



Agile2Learn Scenario

Interdisciplinary Project for the creation
of a board game

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1 Purpose of the project

The purpose of the project is to create a playable board game. For the creation of this board games, agile methods and tools shall be used.

There are many different types of board games that students could develop using agile methods. Here are some examples of board game themes that could be used:

- I. Strategy game: A game that challenges players to make strategic decisions and outmaneuver their opponents. Examples include Settlers of Catan, Risk, or Diplomacy.
- II. Cooperative game: A game where players work together to achieve a common goal, such as solving a mystery or surviving a disaster. Examples include Pandemic, Betrayal at Baldur's Gate, or Forbidden Island.
- III. Trivia game: A game that tests players' knowledge on a specific topic or theme, such as history, science, or pop culture. Examples include Trivial Pursuit, Jeopardy, or Wits & Wagers.
- IV. Party game: A game that is easy to learn and fun to play with a group of people, such as charades, Pictionary, or Cards Against Humanity.
- V. Adventure game: A game that involves exploration, discovery, and risk-taking, such as Dungeons & Dragons, Betrayal at Baldur's Gate, or Betrayal Legacy.
- VI. Educational game: A game that teaches players about a specific subject, such as math, science, or geography. Examples include Math Maze.

2 Learning Objectives

In this document, a practical project scenario is provided for those who want to practically apply agile learning at school. The learning objectives are:

- Development of the project vision and project strategy
- Development of the initial set project requirements using user stories
- Development of the core agile values and identification of agile methods and their usability and practicability



- Development of project management skills: Students will learn how to manage a project using agile principles, including how to create a product backlog, prioritize user stories, plan sprints, and track progress.
- Learn about available tools, ways, and complex solutions for digital collaboration.
- Produce a solution how to organize team collaboration based on the needs, resources available and desired outcomes.
- Understand the meaning of agility within the context of teamwork.
- Development of effective decision-making practices that combine as many as possible viewpoints of team members.
- Development of the ability to think creatively

3 Related Learning Outcomes

The learning outcomes of a board game development project using agile methods can be diverse, and they will depend on the specific game theme, the project scope, and the objectives set by the teacher or the project stakeholders. However, here are some general learning outcomes that can be achieved through a board game development project:

- I. Creativity and innovation: Students will learn how to come up with unique and original ideas for their board game, taking inspiration from other games or creating something entirely new.
- II. Planning and organization: Students will learn how to plan the development of their board game, break it down into manageable tasks, and prioritize those tasks based on user feedback and team goals.
- III. Communication and collaboration: Students will learn how to work effectively in a team, communicate their ideas, give and receive feedback, and solve conflicts.
- IV. Problem-solving and critical thinking: Students will learn how to identify problems or limitations in their game design, and use critical thinking to find solutions or workarounds.
- V. User-centered design: Students will learn how to put the user at the center of their game design, conducting user research, and incorporating feedback to create a game that is fun and engaging to play.
- VI. Prototyping and testing: Students will learn how to create a prototype of their board game, test it with users, and iterate on the design based on feedback.
- VII. Presentation and storytelling: Students will learn how to present their board game in a clear and engaging way, showcasing its features and telling a compelling story about how the game is played.



4 Pre-game

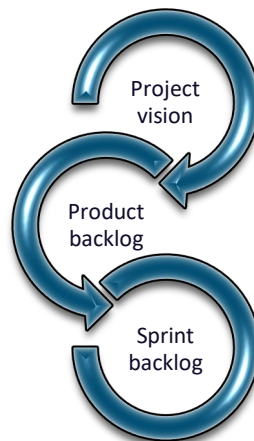
- ✓ Introduce students to the basic concepts of game design, including mechanics, rules, and game components. This can help students develop a common understanding of the project and build excitement for the upcoming board game development project.
- ✓ Team Formation: Help students form teams based on their skills and interests. It is important to ensure that each team has a diverse set of skills, including game design, art, programming, writing, and project management.
- ✓ Scrum Training: Conduct a scrum training session to introduce students to the agile methodology, including scrum roles, ceremonies, and artifacts. This can help students understand how to work together in an iterative and collaborative way.
- ✓ Ideation Session: Conduct an ideation session where each team brainstorms and develops several game ideas. This can help students generate a range of game concepts that they can evaluate and refine later in the project.
- ✓ User Research: Conduct user research to understand the needs and preferences of the target audience for the game. This can help students design a game that is engaging and fun to play.
- ✓ Product Backlog Creation: Help students create a product backlog that includes all the features and requirements for the board game. This can help students prioritize their work and plan their sprints effectively.
- ✓ Present the project vision and strategy to the students and then develop the initial project plan, as well as the initial set of project requirements (**project inception**). Project requirements should have the form of “user stories”
- ✓ Form the teams and set clear goals for each team. Secondly, create a product backlog (**product backlog - agile artifacts**), by using user stories. You can use the **Trello tool** to create the **product backlog** Since Trello tool is basically a general purpose collaboration tool, the corresponding Trello template should be used. Invite students



to it so that they can access the collaboration environment and take over tasks. The organization of the board should be done in such a way that there is a direct supervision of the pending and completed requirements.

- ✓ Create four basic lists:
 - The Product Backlog that contains all the project requirements.
 - The Sprint Backlog which contains the requirements included in the current sprint.
 - The In Progress list which includes the Sprint requirements whose work is in progress.
 - The Complete or Done list which contains the sprint requirements that have been completed.

Duration: 2-3 hours



Picture 1: The steps of the project

Example user stories for the product backlog:

- As a player, I want the game to be challenging, but not too difficult, so that I can enjoy playing it.
- As a player, I want the game to have clear rules and instructions, so that I can understand how to play the game.



- As a player, I want the game to have a well-designed game board and game components, so that the game is visually appealing and easy to use.
- As a player, I want the game to have interesting and varied game mechanics, so that I can experience different challenges and strategies while playing the game.
- As a player, I want the game to have a good balance of luck and skill, so that I can have fun playing the game, regardless of my level of skill.
- As a player, I want the game to be suitable for my age group and skill level, so that I can play the game with my peers and have a good time.

The user stories indicate what the project team needs to think of while working on the project. For the development of a board game, you should consider the following:

Game Mechanics:

- Define the game mechanics (how the game is played, objectives, scoring, etc.).
- Design the game board and game pieces.
- Develop the rules and instructions for the game.
- Determine the number of players and playing time.

User Interface:

- Create game artwork (board design, card design, game pieces, etc.).
- Create the graphic design of the game components.
- Develop a user-friendly interface for the game.

User Experience:

- Conduct user research to understand the target audience.
- Define user personas.
- Identify and incorporate feedback from playtesting sessions.

Game Components:

- Determine the game components required (dice, cards, tokens, etc.).



- Design and produce the game components.
- Test and refine the game components.

5 The game

EduScrum is a variation of the Scrum framework specifically tailored for educational institutions, such as schools and universities. The aim of EduScrum is to provide a flexible and adaptive approach to teaching and learning that can be applied to different subjects and educational levels. It emphasizes the importance of collaboration, continuous improvement, and student-centered teaching and learning.

In EduScrum, teachers and students are considered the development team, while the course objectives and outcomes serve as the product backlog. The teacher takes on the role of the Scrum Master and facilitates the process, while the students are responsible for delivering their learning goals. Regular meetings, such as Sprint Planning, Daily Scrum, Sprint Review, and Sprint Retrospective, provide opportunities for the teacher and students to reflect on their progress, plan their next steps, and identify areas for improvement. The goal of EduScrum is to create a more engaging and dynamic learning environment where students can take ownership of their education and collaborate with their peers to achieve their goals.

In the Figure below the Scrum process is presented.



Picture 2: Scrum process



In the proposed educational project, there are six sprints. Feel free to customize this list according to your project scope and limitations.

Sprint 1:

- Define the game mechanics and objectives.
- Develop the initial game board and game pieces.
- Create the first version of the rules and instructions.
- Identify the target audience and user personas.

Sprint 2:

- Conduct playtesting sessions to gather feedback.
- Refine the game mechanics and objectives based on feedback.
- Update the game board and game pieces.
- Revise the rules and instructions based on feedback.

Sprint 3:

- Develop the game components (dice, cards, tokens, etc.).
- Test and refine the game components.
- Incorporate feedback from playtesting sessions.
- Plan for the graphic design of the game components.

Sprint 4:

- Create the graphic design of the game components.
- Integrate the game components with the game board and game pieces.
- Conduct additional playtesting sessions to test the integration.
- Refine the game mechanics and objectives based on feedback.



Sprint 5:

- Develop a user-friendly interface for the game.
- Conduct user research to understand the target audience.
- Update the game components based on user research and feedback.
- Prepare the game for distribution (packaging, instructions, etc.).

Sprint 6:

- Conduct final playtesting sessions to ensure the game is ready for release.
- Develop a marketing plan for the game.
- Determine the distribution channels for the game.
- Launch the game and gather feedback from players.

It's important to note that the number and duration of sprints will depend on the scope of the project and the timeline available. The above sprints are just an example and may vary based on the specific requirements of the project.

Sprint Review at the end of every sprint

Duration: 1-2 hours (can be done quicker depending on the duration of the sprint).

- Team members discuss what went well during the Sprint, what problems they ran into, and how those problems were solved.
- Every team showcases its work and inspects the overall roadmap for the product (Product Backlog)
- The entire group collaborates on what to do next, so that the Sprint Review provides valuable input to subsequent to Sprint Planning
- Tips from the teacher ahead of the next sprint
- The result of the Sprint Review is a revised Product Backlog that defines the probable Product Backlog items for the next Sprint. The Product Backlog may also be adjusted overall to meet new opportunities.

Sprint Retrospective after the sprints

Duration 1-2 hours

- It's conducted after the sprint is finished, and this means 'really finished', so after the sprint review too.



- Members inspect their ways of working during the last sprint, and decide how they can improve during the next sprint
- The team discusses:
 - What could be improved?
 - What will they commit to improve in the next Sprint?

In order to do that, one of the most common ways to structure a Sprint Retrospective is to have every team member answer the following questions:

- What went well?
- What did not go well? What was impeding the progress?
- What actions need to be taken to improve?

Sprint Retrospective vs Sprint Review (Difference)

- **Sprint review output:** updated product backlog with the top priority user stories for the development team to work on at the top.
- **Sprint retrospective output:** action list with specific steps to improve team ways of working during the next sprint
- The **sprint review** is about the product, while the **sprint retrospective** is about the team.

Post- game

At the end, a presentation of the entire project, and a general review (retrospective):

- What they learned (knowledge related to the subject they dealt with)
- What they learned from the process - collaboration (emphasis on competencies)
- Whether their collaboration improved from Sprint to Sprint
- What should have been done better?
- What they would like to improve on (competencies)?

The evaluation criteria that we can take into account when applying the agile methods are the following:

- the active engagement
- the successful execution and fulfillment of the objectives
- the ability to solve problems and take initiative.



- the development of social skills (dialogue, communication, collectivity, conflict management, etc.)
- the personal creative expression and integration of each student into the whole transformative learning and changing attitudes
- the evaluation of the results of the project by the students themselves

In the plenary class, the teams complete their assignments. Each team has 10 minutes to present their work. All team members undertake to present a part of their work. At the end of the presentations, the students evaluate both the project as a whole and the level of cooperation between the members of each group.

The project evaluation can be carried out in two stages:

The teacher descriptively evaluates the performance of the students by observation during the tasks based on an evaluation sheet on a five-point scale (1-5) (1. Insufficient, 2. Weak, 3. Average, 4. Good, 5. Very good) . The areas assessed are:

1. understanding concepts – knowledge of trends and sequences (individual assessment)
2. students' critical ability (individual assessment)
3. willingness to work – active participation (individual assessment)
4. taking initiative (individual assessment)
5. cooperation (individual evaluation)
6. social skills (communication, teamwork, conflict management) (individual assessment)
7. the students' behavior (individual evaluation).
8. the originality and innovation of the work (group evaluation)
9. the quality of work (group assessment)

In the first stage, individual skills will be evaluated (1-7) and in the second stage, which will be done during the presentation of the groups' work, the group evaluation will be done (7-8). In this way, the evaluation does not acquire a comparative character, but is based on criteria arising from the learning objectives.

The evaluation of the project, as well as the entire process from the students' side, can be carried out in the form of a discussion after the presentation of the groups' work, thus contributing to the feedback of the whole class.