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Editorial: Serious games—Volume II

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Editorial on the Research Topic Serious games—Volume II

The second volume of the Research Topic (RT) on Serious Games (SG) continues and extends the approach of the first volume by demonstrating the multidisciplinary nature and application of Serious Games through the presentation of theoretical and research ideas, practitioner projects, and validation studies in several fields. The relevance of this RT is related to the fact that, as SG become more and more established as a scientific domain the level of publication of related articles is increasing but it is happening mostly through domain-specific journals and conferences, for example in the fields of education, marketing, health, etc. Therefore, the multidisciplinary perspective of this RT is important because it allows bringing together and comparing implementations in different areas. In particular, we see here scientific approaches, experiments, and real life applications of SG in the fields of health and rehabilitation, psychology and learning while they all demonstrate the conceptual ideas of SG, that is the design, development, use, and application of games for purposes other than entertainment by exploiting the increased user motivation and engagement to promote learning, construct knowledge, raise awareness, or stimulate behavior change.

Meulenberg et al. provide an overview of remote training and monitoring of physical and cognitive aspects for adults with limited mobility (due to disability, disease or age) using exergames, eXtended reality devices, and wireless sensor technologies. They include recent technologies like wearable devices, wireless headsets, and sensors that enable unrestricted whole-body movement, make the virtual experience more immersive, and provide opportunities for greater engagement than traditional exercise. They conclude that technology-enhanced exergames challenge the adult user and modify the experience by increasing sensory stimulation and creating an environment where virtual and real elements interact.

Fotopoulos et al. focus on the use of a serious game for rehabilitation. They introduce the MILORD platform which supports health professionals in remote rehabilitation while maintaining health service characteristics and monitoring. The platform consists of an interactive computer game that uses the Leap Motion sensor, a centralized user management system, an analytic platform that processes data generated by the game,

and an analysis dashboard presenting a set of meaningful features that describe upper limb movement. The platform facilitates the monitoring of the patients' progress and provides an alternative way to analyse hand movement. They tested the system with normal subjects, patients and experts to record user experiences, receive feedback, identify any problems, and understand the system's ability to monitor and analyse patient progress through motion capture. The study revealed that the system was able to quantify the movement in a meaningful way and express differences between normal and pathological movement, and that the user experience was positive in both patients and normal subjects.

Lin et al. address the use of serious games to foster the learning of ethical decision making, a topic that involves decision making, dilemmas, and conflicts between the personal, institutional, and social levels. They developed a simulation game with four mission scenarios covering critical issues such as privacy, accuracy, property, and accessibility. The game was tested by 40 college students majoring in information science and computer science. Their game experiences and decision-making processes were recorded and analyzed. Results indicate that participants' knowledge of information ethics improved significantly after playing the serious game and that the game was helpful in improving participants' understanding, analysis, synthesis, and evaluation of information ethics issues, as well as their judgments.

Kougioumtzian et al. describe a story driven playful experience for annotating dance movement. Because annotating animated, motion-recorded segments is a challenging, interdisciplinary task, especially when it comes to characterizing movements qualitatively they created Motion Hollow, a story-driven playful experience that uses metaphors based on Laban Movement Analysis, an established framework for analyzing and annotating movements, to familiarize novice users with the process of qualitative characterization of dance movements. Evaluation of the experience confirmed its potential to transform the annotation of dance movement segments into an engaging and enjoyable experience as well as to foster a deeper understanding of movement annotation as both a concept and a process.

Massler et al. present the use of gamification to train reading fluency. The system they developed, GameLet,

provides effective training scenarios for reading fluency, a prerequisite for reading comprehension, in schools with gamified, self-guided, personalized, media-based individual and collaborative learning, thereby allowing educators to intensify and extend learning activities to out-of-school settings. GameLet implements meaningful digital media-based gamification mechanisms to increase student motivation. The software is web-based and was developed with a focus on user-centered design and an agile and design-based approach. Prototype development followed an iterative and participative process in which students and teachers from three participating partner countries interacted with the developed materials. The artifacts were tested in both face-to-face and online settings and their successful application shows the relevance of gamification for improving and extending classical learning scenarios in schools as well as the design of effective learning technologies that are meaningful, gamified, effective, and usable.

Author contributions

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

Conflict of interest

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