

## Towards Better Scrum Learning Using Learning Styles

Ezequiel Scott, Guillermo Rodríguez, Álvaro Soria and Marcelo Campo

Email addresses: {ezequiel.scott, guillermo.rodriguez, alvaro.soria, marcelo.campo}@isistan.unicen.edu.ar

ISISTAN Research Institute (CONICET-UNICEN), Campus Universitario, Paraje Arroyo Seco, Tandil, Buenos Aires, Argentina

**Journal:** *Journal of Systems and Software* (Impact Factor: 1.35), **01/2016**; DOI: 10.1016/j.jss.2015.10.022

During recent years, agile methodologies have become increasingly popular in both the software industry and academic research. Particularly, considerable attention has been paid to teaching Scrum in software engineering education as an academic response to the software industry's demands. In order to reinforce and strengthen the understanding of Scrum concepts, professors should personalize the learning process, catering for students' individual learning characteristics. After exploring several research works, we identified the need to provide students with relevant personalized learning scenarios that might offer more meaningful learning experiences.

In this context, the meshing hypothesis claims that when both teaching and learning styles are aligned, the students' learning experience is enhanced. However, the literature fails to evidence support for the meshing hypothesis in the context of software engineering education and scrum learning [1]. For this reason, our work aims to validate the use of strategies for teaching Scrum that fit students' learning styles according to the Felder-Silverman model [2].

To validate the aforementioned hypothesis, we present a methodology that evidences encouraging results on Scrum learning when students' learning styles are considered. Our methodology follows the guidelines proposed by Pashler et al. [1], who have summarized concepts and evidence related to the meshing hypothesis. Thus, an experiment was conducted in the academic year 2013, and replicated in 2014 in the context of the Software Engineering course at Universidad Nacional del Centro de la Provincia de Buenos Aires (UNCPBA).

We have corroborated that the students' knowledge of Scrum was improved when students were given suitable instructional methods according to the processing dimension of the students' learning styles. This contribution is a step forward to improve the teaching of Scrum by considering the learning preferences of students and provides support to the relation between students' learning style and the way these students learn Scrum that we previously reported in [3].

### References

- [1] H. Pashler, M. McDaniel, D. Rohrer, R. Bjork, Learning styles concepts and evidence, *Psychological science in the public interest* 9 (2008) 105–119.
- [2] R. M. Felder, L. K. Silverman, Learning and teaching styles in engineering education, *Engineering education* 78 (1988) 674–681.
- [3] E. Scott, G. Rodriguez, A. Soria, M. Campo, Are learning styles useful indicators to discover how students use scrum for the first time?, *Computers in Human Behavior* 36 (2014) 56–64.