Introduction to the Special Issue on GaLA Conf 2023

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This International Journal of Serious Games special issue is dedicated to the selected and extended best papers of the 2023 edition of the GALA conference. Professor Pierpaolo Dondio and his team at the Technological University of Dublin in Ireland organized this edition of the conference.

Authors of four highly-rated conference submissions were invited to submit extended papers for this special issue. After peer review process, five extended papers were accepted. These papers shows how game-based learning and serious games continue to evoke extensive research efforts, and clearly demonstrates the breadth of different research approaches used in game-based learning. With such an open-minded approach, it is possible not only to advance our knowledge of game-based learning but also to contribute significantly to the understanding of the factors that influence human learning.

"*Game elements improve affect and motivation in a learning task*", by Huber et al. [1], provides results of an empirical investigation on the fact, reported in literature, that learner motivation due to game elements may increase, while overall cognitive effects on learning outcomes are absent. Presented results results corroborate the tenability of the integrated cognitive affective model of learning with multimedia. This implies its feasibility in purposefully designing learning environments with specific motivational or cognitive aims in mind.

"*From product to process data: Game mechanics for science learning*", by Dever et al. [2], examines the effectiveness of game mechanics for science learning. The study identifies how two types of game mechanics—learning and assessment mechanics—are used by 137 high school participants as they learn about microbiology with Crystal Island, a game-based learning environment for science education. Results showed that game completion is not related to learning gains. However, as participants engaged with increasingly more assessment mechanics, learning gains decreased. Particularly, learners who engaged in less recurrent transitions across assessment mechanics were more likely to successfully demonstrate scientific reasoning abilities.

"Transdisciplinarity in Serious Gaming Design for Improved Crisis Preparedness", by de Rosa et al [3], proposes a theoretical approach to support the integration of knowledge from different disciplines into the design and development of serious games looking at socially relevant problems and describes how they applied the proposed framework to design the Command, Control, Coordination, and Communication (C3C) Game. Results from a pilot exercise conducted with decision makers from a large US metropolitan area are presented as well.

"Exploring the Impact of Player Traits on the Leaderboard Experience in a Digital Maths Game", by Almo et al. [4], investigates factors that predict primary school students' experience with infinite leaderboards in educational math games. By analyzing 1,389 Irish students using the *'Seven Spells'* game, the paper shows how the perception is not only driven by their game performance and leaderboard position but also by other individual traits. The results indicate that leaderboard enjoyment was influenced by players' leaderboard positions and maths anxiety levels. Maths anxious players disliked the leaderboard more than non-anxious players, even when they were ranked high in the leaderboard. These insights provide novel support for the claims that player characteristics should be considered when incorporating infinite leaderboards into games to avoid potential negative impacts on gaming experiences.

References

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