

# COMMENTARY

## The future of e-learning in healthcare professional education: some possible directions

**Kieran Walsh**

*BMJ Learning, BMJ Publishing Group, London, United Kingdom*

### Abstract

E-learning in healthcare professional education still seems like it is a new innovation but the reality is that e-learning has been around for as long as the internet has been around. This is approximately twenty years and so it is probably appropriate to now take stock and consider what the future of e-learning in healthcare professional education might be. One likely occurrence is that there will be more formats, more interactive technology, and sometimes game-based learning. Another future of healthcare professional education will likely be in simulation. Like other forms of technology outside of medicine, the cost of e-learning in healthcare professional education will fall rapidly. E-learning will also become more adaptive in the future and so will deliver educational content based on learners' exact needs. The future of e-learning will also be mobile. Increasingly in the future e-learning will be blended with face to face education.

### Key words

- e-learning
- medical education
- simulation

E-learning in healthcare professional education still seems like it is a new innovation but the reality is that e-learning has been around for as long as the internet has been around [1]. This is approximately twenty years and so it is probably appropriate to now take stock and consider what the future of e-learning in healthcare professional education might be. Looking into the future is always difficult – the only thing that one can say for certain is that the future will be different to the present and the past. Already in its short history, e-learning has undergone a number of seismic changes. To cite one example, its delivery has evolved from simple, passive text based learning resources to interactive, multimedia and social learning resources. If the pace of change has been as rapid as this over the past number of years, then it is definitely worth considering what changes might happen in the future. It is likely that changes will be multifold and far reaching.

One likely occurrence is that there will be more formats, more interactive technology, and sometimes game-based learning [2]. By the time that current students graduate from school, they will have experienced thousands of hours playing games online. Gaming results in a range of cognitive responses that we would like to see in our medical learners. These cognitive responses include those of high levels of engagement, concentration, enjoyment, and active participation. Online gaming also enables team working, problem

solving and interacting with role-playing virtual patients [3]. These are almost exactly the responses we want to have in our medical learners. Myths about online games abound – for example only boys play games, only teenage boys play games, they only play on their own, or they only play violent videogames. These are simply myths. Gaming can enable effective education. How long will it be therefore until sophisticated games are available in the healthcare professional education domain? Thus far providers of e-learning have added incremental functionality to their resources. But now there are increasing plans to go further and faster: by developing more compelling narratives for online interactive case histories; by maybe allowing learners to choose character roles – a surgeon or a physician; by maybe allowing learners to take individual routes through scenarios; or by maybe allowing learners to experience the consequences of their actions – long-term consequences that they can't fully correct. Using virtual reality in this way will probably enable more effective learning experiences.

Another future of healthcare professional education will likely be in simulation. Already simulation has had a transformational effect on face to face education [4]. It is likely that over the next decade it will have a similar effect in the online environment. The benefits of online simulation are many. It allows users to watch and in-

teract with realistic scenarios and to learn clinical and communication skills – and integrate these [5]. They can also practise and rehearse as often as they like – unlike in the real life environment where patients will get tired or in a physical simulation suite which will rarely be open at all the times that the learner wants to learn. The pace of development will also continue to be very fast – there is already a tool where you can learn resuscitation skills via the accelerometer on an iPad.

Like other forms of technology outside of medicine, the cost of e-learning in healthcare professional education will fall rapidly. Healthcare professional education is expensive and so providers and consumers of education will be keen to ensure that they get maximum value from any investment in e-learning [6, 7]. It is likely that value for money will come from e-learning (saving money on everything that goes with face to face education) and from sharing e-learning resources between institutions [8, 9].

E-learning will also become more adaptive in the future and so will deliver educational content based on learners' exact needs. Learning that is based on learner needs is more likely to be effective and so software that recognises learners' needs and adapts its provision accordingly will be more efficient from a learning and time perspective [10]. In e-learning packages of the future, we can look forward to scenario based content where modules become more difficult as learners develop expertise and where modules contain branched narratives that allow users to fully experience the consequences of their actions. This will result in a more personal experience for each individual user and will therefore make the experience more compelling.

The future of e-learning will also be mobile [11]. The ubiquity of mobile devices will mean that e-learning will always be available to the medical learner. And providers of e-learning will in turn modify their content so that

it is more suitable for mobile devices and so that it can provide an instant learning experience at the point of care. In future, medical education will be about learning some core knowledge but then learning knowledge-searching skills, and learning the places to find reliable up-to-date evidence based knowledge. In the future doctors will be saying "I don't know – but I will look it up" – and they will have constant access to point-of-care decision support tools via mobile devices.

Will this brave new world of e-learning make face to face education a thing of the past? This is unlikely to happen. In the future we will use different formats that help us achieve different outcomes: Evidence based learning resources to help doctors develop excellent applied knowledge; interactive case histories to help them develop problem solving skills; and multimedia or simulation based resources to engender healthy attitudes and professional behaviours. Face to face education will continue – in the form of interactive lectures and networking events - and so a blend of learning resources will help us develop healthcare professionals with the right balance of knowledge, skills, and behaviours. There will undoubtedly be more high users of e-learning but there will also be those who prefer face to face education and who will make strategic learning choices as to the formats that they prefer in different contexts and at different times [12, 13].

Attempting to predict the future is never a completely straightforward exercise – but in the case of e-learning the trends over the past ten years will very likely continue for some time to come. It will be up to us as healthcare professionals to ensure that we use e-learning wisely and harness its many advantages to help us deliver better care for patients and populations [14].

Accepted on 24 November 2014.

## REFERENCES

- Walsh K, Dillner L. Launching BMJ Learning. *BMJ* 2003;327:1064. DOI: 10.1136/bmj.327.7423.1064
- Begg M. Leveraging game-informed healthcare education. *Med Teach* 2008;30(2):155-8. DOI: 10.1080/01421590701874041
- Dewhurst D, Borgstein E, Grant ME, Begg M. Online virtual patients - A driver for change in medical and healthcare professional education in developing countries? *Med Teach* 2009;31(8):721-4. DOI: 10.1080/01421590903124732
- Bradley PP. The history of simulation in medical education and possible future directions. *Medical Education*, 2006;40:254-62. DOI: 10.1111/j.1365-2929.2006.02394.x
- Cook DA, Hatala R, Brydges R, et al. Technology-enhanced simulation for health professions education: a systematic review and meta-analysis. *Journal of the American Medical Association* 2011;306:978-88. DOI: 10.1001/jama.2011.1234
- Sandars J. Cost-effective e-learning in medical education. In: Walsh K (Ed). *Cost effectiveness in medical education*. Radcliffe: Abingdon; 2010.
- Sandars J, Walsh K. A consumer guide to the world of e-learning. *BMJ Career Focus* 2005;330:96-7
- Walsh K, Rutherford A, Richardson J, Moore P. NICE medical education modules: an analysis of cost-effectiveness. *Educ Prim Care* 2010;21(6):396-8.
- Walsh K, Jaye P. Cost and value in medical education. *Educ Prim Care* 2013;24(6):391-3.
- Walsh K. How to assess your learning needs. *J R Soc Med* 2006;99:29-31. DOI: 10.1258/jrsm.99.1.29
- So HJ, Kim IS, Looi CK. Seamless mobile learning: possibilities and challenges arising from the Singapore experience. *Educational Technology International* 2008;9:97-121.
- Sandars J, Walsh K, Homer M. High users of online continuing medical education: A questionnaire survey of choice and approach to learning. *Med Teach* 2010;32:83-5. DOI: 10.3109/01421590903199171
- Hande S. Strengths weaknesses opportunities and threats of blended learning: students' perceptions. *Ann Med Health Sci Res* 2014;4(3):336-9. DOI: 10.4103/2141-9248.133455
- Wutoh R, Boren SA, Balas EA. eLearning: A review of Internet-based continuing medical education. *Journal of Continuing Education in the Health Professions* 2004;24:20-30. DOI: 10.1002/chp.1340240105