Journal of Universal Computer Science, vol. 22, no. 12 (2016), 1487-1488
submitted: 12/11/16, accepted: 29/11/16, appeared: 1/12/16 © *J.UCS*

Improving Social Aspects of the Software Development Process: Games, Gamification and Related Approaches

J.UCS Special Issue

Murat Yilmaz
(Cankaya University, Ankara, Turkey
myilmaz@cankaya.edu.tr)

Rory V. O'Connor
(Dublin City University, Dublin, Ireland
rory.oconnor@dcu.ie)

Manuel Mora
(Autonomous University of Aguascalientes, Mexico
mmora@securenym.net)

Social aspects of software development are gaining increasing attention among the research community. Recently, a number of researchers have conducted studies to explore the social structure of software development activities that may potentially affect the health of a software project. Games are special kind of social activities, which can easily highlight the social interactions or engagements that lead to a variety of measurable societal outcomes. Over the last decade, due to the digital era, social games have reshaped the methods of communication by the help of a variety of social media tools. These implicit social activities have gained popularity also among software development teams who have started to redefine the notion of games in non-gamming contexts. Consequently, the term gamification (i.e. the use of game elements in non-gaming practices) becomes an emerging subject for improving the software development processes. Not only has it a great potential to align individuals' motivations with software development tasks, but is also helpful to address a variety of information technology related issues.

Thus, we conducted the first gamification workshop at the 22th EuroAsiaSPI Conference, which was held in Ankara University, Turkey on September 30, 2015. This activity brought the opportunity for participants to exchange information by discussing potential usage of game elements in software business context. This special issue of Journal of Universal Computer Science includes selected papers from this workshop event which were extended with additional details to include original, pertinent and relevant contributions to cover gamification practices for related approaches, in particular, the use of game elements in software process improvement and software development.

Here, we summarize the main themes of the papers that have been selected for inclusion in this Special Issue. In the first selected paper entitled *Agile Retrospective Games for Different Team Development Phase*s, Milos Jovanović, Antoni-Lluís

Mesquida, Nikola Radaković and Antonia Mas have gathered games used in agile retrospectives and created a new classification based on Tuckman model. We believe that such an effort to collect these games provides a high value for both practitioners and academicians who can count on a classified repertory of social games to be included explicitly in their software development process.

In the second paper entitled *Towards a gamification framework for Software Process Improvement initiatives: Construction and Validatio*n, by Eduardo Herranz, Ricardo Colomo-Palacios, Antonio de Amescua Seco and Mary-Luz Sánchez-Gordón present a gamification methodological framework proposed for software process improvement initiatives. As one of the pioneer works in the field of gamification in software development, they have taken into account specific features of organization, processes and personnel, and ultimately had their research rigorously assessed by experts from the industry.

In the third paper with the title *Examining the Relationship between Socialization and Improved Software Development Skills in the Scratch Code Learning Environment* Jesús Moreno-León, Gregorio Robles and Marcos Román-González examine the relationship between socialization and improved software development skills in the Scratch code learning environment. Recently, it has been revealed that there are emerging difficulties for teaching how to program, therefore, their work seems to be interesting both for academics and enterprises.

Finally, in the last fourth paper entitled *Software Engineering Education and Games: A Systematic Literature Review*, Mehmet Kosa, Murat Yilmaz, Rory V. O'Connor and Paul M. Clarke present the results of a systematic review regarding the use of games in software engineering education. This work assessed the current literature for games that were used to teach software engineering through a variety of resources. Despite its exploratory nature, this study offers initial valuable insights into the use of games in software engineering education from a different perspective. Many studies suggest that students might likely benefit from developing non-digital games for improving their understanding of the notion of gaming. Considerably more work will need to be done to investigate game-like environments.

We would like to thank Mrs. Dana Kaiser (Editorial Team Lead) from the Journal of Universal Computer Science for her support. We express also our gratitude to the reviewers for reviewing the manuscripts and giving detailed and professional feedback. Finally, we would like to express our sincere thanks to the authors for contributing their excellent research. We expect that this collection will incite new research in the future and be a valuable resource to the community interested in social games for improving software processes.

Murat Yilmaz
Rory V. O'Connor
Manuel Mora
December 2016