Författare: Nina Dzamashvili Fogelström
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Games for better understanding of threshold concepts in agile project courses

Usage of games and game elements in education has been gaining attention in academia. Coincidently, these concepts are becoming increasingly popular for staff training and education in different software businesses. This paper examines and compares concepts of Game-Based Learning and Gamification. Conducted literature survey found indeed an increased interest in the academia in these concepts, limited evidence of positive effect on student motivation and academic performance, but also certain scepticism for adding games to traditional educational activities.

A small-scale empirical study presented in this paper, aims to evaluate student experience and usefulness of Game-Based Learning and Gamification for better understanding of the threshold concepts in software engineering project courses. The participants of the study were 22 second year students from bachelor's program in software engineering at BTH. As a part of the course instruction, the students were introduced to a digital game, specifically designed to simulate agile software project. The game mechanics were designed as to allow manipulation of the agile concept of team velocity.

After application of the game, the students were surveyed to measure the degree of perceived increase in understanding of the studied threshold concept. The students were also asked whether they would like to have games included in their education.

The results show that majority of the students found the game helpful in increasing their understanding of the threshold concept. Most of the students have indicated that they would like to see games included in their education. These results are encouraging. Since the study was of small scale and based on convenience sampling, more studies in the area are recommended.