How new simulation technologies will change training and assessment

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New simulation and digital technologies have the potential to revolutionise the world of healthcare education over the next few years, leading to more engaging learning with better outcomes and more efficient skills acquisition. These technologies will also allow competency assessment to be achieved objectively along learning pathways using captured digital data. This new world may be uncomfortable for some but will, if adopted correctly, lead to better work-place performance and major improvements in patient safety.

ASPiH is a not-for profit membership Association whose aim is to promote and support the use of simulated practice across the healthcare spectrum. So, what is simulation? This may seem an obvious question but historically investment has been focused on setting up over 140 simulation and clinical skills centres across the United Kingdom. These centres continue to provide multi-disciplinary team training using increasingly complex and realistic manikin or model based scenarios. Simulation is, as defined by David Gaba, the imitation or representation of one act or system by another. This therefore encompasses many other modes such as role play using simulated patients, simple task training using models and the use of in-situ scenarios re-creating situations in the real working environment, a rapidly expanding form of simulated practice.

Simulation is now a major platform in most healthcare education programmes. The variable quality of practice, availability of resources, scenario and course development and the sporadic, or often complete absence, of faculty training in the use of simulation were recognised by ASPiH as barriers to its wider adoption and effectiveness during a scoping exercise they undertook in 2013. One tangible outcome from this was the development of a Standards Framework for Simulation-based education that provides 21 standards of practice, supported by guidance on how to achieve them. This framework was launched at the ASPiH Annual conference in 2016. An accreditation system using these standards will be introduced in 2018 and this will provide confidence for practitioners and commissioners to that simulation, in all its forms, is being delivered within a national framework.

The ASPiH standards will need to iterate and develop to recognise and reflect the increasing interest and adoption of new, digital technologies. From classroom to smartphones, technology is already being adopted at a rapid pace. We are seeing the first blended learning programmes where learners will move from a smartphone app, to engaging e-learning using virtual reality, into augmented reality combining real world models and finally into fully realistic, live simulated scenarios. Trainee surgeons can already download a free app containing over 40 surgical procedures (Touch Surgery) and some professional bodies around the world have mandated that if they cannot complete the procedure correctly on the smartphone then they cannot move to the next, more “hands on” training. Other companies (Eon Reality) have platforms that allow educators to easily develop their own virtual and augmented reality programs to complement classroom training. It will not be long before educators can combine these technologies in new exciting curricula allowing faster and more efficient skills acquisition. The culmination of this may be highly realistic classroom scenarios

combining simulated patients, augmented reality and high-fidelity manikins or computer based procedural simulators using haptic technologies.

This new training world also has the potential for changing the way the competence of healthcare workers to practice is undertaken. Digital platforms can capture a wealth of data about how learners learn and how they compare with others. This offers the possibility of objective assessment using performance data against specific criteria with chance to assess competence objectively, thus removing the potential for personal bias in signing off an individual as fit for practice. There are many papers now showing simulators can differentiate between skill levels but, with the new staged learning programmes described earlier, this potential is now being realised and we may be moving slowly towards an aviation model of regular, simulation-based assessments of competence, not just for students.

The rapid increase in use of social media, You Tube and other digital platforms for learning has been recognised by regulators who will increasingly be looking to simulation to provide objective evidence of competence. A simulator that objectively measures an individual's skill in performing CPR has recently been introduced by Laerdal in partnership with the British Heart Foundation. For many years computer based simulators combining use of real surgical instruments, with force-feedback technology to give procedural reality, have been capable of differentiating between novice and expert. These systems are becoming more sophisticated by the day with simulators ultrasound (CAE, Heartworks) now using augmented reality to create even higher levels of reality.

The ASPiH Annual conference has become the major simulation event in the UK and Ireland over the past 7 years. The 8th annual conference, taking place in Telford from 6th to 8th November 2017, will feature a special innovations area where delegates can get hands-on experience in these new technologies and several keynote presentations and workshops will explore the opportunities highlighted above in more detail. The world of simulated practice is about to enter a new and exciting era.