

Serious games in education: Fact or fad?

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The use of serious games in education is growing, particularly within the field of health professional training (Graafland, Schraagen, & Schijven, 2012; Wattanasoontorn, Boada, Garcia, & Sbert, 2013). Serious games aim to teach or train whilst simultaneously entertaining and engaging users (Hawn, 2009). Serious games are viewed as a useful methodology for enhancing student motivation for learning and engagement with material (Coates, 2005). Despite being heralded as a cutting edge innovation, research validating the efficacy of serious games demonstrates mixed results (Susi, Johannesson, & Backlund, 2007). A serious game to support training of professional post graduate psychology students was developed by the first author. This paper presents the results of two pilot studies comparing the learning and training experiences of students using the serious game as compared to those using a control serious game and teaching as usual, as an example of an application of serious games in post graduate education.

Keywords: Innovation and design, serious games, education, validation, efficacy

Background

Serious games appear to be generating a lot of interest as an exciting methodology for enhancing teaching, learning, assessment and feedback in the educational sector (Graafland, et al., 2012; & Wattanasoontorn, et al., 2013). Despite this rise in the use of serious games in education, research demonstrating efficacy reports mixed results (Crocco, Offenholly, & Hernandez, 2016; Fuchslocher, Niesenhaus & Kramer, 2011; & Rodriguez, Susi, et al., 2007; & Teesson, & Newton, 2013). Post graduate psychology students undertaking a professional degree encounter a steep learning curve when transitioning from theoretical knowledge to professional practice. This stage of development is characterized by the presence of anxiety with the potential to impact on both client and practitioner wellbeing (Skovholt & Ronnestad, 2003). Serious games provide an opportunity for safe practice opportunities in health related disciplines. The first author developed Laurus games with the intention of providing students with increased safe opportunities to practice psychological competencies. To date the game has been trialed in two, modest pilot studies with Master's Degree Psychology students. In the first pilot study the game was trialed with 37 students to compare learning, interaction and training experiences of students using the serious game as compared to those students using a control serious game and those undertaking teaching as usual. The research sought to explore whether the game had an impact on the early training experiences of students. Specifically, the study focused on perceptions of opportunity for practice, preparedness for practice, anxiety levels and self-efficacy. The second pilot study involved the trial of the game in a classroom setting with 38 Masters of Psychology students. This pilot study sought to understand whether the game had value as a classroom tool for group discussion. Specifically, this pilot explored student engagement and enjoyment of learning with the game as compared to static, paper based scenarios.

Methods

Two modest pilot studies were conducted to explore the use of the Laurus serious games in education and learning. The first pilot study was conducted with 37 Master's degree professional psychology students. A pre- and post-test study design was implemented, seven weeks apart, during semester one of the academic year. Quantitative and qualitative data were collected. The study investigated student anxiety related to practice, perceptions of self-efficacy as a psychologist, preparedness for practice, engagement with learning and perceptions of clinical competence. Participants completed the State-Trait Anxiety Inventory, STAI (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), and the Counselling Self Estimate Inventory, COSE (Larson, Suzuki, Gillespie, Potenza, Bechtel, & Toulouse, 1992). A purpose built questionnaire, containing 27 Likert scale questions and 6 open response questions, addressing engagement and preparedness for practice was also administered. Descriptive statistical analysis using SPSS 24 was conducted and qualitative data were analysed using thematic analysis.

The second pilot study aimed to explore student engagement, participation and enjoyment of learning when using the Laurus games in an ethics classroom setting as compared to static paper based scenarios. This study was conducted with 38 Master's degree students undertaking a Professional Psychology Ethics course. Students completed a self-report measure after engaging with the serious game and again completed the self-report measure one week later when engaging with a paper based scenario and discussion. Quantitative and qualitative data were collected using Likert scale and open response questions. Quantitative data were analysed using SPSS 24, and qualitative data were analysed using thematic analysis.

Results and discussion

Results are to be interpreted with caution as the sample size was small for both studies.

Study 1

- Significant difference between experimental and control group in terms of engagement, enjoyment of learning, and opportunity for practice of skills
- Significant difference in perceptions of clinical competence between experimental group and teaching as usual group compared with placebo control group
- Serious games appear to have a valuable contribution to make in enhancing student engagement
- Serious games appear to contribute towards preparing provisional psychologists for practice
- Serious games appear to contribute towards teaching and learning of specific clinical psychological competencies
- Qualitative responses indicate the potential value of serious games for learning

Study 2

- Students significantly more engaged with serious game than static scenario
- Majority of students indicated a preference for undertaking the scenario based learning and group discussion using serious games as compared to static scenarios

Qualitative findings:

Qualitative data from both studies indicate that students valued the games for in the following ways:

- Being able to see therapy in action and experiencing this as validating
- How to phrase and address difficult topics
- Being able to make mistakes and take risks safely
- Seeing what would happen if you got it wrong without worrying about harming the client
- Being able to review content in the form of an interactive quiz after each scenario
- Engaging with theoretical knowledge in a fun and interactive manner

These initial results are cautiously encouraging and indicate the need for further, more rigorous studies with larger sample sizes. It is hoped that the lessons learned from these pilot studies will be used to inform the development of future, larger scale studies of the Laurus games and ultimately contribute to the literature on the efficacy of serious games in health education.

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