Mini Review

iMedPub Journals
http://www.imedpub.com/

Medical Case Reports
ISSN 2471-8041

2017
Vol.3 No.1:3

DOI: 10.21767/2471-8041.100039

Use of Virtual Reality in Medical Education - Reality or Deception?

Osama Al-Jibury

Department of Medicine, Imperial College Medical School, London, UK

Corresponding author: Osama Al-Jibury, Department of Medicine, Imperial College Medical School, London, UK, Tel: 447878476725; E-mail: osama.al-jibury10@imperial.ac.uk

Rec date: December 26, 2016; **Acc date:** March 03, 2017; **Pub date:** March 06, 2017

Citation: Al-Jibury O. Use of Virtual Reality in Medical Education - Reality or Deception? Med Case Rep. 2017, 3:1.

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Virtual reality is an immersive, three-dimensional, computer generated environment. Users can interact with the environment in a realistic manner using special electronic sensors. Traditionally this technology has been dedicated to gaming and entertainment. But increasingly virtual reality is being adopted by other industries ranging from military, aviation to mainstream professional development [1]. Is there a role of virtual reality in medical education?

Applications of Virtual Reality in Medical education

One of the most obvious applications of virtual reality is in teaching Anatomy. 3-D visualisations of the human body can be readily manipulated and dissected in similar and perhaps more precise ways than cadaveric dissections. There are many advantages to using virtual reality. Firstly, virtual reality can be accessed from any remote location in the world, whereas cadavers require special ventilated storage facilities. Another advantage is the cost and limited availability of cadavers. However, perhaps the greatest advantage of virtual reality is the ability to manipulate the environment in infinite ways for example zooming in, highlighting and labelling. Students can take away different structures and understand precisely how each structure is connected [2]. Quizzes and demonstrations can be embedded into the programme creating a self-running learning environment. There is very limited scope for this on cadavers.

Another application for virtual reality in medical education is peer learning. Learning together in a study session is one of the most effective ways to learn as medical students. It forms an essential component of problem based learning, which is adopted by many medical schools in the UK and abroad. The peer learning experience can be enhanced by virtual reality in a multitude of ways. Firstly, virtual reality removes any geographical restrictions on peer learning. Peers can learn together from anywhere in the world simply by having a VR set and an internet access. Secondly virtual reality allows peer learning to take place across multiple multimedia platforms for example videos, virtual whiteboards and even virtual locations. There is even scope for peer learning to take place in virtual hospitals. Lastly virtual reality will allow an unlimited number of peers to join in the learning sessions. There are no restrictions for example in terms of physical learning space or resources.

Conclusion and Future scope

There is also enormous scope to use virtual reality in emergency medicine training such as CPR. Realistic emergency scenarios can be created on virtual reality giving students an authentic emergency scenario. Traditionally CPR training is carried out on dummies however real life is much different to this. Virtual reality can bridge the gap between dummies and reality. An advantage of this is that an infinite number of scenarios can be created instead of practising on a limited number of models in a limited number of sceneries. Virtual reality can take a student from a roadside accident to seaside crash call in seconds. In summary there are clearly vast benefits in using virtual reality in medical education. Virtual reality can create a 3-D immersive learning environment which can enhance human interactions. If done effectively this technology has a potential to engage and train medical students from all over the world. Norway already uses VR to train soldiers to drive tanks, shoot from rifles and to complete battle simulation [3]. If VR is effectively used to train soldiers to use weapons then it can be used effectively to train medical students to use scalpels and stethoscopes.

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