



Virtual worlds: A new window to healthcare education

Luke Rogers

School of Information Technology and Mathematical Sciences (ITMS)
University of Ballarat (UoB)

Computer-based clinical simulations are powerful teaching tools due to their ability to expand healthcare students' clinical experience by providing practice-based learning. These simulations encourage active participation and can enhance the retention and transfer of learning. Despite the benefits of such clinical simulations there are significant issues which arise when incorporating them into an educational healthcare strategy. For many healthcare educators the key issue becomes; how to apply computer-based simulations in a co-operative and collaborative self-directed environment. Second Life provides healthcare students with an online social presence, enabling a comprehensive environment for online interaction and collaborative practice-based learning. The purpose of this poster is to investigate how the benefits of virtual worlds, such as Second Life, can be employed to overcome the barriers involved in traditional computer-based clinical simulations. This poster presents how a virtual clinical simulation developed within Second Life can be used by healthcare educators to deliver hands-on team-oriented online interactive learning. The virtual clinical simulation provides healthcare students with an experience that simulates the feel of a clinical setting, while removing the costs and challenges of traditional simulations as well as the barriers involved in traditional computer-based simulations. Healthcare educators should consider incorporating interactive virtual worlds into teaching strategies to further enhance clinical simulations. For this practise to be successful, however, further research among healthcare professionals and educators is required to design a model which outlines the key concepts and practical approach to developing an online virtual simulation for healthcare students.

Keywords: Second Life, virtual clinical simulation, team-orientated, practice-based learning

Overview

In the past decade technology has become an important element in teaching the necessary skills and knowledge to develop competent healthcare students. Clinical simulations focus on a student's experience to solve problems, perform skills, and make decisions. Computer simulations are used in healthcare for a variety of teaching and learning purposes. Studies have established that simulations can lead to increased self confidence and improved clinical judgement (Thiele, Holloway, Murphy, Pardavis, & Stuckey, 1991) as well as enhanced problem solving abilities (Johnson, Zerwic, & Theis, 1999). This poster suggests that using an online virtual world, such as Second Life, can overcome the barriers involved with traditional stand-alone computer based simulation and provide simulated team orientated clinical training.

The problem

As the popularity of computer-based clinical simulations increase, so too do the problems educators are faced with in integrating these technologies with traditional teaching practise to create effective learning environments. These issues include the cost, time efficiency, physical location, flexibility, availability, accessibility and productivity of a simulation (Benson, 2004). There are also issues relating to the teaching and learning practises being incorporated into the simulation design and the effect of the simulation on the students' learning (Jeffries, 2006). These include lack of collaboration, focused reflection, articulation, and team guided practice; all of which are instructional methods that have been shown to promote clinical reasoning and encourage learning (Murphy, 2001).

The solution: Virtual words

Virtual worlds are computer-based entities that can simulate a real-world environment. Virtual worlds give users a digital presence that offers a unique and comprehensive environment for online team-based collaborative learning. Second Life is a virtual world which provides a means by which training and collaborative team building simulations can occur regardless of the location or the exercise being practised; removing the barriers involved with a traditional clinical simulations.

Benefits of the *Second Life* virtual clinical simulation (VCS) model

In the past, computer-based simulations have rarely been anything more than disconnected people passively viewing information or playing games. The VCS uses a team oriented model where:

- a) The team is faced with a clinical problem which requires action
- b) Group discussion is encouraged as no Action can be taken in the simulation without a unanimous decision
- c) From the group discussion a solution is formulated
- d) Each team member must carry out the solution decided upon by the team for the action to take place and for the simulation to continue
- e) Once the problem is solved, each team member reflects (written) on the individual and team processes of the action carried out

If we and take into account that research has shown learning obtained from simulations is very similar to the learning gained from traditional classrooms (Bruce, Bridges & Holcomb, 2003; Engum & Jeffries, 2003; Jeffries, 2006) and that on average, students retain 50% of a group interaction and 90% of what they act on (Petty, 2004); we can see how the VCS provides a means by which virtual training and collaborative team-building exercises can be conducted. Overall, the VCS is an ideal setting for students to develop problem solving skills in a collaborative environment without any risk of inflicting harm to patients.

Conclusion

In today's classroom, simulations can be to promote safe patient care in the clinical setting (Jeffries, 2006). The VCS promotes safe patient care and also provides students with an interactive and team-oriented practise based learning environment which can greatly enhance the retention and transfer on learning. Healthcare educators should consider incorporating interactive virtual worlds into teaching strategies to further enhance clinical simulations. For this practise to be successful, however, further research among healthcare professionals and educators is required to design a model which outlines the key concepts and practical approach to developing a collaborative team-based virtual simulation for healthcare students.

References

- Benson, P. (2004). Online learning: A means to enhance professional development. *Critical Care Nurse*, 24(1), 60-63
- Bruce, S., Bridges, E. J., & Holcomb, J. B. (2003). Preparing to respond joint trauma training centre and USAF nursing war skills simulation laboratory. *Critical Care Nurse Clinics of North America*, 15, 149-152)
- Clague, J.E., Reed, P.G, Barlow, J., Rada, R., Clarke, M., & Edwards, R.H. (1997). Improving outpatient clinic efficiency using computer simulation. *International Journal of healthcare Quality Assurance. Incorporating Leadership in Health Service*, 190(4-5), 197-201.
- Engum, S., & Jeffries, P. R. (2003). Intravenous catheter training system: Computer-based education vs traditional learning methods. *American Journal of Surgery*, 186(1), 67-74.
- Jeffries, P. (2006). Designing Simulations for Nursing Education. *Annual Review of Nursing Education*, 4, 161-177.
- Johnson, J., Zerwic, J., & Theis, S. (1999). Clinical Simulation laboratory and adjunct to clinical teaching. *Nurse Educator*, 24(5), 37-41.
- Murphy, J. I. (2001). The use of focused reflection and articulation to promote clinical reasoning. *Unpublished doctoral dissertation*. University of Connecticut, Storrs, Connecticut.
- Petty, G. (2004). *Teaching Today: A Practical Guide* (3rd ed.). Cheltenham, UK: Nelson Thornes.

Thiele, J., Holloway, J., Murphy, D., Pardavis, J., & Stuckey, M. (1991) Perceived and actual decision making by novice baccalaureate students. *Western Journal of Nursing Research*, 13, 616-626.

Author: Luke Rogers, School of Information Technology and Mathematical Sciences (ITMS), University of Ballarat (UoB). Email: l.rogers@ballarat.edu.au

Please cite as: Rogers, L. (2008). Virtual worlds: A new window to healthcare education. In *Hello! Where are you in the landscape of educational technology? Proceedings ascilite Melbourne 2008*. <http://www.ascilite.org.au/conferences/melbourne08/procs/rogers-poster.pdf>

Copyright 2008 Luke Rogers

The author assigns to ascilite and educational non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The author also grants a non-exclusive licence to ascilite to publish this document on the ascilite web site and in other formats for *Proceedings ascilite Melbourne 2008*. Any other use is prohibited without the express permission of the author.