Medical education faces difficult challenges in the 21st century. Increasing pressure upon doctors to deliver service has increased the demands on academics, resulting in less time for teaching (Olson LG et al. 2005). Opportunities for building learning activities around real patients have decreased. Therefore, serious forms of representative simulation have become an increasingly common after effect. Virtual patients have been one of the representational simulators developed to support the delivery of clinical teaching (Rege et al. 2005).

Game-based learning has been considered as a new way of delivering clinical teaching more suited to the new generation of ‘digital natives’ – ‘haters’ speakers of the digital language of computers, video games, mobile phones, and the Internet (Prensky 2006).

The Faculty of Medicine at Imperial College London has developed a Virtual Hospital in Second Life, that aims to design game-based learning activities for the delivery of virtual patients that can drive experimental, diagnostic, and role-play learning activities supporting patients' diagnosis, investigation, and treatment.

**PHASE I**

Phase I of this project focused on the delivery of one virtual patient to the area of respiratory medicine following the game-based learning model and developed it into second life.

The game-based learning activities for one virtual patient focused upon the management of pneumonia. The model was used in Phase I of this study as one of the four instructional tools for the first time. Four virtual patients were developed and implemented in Second Life.

The feedback received has informed the development of Phase II which incorporates a multi-patient approach.

**PHASE II**

Phase II introduces a small patient approach. Four virtual patients catering for different respiratory problems. Anthea, Lung Cancer; COPD; Pneumonia and Tuberculosis have been implemented with differing modes of representation. The bench is asked to make decisions based on current information and acquire new information as a result of different decisions (Helmer, J. (2007))

**METHODS**

The investigation involved 28 undergraduate medical students (23 years old). The mean duration of the respondents was 85.64%.

One group (n = 12) was given access to the game-based learning activities in Second Life and the second group (P=0.01) was given access to the same content but delivered as an interactive module.

After use of the modules, students in both groups completed a questionnaire which involved 12 statements relating to affective components, perceived control (personal usefulness and behavioral components which they scored on a five-point Likert scale).

The feedback received has informed the development of Phase II which incorporates a multi-patient approach during this phase an architectural model was developed based on MedBiquitous Virtual Patient (MVP) standard.

A stratified sample (n=42) was selected according to gender and high undergraduate medical students of average age (22 years).

**Virtual Patient in Second Life**

Virtual Patient in Second Life (http://www.secondlife.com). The MedBiquitous Virtual Patient (MVP) standard has been used to define a reusable architectural model for the delivery of virtual patients.

**Virtual Patient in Second Life**

More general feedback for cyclical content has been introduced in this phase. The MedBiquitous patient badge has been introduced as an option for learners to receive. The badge provides feedback from the system. Feedback is delivered to the learners if they have not carried out any activity for the last five minutes. Feedback will be delivered if they fail to interact and if they fail to interact and the remaining content in that phase.

**RESULTS**

There was no evidence of a difference in attitude toward Second Life (P=0.91) or MVP (P=0.54) between genders.

There is some evidence of an association between gaming competence and gender for Second Life (P=0.04), whereas there is no evidence of an association between gaming competence and gender for MVP (P=1.00).

**CONCLUSION**

The survey ‘attitude to learning in Second Life and via e-module’ is a useful instrument from a pedagogical perspective because it addresses attitudinal components. The survey findings have helped to identify key elements that should be included in more general feedback for game-based learning for virtual patients in Second Life.

**REFERENCES**


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