

# Using a simulation game in the education of an agile approach

**Abstract:** Nowadays, many companies move to a modern agile project management approach. It is a very flexible approach that has many frameworks and extensions. In order to improve the quality of teaching and better understanding the functioning of the agile project management in practice, we create and use an agile game in education. This game helps students to understand the Scrum approach used for IT projects. The game can be played within 90 minutes during a seminar. The students must go through a lecture where will be explained in detail the rules and concept of the whole game. Upon successful finish the game, students received questionnaires containing specific questions that should point to the game itself and its influence on understanding agility. The paper focuses on the analysis of student's feedback. The goal of this paper was to teach students an agile approach using the agile game in the Scrum framework and also to find out which parts of the agile game should be improved in the future based on the student's answers. Based on feedback from students, recommendations for improving the game for future players will be implemented, as described at the conclusion of the paper

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## Introduction

Nowadays, the development of information technology is growing exponentially, and some software controls most devices. As a result, the software has become a key component of human life. Nidagundi and Novickis (2016) said, that is crucial to understand that software development is one of the most difficult and time-consuming activities. According to Ghuman (2013) in the software development process, there are many steps from analyses, writing code through testing to rollout to production. It is important to realize that the computer is completely useless without computer software.

An agile framework Scrum was used for creating the agile game. It was chosen mainly because it is probably the most widespread application of agile methodology developed by Jeff Sutherland and Ken Schwaber today (2017;1997). It can also be said that this methodology is best suited for IT project management according to her specific characteristics.

Heikkilä, Paasivaara and Lassenius (2016) created a collaborative board game to teach one of the agile methodologies, namely Kanban, at the Aalto University in Finland. The exact name of this game is GetKanban v4.0, a 3-6 player game played by 31 and 43 students in 2014 and 2015. After playing and evaluating the results, they concluded that learning using games might not be more effective as traditional teaching methods but at least won't be worse. It can, therefore, be said that when teaching agile management, it is appropriate to use a practical way of teaching.

## Materials and methods

### Agile game description

The agile game is understood, like a simulation game that simulates an agile approach to project management in the Scrum framework. The simulation game will, in this article, be referred to as the "agile game". Design of the agile game is very important part of the team's research. This agile game helps students to understand the agile approach of the project in a Scrum. The successfully played agile game will serve as a basis for the research paper.

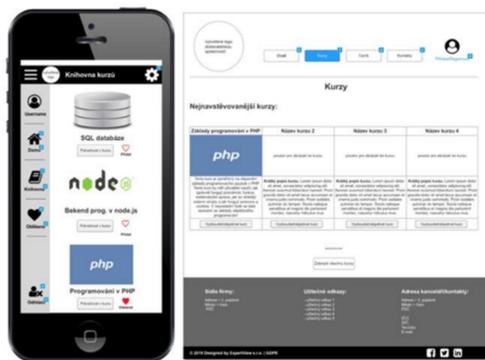


Figure 1 : Sample design (source: own creation)

The project assignment is divided into five more significant parts, and then is every part of it describes in detail. The bigger parts are the following: (i) creating a wireframe of the whole web, including graphics, (ii) design of the mobile application, (iii) logo, (iv) banner, (v) business cards. Each scrum team should at least approximately achieve according to the textual input, user stories, epics, and communication with the game facilitator (customer). For each of these parts, a final graphic design has been successfully created (see Figure 1)

<b>User Story</b>		<b>Acceptation criteria:</b>	
As a:		AC1:	
I want:		AC2:	
So that:		AC3:	
		AC4:	
BU value:	Priority:	Accepted ..... by .....	
Part of epic:	Status:		

Figure 2 : User Stories cards (source: own creation)

## Results

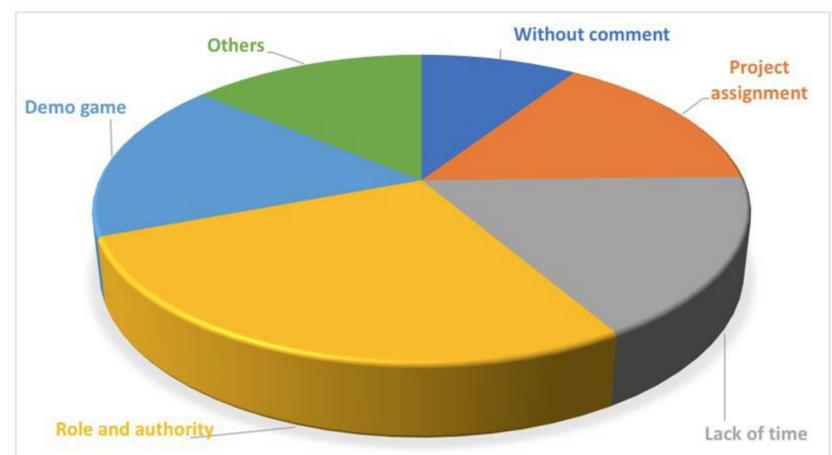
The research was carried out on students of the 2nd year of the follow-up master's degree in study program informatics on Faculty of Economics and Management, Czech University of Life Sciences in Prague. This game was played with all students in the subject IT project management. The total number of players participating in the game was 63 students. The 63 students were divided into 12 teams, each team consisting of 5 players (some teams consisted of 6 players).

After completing the game, the students completed a detailed questionnaire in which they were asked to answer the specific questions (and also describes by their own words):

As the research would be too extensive, only 2 the most important questions will be analyzed and described.

- What did students not like about the agile game? (disadvantages and weaknesses)
- How much did the game help students understand the agile approach of PM?

### Disadvantages and weaknesses



Graph 1 : Disadvantages and weaknesses (source: own creation)

## Conclusion

Based on the student's evaluation of the agile game, it can be said that the game was designed conceptually very well with some shortcomings. The game showed the greatest shortcomings in project assignment and time distribution. The whole article could also be extended to the results of the questionnaire survey on other issues. Students were also asked not only about questions about the agile game itself but also about issues that will be used in the future to analyze team roles and follow-up recommendations on who is suitable for what team role.

As described in the chapter "Disadvantages and weaknesses" the biggest problems in the game were in the poorly defined competences of the individual roles. Also, the students lacked a sample game for better understanding. In the future, it is planned to create a so-called "demo game" for better understanding and better define the competence cards of the individual roles of the team members. Alternatively, change the organization structure in teams (each role in the team) or modify created role cards.

## References

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