Editorial

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Francesco Bellotti[1]

[1]*Università degli Studi di Genova, Genova, Italia*
francesco.bellotti@unige.it

This editorial opens the second issue of the twelfth volume. This issue features eleven regular papers, that are shortly introduced in the following.

"Development of Serious Games for Science Assessment Using Educational Design Research", by Silva et al. [1], presents the development cycle, supported by the Educational Design Research (EDR) method, of four serious games designed for formative and summative assessment of science learning in primary education. A total of 245 children participated in the first implementation cycle, and data from 158 children were collected in the second cycle through post-implementation survey responses. The study aims at strengthening the theoretical field in this area of research, demonstrating the suitability of this methodological approach for design.

"IdeAM: A Serious Game to Foster Creativity in Additive Manufacturing", by Conil et al. [2], investigates the potential of SGs to enhance creativity in additive manufacturing (AM). The authors propose their IdeAM SG, and assess its performance based on 3 aspects: creative solution generation, AM technical potential use, and participant experience. The results show that IdeAM significantly improved participants' creativity and their ability to explore AM's technical potential. Additionally, participants reported higher motivation and engagement compared to the control group.

"MnemonicMaker: A Serious Game for Reconstructing Bitcoin Wallet Mnemonic Phrases", by Vlahavas et al. [3], presents MnemonicMaker, a serious game that leverages the Method of Loci (memory palace technique) through interactive gameplay to enhance the memorization and retention of BIP 39 recovery phrases. Based on a study conducted with 38 participants, the authors argue that gamified spatial mnemonic techniques can effectively address the challenge of recovery phrase retention while maintaining high user engagement.

"Enhancing Children's Insurance-Related Knowledge and Learning Attitudes Through Digital Game-Based Learning ", by Tsuei and Lu [4], presents a quasi-experimental study conducted along 4 weeks to explore the effects of the application of a digital game-based learning (DGBL) approach in insurance education on 58 elementary-school students'.

According to the authors, the findings support the effectiveness of digital game-based learning (DGBL) in insurance education for elementary-school students.

"Activity Theory in Digital Game-Based Learning: A Geometry Case Study", by Sors et al. [5], analyses the three Activities Systems involved in Digital Game-Based Learning (DGBL) through the lenses of the third generation of Activity Theory (AT). The authors designed a geometry game targeting secondary students. Learning outcomes were assessed via pre- and post-tests, motivation and enjoyment through questionnaires, and engagement using in-game analytics and qualitative feedback. The authors stress that their results confirm that when learners take an active role in the creation of game content, their experience is enhanced in terms of engagement and motivation.

"A WebGL Serious Game for Practicing English Conversations in Public Places Using Speech Recognition", by Roedevan et al. [6], investigates how to create a private, practical, and interactive platform for English conversation practice. To address this gap, they propose Langova, a WebGL-based online game leveraging Speech Recognition technology. Qualitative feedback from participants indicated that Langova's private and flexible environment can reduce their anxiety about speaking English, while also revealing technical challenges such as microphone sensitivity and accent recognition.

"Macmeo: Playable Framework for Analog, Hybrid and Digital Serious Game Design", by Michael Sousa [7], propose the MACMEO framework, developed as a research design process during several sessions (120 minutes on average), a flexible and adaptable gamified analog toolkit to help design analog, hybrid, or digital serious games through a structured process. The MACMO framework is typically applicable to define early-stage playable serious game prototypes.

"Should XR Applications Supplement or Replace History Excursions in Education?", by Mosler et al. [8], explores whether extended reality (XR) applications can replace or supplement school excursions. The study, embedded within regular history lessons, concludes that XR applications should not fully replace excursions but can meaningfully complement them.

"Escape Racism: Using the EscapED Methodology to Inform the Design of Educational Escape Rooms,", by Lewis et al. [9], presents a case study outlining the design-based development process undertaken using the escapED methodology. The findings demonstrate that the knowledge gained from playing escape rooms created using escapED was increased and delivered an emotional response amongst participants.

"Training Conversational Skills Using a VR Game: Effect of Immersion", by de Wit & Huurdeman [10], presents the design and evaluation of a digital barrier game for training conversational skills, in which players practice giving, receiving and clarifying information. Through a within-subjects study involving 38 participants, the authors stress that immersion was not identified as a key factor influencing engagement in special education students completing a game-based task.

"The Effect of Procedural Rhetoric and Narrative Content in a Narrative Game-Based Fear Appeal", by Engelbrecht et al. [11], addresses the question of whether the presence of meaningful game mechanics, in the form of procedural arguments, contributes uniquely to persuasion by heightening susceptibility and behavioral intention. The study is one of the few works that operationalizes the concept of procedural rhetoric It supports the notion that

mechanics and rules alone might not be sufficient for players to identify the content of a procedural argument, with implementation of narrative content being an important factor in making mechanics persuasive.

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