E-learning in medical education
Tim Bilham, University of Bath, UK

Effective e-learning for healthcare education - making it work for students and teacher-clinicians

E-learning is now established as a fundamental component at all levels of contemporary healthcare education, from pre-registration and undergraduate study, through to postgraduate training and continuing professional development (cpd). This Viewpoint, which complements AMEE Guide No 32 (Ellaway and Masters, 2008), will explore some critical aspects in harnessing e-learning to maximise its effectiveness in clinical and healthcare education. Many studies, guides and experts consider e-learning from a technical or technological perspective or are fashioned around teaching, or teachers, rather than learning. Whilst these are important, such a perspective often overlooks the learner, or the consequential impact of technical solutions upon learning. This Viewpoint seeks to reassert the importance of the ‘student voice’ and of focusing upon the effectiveness of learning. Starting from the perspective of the learner it will consider the importance of context, the centrality of educational design and the roles and development needs of the key stakeholders.

E-learning is used in a multitude of ways and for a variety of purposes, integrated with traditional face-to-face provision as well as providing the sole mechanism for distance learners to access further study. Some campus-based courses use it as a supplement to traditional face-to-face modes of delivery. In its most limited use it is simply a repository for the same learning resources (powerpoint presentations and handouts) that students have received during lectures and seminars. Alternatively it is used as an electronic notice board. In both cases the communication is one way, which may reflect the prevailing approach to learning. Indeed much e-learning is based upon a model of knowledge transmission, a pre-determined quantum of information transferred from an expert to a recipient (Bilham, 2005). The use of e-learning in a content-driven model of education or as set of pre-determined resources arguably misses the most valuable feature of online learning, that of community. It also perpetuates a single communication channel mode of teaching where students study in isolation, a model that was evident in early, ‘pre-internet,’ distance learning courses and can still be seen on campus as students, in individual study booths, interact with learning resources online. The notion of learning as a social process is coming, albeit slowly, to our educational programmes, indeed hitherto many of the ways we talk about education assume that learning is done by individuals, and often on their own.
However, at its most creative, e-learning has transformed campus-based undergraduate medical education and many observers indicate highly innovative approaches and solutions to learning and teaching (Lau and Bates, 2004, Ruiz et al, 2006) including in support of clinical placements and supporting group projects (Sharpe et al, 2006), problem-based learning (Savin-Baden and Wilkie, 2006), virtual clinics (Kim et al, 2002), community-based curricula, (Jones et al, 2001), tele-medicine (Rafiq and Merrell, 2005) and a virtual medical school (Harden and Hart, 2002). There are many more examples, and what the most successful approaches have in common is that they are using technology to transform learning and teaching rather than acting as a ‘filing cabinet’ for learning resources delivered by other teaching modes. However many of these tend to use e-learning to deliver specific, sometimes small scale, learning outcomes rather than whole programme solutions; in this way the overall learner experience is less vulnerable to technical problems and can allow educational ‘experiments’, because alternative delivery modes are available.

Conversely, many professionally based postgraduate and cpd courses are specifically designed for learners at a distance, consequently online learning is either the sole or predominant mode of delivery. This is a crucial distinction for a number of reasons. Impaired access to the online environment, caused by technology downtime, is comparable to ‘locking students outside of the lecture room’, a situation that would not be tolerated on campus but sometimes, and regrettably, is seen as acceptable for ‘invisible’ online learners. Learners are distributed globally and expect learning to be topical, personalised and immediate (Harden, 2005). Furthermore, because the learning environment is seen to be available 24/7, tutors are assumed to be similarly accessible; hence learner expectations need to be managed carefully. For such courses educational design assumes far greater importance at the programmatic level because it is the determining feature that provides the underpinning framework for, and philosophy of, learning.

Distinctively, a crucially important characteristic of this group of learners is their substantial and different experiences, gained from both education and prior and current experiences within their professional healthcare roles. The characteristics of these learners, and the context in which they study, requires a fundamentally new and different approach to the design of the curriculum. Professional learners differ, between each other and in comparison to a typical undergraduate population, in terms of age, gender, experiences, knowledge and skills, thus a ‘one-size’ learning experience is not appropriate. Such learners need to access learning on topics unfamiliar to them from a wide set of resources rather than being required to follow a sequence of learning, previously set by the teacher or designer. Content-driven, or teacher driven, sequential models of learning make interrogatory learning difficult and case or problem-based approaches are seen to be more appropriate for mature and professional learners (Williams 2001, Thomas et al, 2008). Furthermore knowledge transmission models rarely recognise that the learners have, through their previous experience, a valuable and real personal contribution to make to the learning of others, including their peers and the faculty staff (Bilham, 2005). Collaborative peer-to-peer learning is a powerful component in professional education; these learners have significant experience, good practice case examples and analyses of critical incidents that are too infrequently shared within learning programmes. As a result they are an invaluable, and underused, resource for learning programmes.
Thus recognition of learning as a social process, and the development of a theory of constructivist learning in which knowledge is constructed by learners themselves, conveying meaning to, and receiving meaning from, others has become a central consideration in designing for effective learning. Indeed it is the application of constructivist approaches to e-learning delivery that has done much to transform education at a professional level. Constructivism moves teaching and learning from a behaviourist approach, of knowledge-transmission, to one based upon cognitive theory requiring teachers and educational designers to adopt an approach which is ‘designing for learning’ rather than ‘planning for teaching’ (Gagnon & Collay, 2005).

Cutting edge approaches to online healthcare education exploit the features of virtual learning environments to facilitate the creation of online communities of practice, in fact ‘communities of learners’. Through their participation in these communities of practice (Wenger, 1998), professional learners and practice-based teachers provide contextual significance, relevance to practice and comparative and collaborative insights that brings a richness to learning that frequently cannot be obtained through conventional means. Traditional e-learning design, and a focus upon the technical aspects, has often created learning solutions that do not encourage participation. Because healthcare professionals invariably work within uni- and multi-professional teams, aka communities of practice, these mature learners have a familiarity with this approach to learning that is, perhaps, less appropriate for early undergraduate stages.

Whichever way e-learning is used it requires a different mix of skills within the faculty team; the development of capacity and capability in educational design and academic delivery is fundamentally important. Clinical teachers need to be comfortable working online, comfortable with a facilitative rather than a directive role and sensitive to the characteristics of the learners. They need to embrace an approach that is learner-centred, or perhaps learning centred (Anderson, 2004 and 2005). Programme leaders, and designers, need to provide staff development programmes that introduce clinical teachers to such topics as e-moderation, activity-based learning design, online communication, facilitation of group discussion and online assessment. Collectively the teaching and delivery team will have capacity in areas such as curriculum design, problem-based learning, graphical design and media development.

Similarly students need to be made familiar with the learning approach adopted, which may be new to them, the functionality of the learning environment, the support they can expect from the programme team and the expectations upon them. The development of students able to be fully engaged in the process of online learning takes time (Salmon, 2002). Induction sessions, both online and face to face are crucial, but the building of trust and commitment within the community of practice is a process that should be developed as part of the curriculum and alongside delivery of academic content.

Online learning can provide effective ways to deliver healthcare education and there are many excellent examples of innovative and creative practice. Learning within communities of practice can be very powerful and many contemporary learning environments facilitate this approach. The success of these programmes is critically dependent upon attention to the educational design of programmes, supportive staff development and to ensuring a student-focused, learning-centric approach.
References


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Notes on Contributors

Tim Bilham is Director, Education Research and Development, School for Health at the University of Bath. He received the Innovations in Learning and Teaching Award for his work in delivering online education for medical practitioners and was made a National Teaching Fellow of the Higher Education Academy in 2007.

T D Bilham, National Teaching Fellow, Director, Education Research and Development School for Health, University of Bath, Bath, BA2 7AY, UK. Tel: +44 1225 386623. e-mail: t.d.bilham@bath.ac.uk


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