Gamification in teaching
Scrum framework

Remigiusz Samborski
What is gamification?

The application of typical elements of game playing (e.g. point scoring, competition with others, rules of play) to other areas of activity, typically as an online marketing technique to encourage engagement with a product or service.
Scrum Wars

- **What?** Innovative and authorial gamification approach to teaching Scrum
- **When?** Conducted as an experiment during part-time IT studies on Technical University of Wroclaw in winter semester 2015/2016
- **Why?** To check, if gamification can boost up effectiveness of learning and students engagement
Educational goals

• Finishing and delivering a project consistent with the subject of classes
• Learn Scrum framework and get necessary skills to work in a Scrum Team
• Learn and use in practice Agile estimation techniques
Expected behaviors

Individual expected behaviors:
• Registered him/herself in Moodle and Jira
• Takes part in discussions on Moodle’s forum and in Jira
• Takes part in project implementation
• Takes part in code creation
• Takes part in Scrum meetings

Group expected behaviors:
• Creates sprints in Jira
• Conducts Sprint Review meetings and presents work outcomes to the Product Owner (the teacher)
• Estimates tasks during Sprint planning meetings
• Implements improvements according to Sprint Retrospective meetings
• Uploads projects documentation to Moodle platform
Background story

- BitNow is an international company operating on cryptocurrencies market. The Board of Directors decides to open a new office in Wroclaw, Poland.
- Your company receives a contract to deliver projects related to new HQ opening.
- According to the contract BitNow set multiple projects with amounts of money, which it is ready to pay for each of them.
- The teacher plays the role of Product Owner.
Self-organizing Teams

QUATTRO TEAM

ANGRY HAMSTERS

POWER ENGINEERS

BYTE EATER

panDA TEAM

COFFEE TEAM

THE DOORS™

De Bijal?
Backlog

- Each team receives their own Backlog with requirements (User Stories)
- First, students receive Backlog without prices and are asked to play Scrum Poker to assign the effort level required to deliver each Story
- After this initial task, price for each Backlog item is revealed
- The teams are awarded only for requirements accepted by the Product Owner on Sprint Review meetings
Phases / Sprints

• The game consists of 3 phases (Sprints)
• On planning meeting each team selects Stories to be delivered based on the story point estimation and business value (US dollars)
• Second part of planning meeting is used for decomposition and detailed estimates in ideal hours
• Each Sprint ends with a Sprint Review and Sprint Retrospective meetings
• After Sprint 1 and 2 positive and negative risks are introduced by the Product Owner
Leaderboards

- Teams’ leaderboard
  - Score calculated in US dollars based on summary of all delivered projects
- Players’ leaderboard
  - Score calculated in points based on player activities, commits
- Minimum score for passing the course
  - $10,000 for a team
  - 1000 points for a player
- Leaderboards are updated after each Sprint, presented during classes and available online on Moodle
Badges

- IT Guru – biggest number of comments
- Work Titan – biggest number of logged hours
- Coding Ninja – biggest number of commits
- Badges are awarded in Moodle after each Sprint.
Results – General

• Total of 41 projects delivered by 9 groups during 3 months!
• Average of 4,56 projects delivered per group!
• Best team earned $38,000.
• Best player earned 8775 points.
• Great engagement and motivation of students.
• Rivalry between teams – till the end they were fighting neck by neck for victory.
Results – Scrum test

- Pretest and Posttests were conducted with 15 multiple selection questions
- Average pretest results – 8,02/15 (53,46%)
- Average posttest results – 11,11/15 (74,09%)
- Increase of 38,58% achieved
Results – Survey

Anonymous survey was conducted with 8 questions with grades of 1 (worst) to 5 (best):

• In what degree has the course met your expectations: 4,26
• How useful were gained information in improving your competence and skills: 4,11
• In what degree was the course related to your current work, project or tasks: 3,26
• In what degree gained competences will be useful in your professional life: 3,78
• Please grade the way lecturer shared his knowledge: 4,78
• Please grade the preparation of lecturer to conduct the classes: 5,00
• Please grade the level of supporting materials: 4,89
• Please grade the overall atmosphere of the classes: 4,93
• **Overall score: 4,38**
I liked the game idea, points and money were motivating and encouraged to work on such boring stuff as networking.

Very interesting and unusual formula of classes. Doesn’t force, but encourages to be involved.

Classes on a very high level, one of my favorite on PWR.

Very well conducted course, good atmosphere and professionally handled classes. I hope to have the possibility of joining other classes conducted by the same lecturer.

Scrum Wars has too low passing score. It should be higher at least by 20%.

The points system seems to be not fully fair due to the possibility of earning points for the amount and not for quality.

Great idea for conducting the laboratory. Introduction of rivalry is an additional form of motivation + possibility to learn Jira and Scrum framework.

Best class in this semester (most interesting and most creatively conducted).

For me revelation – fully met my expectations.
Future plans

• Conduct Scrum Wars for other groups with different projects.
• Use gamification in business projects, operational work or processes.
Gamification framework and hints

• Define business objectives
• Define target behaviors
• Describe your players
• Devise activity cycles
• Don’t forget the fun!
• Deploy appropriate tools, PBL triad:
  • Points
  • Badges
  • Leaderboards
• Use online tools to support your gaming experience (e.g. Jira, Moodle, #Slack)
• Gather feedback and iterate to make the game better
Books

“For the Win: How Game Thinking Can Revolutionize Your Business” by Kevin Werbach (Author), Dan Hunter (Author)

Questions?
Thank you