

Editorial: the NOVATICA collaboration

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Introduction

This edition of the EAI Transactions on Serious Games represents a collaboration between SEGAN, EAI and ATI (Asociación de Técnicos de Informática – Association of the largest, oldest, most active associations of Information Technologies (IT) professionals existing in Spain.

Founded in 1967, ATI has 3,500 members and permanent offices in Barcelona (Headquarters) and Madrid. ATI has ring different areas and aspects of the IT spectrum and promotes many IT events in Spain and Latin America.

ATI is Spain's representative in, and founding member of, CEPIS (Council of European Professional Informatics Societies, www.cepis.org), an organization with a global membership of above 300,000 European informatics professionals.

ATI is also Spain's representative in IFIP (International Federation for Information Processing, www.ifip.org), a worldwide umbrella organization for national societies working in the field of information processing.

ATI is a member of CLEI (Centro Latinoamericano de Estudios en Informática – Latin American Center for Informatics Studies, www.clei.cl), an organization that reunites a hundred Universities and Research Centers in the region.

ATI publishes the digital quarterly journal *Novática*. Born in 1975, it is the oldest periodical publication amongst those specialized in IT existing today in Spain. *Novática* will celebrate its 40th anniversary in 2015 with some special issues and events. www.ati.es/novatica (detailed information about ATI can be found in <http://www.ati.es>)

This monograph includes eight papers about different aspects of serious games. *Baltasar Fernández Manjón et al.* addresses some still existing controversy about serious games and the challenges that make it difficult for their use to be generalised. The paper deals with these barriers – in

their sociocultural, educational and technological dimensions –, and with the strategies to overcome them, suggesting lines of work – reducing the social rejection, increasing the educational value, using new development and deployment techniques.

Olivier Heidemann's paper presents the basic knowledge about the theme: terminology definitions, the creation process and its didactic and technological considerations, etc. This paper is a good introduction for those readers that are not familiar with the theme.

Andrade presents the evolution of Game Engines in his paper. Due to hardware limitations, in the origins of videogame industry, each new game was generally coded from scratch. Years later, from the evolution of hardware and the need for rapid game development cycles, the concept of game engine appears. A game engine is a reusable software cover that enables separating the concepts of common games from game assets (levels, graphics, etc.). This work examines fourteen different game engines that today are relevant to understand the evolution of game engines, and which range from the industrial level until the friendliest, developed for the *newbies*.

Another important aspect is measuring these tools effectiveness in the knowledge acquisition process. This effectiveness lies in learning the results obtained with their use; the two papers that follow, with a strong didactic content, are dedicated to this theme.

The role and importance of computer games in the contemporary educational practice are presented in Professor *Jože Rugelj's* paper. His work presents the theoretical foundations that justify the use of serious games in different levels of education. It also displays an activity performed within the curriculum for computer teachers' training at the Faculty of Education of the University of Ljubljana. In this activity, students have to use their knowledge in didactics and computing to develop games. The developed game is tested and evaluated in schools as part of their practical training. The evaluation results may help students improve

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the quality of their game, and may be used to verify if the learning goals have been achieved.

Hariklia Tsalapatas studies the way serious games stimulate analytical thinking. The analytical thinking is a transversal learning skill that may help students who excel academically, regardless of the subject; besides, this is a skill increasingly in demand by the employers of the new Knowledge Economy. This paper studies how Serious Games, which use visual programming as a synthesis tool in the search for solutions in the context of exploration, research and collaboration, can help students build structured mentalities that will improve their problem solving capability.

Janet C. Read's paper describes some of the tensions that arise around the use of serious games in formal education in the age group of 12-18 years, and considers how serious games can be designed for students that are not especially motivated to play with them. From a narrative explaining how serious games fit in the teaching curricula both at high school and university, this work describes the elements considered to be essential in the serious games for this particular demographic group: "fun and cool."

Javier Marco, Eva Cerezo and *Sandra Baldassarri* describe their experience in designing, implementing and using a set of user interfaces that go beyond the conventional. These are tangible interfaces in which the users (children, in this case) interact with animated scenes using physical objects.

Specifically, Tabletop are horizontal surfaces that allow interaction and dynamic rear projection of images on them, and that are particularly interesting to reinforce face-to-face social relations as well as activities in a group. Most children-oriented applications on tabletops are based on touch interaction with small objects especially designed for each game, and, therefore, the benefits of the traditional game are not lost.

Summing up, this monograph provides a wide perception about serious games, their life cycle as didactic tools (either in the classroom or outside), and diverse didactic and technological considerations about their implementation, use and results assessment.