Chapter 7
Fostering Creativity in Agile Education: A Comparative Study of Students and Software Practitioners

Carlos Villarrubia
https://orcid.org/0009-0000-2400-1049
Universidad Rey Juan Carlos, Spain

David Granada
https://orcid.org/0000-0001-9743-4347
Universidad Rey Juan Carlos, Spain

Juan Manuel Vara
https://orcid.org/0000-0002-8637-6580
Universidad Rey Juan Carlos, Spain

ABSTRACT

In the contemporary software development landscape, mastering agile methods and nurturing creativity are essential skills for team success. This study aims to demonstrate that these objectives are both compatible and synergistic. It presents the findings from six experiments involving diverse groups of students and software development practitioners who utilized DesignScrum, a gamified educational resource that integrates Scrum and Design Thinking. The primary objective is to teach agile methods and techniques in a manner that fosters creativity within software development teams. The results indicate that practitioners exhibit a stronger grasp of agile concepts due to their work experience, while students display a higher potential for creativity. Additionally, all participant groups perceived gamification as a beneficial learning approach, noting increased motivation and satisfaction.

DOI: 10.4018/979-8-3693-9531-8.ch007

This study concludes that with the appropriate tools, teaching agility and creativity in various educational and professional settings is not only feasible but also highly advantageous.

INTRODUCTION

The roots of agile methods can be traced back to the publication of the Agile Manifesto in 2001, a document created by software professionals to address the shortcomings of traditional, rigid development approaches such as the waterfall model. The manifesto emphasized values such as collaboration, customer feedback and flexibility to adapt to changing requirements (Beck, 2000; Manifesto, 2001).

In recent years, a number of frameworks and techniques have been developed for the teaching of agile methods to students of software development. Among these, the Scrum framework, created by Ken Schwaber and Jeff Sutherland in 2002, is one of the most widely accepted by both academics and practitioners alike (Hoda et al., 2018). This is largely due to the fact that it facilitates the continuous delivery of value through the use of small iterations, with self-managed and cross-functional teams (Kupiainen et al., 2015; Schwaber & Sutherland, 2020).

In light of the growing demand for practitioners versed in agile methods within the software industry, it is of paramount importance that students not only possess a comprehensive understanding of the fundamental concepts, but also demonstrate the ability to effectively apply them in the products they are engaged with. From a pedagogical standpoint, Scrum is not inherently complex, as it comprises a limited set of concepts and ideas (Srivastava et al., 2017). The true challenge lies in equipping teams with the skills to implement it effectively. In this regard, there are several established educational methodologies for acquiring agile (Salza et al., 2019, such as master classes, as well as certifications that attest to proficiency in this domain (Beraza et al., 2023).

Despite the prevalence of traditional methodologies, novel approaches to the teaching of agile have recently emerged, with gamification emerging as a prominent strategy for motivating learners through the introduction of playful elements. This is because gamification not only increases student engagement and motivation, but can also enhance the practical learning of complex skills by simulating real-life situations in a controlled environment (Deterding et al., 2011).

Notable examples of educational resources that introduce gamification into the teaching-learning process include LEGO4Scrum, which employs the use of building blocks to simulate the process of developing a software product (Krivitsky, 2017); The Ball Game, which utilizes rubber balls to facilitate self-management of development team members (May et al., 2016); and Kanban Pizza Game, which