Editorial

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Serious Games (SGs) are now spread and used in a variety of environments (formal and informal education, training, advertising, fitness, etc.) and for a variety of topics, ranging from curricular activities (biology, history, languages, etc.) to management (finance, logistics, value chain, etc.) and personnel training (healthcare, salesmen, waiters, etc.).

Several classifications and ontologies have been proposed in literature and databases are being maintained, in order to allow a description and support using SGs in different contexts. A non-exhaustive list of resources includes the following:

- Classifications, providing dimensions for SG classification. Examples include: [1-5].
- Repositories, featuring databases of SGs. Examples include Engage Learning[1] and Serious.gameclassification.com[2]
- Blogs, focusing on news from the SG market and applications. Significant examples include the Serious Games Society (SGS) Blog[3] and The Serious Games Market[4].
- Analysis and ontologies, going more in detail with the analysis of the game goals and components. The SGS' SG Knowledge Management System[5] and, with much more examples but with less detail, Serious.gameclassification.com[2].

The International Journal of Serious Games (IJSG) already covers all these aspects from a high level scientific and technological perspective. But, from the present issue, we would like to host a new series of articles specifically devoted to SG studies. SG studies provide focused analysis of one or more SG along the above mentioned dimensions. Studies may be monographic (on a single game or topic) or comparative (comparing different SGs). In any case, they should critically present and analyze state of the art SGs.
Game studies are not a novelty. "Games studies"[6] is a well-known journal available online since 2001. Some studies, as another example, have shown amazing properties of legend games such as Tetris (e.g., [6-7]).
It is our intention to further refine the field and extend it particularly in the specific direction of SGs. How can SG studies be characterized? Of course, each article has its own authors, perspective and story. But we would like to develop and support an "engineering" approach, systemizing the studies, allowing comparative analysis and homogeneous data collection. A cornerstone will be the study of SG mechanics, that are game components able to achieve pedagogical goals through enjoyable features (e.g., [8]). In particular, I would like to stress the importance of the SGS' KMS online tool[5], through which structured and semi-structured information is being collected for several games. The database is freely accessible online and new analysis can be added on demand. The goal is to develop knowledge, based on empirical evidence, on SG mechanics, their deployment in different contexts and their effectiveness.

SGs should be critically presented in order to allow an assessment of their advancement over the state of the art. This is expected to be beneficial also for scientist ad technology researchers, as they can get inspiration from the market and find solutions to overcome the present limits. SG studies may present the perspective of different stakeholders involved in the process (e.g., end-users, teachers, families, designers, content developers). We believe that this is an important service, also for building a real community around SGs, which is one of the main goals of the SGS and is a fundamental condition for a proper development of the field.

[1] http://www.engagelearning.eu
[2] http://serious.gameclassification.com
[3] http://seriousgamessociety.org
[4] http://www.seriousgamesmarket.com
[5] http://studies.seriousgamessociety.org
[6] http://gamestudies.org/

The present IJSG issue features a first couple of SG studies, developed by Pannese and Morosini [9] and by Barbieri et al. [10], as described in the short summaries below. But, before shortly introducing this issue's papers, I would like to inform the readers that the IJSG is indexed since its first issue by DBPL, Google Scholars and J-Gate. We are working with other indexing and abstracting organizations, and we are continuing further enlarge the coverage. The IJSG has also been assigned the ISSN: 2384-8766. Finally, after the third edition of the GaLA Conference, held in Bucharest this July, I am proud to announce that extended versions of the best papers of the conference will be published in the next issue of IJSG (October 2014).

The first paper in this issue, by Pannese and Morosini [9], is the first of the IJSG SG studies. It describes two SGs designed for home and hospital carers/nurses. The games particularly aim to empower and engage employees to reflect on past work performances and personal experiences in order to improve their performance and problem solving ability. The games were tested with more than 200 users in different contexts. Results collected so far seem to indicate a positive impact of the game and underline the value of an in-game Virtual Tutor to create favorable conditions to allow learners to adopt a reflective attitude towards their acts and experiences. The editorial process for this paper was conducted by Francesco Bellotti, of the University of Genoa.

Barbieri et al. [10] present a user study to evaluate learning impact and user acceptance of "Afghanistan Pre-deployment – Cultural Awareness", a SG widely adopted by NATO schools for cultural awareness for troop training. Evaluation results - obtained with soldiers, civilians and university students – indicate that the game seems to be well received as a new way for quick and effective knowledge transfer, and can be seen a valuable, complementary solution to traditional education and training tools. The editorial process for this paper was conducted by Goncalo Pereira, of Inesc-ID.

The paper by Kiili et al. [11] focuses on the measurement of subjective playing experience, in particular addressing the well-known flow construct. Through a user study with 100+ junior high school students, the paper explores to what extent the measurement of flow experience can facilitate game evaluation and design process. Results show that flow experience can be used to evaluate the overall quality of the gameplay and provides a structured approach to consider a SG's quality. However, flow does not provide detailed information about the weaknesses of the game and thus complementary methods are necessary to identify the causes and improve design. The editorial process for this paper was conducted by Margarida Romero, of the Université Laval.

Investigating SGs in science education, Chorianopoulos.and Giannakos [12] suggest a small non-exhaustive set of design principles and provide the example of two math video games ad-hoc designed for primary education students. The gameplay embeds addition operations in a classic platform game environment. The authors argue that employing well-defined design principles should facilitate the evaluation of learning effectiveness by researchers. Moreover, educators can deploy alternative versions of the games in order to engage students with diverse learning styles. The editorial process for this paper was conducted by Michela Ott, of the University of Utrecht.

Ontologies are important to support automatic information processing. Hondrou et al. [13] propose the Player-Specific Conflict Handling Ontology (PSCHO), a core, lightweight ontology providing a formal representation of conflicts and their handling in the domain of SGs. With this approach, whenever a conflict event appears during the game, the appropriate educative intervention will be triggered according to the specific reaction of the player and his general coping style. According to the authors, PSCHO - that has been tested in a specific conflict-handling SG for 11-13 aged children - promotes natural interaction (non-invasive methods) and at the same time makes the game as player-specific as it can be for its educational goal. The editorial process for this paper was conducted by Michela Ott, of CNR.

References

[1] Sawyer B. and Smith P., "Serious Game Taxonomy", Paper presented at the meeting Serious Game Summit 2008, Game Developer Conference
[2] Zyda, M., From Visual Simulation to Virtual Reality to Games. Computer, 38(9), 2005

Michael, D. & Chen, S., Serious games: Games that educate, train, and inform. Boston, MA. Thomson Course Technology, 2006
[3] Egenfeldt-Nielsen,S,, Overview of research on the educational use of videogames, Digital Kompetanse, 3(1), 2006.
[4] Kickmeier-Rust, M. D., Talking digital educational games. In M. D. Kickmeier-Rust (Ed.), Proceedings of the 1st international open workshop on intelligent personalization and adaptation in digital educational games (pp. 55-66)., Graz, Austria, 2009.
[5] Djaouti D., Alvarez J., Jessel J.P., Methel G., Molinier P., "A Gameplay Definition through Videogame Classification", International Journal of Computer Game Technology, Hindawi Publishing Corporation, Quarter 1, 2008.
[6] Hoogeboom H. J., and Kosters W. A., "The Theory of Tetris", Nieuwsbrief van de Nederlandse Vereniging voor Theoretische Informatica 9 (2005): 14-21.
[7] Tsuruda K. M., "A Closer Look at Tetris: Analysis of a Variant Game", Atlantic Electronic Journal of Mathematics, Vol. 4, N.r 1, Winter 2010
[8] Arnab S., Lim T., Carvalho M. B., Bellotti F., de Freitas S., Louchart S., Suttie N., Berta R., and De Gloria A., "Mapping learning and game mechanics for serious games analysis", British Journal of Educational Technology, DOI: 10.1111/bjet.12113, 2014
[9] Pannese L., and Morosini D., "Serious Games to support Reflection in the HealthCare Sector", The International Journal of Serious Games, Vol. 1, Nr. 3, July 2014 http://dx.doi.org/10.17083/ijsg.v1i3.30
[10] Barbieri A., Tesei A., Bruzzone A., Roceanu I., Beligan D., "Learning Impact Evaluation of the serious game "Cultural Awareness – Afghanistan Pre-deployment", The International Journal of Serious Games, Vol. 1, Nr. 3, July 2014 http://dx.doi.org/10.17083/ijsg.v1i3.27
[11] Kiili K., Perttula A., Lindstedt A., Arnab S., Suominen M., "Flow Experience as a Quality Measure in Evaluating Physically Activating Collaborative Serious Games", The International Journal of Serious Games, Vol. 1, Nr. 3, July 2014 http://dx.doi.org/10.17083/ijsg.v1i3.23
[12] Chorianopoulos K., and Giannakos M. N., "Design Principles for Serious Video Games in Mathematics Education: From Theory to Practice", The International Journal of Serious Games, Vol. 1, Nr. 3, July 2014 http://dx.doi.org/10.17083/ijsg.v1i3.12
[13] Hondrou C., Tsalapati E., Raouzaiou A., Marandianos G., Karpouzis K., Kollias S., "Player-Specific Conflict Handling Ontology", The International Journal of Serious Games, Vol. 1, Nr. 3, July 2014 http://dx.doi.org/10.17083/ijsg.v1i3.26