that you are responsible for establishing an online course within your organization (or another organization with which you are familiar). For each of elements of support given in the bulleted list above decide:

1. What the differences are in an e-learning context,
2. Whether it is necessary in your programme, justifying your decision
3. How you would implement it?
4. Who, other than yourself, would provide support and what preparation will they need to do this effectively?
When creating any type of web content it is important to consider the wide variety of users who may access that material, the different contexts within which they do so, and their different needs. There are several reasons for doing this. Firstly a moral argument, in that certain people should not be disadvantaged or excluded from access to information. Secondly, a financial argument in that it is bad to alienate or exclude certain groups from being able to access your web site. Thirdly, there is a legal motivation; many countries have legislation that promotes equal access to different types of material. For example, in the UK there is the SENDA act (Special Educational Needs and Disability Act 2001) which covers all aspects of access to education, both online and in a physical situation.

So what do you need to consider when thinking about accessibility? The W3C (World Wide Web Consortium) has set up the Web Accessibility Initiative (WAI) which has produced some 'Web content accessibility guidelines' which state:

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<th>For those unfamiliar with accessibility issues pertaining to Web page design, consider that many users may be operating in contexts very different from your own:</th>
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<tr>
<td>● They may not be able to see, hear, move, or may not be able to process some types of information easily or at all.</td>
</tr>
<tr>
<td>● They may have difficulty reading or comprehending text.</td>
</tr>
<tr>
<td>● They may not have or be able to use a keyboard or mouse.</td>
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<tr>
<td>● They may have a text-only screen, a small screen, or a slow Internet connection.</td>
</tr>
<tr>
<td>● They may not speak or understand fluently the language in which the document is written.</td>
</tr>
<tr>
<td>● They may be in a situation where their eyes, ears, or hands are busy or interfered with (e.g., driving to work, working in a loud environment, etc.).</td>
</tr>
<tr>
<td>● They may have an early version of a browser, a different browser entirely, a voice browser, or a different operating system.</td>
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Content developers must consider these different situations during page design. While there are several situations to consider, each accessible design choice generally benefits several disability groups at once and the Web community as a whole.

They go on to set out 14 different guidelines, which are now becoming the standard on the web. These are given below. The intention here is to give you a brief overview of the guidelines, which does not require a detailed knowledge of web design.

1. **Provide equivalent alternatives to auditory and visual content.** This is one of the key factors in accessibility. For components such as images, video or audio, an equivalent needs to be provided. This usually means a text alternative. The reason for this is that many users (such as the partially sighted) use software which converts text to audio, so they can listen to a screen. Thus an image that conveys important information needs an accompanying description that gives an equivalent (or as near as possible) experience for the user.
2. **Don’t rely on colour alone.** If colour is used to convey important information, for example, navigation, then users who are partially sighted or have difficulty in distinguishing colours will not be able to use the site effectively.
3. **Use markup and style sheets and do so properly.** Style sheets and HTML markup specify not only how the content should look on the screen, but also what its function is. Thus in HTML you have different markup to specify whether something is a first level heading, second level heading, etc. By using these appropriately users who are using screen reading software can appreciate the structure of a document. If they are used incorrectly, for example a heading markup is used simply to make some in-line text look large, then without the visual cues surrounding this, it may be interpreted as a heading.
4. **Clarify natural language usage.** By specifying the language that is used, many screen readers can accommodate this automatically.
5. **Create tables that transform gracefully.** Tables represent a problem for screen readers, so they need to be marked up correctly and also they should not be used for design and layout.
6. **Ensure that pages featuring new technologies transform gracefully.** When using new technologies, for example Javascript, you should ensure that if a user has an older version of a browser or specialist software that does not work with the new technology your site does not simply fail, but, rather, gives them an alternative experience. For example if you use javascript for navigation, you should also offer a text navigation system.
7. **Ensure user control of time-sensitive content changes.** Features such as scrolling text, auto-updating images, flashing or blinking content, etc. can all cause problems for certain users. For example screen readers cannot read scrolling text and users with certain cognitive disabilities find it difficult to read text if there are other distracting components present. Such features therefore need to be under the control of the user who can turn them on and off.
8. **Ensure direct accessibility of embedded user interfaces.** Components that have their own embedded interface, for example animations embedded within a web page need to follow the same guidelines.
9. **Design for device-independence.** A web site needs to be compatible with a variety of input and output devices, e.g. mouse, pen, speech, etc.
10. **Use interim solutions.** The guidelines suggest that you should use solutions that may become obsolete as browser technology advances, but which, in the interim, offer accessibility advantages.
11. **Use W3C technologies and guidelines.** The guidelines have been developed through wide consultation and research and so represent best practice.
12. **Provide context and orientation information.** Some users find it difficult to construct the different elements of a page into a meaningful whole. This is particularly true with frames. So, labelling the components can aid users, for example if you have a frame that contains navigation elements, then labelling this as such can be useful.

13. **Provide clear navigation mechanisms.** This aids all users, but particularly users with certain cognitive disabilities or who are partially sighted. A clear navigation system that makes it apparent where you are in a site, and how you can move from here is important as is a consistent system throughout the site.

14. **Ensure that documents are clear and simple.** This states that content should be clear and easy to understand.

While these guidelines may seem clear and well meaning, it is perhaps a surprise to see how little they are adhered to. This is not simply because web content creators do not care about or appreciate the issues of accessibility. There are a number of reasons why a site may not adhere to many, or all, of these guidelines.

- Resource limitations. Implementing these guidelines and testing that they have been met requires time and some expertise, which is not always available.

- Conflicting demands. These guidelines often take a purist approach (for example the advice not to use tables for layout) which is at odds with the requirements of other parties, for example the graphic designer who wants to create a high impact design, or the market research that wants a site to appeal to a certain audience.

- Ignorance. One of the great advantages of the web is that anyone can publish anything. However in such a free for all area, it is unlikely that everyone who publishes will be aware that accessibility is even an issue.

### Activity: Checking automatically

There are a number of tools that will automatically check a web page for you and highlight the possible areas for concern. Because the guidelines are quite general, such tools tend to generate lengthy reports that indicate *possible* problems, not necessarily *actual* ones.

In this activity you are going to use one of these tools, **Bobby**. This uses the W3C guidelines outlined above. Note that although Bobby allows you to enter the URL of a page you want to check and test for free, it only allows one test per minute.

Using Bobby check a website from within your own institution or one that you may refer your students to. (You will need to choose a site which does not require a password for access.)

Having looked at the report generated by Bobby answer the following questions:

1. Did you find the tool useful in determining accessibility?
2. Do you think the accessibility guidelines are practical? Which areas (if any) do you feel are most difficult to implement?
3. Do you feel that an automatic tool can ever provide sufficient information to make testing and automatic process?

### Alternative activity: checking manually

This activity tries the alternative approach: a manual assessment. Choose one of the guidelines above and assess how a site which you use (or may consider using) in your teaching meets, or fails to meet, the requirements it sets out.

Having done this answer the following questions:

1. Overall, how well did the material follow the recommendations?
2. Was there any material in particular that was worse at meeting these recommendations than other material? If so, why?
3. Are there any recommendations you would make?

### Further reading

- **The W3C MarkUp Validation Service** - like Bobby this checks sites for their compatibility with the W3C's accessibility guidelines.
- **Ability Net** - A UK charity that aims to make IT accessible to all. It contains a number of factsheets.
- **Royal National Institute for the Blind campaign for good web design.**
- **JISC advice on accessibility**
by Martin Weller

The widespread use of the internet to disseminate information and offer services has led to a rise in concern over plagiarism. While this may seem of prime importance for online courses, it actually affects all forms of learning where there is some element of assessment or recognition. Students on a traditional campus university are often in the position of being more knowledgeable about the internet than many of the academics. It is thus often possible to simply copy material from an online resource of which the academic is unaware, and the use of cut and paste facility makes it very easy to incorporate sentences, paragraphs or whole pages into an essay. Alternatively, there are a number of sites, commonly called ‘Internet Paper Mills’ that offer students access to a database of essays or provide essay-writing services.

As with many of the problems associated with the internet, this is not an entirely new phenomenon. There have always been students who test the boundaries between what is original composition and what they can copy directly from another source. Similarly, there are many accounts of poor, talented students who supplement their income by writing essays for richer students. The reason that online plagiarism is causing such concern is that the range of resources from which students might easily copy is now vast, and is thus difficult for any marker to be knowledgeable about. The expansion in all forms of education has greatly increased the number of students. This puts demands upon the time of the educators, making the number of cases of plagiarism likely to increase, decreasing the time and energy educators have in checking all the material they encounter, and reducing their familiarity with the students who are producing the material. When an educator knows each student very well, they soon develop an appreciation of what each student is capable of, and where their individual strengths and weaknesses lie. It is thus relatively easy to identify when one piece of work is significantly at odds with this appreciation, for example when a student who struggles to understand concepts in tutorials suddenly produces a masterpiece. When an educator is dealing with very large numbers of students, this appreciation is not developed.

One of the issues is that often students do not see such behaviour as cheating. The nature of our relationship with resources is changed through the use of digital media, the very nature of a highly connected knowledge resource such as the internet blurs the boundaries between ownership and originality. Using the internet, students are encouraged to find different resources and make use of these. Of course, when the material is not acknowledged then students can be accused of passing other work off as their own. This is fundamentally at odds with the core values of education which encourages active sharing of knowledge, but with proper acknowledgement for the work of others. So as well as detecting plagiarism, educators have a duty to raise students’ awareness about what is acceptable and unacceptable behaviour.

The means of combating internet-related plagiarism can be broadly separated into two categories:

1. The technological solution - by using plagiarism detection software the likely sources of any material can be found, either by searching the internet for key phrases or comparing the material against that held in a large database. Another approach is to analyze student material in terms of the consistency of the writing style and approach.
2. The redesign solution - by changing the teaching approach, and rethinking the assessment of a course, plagiarism can be designed out of a course, or at least its likelihood to succeed dramatically reduced.

Plagiarism detection software

There are a number of companies offering services and software that will detect plagiarism. A few of the most popular ones are described below:

- **EVE (Essay Verification Engine)** - this is software that you purchase. It focuses on finding web sites from where material may have been copied. The software takes essays in a variety of formats and then, by using different search algorithms, locates sites from where the material may have been copied. It produces a report giving a percentage score for the degree of plagiarism and indicating the plagiarized text within the essay. A free trial is available.

- **Turnitin.com** - students or educators can upload material to the company’s web site, which then produces a report in 24 hours. It performs a number of searches identifying any similarity with online resources and those in its internal database, giving a comparison report and highlighting plagiarized material. There are five free trials available.

- **MyDropBox.com** - essays are uploaded to the site and a variety of searches performed both on the internet and in their database, which contains essays from the digital paper mills and those uploaded by previous students. It produces a report identifying the plagiarized text and the source. The service is free, but you have to register.

- **Glatt plagiarism software** - the plagiarism screening software works on the principal that everyone has an individual writing style. It deletes every fifth word and then requires the student to fill these in. If the student has plagiarized the material there will be a mismatch between their individual style and that of the original text. Available on CD, no free trial.

You can also do checks for yourself, by using one of the powerful search engines such as Google, or Alltheweb. From your suspect material select some key phrases that make you suspicious, for example if they seem out of context, or do not match the style of the student and enter these in the search engine. Use the exact phrase option or put the phrase in quotation marks depending on the search engine to get accurate results. If this locates the phrase within a work which the student has not attributed then this suggests that further investigation should be undertaken.

**Activity (alternative 1)**
A list of the most popular Internet Paper Mills is provided by Kimbel Library.

1. Select a site that provides free sample essays, and does not require you to register or pay a fee.
2. Choose a topic that interests you and look at what is available on this topic.
3. Consider to the availability of this material causes you concern in terms of your own assessment practices.

Designing out plagiarism

Whilst the plagiarism detection software seems to be effective in many respects, it avoids the main issue, which is that conventional forms of assessment are very susceptible to plagiarism. In some respects this approach resembles the on-going battle between software viruses and virus checkers. The people who make virus checkers create software to reliably detect the most recent viruses. The creators of software viruses take this as a challenge and develop viruses that are capable of avoiding the virus checkers. The virus checkers then create a new version, and so on. So it goes with plagiarism. Students, and the internet paper mills are now developing strategies that can 'fool' the plagiarism detection software, for instance by using synonyms of words, altering sentence construction and so forth so that the 'new' essay differs enough from the original one not to be detected.

The increased concern over plagiarism, particularly as it relates to online courses, can be seen as part of a much wider debate, namely the suitability of traditional education practices to online learning. This has led people to reassess their teaching approach, the role of students and educators, and the nature of assessment.

The best approach to avoiding plagiarism is probably to make it less tempting for students. This means changing the type of assessment. For example, many courses use collaborative work where students have to work as part of a group, and the group outcome is assessed. Online the educator can monitor the contribution everyone makes, and so it is also possible to reward not just the outcome, but participation in the process also.

Other approaches involve asking students to comment upon their own, or others' work. For example students can be asked to comment on each other's essays and award marks for their critical appraisal. Similarly, students can be asked to analyse a journal article or web site. This type of activity is much less conventional and provided it is changed for every presentation of a course, it is much more difficult to plagiarize.

Any such approach also needs to be combined with an overall raising of awareness on the part of students about what is acceptable in terms of referencing and how to properly acknowledge material.

Activity (alternative 2)

1. Write a list of five methods of designing out plagiarism from online learning. For each one provide a few sentences explaining the method and how it can help reduce plagiarism.
2. When you have completed you list you can look at my example solution.
3. You may wish to also compare your list against those suggested by Jamie McKenzie (1998).

Further reading

JISC plagiarism advisory service

by Chris Pegler

Intellectual property law covers trademarks, patents and copyright and it is this last area which has attracted most attention within distance education and e-learning communities. Over the past decade a number of voices have been raised in arguments for the need to strengthen copyright legislation in order to better protect and respect copyright in the digital age. Others have argued that the internet offers a golden opportunity to access existing material and collaborate in making new material, pointing out that intellectual property is 'non-rivalous' in nature - it can be consumed by many individuals concurrently without necessarily worsening the situation of the creator or copyright owner. Both sides recognize that the computer, and more recently the internet, increasingly present opportunities to reproduce, adapt and distribute copies of text, audio and video files without the co-operation of the copyright owner. Whilst high-quality reproduction prior to the digital age implied significant investment in cost and time this is no longer the case. Indeed, with automatic caching of web material, there is not necessarily any conscious act by the user in making an electronic copy. They may not realize that they have made a copy.

The rights of creators to be acknowledged, to be rewarded for their work and to have some measure of control over the appearance or reproduction of that work are reasonable concerns that have underpinned support of copyright since early history. However, the law that has grown up around this 'property' right is a complex area, in part because as Dreier points out 'in contrast to property in a tangible object which can only be sold once by its original owner, basically speaking creators have the right to permit or prohibit not only the first but also every subsequent exploitation of their works'. This set of rights is more difficult to protect than other property rights because the opportunities to infringe them - particularly since the growth in digital copying and distribution - are virtually endless. The situation is further complicated because the dominant Anglo-American approach to copyright protection includes some balancing provision to reproduce limited amounts of material for specified purposes without the prior consent of the copyright owner. Such 'fair dealing' exceptions are motivated by wider concerns that protection of the economic and creative rights of the individual should not exclude the possibility of society at large reasonably benefiting from an individual's published work.

While copyright is a complicated area of the law, for our purposes it can be simply understood as recognizing and protecting three different types of right:

- **Economic rights** - the potential to make money as a just reward for effort is protected, otherwise there would arguably be no incentive to publish. However, it is the rights of the copyright owner that are legally protected, his or her property rights or investment in publication. This recognizes that the owner of these rights may well be different from the creator who can assign or transfer ownership. It is the copyright owner who can grant or deny future use and set a fee for this, but this owner will often be the publisher rather than the author of the work. Of course, the publisher may have invested in the process of writing by paying advances, royalties and have invested time in editing, developing and publicizing the author's raw text. The publisher will almost certainly argue that rights must be protected or else there will be no economic incentive to publish, which will work against the general good.

- **Moral rights** - the right to be identified as the author or creator is very important. It also includes the right to refuse unreasonable requests for future use or for adaptations of the material that you originated, provided of course that such rights have not been waived (for example as part of a publishing arrangement). In academic circles where an authorship is not properly acknowledged this slips dangerously close to plagiarism. In the commercial world it may be nearer to fraud or theft if there is an economic advantage in concealing or incorrectly claiming authorship.

- **'Fair dealing'** - this is in fact a defence rather than a right and only applies in certain strict circumstances. It is particularly unclear with regard to online publications, but can reasonably be held to allow reproduction of insubstantial parts of published material (e.g., a single journal article, or a section of a text) for the specific purpose of critical review, education or personal research. The assumption here is that if a work is published then it is to some extent public already and it may be against the public good to allow denial of reproduction where it is reasonable and does not worsen economic rights and offers a correct attribution (i.e., identifies the creator). Consider for a moment whether without fair dealing you could effectively study on this course. As no third party material could be reproduced without prior rights clearance, you would no longer be able to directly quote in assignments or conference messages except where the copyright owner had waived his or her rights or some licensing arrangement existed.

Activity: Flavours of waivers

Most internet sites will have some form of copyright notice. The wording of, or absence of, such a notice can reveal a great deal about the motivation of the site creators and the relative value placed on the three elements of copyright identified above.

1. Find three sites (not used in this course) that you regularly use, perhaps quote from, or print material from. One of these could be your own organization's site. For each site note the wording and prominence of the copyright warning and compare the wording of these.
2. Now visit the the following four sites and view any copyright warning information for each of these. They deliberately offer very different approaches to copyright.
   - MIT OpenCourseWare site
   - Ufi LearnDirect
   - Journal of Interactive Media in Education
   - The UK Copyright Licensing Agency
3. For each site consider what rights the site owner is protecting or offering. Ask yourself whether you have infringed these rights (either knowingly or innocently), or whether you and others are likely to do so through the use that you would expect to make (or have made) of the site.
4. Choosing a site which interests you (it could be your personal website or your employer's site) consider what the copyright notice for this site should say. What would you wish to protect or permit?

The machine as solution to the machine?
Choosing an approach to protecting your internet site or digital document and advising visitors using warnings or notices is not however the same as actually protecting these rights. Consider how you would provide access to downloadable, digitally-formatted, copyright-protected material using the internet. How would you do this while at the same time allowing only specific types of reproduction and collecting revenues or billing information for that authorized use? Now include more complex publications - multimedia productions incorporating third party material, collections or collaborative works - and remember that there may well be a changing pattern of rights ownership over time as titles get sold on.

Unsurprisingly those who wish to identify, authorize, record, limit and protect the making of digital copies have looked to digital technologies for a solution. The machine as solution to the machine relies upon security measures to restrict access and uses unique identifiers (e.g. the digital object identifier system) to keep track of online resources or assets so that they can be controlled or protected. The metadata used to describe web-based resources contains rights information.

However such a solution, whilst ensuring the protection of economic and moral rights (e.g. by restricting opportunities to adapt the work) has a tendency to restrict the rights usually enjoyed under 'fair dealing'. As Stanford Law Professor Larry Lessig has pointed out, fair dealing is already under serious threat because of the extensions in copyright duration (now commonly protected for 70 years after creation) and now legislation such as the US Digital Millennium Copyright Act, 1998 (DMCA) permits use of technologies which not only protect against any reproduction (including that usually permitted by fair dealing), makes it illegal to circumvent copyright-protection systems (Sanford, 2003) even where the purpose of doing so may be to improve the function of the resource and not to infringe intellectual property. The concern to adequately protect against unauthorized use or adaptation of electronic work can lead to the imposition of conditions which greatly exceed those exercised when using non-digital equivalents. For example users of Adobe early ebook reader, the Glassbook, were told that they could not:

- **Copy:** No text selections can be copied from the book to the clipboard.
- **Print:** No printing is permitted on this book.
- **Lend:** This book cannot be lent or given to someone else.
- **Give:** This book cannot be given to someone else.
- **Read Aloud:** This book cannot be read aloud.

This last prohibition led Robert Menta (Menta, 2000) to ask whether we are in danger of being sent to jail for reading aloud to our children from the ebook Alice in Wonderland. He also pointed out that this work had been obtained by Adobe free-of-charge from Project Gutenberg whose own mission is to make books available freely online.

**A different type of approach?**

The way in which copyright owners choose to exercise their rights varies according not only to the economic value of their input, or the creative value of their output, but also their perspective on the relative rights of owners and others with respect to the work. Some, particularly academic, copyright owners, are happy to waive economic rights in exchange for an opportunity to disseminate what they have created. Their view may be that they have written something that they wish the world to have access to and publication is the way to give access. However the publishers of the academic's work (to whom they usually assign some ownership rights in order to achieve publication) are likely to charge end-users for access to the work. This reflects their costs in arranging for review, editing, design, printing, marketing and distribution, but may in turn tend to restrict dissemination to journal subscribers.

With the growth in use of the internet academic authors now often have the opportunity to publish online themselves, cutting out the 'middleman' (the publisher). There is a perception that the costs of publishing online are much less than those of conventional publishing, if only because the end-user has the costs of printing. Recent research amongst academic authors by the Association of Learned and Professional Society Publishers found that authors would like electronic journals to be available free of charge, but the same research found that authors still appreciate the service, particularly in terms of quality assurance or peer review, which publishers provide for online and offline works.

Elsewhere, for example in the 'Creative Commons', radically new approaches to licensing have been proposed for online publications which attempt to reflect the different desires of different authors in creating work. If you are unfamiliar with this approach, and why it might be necessary, you are advised to visit the Creative Commons site and view the animated short movie about their mission.

**Activity: A new threat or a new opportunity?**

1. Imagine that you have developed a completely new approach to teaching or supporting students online which you wish to publish electronically. You are aware that this could make your name and, as it is so radically different and efficient, there may be a monetary value in your ideas. Consider the following approaches to disseminating your ideas and for each of these give the reasons why you preferred or rejected this:
   - Use a reputable academic publisher who also publishes a range of e-journals and e-books
   - Publish on your organisational intranet, include the material in teaching of students, or staff development with colleagues, and include a link on our personal website to a downloadable document. Make your own copyright notice and give your email address so that users can contact you with specific enquiries.
   - Using one of the creative commons licenses. Explore and consider each of these in turn, there are 11 and they can be used in combination.
   - Do nothing, you're still thinking about it. If someone asks for a copy you can always give them one, applying what conditions you choose

on the basis of who they are.

2. What reservations, if any, do you have about the approach that you have chosen? What are the risks of choosing this option to your economic rights, moral rights or any rights to fair dealing?

3. Ten years ago the 'Follett Report' (Follett, 1993) into electronic libraries identified the importance of copyright issues, noting that 'unless progress is made in this area, the potential of information technology is unlikely to be realized'. Based on your own experience to date, including that gained in these activities, reflect on the progress that still needs to be made in copyright for the potential of the internet for teaching and learning to be realized.

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These rights vary from country to country, although most are signatories of the Berne Convention of copyright and represented by WIPO (the World Intellectual Property Organisation) which currently has 180 'member states'. WIPO has developed a digital agenda.