Chapter 93

Intersection of Serious Games and Learning Motivation for Medical Education: A Literature Review

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ABSTRACT

Educational scholars are implementing technologies into the educational process. They use virtual reality, simulations, augmented reality and other immersive technologies that provide entertainment and an interesting, immersive environment as well as engage and motivate students. The aim of this research is to understand the scope and the nature of studies where serious games for medical education are prospective research subjects for the development of learning motivation. There are specific research questions that are of interest to the authors: (1) how many studies are devoted to exploring how serious games and simulations develop learning motivation; (2) how many studies are devoted to medical education, especially continuing professional education; and (3) which professional fields are most reflected in the search results, and is interdisciplinary learning observed? To answer the research questions, a systematic analysis of publications was chosen as the research method. Altogether, 132 articles published from January 1, 2014 to December 31, 2018 were selected for the review.

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INTRODUCTION

The 21st century has brought technological developments that provide new opportunities for people in every aspect of life. The impact of technologies on daily life has grown and technologies have replaced many traditional functions in order to make people lives easier. Involving different technologies and technological solutions in education is becoming a contemporary trend. Scholars are searching for new and better approaches to implement in the educational process and are trying to use technologies and the entertainment functions that they provide in their favour. Right now, virtual reality, simulations, augmented reality and other immersive technologies are used in the educational process and provide not only an interesting environment and entertainment functions, but also engage and motivate learners and change attitudes. In recent years, game elements have also been recognized and gamification as a new concept has been recognized as a powerful tool to motivate, engage and change attitudes and behaviour. But there is another concept with a solid research base – serious games, which use games to train and educate, rather than to entertain. There is growing evidence of the positive effects of technology-enhanced learning on professional performance and the development of learning motivation and engagement. However, there is still a need for studies to understand the multiple aspects, possibilities and challenges of specific technologies like serious games.

The aim of this article is to carry out a literature review to understand the scope and nature of studies published in a five-year period (2014–2018) where serious games and learning motivation for medical education are the respective research subjects. To achieve the goal of this study, several research questions were raised: (1) which professional subject areas are most reflected in the search results, and is interdisciplinary learning observed? (2) how many studies are devoted to medical education, especially continuing professional education?; and (3) how many studies are devoted to exploring how serious games develop learning motivation?

THEORETICAL FRAMEWORK

Technological developments have affected every aspect of life and changed the ways people communicate, work, learn, travel, shop, play, etc. Technologies have replaced many traditional functions in order to make people lives easier and more comfortable. Scholars have recognized the importance of the impact of technologies on people’s behaviour, attitudes, motivation, and development of skills and knowledge, and they are looking for new and better ways to scaffold students and improve educational processes. With the advent of technology, augmented reality, virtual reality and simulations have emerged, as well as gamification as a response to people’s affection for entertainment and the fast-growing game industry. One of the categories with an established field of study is that of serious games, which are also known as educational games, learning games, games to educate and learn, etc.

Serious games are a contemporary pedagogical and problem-solving strategy designed for learning in a virtual environment with predefined learning objectives (Landers, 2014; Karagiorgas & Niemann, 2017). They use simulation models in virtual or mixed reality to promote learning and solve problems with game-based techniques. Although serious games use game design and game elements, their purpose is not to entertain people; they are used for serious purposes. The main goal is to educate through playing the game with instructions, including for training and practice, and they also provide solutions.
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