

# E-Learning Background Document: AHP

Authors: Chris Mason, Russell Viner

## What is e-learning

Technology has come a long way since the introduction of Alan Sugar's green-screen Amstrad 8256 PC word processor. Evolving through an explosion in multi-media capability in the mid-90s (CD burning to DVD read-write discs) and on through web-based platforms and internet connectivity. Education and Training, along with Publishing, have never been far behind to capitalise on these electronic advances, now further stimulated by the added impetus to reduce carbon footprints.

Electronic learning or, more commonly, e-learning is an all-encompassing term to describe learning supported by the use of information and communications technology (ICT). Previously referred to as computer-enhanced learning, e-learning now includes the use of mobile technologies such as PDAs and MP3 players (inc. iPods). Often used in conjunction with the term 'learning technology', e-learning refers to the use of technology in learning in a much broader sense than 'computer-based training'. It is also broader than 'on-line learning', which refers to purely web-based learning.

E-learning is naturally suited to distance learning and flexible learning, but can also be used in conjunction with face-to-face teaching, in which case the term 'blended learning' is commonly used. There are two main approaches to e-learning:

- Synchronous, where all participants join in at once, with the session perhaps facilitated by an instructor
- Asynchronous, where the learner is self-directed and self-paced.

In higher education, the increasing tendency is to create a virtual learning environment (VLE), sometimes combined with a managed information system to create a managed learning environment (MLE), which can handle all aspects of a course through a consistent user interface standard throughout the institution.

### *Benefits and Risks:*

Important benefits of e-learning are that it:

- Is portable and can be accessed by trainees in multiple locations
- Can link curriculum and associated assessment tools for trainees
- Promotes self assessment and self paced learning
- Meets the needs of the new patterns of care and training which are further shaped by MMC and EWTDs
- Can handle multiple complex visuals (innovations in multimedia)
- Easily updates to reflect new therapies, drugs and care pathways
- Can support training by simulation
- Supports robust education theory, e.g. 'instructional design', 'social-constructivist pedagogy' and 'spiral learning' - an approach which progresses doctors through a curriculum, continuing to revisit topics, each visit being at greater depth.
- Supports personal continuing professional development (CPD) programmes and links them with appraisal and recertification
- Has great potential as a tool for educating across health professionals to provide synergy

The main risks and constraints of e-learning are associated with:

- Accuracy and quality assurance of the information
- Updating the content of applications (learning modules)
- Anonymity of patients and obtaining appropriate patient consent
- Security of information
- Ownership (copyright) of material including intellectual property rights
- Resources to develop and maintain applications (sustainability)
- Over-reliance on the electronic aspects of learning.

### *Health sector and e-learning*

In the health sector, change is being driven by the economics of delivering a 21<sup>st</sup> century healthcare system. Legislation and guidance are rapidly being put in place to drive forward the wider systems change that will form the basis of service modernisation and improvement. Staff represent the single largest investment in healthcare provision and constitute the most important resource in improving services to patients, service users and carers. Changes in staff attitudes, skills and knowledge are key to the implementation of NHS systems reform and service transformation.

E-learning, either on its own or as part of a blended approach, is one of the methods of learning that can support these changes. There is now significant interest in how the new learning technologies can be of benefit to healthcare and how they can be used to meet the new challenges, such as securing best value from the significant investment that the health and social care services make in training and education.

Some emerging e-learning projects are already delivering high quality learning solutions on a national scale, and are driving up standards by providing greater consistency and reliability in terms of learning quality and experience. Assessment is becoming more closely related to learning and more genuinely competence based, instead of being limited to one-off, time-fixed measurements. Using e-learning, judgements about competence are more robust, because learners can be exposed to a wide range of assessors and more demanding and realistic assessments.

Those currently entering the NHS, whether from school, further or higher education, are information and communication technology literate. They will have learned and will expect their learning to involve use of the new learning media. However, learners might feel thwarted in meeting their learning requirements given that access to computers and a supportive learning infrastructure currently represent the biggest barriers to the effective implementation of the use of new learning technologies. However, most of these learners will already be familiar with learning on home computers and/or in a more mobile sense on laptops, iPods, mps players and palm help devices.

### Public sector strategic framework for e-learning

Key components in the public sector strategic framework have been:

- Strategic health authorities published a framework document *Supporting best practice in e-learning across the NHS* in November 2005 (pdf available at [http://clinic.canterbury.ac.uk/notices/NHS-e-learn-national\\_strategy.pdf](http://clinic.canterbury.ac.uk/notices/NHS-e-learn-national_strategy.pdf))
- Department of Health co-sponsored the development of a delivery road map *Modernising healthcare training: e-learning in healthcare services* published in April 2006

(pdf available at [http://www.osha.nhs.uk/document\\_store/11689612181\\_national\\_e-learning\\_report\\_may\\_2006.pdf](http://www.osha.nhs.uk/document_store/11689612181_national_e-learning_report_may_2006.pdf))

- UK Alliance for e-Learning in Healthcare set up to support and champion the e-learning agenda. (<http://www.nhselearningdatabase.org.uk/>)

5.7 Key messages from the roadmap which have been endorsed by the Alliance are:

- The e-learning strategy should be relevant UK-wide
- There should be no 're-invention of the wheel' either in relation to content or technology
- Much existing content could be adopted or adapted
- The number of learning management systems in use should be minimised
- National standards are required for interoperability of systems and for content
- National standards for content would enable introduction of 'kite marking'.

#### Changing patterns of care

The last 25 years have seen consistent improvements in health and social care including:

- Sustained improvement in healthcare services by workforce redesign
- Better diagnosis
- Improvement in skill-mix of health care professionals
- Introduction of new therapies and drugs
- Improvement in access to care.

These changes require fresh approaches to the training and continuing professional development of doctors. E-learning applications are particularly suited to this new healthcare environment.

Because e-learning 'comes down the wire' it has immense portability which is further enhanced by the increasing user friendliness of truly portable equipment such as hand held devices and laptops; the availability of a convenient aide-memoire in the clinical environment has to be significant. Whilst this is true for routine everyday knowledge, it is even more valuable when dealing with rare conditions or making sure that the correct protocol is being followed. Updating one parent database will allow all users to enjoy the benefit of the latest developments in thinking or practice.

One important learning modality that sets e-learning apart is its ability to teach through visuals, both stationary and moving. This has enormous advantages in that:

- Images are difficult and expensive to reproduce in books and papers and those which do appear are static
- Complex three dimensional images and animation can be used in teaching situations where spatial awareness is essential
- Some areas (radiology) and specific procedures (eg inserting an epidural catheter) are disproportionately improved if moving film clips can be included
- Not only can things be shown in real time, but e-learning applications also allow frame by frame reconstruction in delayed time
- These benefits can be extended to include examples of history taking and physical conditions that involve movement (gait disturbances in cerebral palsy or after stroke).

E-learning also allows for the possibility of simulated training prior to clinical practice, or for rehearsing the management of real problems as they arise in simulated real time. Some specialties already have some experience with simulators but these require attendance at a specialised centre. However, building on existing simulation techniques, there are several

ways in which simulation can be presented on an e-learning platform with the user having to undertake specific clinically orientated tasks to progress through the training package.

Unique to the e-environment is the facility to undertake self assessment and provide feedback. In particular, it should be noted that:

- Feedback is valuable for authors
- Self-assessment is valuable for personal guidance and essential for re-validation and for reassurance of the public
- Compulsory and satisfactory assessment can be built in as part of the learning package and provides independent verification that information has been gained from the learning package.

Most programmes of learning, progressing doctors through a curriculum, continue to revisit topics, each visit being at a greater depth. This is so-called 'spiral learning'. In some instances, after the 'curriculum in the round' has been progressed to a particular level, subsequent learning occurs in a smaller number of 'specialist' areas. Further, modern clinical practice, with its emphasis on multi-disciplinary care requires practitioners to function to differing levels across different traditional pathways which can be facilitated through e-learning forums.

5.15 An important risk to be avoided is over-reliance on the electronic aspects of learning. The most successful implementations to date have been examples of blended learning. E-learning needs to be part of an integrated training system as it cannot be a substitute for direct patient and clinical experience and teaching in the clinical environment.

### *A word of caution*

E-learning is not necessarily the best medium for all learning and should not be seen as replacing or diminishing current tried methods. For example:

- A lecture is true multi-modal delivery as it involves words, pictures, animations, body language and personal opinions.
- Accomplished lecturers give insights from their own experience
- Text books are irreplaceable for following a difficult and lengthy argument when it is necessary to flick between pages and annotate with personal notes
- Working in groups allows learning from others
- Attending conferences allows invaluable contacts to be made.

## **FURTHER READING**

- *Academy E-Learning Group* - Report to the Academy of Medical Royal Colleges May 2007. Available from [chris.mason@rcpch.ac.uk](mailto:chris.mason@rcpch.ac.uk)
- *Supporting best practice in e-learning across the NHS*, a framework published by the strategic health authorities in 2005. [http://clinic.canterbury.ac.uk/notices/NHS-e-learning-national\\_strategy.pdf](http://clinic.canterbury.ac.uk/notices/NHS-e-learning-national_strategy.pdf)
- *Modernising healthcare training: e-learning in healthcare services*, a report commissioned by the National Workforce Group and Department of Health and published in 2006. [http://www.osha.nhs.uk/document\\_store/11689612181\\_national\\_e-learning\\_report\\_may\\_2006.pdf](http://www.osha.nhs.uk/document_store/11689612181_national_e-learning_report_may_2006.pdf)
- *Good medical practice*, second revision published by the General Medical Council in 2006. [http://www.gmc-uk.org/guidance/good\\_medical\\_practice/content.asp](http://www.gmc-uk.org/guidance/good_medical_practice/content.asp)

- *Trust, assurance and safety – the regulation of health professionals in the 21<sup>st</sup> century*, White Paper published in 2007.  
[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_065946](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_065946)