#10R Round Table: Games
Location: Room 210

#10R1 (1668)
Gamification in Medical Education: Advantages, Disadvantages and Engagement Factors

Shoaeh Bigdeli, Iran university of Medical Sciences, Tehran, Iran
David Kaufman

Background: The application of digital educational games in health professions education is on expansion and game-based education usage is increasing. Considering this growing popularity, to focus on advantages, disadvantages, and engagement factors of educational digital games used for health professions education is pivotal and focus of attention in this paper.

Summary of work: This review study is a synopsis of the auspicious area of digital gaming and explains its potential advantages, disadvantages and engagement factors to introduce this tool as a means to promote health professional education.

Summary of results: Advantages of digital educational games as a teaching tool can be categorized as learning process enhancer, learning and performance improver, individualized learning provider and learner motivator; While, disadvantages of digital educational games can be categorized as teaching-learning process barriers and logistics of educational games.

Discussion: Games are feasible for adult learning and provide an opportunity for experiential repetitive learning; while their competitive nature, production expensiveness, interdisciplinary expert dependency, time-consuming nature, and learning style dependency are mentioned are among their disadvantages.

Conclusion: Advantages of digital educational games and their engagement factors make them suitable vehicles to provide unique learning experiences in health professions education. These games can be customized according to the pace and mode of learning in each individual.

Take-home message: Providing a safe educational environment is a promise of educational games for health professions education. It permits practice of what is really impossible or undesirable in real time, in a virtual world. Therefore, to consider educational games advantages, disadvantages and engagement factors is pivotal.

#10R2 (1877)
Developing Leadership by Gamification – the “JoPe” Game as Part of Management Studies Included in Medical Doctors’ Specialization Education

Heli Parviainen, Faculty of Social Sciences, Health Sciences, University of Tampere, Finland
Anne Konu, Faculty of Social Sciences, Health Sciences, University of Tampere, Finland
Elina Suutala, Faculty of Social Sciences, Health Sciences, University of Tampere, Finland
Anu Järvensivu, Faculty of Social Sciences, Health Sciences, University of Tampere, Finland
Markku Turunen, Faculty of Communication Sciences, Information Sciences, University of Tampere, Finland
Jaakko Nevalainen, Faculty of Social Sciences, Health Sciences, University of Tampere, Finland

Background: In Finland, medical doctors’ specialization education includes management and leadership education 10-30 ECTS. At the University of Tampere, as part of modern HR-education, the serious game “JoPe” was used as a virtual learning environment for developing leadership and to conduct research in a novel way.

Summary of work: Altogether 326 medical doctors participated in the HR-module, which included gamification in 2016-2017. In the JoPe game, several theory-based practical, strategic and ethical tasks are faced. Players’ decisions generate feedback and accumulate points in the areas of personnel well-being, economy and effectiveness. Furthermore, managers’ roles can be evaluated (Quinn et al.2003).

Summary of results: JoPe was considered a stimulating environment for those who did not have earlier experience as leaders or managers. Participants reported positive experiences concerning feedback and benchmarking in addition to tasks included in the game. The results will be presented in more detail at the conference.

Discussion: Gamification using theory-based tasks and feedback enable young doctors to learn management in a fun and reflective way. Virtual serious games can also be used as an efficient method for organizing distance learning and/or training skills for groups of numerous participants.

Conclusion: The medical doctors in specialization education are eager to use new methodologies. Continuous development of medical doctors’ management and leadership education is needed, e.g., using modern methods like gamification. Gamification is a promising approach to learning management. RE Quinn et al. 2003. Becoming A Master Manager. John Wiley & Sons.

Take-home message: Serious games (gamification) is one possible way to move forward in management education. Positive attitudes towards management can be developed via modern methods of education (e.g., gamification) among younger doctors. Gamification provides efficient options for organizing distance learning and/or training skills. The young doctors are eager to use new methodologies.
#10R3 (1744)
Introducing the virtual A&E department EMERGE to undergraduate medical education: a prospective trial

Angelina Middeke, University Medical Centre Goettingen, Goettingen, Germany
Nikola Schuelper, University Medical Centre Goettingen, Goettingen, Germany
Tobias Raupach, University Medical Centre Goettingen, Goettingen, Germany

Background: Numerous serious games have been designed for undergraduate medical education, but few studies have assessed their effectiveness with regard to clinical reasoning. This study compared student learning outcome as a function of exposure to a virtual A&E department (EMERGE) versus problem-based learning (PBL).

Summary of work: Final-year medical students self-selected to participate in eleven 90-minute sessions of either small-group problem-based learning (with a tutor) or playing EMERGE (self-directed learning). Within the EMERGE group, students were randomised to three groups with different exposure to clinical cases. Clinical reasoning was assessed in a final key feature (KF) examination.

Summary of results: Overall, students in the EMERGE group scored higher in the final KF exam than students in the PBL group (61.8 ± 14.5% vs. 54.4 ± 14.4%; p = 0.015). Within the EMERGE group, exam performance was more favourable for items with higher exposure during the training phase.

Discussion: Results indicate that self-directed learning with a serious game is more effective than interactive small-group learning. In addition, EMERGE facilitates exposure to a larger number of cases in short time. Owing to the fact that PBL aims at enhancing deep learning, the number of cases in PBL is limited.

Conclusion: Depending on the intended learning outcome, a well-designed serious game can be as effective as resource-intensive small-group teaching. Using flexible exposure to clinical content allows teachers (and, potentially, learners) to align instruction to students’ specific needs. Further work is needed to establish exactly how serious games enhance clinical reasoning.

Take-home message: A complex computer-based simulation of an A&E department can effectively be used in undergraduate medical education. It is more flexible, requires less input from expert teachers and, in our self-selected sample, produced even higher learning outcomes than small-group problem-based learning.

#10R4 (1085)
Clinical decision making game

Laura Kärppä, Unit of Primary Health Care, Hospital District of Helsinki and Uusimaa, Helsinki, Finland
Anni Peura, Unit of Primary Health Care, Hospital District of Helsinki and Uusimaa, Helsinki, Finland
Maija Hartikainen, Unit of Primary Health Care, Hospital District of Helsinki and Uusimaa, Helsinki, Finland
Satu-Maarit Walle, Espoo Health Center, Espoo, Finland
Johanna Anttila-Bondestam, Unit of Primary Health Care, Hospital District of Helsinki and Uusimaa, Helsinki, Finland
Arja Helin-Salmivaara, Unit of Primary Health Care, Hospital District of Helsinki and Uusimaa, Helsinki, Finland
Emil Heiniäho, Sipo Health Center, Sipo, Finland

Background: Skills and knowledge attained in undergraduate education need to be transformed into clinical skills during early postgraduate phase. Clinical decision making has been demonstrated to be a difficult task for trainees. Tactic decision making games have been successfully used in teaching decision making, mainly outside medicine.

Summary of work: Participants listen to the same audiotaped phone call. Each have a different written scenario based on which the decision has to be made. Decisions are articulated and followed by self-assessment and peer assessment concerning the decision making. Time limit for each step is 60 sec. The game has four rounds.

Summary of results: In the three pilot games, participants considered the limited time and the evaluation most challenging. However, participants gained new perspectives on reasoning. The trainers indicated that familiar group evokes a safe and confidential atmosphere.

Discussion: The observers’ notion was that the game requires cognitive and meta-cognitive skills related to self-critique and self-regulation. It favors verbally talented players. The piloting pointed out the demands and the pitfalls of the audiotaped calls, other material, timing as well as group dynamics.

Conclusion: The decision making game proved to be acceptable and applicable. It’s essential to develop a game iteratively with users.

Take-home message: Teaching non medical skills should be one part of postgraduate teaching. Clinical decision making game seems to be a practical tool in training decision making.
#10R5 (3371)
Video games and medical students' playing habits, attitudes and perceived benefits and harms: A Saudi Arabian perspective

Omar Baqal, Alfaaisal University, Riyadh, Saudi Arabia
Soheib Mohammed
Ismail Shakir
Yusuf Sattar
Ahmed Ibrahim
Akef Obeidat

Background: Video games are often debated. Minimal research has been done looking into medical students' attitudes and experiences towards video games. Considering Saudi Arabia's unique social and cultural standpoint, this study aims to investigate medical student attitudes and experiences with video games and perceptions of possible benefits of video games.

Summary of work: An anonymous, 34-item survey was distributed online using Google forms and on paper at Alfaaisal University, Riyadh amongst year 1 to 6 medical students. The survey included questions on video gaming experience and habits, and self-perceived negative and positive effects of video games.

Summary of results: 80% of the 124 respondents played video games. 25% were females. Most respondents accepted that video games could have benefits, “helping decrease stress and depression” being the most popular. 76% considered video games teaching medical concepts and skills useful. Most disagreed with all the negative effects of video games mentioned.

Discussion: Almost all medical students, including those who do not play video games, had favorable views about use of video games in medical education. The most popular genres were in stark contrast to those found by a similar study done in the US, highlighting cultural differences.

Conclusion: No relationship was found between time spent video gaming and academic performance, and self-perceived impact on social and personal behavior. Most of the students were optimistic about their academic and non-academic benefits.

Take-home message: Video games serve as a popular mode of entertainment for medical students. Newer developments in medical education should explore the prospects of delivering medical concepts and skills through video games.