Virtual worlds: A new frontier for nurse education?

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Summary   Virtual worlds have the potential to offer nursing students social networking and, learning, opportunities through the use of collaborative and immersive learning. If nursing educators, are to stay, abreast of contemporary learning opportunities an exploration of the potential benefits of, virtual, worlds and their possibilities is needed. Literature was sourced that explored virtual worlds, and their, use in education, but nursing education specifically. It is clear that immersive learning has, positive, benefits for nursing, however the best way to approach virtual reality in nursing education, has yet to, be ascertained.
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Introduction

For many years educationalists have lamented the knowledge transmission model of learning where students lack the opportunity to experiment and create their own knowledge (Jarmon, Traphagan, Mayrath, & Trivedi, 2009). Recent and significant technological innovation has made it possible for changes in the way in which education is now able to be delivered. These changes have given e-learning educators opportunities to design learning activities for students in the belief that the effective design of e-learning material will facilitate rich and beneficial learning outcomes for students. Currently there is recognition that students require learning activities that provide opportunities for them ''to learn with computers rather than from computers'' (Brown & Voltz, 2005, p. 1). The aim of this paper is to consider virtual realities and virtual worlds in the context of relevant learning theories, and reflect on their potential for nursing education. It will provide the reader with an overview of how virtual worlds or virtual spaces can be used as online social networking sites which can serve a variety of research and educational goals in nursing education. Authentic learning environments afforded by virtual worlds such as Second Life (SL) can challenge nurses to step into roles that support collaborative and systematic problem solving through the use of problem-based scenarios (Gresalfi, Barab, Siyahhan, & Christensen, 2009). Computer applications have made it possible for learners to be engaged meaningfully in reality based situations, and that there is potential for experiential learning through engagement with technology of this type.

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What is 'virtual reality'?

Virtual worlds are a two or three-dimensional computer based environment that can simulate aspects of the real world (Billings, 2009), and because they are dynamic and volatile (Warburton, 2009), are considered to be able to engage students in learning that requires teamwork, collaboration, clinical judgement, and for nurses, the attainment and practice of clinical skills (Billings, 2009). Virtual worlds offer potential for nursing students because they can simulate interaction between students, educators, patients, families and members of the multidisciplinary health care professionals, in educational settings such as classrooms and hospitals. In addition, the environment in virtual reality is not static and can be manipulated by the participants.

One popular example of a virtual world is 'Second Life' an Internet based virtual world designed by its residents (avatars). It was originally developed as a social networking site, but is now being used more and more for educational purposes (Ahern & Wink, 2010), or more specifically, as an immersive learning environment where residents in Second Life interact via their personal avatars. Second Life's educational sites are generally of three types; content provision, facilitation of discussion and communication and simulation of clinical activities at basic and complex levels (Ahern & Wink, 2010).

What is an avatar?

The term avatar is a Sanskrit word identifying the God Vishnu's manifestations on earth (Trepte & Reinecke, 2010). Contemporary use of the word avatar has come from the 1985 virtual word known as Habitat (Trepte & Reinecke, 2010). An avatar is an online, self-created animated characterisation (Schwaab et al., 2011), or a representation of the person who is participating in the virtual world (Billings, 2009). Participants can create their own persona via their avatar, or they can assume a preselected persona, such as those required in role-play and simulation. The participant can alter their avatar's appearance by modifying gender, body shape, size, skin, hair, clothes and abilities. An avatar can do almost everything that can be done in the real world such as perform skills, role play or work as a member of a team such as a multidisciplinary health care team. It can also hold and participate in case conferences, or classroom activities. An avatar can perform gestures therefore they are ideal for simulation because they can undertake clinical skills such as hand washing or insertion of intravenous cannulas and lines. Avatars can become simulated patients and as an interface that interacts with hospitals, equipment, vital signs, patient charts and is involved in decision-making (Skiba, 2009).

Research on avatar selection by Trepte and Reinecke (2010) found that users give preference to avatars that are similar to their real human selves in terms of gender, outward appearance, extraversion and conscientiousness. It has been suggested that there are three types of self-schema; the actual self, the ideal self and the 'ought' self, or how we think we ought to be. Trepte and Reinecke (2010) found that creation of a dissimilar avatar could be a compensation for unsatisfactory life circumstances, thus allowing users to live their desired life through their avatar. The researchers also discovered that users with low levels of psychological wellbeing equipped their avatars with more favourable and positive personality attributes. The qualities chosen in the avatar could even be used as a role model for desired qualities such as empathy. It is believed that the ability to identify with avatar is associated with enhanced game and scenario enjoyment (Trepte & Reinecke, 2010).

Learning theories associated with Second Life and virtual worlds

Pedagogy is the art and science of how something is taught and how students learn it. It includes how the learning occurs, the approach to teaching and learning, the way the content is delivered and what the students learn as a result of the process. It is not enough to introduce virtual worlds into nursing education curricula without consideration of pedagogical implications, and as Savin-Baden (2008) states the point has been reached where the relationship between pedagogy and technology needs examination.

Dickey (2003) has suggested that constructivist learning appears to be most suitable for virtual worlds. Constructionism would be the most appropriate pedagogy given that in virtual worlds tools are needed for the building and manipulation of objects as part of the learning experience (Girvan & Savage, 2010). Central to the constructivist perspective in virtual worlds is the belief that knowledge is constructed by the participants, not transmitted from by teacher, and that learners play an active role in the learning process. Knowledge construction in virtual worlds means that learners should have opportunities for exploration and manipulation within the virtual learning environment (Girvan & Savage, 2010). The principles of constructionism as they relate to virtual worlds are the active interaction, collaboration and negotiation with the environment to create and construct knowledge. In virtual worlds this is achieved by the 3D representation of avatars, creating a sense of presence, immersion, socialisation and collaborative learning (Girvan & Savage, 2010).

If virtual worlds are to be used effectively, it is important that teachers have a firm grasp of the pedagogical issues and a solid grounding in the educational theories appropriate to teaching and learning in virtual worlds. Most e-learning initiatives have been technology led, rather than theory driven (Ravenscroft, 2001). Experiential learning (Kolb, 1984), social learning theory (Bandura, 1977), activity theory and collaborative learning from Vygotsky (1978), connectivism (Siemens, 2004), distributed cognition (Hutchins, 1995), situated cognition (Lave, 1988) actor-network theory (Daniels, Cole, & Wertsch, 2007) and Gardner's theory of multiple intelligence (1999) can have application for learning in virtual worlds (see Table 1).

Kolb (1984) in his experiential learning theory postulated that ''learning is the process whereby knowledge is created through the transformation of experience'' (Kolb, 1984, p. 38). Kolb's (1984) theory is a four stage cyclical model of learning, consisting of concrete experience (Do), reflective observation (Observe), abstract conceptualization (Think) and active experimentation (Plan) (Kolb, 2004). Virtual worlds are thriving in education as a venue