Innovative
Agile Project
Based Learning

# Agile2Learn CONFERENCE

University of Thessaly, Gaiopolis Campus
Dept. of Business Administration, Larissa, Greece

21st of October 2023


# PROCEEDINGS

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# PREFACE

In today's rapidly changing global landscape, the need for agile methodologies in education has never been more evident. As we stand at the forefront of the "agility era," we recognize the immense potential of integrating agile principles into our educational systems. It is with great enthusiasm that we present the proceedings of the Agile2Learn Conference, a culmination of collaborative efforts by a consortium of dedicated European partners in the context of Agile2Learn ERASMUS+ project. This conference serves as a beacon, illuminating the transformative power of agility in fostering collaboration, enhancing teacher competencies, and preparing our educators for the challenges of the modern world.

These proceedings are organized into three comprehensive parts, each reflecting a distinct facet.

**Part A: Abstracts** delves deep into the theoretical and practical aspects of agile learning. From understanding the essence of agility in our contemporary era to exploring innovative board games like "Journey to the Middle Earth," the abstracts presents a rich variety of insights. Noteworthy contributions such as "Agile Learning: Embracing Olympic values and sports" and "Students in Action on climate change. An Agile Learning STE(A)M Project" underscore the versatility of agile methodologies, highlighting their applicability across diverse subjects and contexts.

**Part B: The Workshops** provides a hands-on approach to agile learning. Each workshop is meticulously designed to equip educators with practical tools and strategies. These workshops serve as an evidence to the tangible impact of agile methodologies when implemented in real-world classroom settings.

Finally, **Part C: The Various Material** is a collection of resources for any educator or institution keen on embarking on their agile journey. From an in-depth Q&A on agile education to the meticulously curated "Agile2Learn Curriculum," this section ensures that attendees are well-equipped with the knowledge and resources to integrate agility into their teaching methodologies.

The Agile2Learn project is not just an initiative; it's a movement. It's about recognizing the significance of communication, creativity, teamwork, and critical thinking in our current educational paradigm. It's about understanding that, in a world marked by uncertainties, our educators need to be equipped with transversal competencies that go beyond subject mastery.

We extend our heartfelt gratitude to all contributors, participants, and supporters who have made the Agile2Learn Conference a resounding success. As you peruse these proceedings, we hope you find inspiration, gain knowledge, and join us in our mission to reshape the future of education. The "agility era" is not just on the horizon; it's here, and together, we have the power to harness its potential for the betterment of our global society.

Welcome to the Agile2Learn Conference Proceedings. Let's embark on this transformative journey together.

Panos Fitsilis

Vyron Damasiotis

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# Part A

# ABSTRACTS

# In the era of agility

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## Abstract

This position paper delves into the emergence of agility as a mega societal trend, its profound impact on businesses, and the need to adapt our educational systems to this new paradigm. With market cycles shortening and design gaining prominence over traditional quality systems, we stand at a juncture where embracing the values of the Agile Manifesto is not just beneficial, but essential.

## Introduction

The world is witnessing a dynamic shift, characterized by rapid changes in market trends, technological advancements, and societal expectations. This shift has given birth to the 'Era of Agility', a time where adaptability and swift response to change are pivotal. The essence of this era lies in the understanding that long-standing practices and methods might not be suitable in the current rapidly evolving environment.

## Market Cycles and the Primacy of Design

Historically, businesses thrived on producing high-quality products that stood the test of time. However, in today's environment, the lifespan of market cycles has shortened considerably. Companies are now required to innovate and iterate faster than ever before, making the design process paramount. While quality remains essential, it is the design that now takes precedence, as it dictates how well a product or service aligns with ever-changing consumer needs and desires.

## Agility in Education

In the Era of Agility, where rapid changes and uncertainties have become the norm, the traditional approach to education, characterized by static curriculums and rote learning, falls short. The importance of instilling agility in education stems from the need to prepare students for a world that is vastly different from previous generations. Here we explore the reasons for its significance and the manifold benefits it offers.

**1. Preparing for an Unpredictable Future** As market cycles shorten and industries evolve at an unprecedented rate, it's clear that the jobs and challenges of tomorrow might not even exist today. By integrating agility into education, we can ensure that learners are equipped not just with specific knowledge, but with the ability to adapt, innovate, and approach problems with a flexible mindset.

**2. Cultivating Lifelong Learners.** Agile education emphasizes the importance of continuous learning. In a world where the half-life of skills is constantly decreasing, the most valuable attribute is the passion and ability to learn throughout one's life. Agility in learning nurtures this trait, ensuring that students remain relevant and proactive in their personal and professional lives.

**3. Enhancing Problem-Solving and Critical Thinking.** Agile methodologies in education often incorporate real-world problems and project-based learning. This hands-on approach requires students to apply critical thinking and problem-solving skills, fostering a deeper understanding of subjects and their practical applications.

**4. Encouraging Collaboration and Teamwork.** Just as the Agile Manifesto values "individuals and interactions over processes and tools," agile education emphasizes the importance of collaboration. Group projects, peer reviews, and collaborative problem-solving sessions cultivate teamwork, an essential skill in most modern workplaces.

**5. Personalizing Education.** Agility in education often involves a more tailored approach to learning. Recognizing that each student is unique, agile methodologies can be adapted to cater to individual learning styles, paces, and interests. This not only makes learning more engaging but also ensures that each student can maximize their potential.

**6. Building Resilience and Embracing Failure.** In an agile classroom, failure is viewed as an opportunity to learn and iterate. This perspective fosters resilience in students, teaching them to view challenges as stepping stones rather than obstacles. In a world where setbacks are inevitable, this mindset is invaluable.

Incorporating agility into education is not merely a trend; it's a necessity. In doing so, we are not just teaching students facts or skills, but we are instilling in them a mindset and approach to life that values adaptability, continuous learning, and collaboration. As the Era of Agility continues to shape industries, economies, and societies at large, agile education will be the cornerstone that prepares individuals to not just survive but thrive in this dynamic environment.

## Conclusion

The Era of Agility represents more than just a shift in business or educational practices; it marks a societal transformation. By recognizing and embracing the principles of agility, businesses, educational institutions, and individuals can navigate the challenges of today's rapidly changing world and capitalize on its myriad opportunities.

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# Agile Methodologies in Education

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## Abstract

In today's rapidly evolving educational domain, there is a pressing need for methodologies that prioritize adaptability, collaboration, and student-centric approaches. The presentation, titled "Agile Methodologies in Education", explores the adoption and adaptation of Agile principles, originally rooted in software development, for the educational domain. Agile, born as a countermeasure to the rigid and documentation-heavy software development processes, emphasizes adaptability, teamwork, and end-user satisfaction.

The Agile Manifesto (Beck et al., 2001), with its four core values and twelve guiding principles, serves as a foundation. These principles, which prioritize individuals and interactions over tools and processes, and value customer collaboration, find resonance in modern education. Several educational frameworks adapting agile methodologies were developed such as Edu Scrum (Delhij,2015), Scrum@School (Scrum at School, 2018) etc. These frameworks, with their iterative cycles, visual management techniques, and emphasis on feedback, are helping educators to deliver more dynamic and responsive instruction.

Furthermore, the presentation highlights the tangible benefits of Agile in education such as enhanced adaptability to changing educational needs, fostering greater collaboration among students, providing continuous feedback, and creating a student-centered learning environment. Practical insights from real-world case studies validate these claims, showcasing the positive shifts in classrooms that have embraced Agile methodologies. However, like any methodological shift, the transition to Agile is not without challenges. Resistance to change, the need for professional development, and the initial setup intricacies are some of the hurdles educators may encounter. Agile2Learn project focused on this aspect and provides an educational framework aiming to update teachers' competences to be able to apply agile methodologies in classroom effectively.

In conclusion, the presentation posits that while challenges exist, the future of Agile in education is promising. With the right tools, training, and mindset, Agile methodologies have the potential to make education more responsive, engaging, and effective, preparing students better for the uncertainties of the future.

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# The Agile2Learn Competences

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## Abstract

The emerging use of agile methodologies in educational process has opened a gap between the skills taught in academic contexts and the ones required by the software industry (Rodríguez et al., 2016). Although there is significant knowledge about the impact of agile methods in learning software engineering, there is a lack of knowledge about the impact agile methods have in the development of the necessary competences for teachers and students as future professionals during their educational life. Nowadays, young people need to have a broad set of competences to find satisfactory jobs, become independent, and engaged citizens. The development of key competences either domain or non-domain specific is at the heart of the educational design all over the world (Caena & Punie, 2019).

According to ***Key Competences for Lifelong Learning in the European Schools***, the European Reference Framework, the objective is to improve the development of key competences for all people throughout life.

The aim of the Agile2Learn project is professional development through appropriate training of the personnel who work in primary and secondary education. This will be achieved with upskilling them with a complex of skills and knowledge that is required for 21th century learners; such as the Agile2Learn methodology. The presentation highlights three sets of competences that have been developed through the curriculum development: *Transversal competences, Agile competences and Digital competences.*

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# Agile2Learn Course Structure

***Maximilian Plag*** *(Project Manager, plag@helliwood.com)*

## Abstract

In an ever-evolving educational landscape, the Agile2Learn teacher training course offers a fresh perspective on empowering secondary school educators to adapt and thrive in dynamic classroom environments. Funded under the ERASMUS+ programme of the EU, Agile2Learn is a pioneering initiative designed to revolutionize teacher training by integrating agile methodologies into the pedagogical paradigm.

This presentation provides an insightful overview of the Agile2Learn course structure, which takes place on the versatile Moodle platform. It delves into the multifaceted nature of the course, which comprises distinct phases of blended learning and a subsequent workplace learning stage. During the workplace learning stage, teachers, participants of the course, apply their acquired knowledge through the implementation of innovative teaching techniques within their classrooms, primarily via school projects centered on project-based learning.

The presentation meticulously elucidates the diverse content formats incorporated into the Moodle course, including presentations, articles, videos, websites, and more. This multimedia approach ensures that teachers engage with the content in a dynamic and interactive manner, catering to various learning preferences and styles.

Furthermore, the presentation offers a comprehensive breakdown of the course's modules, subunits, assessments, and other evaluation methods. It highlights the educational journey undertaken by participants, guiding them through the course's intricate structure. From learning about agile methodologies and pedagogical strategies to applying this knowledge in real-world educational settings, Agile2Learn nurtures a holistic professional growth experience for educators.

The Agile2Learn course was structured to equip educators with the tools, strategies, and adaptability required to excel in modern classrooms.

# "Fostering Resilient Agile2Learn Communities of Practice via an Interactive Online Platform: Opportunities & Outlook"

***Katerina Nikolakopoulou*** *(Primary Education Advisor, Researcher, DAISSy Research Group, HOU katnikolak@daissy.eap.gr, katnikolak@gmail.com)*

## Abstract

Designing agile learning environments tailored to the ever-changing, volatile, ambiguous, and complex nature of the 21st-century world is a fundamental skill in contemporary education. The Agile2Learn (A2L) project is a pioneering initiative featuring an interactive European Community of Practice (CoP). This collaborative space engages teachers, educators, trainers, and various stakeholders in the exchange of Agile2Learn experiences, underpinned by an online platform developed by the DAISSy Research Group of the Hellenic Open University (HOU).

This presentation attempts to highlight innovative teaching and learning approaches, agile effective techniques to engage trainee teachers within the Consortium team comprising participants from the Czech Republic, Italy, Germany, and Greece, in the Agile2Learn Erasmus+ European Community of Practice (CoP). It explores methods for actively involving participants in a reflective, interactive, and innovative Agile project-based approach to teaching and learning, which seamlessly integrates the benefits of contemporary business practices, including Agile techniques and principles, into the pedagogical and learning process.

The presentation introduces the online platform of the DAISSy Research Group, which is equipped with contemporary collaboration tools such as Fora, Blogs, commenting features, and instant messaging. This platform plays a vital role in supporting the European CoP. The results provide compelling evidence regarding the techniques and platform tools that can potentially enhance teachers' engagement in Agile Project-based teaching and learning processes, bridging the divide between theoretical e-learning and practical classroom implementation.

Furthermore, the presentation will highlight an initiative by the DAISSy Research Group, in collaboration with Educational Work Coordinators of the Regional Center for Educational Planning of Western Greece (PEKES), aimed at designing and implementing a customized learning program. This program was specifically tailored for a select group of teacher trainees with the primary objective of enhancing their proficiency in six skills of their preference, drawn from the Agile2Learn project.

The overall results reveal numerous opportunities. Notably, there has been significant progress in classroom implementation, resulting in the development of a robust digital repository of best practices that promote innovative and adaptable teaching methods. Additionally, there is a noticeable increase in online engagement within the A2L Community of Practice (CoP), which is contributing to the improvement of reflective and interactive skills among European teachers.

In summary, the consortium has successfully established and is currently maintaining a vibrant international online Community of Practice (CoP), fostering an alternative, flexible learning culture and offering promising perspectives for the future.

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Manifesto for Agile Software Development, http://agilemanifesto.org/

# Agile Learning Next Steps

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## Abstract

Mention the transformative journey over the past 2 years.

**Exploitation Roadmap**

Discuss the objective of the roadmap and its importance

Mention the "Agile2Learn Exploitation Guide and Tools"

Target groups and dissemination channels.

**Sustainability of the Project**

Scaling up:

- Offer the training as part of regular training programs or adapt it to other concepts.
- Promote the training at regional/local levels, enhancing its accessibility.
- Utilize Communities of Practice (CoPs) as a tool in English for other projects.
- Raise awareness among stakeholders and expand communities of practice.
- Widely disseminate project results, resources, and tools at national and European levels.
- Ensure the sustainability, accessibility, and transferability of content and the platform.
- Provide networking opportunities and share knowledge with other groups and organizations.
- Stimulate participation in local, regional, and national communities.
- Enhance, improve, expand, and scale up the Agile2Learn curriculum, training program, and platform.

Specific strategies for each partner listed.

**Exploitation Strategies**

Stakeholder Map will be prepared.

**Strategies at National level**: Targeted marketing; Partnerships and collaborations; Customization options; Demonstrations and workshops; Success stories and testimonials; Continuous improvements and updates; Professional development recognition; Research and publications.

**Strategies at EU level**: Stakeholder map (All digital, EADTU; EUA; EURASHE; ECSITE; European Schoolnet); events and platforms.

# "Journey to the Middle Earth" - a board game

***Soňa Vrátná*** *(ZŠ a SŠ Karlovy Vary, p. o., sona.vratna@gmail.com)*

## Abstract

The presentation offers a view on the agile journey of a group of students on an elementary school, which took full responsibility for creating a desk game. I will discuss the critical points and direct benefits observed in the classroom, including student engagement, critical thinking skills, and improved collaboration.

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Principles Behind the Agile Manifesto [on-line] https://agilemanifesto.org/principles.html

# AGILE METHODS IN ELEMENTARY SCHOOL

**Cristina Dionisi**

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## Abstract

I'm a teacher and I work in a primary school. I usually teach different subjects and in these last years I teach to disabled students.

I attended this course whit interesting but using Agile methods in a primary school is not easy. Making a structured intervention whit all process of Agile is complicated and not possible to do, but I could use with success some parts or concepts like problem solving, brainstorming, evaluation, user story and many tools.

The most important part of Agile Methods to use in a school is cooperative learning: work together in a group, help others and create feeling in the classroom to improve each and everyone.

Analyse different aspects of a situation and cocreate lessons with the students in the way that the are the protagonist of learning was for my children funny, interesting and motivating.

## References

Unit 3 digital collaboration: Instruments for collaboration (brainstorming, whiteboard…) and tools (canva, mentimeter, zoom, Webex…), Innovative Agile Project Based Learning

Unit 6 work in team, Innovative Agile Project Based Learning

Unit 8 agile ceremonies in classroom, Innovative Agile Project Based Learning

Unit 9 digital skills, Innovative Agile Project Based Learning

Unit 15 digital problem solving, Innovative Agile Project Based Learning

Unit 19 social skills, Innovative Agile Project Based Learning

# Agile learning: Embracing Olympic values and sports

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## Abstract

This paper focuses on the planning, implementation, and evaluation of an educational teaching proposal using an agile teaching and learning approach, known as the Agile Project-Based Learning Program. Within this program, students explore the grandeur of Ancient Greece's most significant celebration, the Olympic Games. They learn about the event's historical context, the host location, the organization of the games, and the various competitions that took place.

The primary objective of this scenario is to encourage students to question the values promoted by sports through adaptable teaching methods. Teachers take on the role of Scrum Masters, guiding the process, while students have the responsibility of selecting their learning objectives. Regular meetings, including Sprint Planning, Daily Scrum, Sprint Review, and Sprint Retrospective, enable teachers and students to assess their progress, plan future steps, and identify areas for improvement.

This program offers students a hands-on experiential learning opportunity that emphasizes teamwork, innovation, creativity, and real-world problem-solving. By employing an agile project methodology, students are encouraged to work in a dynamic, reflective, and agile manner, enabling them to respond to feedback and adapt to changing circumstances. Throughout the process, students actively engage with the subject matter, enhancing their creativity and nurturing their critical thinking skills.

# Experiences of Greek Educators (HOU) in Implementing the Agile2Learn Project

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**Stavros Markantonatos** (IT Professor,HOU Researcher, smarkanto@sch.gr)

## Abstract

In this paper we aim to outline the procedure that HOU University tutors followed in order to disseminate the teachings of the Agile2Learn Based learning project.

The Hellenic Open University team developed the Agile2Learn Community of Practice in two steps. The first step aimed to register and introduce participants to the Agile2Learn community of practice environment. To achieve this goal the HOU team: (a) posted the “Detailed description of the Agile2Learn Program” on the CoPs’ platform and since then (b) all announcements, invitations to synchronous meetings and any useful information (for example for filling out questionnaires etc.) have been uploaded on the Community of Practice platform. In the second step, efforts were made to encourage the members’ participation in the Agile2Learn Community of Practice. To achieve these objectives, the HOU tutors’ team: (a) held regular weekly sessions (webex) and at the end of some sessions HOU trainers create online corresponding tasks, so that trainees upload on the CoP platform their practical application material of specific tools in their own classes, for example on the application of digital tools such as padlet, quiz, etc.

(b) suggested and encouraged trainees to post their own questions, impressions and reflections on the Community of Practice, as well as to ask for and give the corresponding answer through the Agile2Learn platform. (c) published periodic executive summaries /cards from synchronous meetings, for example a card of impressions, emotions of the trainees after the meeting (menti). (d) worked on a smaller scale training Agile2Learn program which was offered to Primary and Secondary teachers in order to encourage a broader participation in A2L HOU CoP. This was achieved by providing input to the members and stimulating the A2L CoP group through a series of interactive and collaborative activities through the following arrangements. The HOU tutors’ team:

- invited the teachers already involved in the Agile2Learn project to act as multipliers in their schools for the Unit they are familiar with.
- participated in a peer-to-peer training at their own schools.

- asked other school teachers (peers) to implement interactive and collaborative activities in a specific class.

Finally, through the CoP Community the HOU tutors' team managed to start an education discussion between peers that generated a multitude of innovative lesson plans and various useful suggestions. The training program through CoP was also aimed at cultivating a culture of reflection and revisiting of their work and results among them, encouraging teachers to seek and pursue feedback on their work and learn how to exchange information in a productive way with their colleagues or with teachers of other schools, generating involvement of teachers in peer learning/teaching processes (peer-to-peer learning/training).

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# The political system and its forms -Democracy

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## Abstract

'Agile to learn' methodologies were used in a project dealing firstly with the political system and its forms, and then concentrating on Democracy, its advantages, as well as its possible drawbacks and challenges.

The project consisted of three sprints:

The first sprint focused on the chapter "The political system and its forms" of the 6th grade "Social and Political Education" text book. The students worked in groups. They were divided into four groups. One worked on presenting what a political system is, while the other three worked each, on a different form of political system: Monarchy, Oligarchy, Democracy. The results of the pupils' research, were presented in poster form and then discussed in the classroom.

Tools used mentimeter, Trello, Quizizz

The second sprint focused on the chapter "Democracy" of the 6th grade Social and Political Education text book. Four Greek films of the sixties were shown. The same four teams undertook to observe, identify and present the elements of democratic polity depicted in each of the films and record how these democratic processes are treated. The results were again presented in poster format. Four posters were created, one for each film.

The second sprint highlighted some of the drawbacks of the democratic state, through the way they are presented in the films, which were mostly comedies. The third sprint, aimed to highlight some of the positive aspects of the democratic system. The main aim of this action was to highlight the positive aspects of democracy through the organization of a vote, as an important means of expressing the will of the people and making decisions. So, in the third sprint, there was a simulation of an online discussion followed by a vote, "in our own online parliament".

Tools Used: Webex

Other tools used Padlet, Podcast.

Write up to 300 words using normal style. All abstracts should be in English following UK spelling rules. Please forward the abstracts to fitsilis@uth.gr and damasiotis@uth.gr. The deadline is Sunday 15th of October. An extension  is not possible.

## References

https://mooc.daissy.eu/

# «Students in Action on climate change. An Agile Learning STE(A)M Project»

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Principal of the Primary School of Pelopio
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## Abstract

The main objective of this project was the development of an "agile" teaching approach in the framework of STE(A)M education which would help students to learn about globe warming, to comprehend the greenhouse effect, to link climate change with human activities and realize its consequences for life and the planet. By means of four sprints combining STEM and non STEM subjects the students were expected to activate their critical thinking and skills of their mind, to take initiative aiming at informing the school and the local community about the climate change and be reinforced to work in a reflective and creative collaborative way.

# "I take care of myself and those around me: Inclusion of people with disabilities & Road Safety" A STE(A)M Project

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***Maria Skandali*** *(Mechanical Engineer, 2nd Vocational School of Patras, skandalimaria1@gmail.com)*

## Abstract

The STEAM project **«I take care of myself and those around me: Inclusion of people with disabilities and Road Safety»** presents an innovative educational approach that combines STEM (Science, Technology, Engineering, and Mathematics) with agile project-based learning principles (Agile2Learn, n.d.). This project was conducted in collaboration with 1st and 3rd-year Vocational High School students, focusing on Physics and Automation subjects.

The project employed the agile methodology, introducing students to the scrum process, which includes essential concepts such as sprints, daily stand-ups, the product backlog, and retrospectives (Wijnands & Stolze, 2019). Through this approach, students learned how to develop a project plan and requirements using "user stories" and the mind mapping method.

**1st Sprint:** 1st year students engaged in an in-school intervention by the Road Safety Institute. They watched a video highlighting traffic accidents and their causes and effects (through brainstorming). They created a mind map using Miro, conducted a slow-motion simulation experiment and completed worksheets.

Additionally, students, inspired by a special education festival, discussed and illustrated the terms “Disabled” and “Inclusion” (brainstorming), created drawings with impactful messages and raised awareness about the daily challenges faced by individuals with disabilities. They collectively identified the issue of improving access to the sea for people with mobility disabilities as a problem to address.

**2nd Sprint**: Students understood the operation of the braking system (through Advanced Electronic Scenarios Operating Platform and brainstorming). They calculated stopping distances based on driver's reaction time and proper braking system operation through simulations. This phase also involved completing related worksheets.

**3rd Sprint:** 3rd year students specializing in "Electrical Systems, Installations & Networks Technician" were tasked with finding a solution for safely transporting disabled individuals to the sea using an automated chair on a ramp. Following the design thinking process involving problem solving, programming, etc. they implemented the electrical automation using a Programmable Logic Controller. The students tested their solution on a three-phase motor.

**4th Sprint:** Students authored articles, gathered photos and updated their school's website on Wordpress, so as the school and the local community to be informed about the two initiatives they participated in. They also showcased the benefits of Agile Project Based Learning (Participation of 2nd Vocational High School in Erasmus+).

In conclusion, this innovative Agile Project-Based Learning approach provided students with opportunities for Teamwork, Innovation, Creativity, and real-world Problem-Solving. Furthermore, it helped identify students' unique strengths, contributing to their successful placements in electrical companies through the Apprenticeship program at the 2nd Vocational School of Patras (CEDEFOP, 2018c. Ravasopoulos & Arachovitou, 2023).

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# Part B

# WORKSHOPS

# Agile2Learn Workshop
# "School Project Development using product backlog"

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## How to create a product backlog for a school project using user stories

Creating a product backlog for a school project using user stories is a great way to organize and prioritize the work that needs to be done. Here's a step-by-step guide on how to do it:

**1. Define Your Project Scope:**

- Start by clearly defining the scope of your school project. What is the project's goal, purpose, and what problem is it solving?

**2. Identify Stakeholders:**

- Identify the key stakeholders for your project. These could be teachers, classmates, or anyone who will be impacted by or interested in your project.

**3. Create User Stories:**

- User stories are concise descriptions of a specific piece of functionality from a user's perspective. Each user story typically follows the "As a [user], I want [an action] so that [benefit/value]." Here's how to create user stories:
- **As a [type of user]**: Who is the user or stakeholder?
- **I want [an action]**: What do they want to accomplish or what feature do they need?
- **So that [benefit/value]**: Why do they need this feature, and what value does it provide?

Example user stories for a school project:

- As a student, I want to be able to submit assignments online so that I can easily turn in my work.
- As a teacher, I want to view a dashboard of student progress so that I can track their performance.
- As a classmate, I want to see a list of upcoming project deadlines so that I can plan my schedule accordingly.

**4. Prioritize User Stories:**

- Once you have a list of user stories, prioritize them based on their importance and urgency. You can use techniques like Priority Poker  or simply order them by importance.

- **How to play Priority Poker / Planning Poker with cards**

All you really need for Priority Poker is a set of blank cards (or even pieces of paper) with numbers written on one side.

Your team can decide the scale of the numbers, but ideally, the numbers should go up in line with the amount of effort a particular task might require. Ensure there's a wide enough gap between the lowest and highest priority items.

Once you have your cards, follow these steps to play Priority Poker:

**Step 1:** The Product Owner will open the team's backlog and go through each story or task individually. This will usually involve a quick summary of the task and its requirements.

**Step 2**: Each team member will choose a card from their deck — one that they feel represents the amount of effort required to complete this task.

**Step 3**: Once everyone has chosen, all team members will reveal their scores. If there are folks who've voted very high or low, they'll usually be given a chance to explain their rationale.

**Step 4**: Repeat the process from step 2 until a broad consensus is reached.

**Step 5**: Move on to the next story or task, rinse, and repeat.

This is the traditional "pen and paper" method of playing Priority Poker.

**5. Create a Product Backlog:**

- Organize your user stories in a product backlog, which is a prioritized list of all the features and tasks that need to be done for your project. The most important and urgent items should be at the top.

**6. Keep the Backlog Updated:**

- As your project progresses, continue to add, remove, or reprioritize user stories based on changing requirements and feedback from stakeholders.

**7. Review and Refine Regularly:**

- Periodically review your product backlog with your team or project stakeholders to ensure it reflects the current project goals and priorities.

**8. Sprint Planning:**

- When you're ready to start working on specific tasks, you can select a subset of user stories from the product backlog for a sprint or iteration. This becomes your sprint backlog, and you can plan how to implement these stories during the sprint.

Remember that the product backlog is a living document that evolves as your project progresses and your understanding of the project requirements deepens. Regularly revisiting and refining the backlog is key to project success.

## Example of a simplified product backlog for a school project related to creating an online learning management system for students and teachers:

**Product Backlog:**

1. **User Registration and Authentication:**
    - As a student, I want to create an account and log in securely.
    - As a teacher, I want to register and access my dashboard.
2. **Dashboard and Profile:**
    - As a student, I want to see my enrolled courses and assignments on my dashboard.
    - As a teacher, I want to view a list of my classes and student rosters.
3. **Course Management:**
    - As a teacher, I want to create and manage courses.
    - As a student, I want to enroll in courses.
4. **Assignment Submission:**
    - As a student, I want to submit assignments for my enrolled courses.
    - As a teacher, I want to receive and review student submissions.
5. **Gradebook:**
    - As a teacher, I want to enter grades for assignments and exams.
    - As a student, I want to view my grades for each course.
6. **Discussion Forums:**
    - As a student, I want to participate in course-specific discussion forums.
    - As a teacher, I want to moderate and participate in the forums.
7. **Notifications:**
    - As a user, I want to receive notifications for new assignments, discussions, and grades.
8. **Search Functionality:**
    - As a user, I want to search for courses and content within the platform.

9. **Mobile-Friendly Design:**
    - As a user, I want to access the platform on my mobile device.
10. **Accessibility Features:**
    - As a user, I want the platform to be accessible to individuals with disabilities.
11. **User Profile Editing:**
    - As a user, I want to edit my profile information and change my password.
12. **Feedback and Support:**
    - As a user, I want a way to provide feedback and get technical support.

Remember that this is a simplified example, and in a real-world project, you would likely have many more user stories and tasks, each with varying levels of complexity. The backlog should be prioritized, and tasks should be estimated for effort. As the project progresses, you can move items from the product backlog into your sprint backlog for implementation during specific development iterations.

# Agile2Learn Workshop
# "Sprint to Success: Agile Teamwork in the Classroom"

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## Workshop: Sprint to Success: Agile Teamwork in the Classroom

In this workshop, we will explore the significance of teamwork in the classroom and how agile project-based learning can revolutionize education. Teamwork and agile methods go hand in hand, offering numerous benefits for both educators and students.

Agile project-based learning is a perfect fit for teams and school projects due to its dynamic and student-centered approach. In a school project, students often have diverse strengths, learning styles, and backgrounds, making collaboration and adaptability crucial. Agile methodologies allow teams to harness this diversity and enable every student to contribute their unique skills and perspectives. By continuously adapting to evolving project requirements and fostering a culture of communication and feedback, agile learning ensures that students remain engaged, accountable, and responsive to real-world challenges. It encourages them to take ownership of their education, preparing them not just for academic success but for life beyond the classroom, where teamwork and adaptability are essential skills. This approach empowers students to become active participants in their learning journey and equips them for a future where collaborative problem-solving is the norm.

## Agile Teamwork: What's the buzz?

Agile teamwork is a collaborative and adaptable approach to project management, initially developed in the software development industry but applicable across various domains. It emphasizes these essential principles:

1. **Collaboration:** Agile promotes working together efficiently, fostering cooperation and shared ownership among team members.
2. **Adaptability:** Agile encourages teams to adapt to changing circumstances and requirements, ensuring that they remain focused on delivering value.
3. **Student Focus:** Agile places the end-users, in this case, the students, at the center of the process, ensuring their needs and preferences are met.

## Why Agile Teamwork in the Classroom?

The classroom is a dynamic space, and agile teamwork offers significant advantages for educators and students:

- **Enhanced Engagement:** Agile methods boost student engagement, as they actively participate in defining project goals and outcomes.
- **Improved Collaboration:** Students learn to work effectively in teams, harnessing collective knowledge and skills.
- **Continuous Feedback:** Agile fosters a culture of feedback, enabling students to refine their work and skills continuously.
- **Real-world Skills:** Agile prepares students for real-world situations, where adaptability and teamwork are paramount.
- **Ownership and Accountability:** Students take ownership of their learning and become accountable for their success.

## Key Workshop Takeaways

**1. Agile Principles in the Classroom:** We explored agile principles like collaboration, adaptability, and student focus and their relevance in educational settings.

**2. Team Building:** You learned how to create effective teams, set clear project goals, and promote teamwork among students.

**3. User Stories:** We discussed the creation of user stories, which help define project objectives from a student and from a teacher perspective.

**4. Sprint Planning and Execution:** You experienced how agile teams plan and execute projects within set timeframes, enhancing student productivity.

**5. Collaboration and Feedback:** Agile methods foster student collaboration and provide opportunities for feedback and improvement.

**Bringing Agile to Your Classroom**

We encourage you to consider implementing agile methods in your classroom. Here's how:

- **Define Clear Objectives:** Start with clear project goals and outcomes that students can understand and work toward.
- **Promote Collaboration:** Encourage teamwork, communication, and knowledge sharing among students.
- **Regular Feedback:** Create mechanisms for students to provide and receive feedback to enhance their work continually.
- **Celebrate Achievements:** Recognize and celebrate the achievements of your students to maintain motivation and engagement.

# Agile2Learn Workshop
# "Creativity, divergent thinking, and innovation. A simple guide on how to think outside of the box and generate new ideas"

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**How do we manage to think creatively? Can everybody do it and why should we after all?**

Creativity, divergent thinking, and innovation are among the key skills of the 21st century and in addition to being fundamental elements of artistic education and practice, they are also some of the primary goals of STEM education.

**1. Let us brainstorm on what Creativity is and who we would define as a creative thinker:**

- The evolution of research and the constant need for innovation have given very different dimensions to the skill of creativity making it a prerogative for creative fields other than art, such as science, mathematics, engineering, and architecture. Start by clearly defining what in your opinion are the characteristics of a creative thinker. Moreover, what is the first thing that comes to mind when you think of a product of creative thinking?

**2. Let's try to answer two key questions:**

- What is the link between creativity and talent?
- How do creativity and Innovation relate with each other?

**3. Let's train our brains into creative thinking patterns.**

**3.1 The "Pressure cooker" exercise. (10 minutes)**

Let us try to generate 10 ideas in 10 minutes.

We generate ideas freely, without fear of criticism.

**Task:** Try to identify 10 existing products of Creative Thinking that are useful and have found their way into our everyday lives. (10 minutes)

- An easy way to individuate products of creative thinking in our everyday life comes up if we first think of a problem that has been solved (Reverse Thinking).

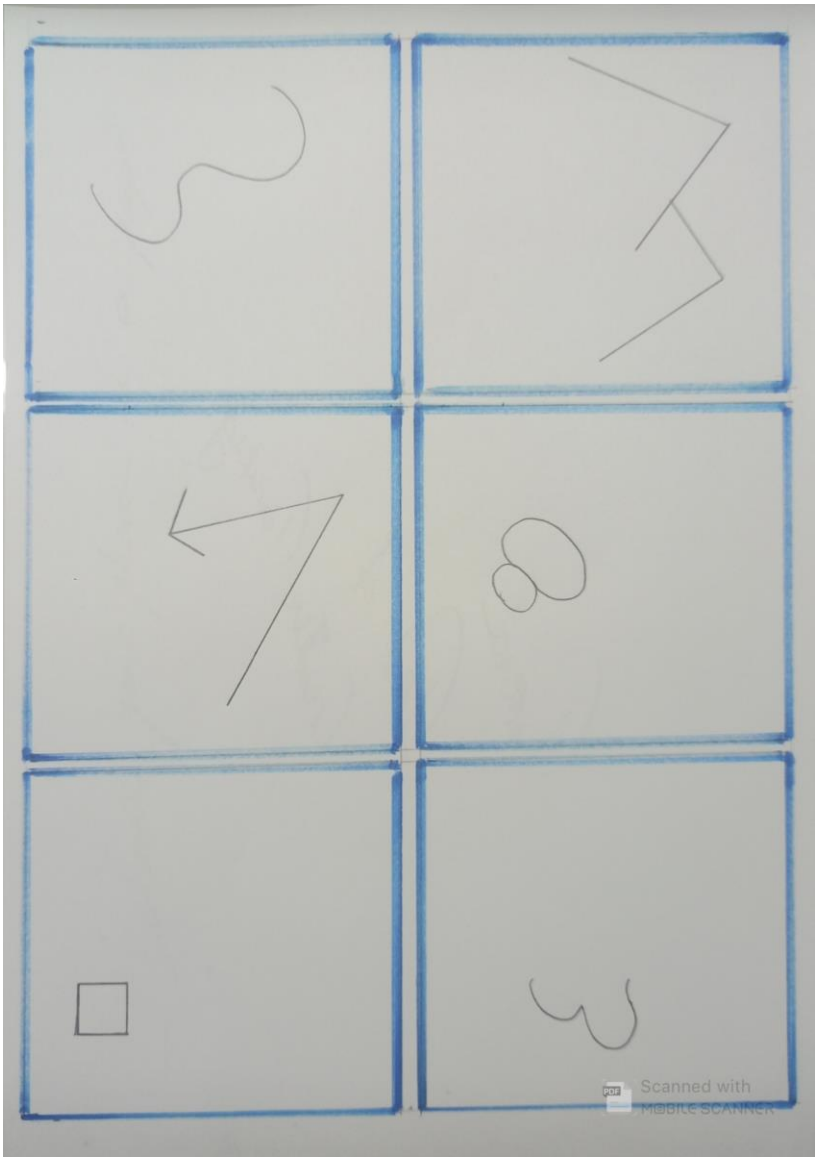
You can start by thinking about problems that have been resolved:

- for you personally.
- for others.
- for the community in general.

Jot down on paper your ideas and then you will be able to share your thoughts with the group.

**3.2. I am doodling. (10 minutes)**

Complete every scribble on the next page into a drawing with intrinsic meaning (5 minutes). Share with others the results and explain (5 minutes).



### 3.3. Pass the Baton (Brain Drawing Race) (5 minutes)

The first player starts a drawing on a blank sheet of paper and keeps the paper for 30 seconds. Then he/she gives the paper to the next participant on the right in order for him or her to continue. Let your imagination go wild!

### 3.4 Balance your phone on a piece of paper. (5 minutes)

Please try to balance your phone on a piece of paper. You can do anything with the paper. The task is to do not break your phone!

### 3.5 Problem chasing by mind mapping (10 minutes)

Now let us think of a problem of our everyday life that still has no definite solution. Mind map the problem by breaking it down in words that express

- what it consists of
- what inconveniences it creates
- whom does it affect
- what are the solutions that have been found to this problem to this day
- what has yet not been experimented

Let us try with the word TRAFFIC JAM.

***Think broadly. Think out of the box. Draw out of the lines. Have fun!***

# Part C

# OTHER MATERIAL

# Q&A for agile education

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## Which are the main agile values when applied in education?

The main agile values in education are:

- Student-centered approach: prioritizing the needs and goals of the students and empowering them to take an active role in their own learning.
- Collaboration: encouraging students to work together, both with each other and with their teachers, to co-create the learning experience.
- Adaptability: being flexible and open to change, and continually seeking ways to improve the learning experience for students.
- Continuous improvement: regularly reviewing and refining teaching methods and curriculum to ensure that students are receiving the best possible education.
- Empowerment: giving students the tools and resources they need to succeed and encouraging them to take control of their own learning.
- Communication: fostering open and transparent communication between students, teachers, and administrators, to ensure that everyone is on the same page and working towards the same goals.
- Flexibility: offering students a range of learning opportunities that allow them to learn at their own pace and in their own way.
- Emphasizing hands-on and practical experience: incorporating real-world applications and experiences into the curriculum to make learning more relevant and engaging.

## How do you prioritize on the needs of the students?

In Agile education, prioritizing the needs and goals of the students involves several key steps:

- Listening to students: Encouraging students to express their needs and goals, and actively listening to what they have to say.
- Involving students in the process: Allowing students to take an active role in co-creating the learning experience and in setting goals for their own education.
- Understanding individual learning styles: Taking into account each student's unique learning style, strengths, and weaknesses, and adapting teaching methods accordingly.
- Providing flexible learning opportunities: Offering students a range of learning opportunities that allow them to learn at their own pace and in their own way.
- Continuously gathering feedback: Regularly seeking feedback from students on what is and isn't working and using that feedback to continually improve the learning experience.
- Celebrating student achievements: Recognizing and celebrating students' individual achievements and milestones and encouraging them to take pride in their accomplishments.

## How do you encourage students to work together?

Here are several ways that teachers can encourage students to work together in an Agile education setting:

- Collaborative learning activities: Designing activities and projects that require students to work together in small groups, such as group presentations or collaborative problem-solving exercises.
- Peer feedback: Encouraging students to give each other constructive feedback on their work and to support each other in their learning journey.
- Cross-functional teams: Assigning students to work on projects that require them to collaborate with peers from different disciplines, backgrounds, or skill levels.
- Regular check-ins: Holding regular check-ins where students can report on their progress, discuss any challenges they are facing, and receive support from their peers and the teacher.
- Celebrating team successes: Recognizing and celebrating the successes of student teams and the contributions of each individual team member.

## How do you empower students?

There are several ways that teachers can empower students in an agile education setting:

- Encourage self-reflection: Encouraging students to reflect on their own learning process, strengths and weaknesses, and goals, and to use this self-awareness to set achievable targets for themselves.
- Provide opportunities for choice and autonomy: Allowing students to make choices about the projects they work on, the learning resources they use, and the pace at which they work, empowers them to take ownership of their learning process.
- Foster a growth mindset: Encouraging students to embrace challenges, learn from mistakes, and view setbacks as opportunities for growth, rather than as personal failures, helps to build resilience and a growth mindset.
- Encourage collaboration and communication: Encouraging students to work together, share their ideas, and communicate their thoughts and feelings helps to build their confidence and empower them to be active participants in their own learning process.
- Provide opportunities for leadership: Providing students with opportunities to take on leadership roles, such as leading group discussions, projects, or presentations, helps to build their confidence and develop their leadership skills.
- By incorporating these strategies into their Agile education practices, teachers can empower students to take control of their own learning journey, develop their skills, and achieve their goals.

## Which are the most popular educational methodologies that incorporate agile principles?

There are several methodologies that incorporate agile principles and values in education:

- Project-Based Learning (PBL): PBL is an approach that emphasizes student-driven, real-world projects as the centerpiece of learning. In a PBL setting, students work in teams to identify a problem, research potential solutions, and create a final product that demonstrates their understanding of the topic.
- Flipped Classroom: The flipped classroom model involves students watching lecture videos and doing other preparatory work before class, and then using class time to engage in more hands-on, collaborative activities. This approach allows for more active, student-centered learning during class time.
- Inquiry-Based Learning (IBL): IBL is an approach that emphasizes student-driven exploration and discovery. In an IBL setting, students are presented with a problem or question and work together to find answers through research, experimentation, and collaboration.
- Design Thinking: Design thinking is a problem-solving approach that emphasizes empathy, experimentation, and iteration. In a design thinking setting, students work in teams to identify a problem and develop potential solutions, testing and refining their ideas as they go.
- Gamification: Gamification involves using game-like elements, such as points, levels, and leaderboards, to make learning more engaging and interactive. In a gamified learning environment, students can earn points and rewards for completing tasks, working together in teams, and demonstrating their understanding of course material.

By incorporating these methodologies into their agile education practices, teachers can create a dynamic, student-centered learning environment that emphasizes collaboration, experimentation, and problem-solving.

## What is eduScrum?

eduScrum is a methodology for agile education that is based on the principles of the Scrum framework for agile software development. It involves adapting Scrum's practices and ceremonies to fit the unique context of education.

In an eduScrum setting, students work in cross-disciplinary teams to complete projects or assignments within a set timeframe, known as a "sprint." The teacher acts as the "Scrum Master," facilitating the process and ensuring that students are adhering to Agile principles.

During each sprint, students hold daily stand-up meetings to discuss their progress and any obstacles they are facing. They also hold a sprint review at the end of each sprint to present their work to the class and receive feedback.

eduScrum emphasizes student-driven, collaborative learning and the use of real-world projects to reinforce the course material. This approach can help to increase student engagement, encourage critical thinking skills, and promote a deeper understanding of course material.

Overall, eduScrum provides a structured, agile approach to education that can help to create a dynamic, student-centered learning environment.

## What are the key differences between Scrum and eduScrum?

Scrum and eduScrum are both Agile methodologies, but they have some key differences that reflect the different contexts in which they are applied. Here are some of the key differences between Scrum and eduScrum:

Purpose: Scrum is a framework for Agile software development, while eduScrum is an adaptation of Scrum specifically for education.

Participants: In Scrum, the participants are typically software developers working in a cross-functional team, while in eduScrum the participants are students in a classroom setting.

Goals: The goals of Scrum are to deliver high-quality software products in an iterative and incremental manner, while the goals of eduScrum are to promote student engagement, critical thinking skills, and deeper understanding of course material.

Processes: Scrum and eduScrum both follow a sprint-based process, with regular stand-up meetings and sprint reviews. However, the processes and ceremonies used in eduScrum may be adapted to better fit the education context, for example by incorporating student presentations or peer evaluations.

Products: In Scrum, the end product is typically a software application, while in eduScrum the end product is a student project or assignment.

Overall, while Scrum and eduScrum share some similarities, they are tailored to meet the unique needs and challenges of their respective contexts. eduScrum can help to create a dynamic, student-centered learning environment that promotes collaboration, critical thinking, and deeper understanding of course material.

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# The Agile2Learn Curriculum (agile2learn.eu).

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## Introduction

Agile2Learn Project (project number 2021-1-CZ01-KA220-VET-000025558) is an Erasmus+ KA2/ Innovative project aimed at transforming education through the development of an Agile-based curriculum. The developed curriculum is designed to empower educators in primary and secondary education to adapt to the demands of the 21st century and create a dynamic, efficient, and collaborative learning environment.

The primary objectives of the Agile2Learn curriculum are as follows:

- Define New Learning Paths: Create innovative learning pathways that cater to the evolving needs of students in the 21st century.
- Develop 21st Century Skills: Equip educators with the skills and knowledge necessary to foster 21st-century competencies in their students, including Agile methodologies.
- Enable Effective Teamwork: Foster collaborative teamwork among learners, whether in face-to-face or virtual settings, to address complex and contemporary challenges.
- Enhance Project Efficiency: Empower learners and educators to implement educational projects more efficiently and effectively.
- Promote Team Collaboration: Encourage educators to work collaboratively, leveraging the benefits of teamwork over traditional isolated teaching methods.
- Facilitate Modern Tool Usage: Enable the use of modern team collaboration tools to enhance teaching and learning experiences.

## Curriculum Vision:

The Agile2Learn curriculum responds to the evolving educational landscape by incorporating Agile methodologies into the classroom. It aligns with EU policy priorities by:

- Improving transversal competencies in education.
- Embracing innovative pedagogical methods grounded in Agile Project Management and Agile Pedagogy.
- Developing a training curriculum for primary and secondary education teachers to implement Agile methodologies effectively.
- Testing and validating the proposed methodology.
- Cultivating an innovative culture of training.
- Curriculum Learning Objectives:

The Agile2Learn curriculum focuses on five key Learning Objectives:

- Development of Transversal Competences: Equip educators with skills that transcend

specific job roles, allowing them to adapt to various situations and challenges effectively.

- Development of Agile Competences: Train educators in Agile methodologies, including Scrum, Kanban, Lean Management, and XP, to foster adaptability and efficiency.
- Development of Digital Transformation Competences: Enable educators to use digital tools and resources effectively for teaching and collaboration.
- Developing People and Teams: Enhance educators' ability to work in self-managed teams, fostering collaboration, communication, and problem-solving.
- Developing an Innovative Culture of Training: Cultivate a culture of continuous learning and innovation among educators and students.

## Agile2Learn Competencies:

The curriculum identifies three groups of competencies with specific skills within each group:

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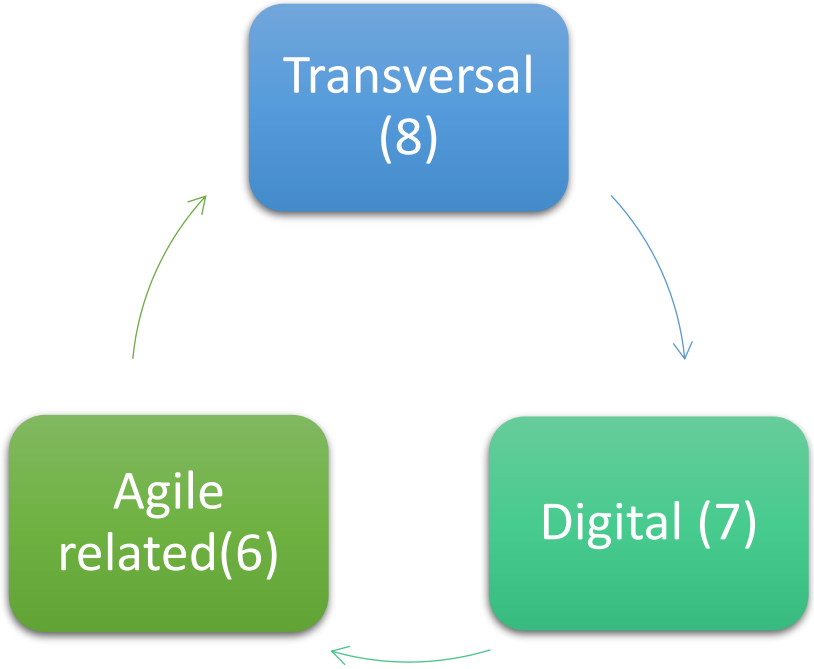


*Figure 1: Agile2Learn project competences groups*

## Agile Related Competencies

Six competences have been identified as agile competences. These are:

1. **Agile Methods Fundamentals:** This competency delves into the foundational understanding of Agile methodologies such as Scrum, Kanban, and Lean Management. Educators will learn how to apply these frameworks in educational settings to promote adaptability and efficiency.
2. **Entrepreneurial Thinking**: Entrepreneurial Thinking equips educators with the ability to identify market opportunities and creatively capitalize on them. It encourages educators to think innovatively, work both individually and as part of a team, and take proactive, forward-looking approaches to teaching and learning.

3. **Project Inception (Planning):** This competence revolves around effectively planning and initiating projects within specified timeframes. It includes defining roles, facilitating communication, setting measurable objectives, identifying deliverables, and creating schedules. Educators learn to structure and manage educational projects efficiently.
4. **Self-Managed Teams:** Educators with this skillset can form and lead groups of students who collaboratively take full responsibility for delivering a service or product. Self-managed teams enhance students' teamwork and problem-solving abilities, fostering a sense of ownership and independence.
5. **Agile Artifacts:** Agile Artifacts refer to essential pieces of information that stakeholders and teams use to describe a product's development. Educators learn how to use artifacts like product backlogs and sprint backlogs to define and manage educational goals and progress effectively.
6. **Agile Ceremonies:** Agile Ceremonies are periodic meetings held to ensure projects are on track and meeting quality goals. Educators become proficient in conducting ceremonies like Sprint Planning, Daily Scrum, Sprint Review, and Sprint Retrospective, which enhance project management and team collaboration within the educational context.

## Transversal Competencies

After a project-based research endeavor, eight competences have been identified, each playing a pivotal role in shaping the success of individuals in diverse contexts. These competences, often referred to as transversal or transferable competences, hold immense value in today's rapidly changing world.

Transversal competences transcend specific job roles, academic disciplines, or areas of knowledge, making them universally applicable and indispensable in various situations and work settings. Communication: Effective communication is crucial for educators to convey ideas, instructions, and feedback clearly to students and colleagues. It also involves active listening and understanding the diverse communication dynamics in various contexts, fostering positive learning environments.

1. **Creativity:** Cultivating creativity empowers educators to approach teaching and problem-solving in innovative ways. It encourages thinking beyond conventional boundaries, finding connections between ideas, and fostering a creative learning atmosphere that inspires students.
2. **Teamworking:** Teamworking skills enable educators to collaborate effectively with colleagues and guide students in collaborative learning experiences. Emphasizing the strengths of each team member and leveraging diverse perspectives enhances the learning process.
3. **Social Skills:** Social skills encompass a range of competencies that facilitate effective interaction and communication with others. Educators learn to develop skills such as conflict resolution, empathy, and active listening, which are essential for building positive relationships in the classroom.
4. **Handling Ambiguity**: This skill equips educators to navigate uncertain and ambiguous situations with confidence. It includes making decisions in unpredictable circumstances, testing ideas and prototypes, and adapting swiftly to change, ultimately fostering resilience in the face of uncertainty.

5. **Critical Thinking:** Critical thinking encourages educators to actively and skillfully analyze, evaluate, and synthesize information. It equips them to guide students in developing analytical and reasoning skills, enabling deeper understanding and problem-solving.
6. **Problem Solving and Decision Making:** Problem-solving skills help educators identify challenges, analyze them, and find effective solutions. Decision-making skills enable thoughtful and objective choices, enhancing educators' ability to make informed decisions for their students' benefit.
7. **Time Management:** Time management skills empower educators to use their time productively and efficiently. Prioritizing tasks, scheduling, and organizing activities allow educators to optimize their teaching and administrative responsibilities, ensuring a balanced workload.

## Digital Competencies

In today's digitally interconnected world, the value of digital competences cannot be overstated. Proficiency in digital skills is not just a necessity but a powerful enabler for success in education, the workplace, and daily life. These competences empower individuals to navigate the digital landscape with confidence, harnessing technology to communicate effectively, solve complex problems, access vast information resources, and create innovative solutions. Moreover, in an era where digital transformation is reshaping industries and economies, digital competences are the gateway to numerous opportunities and a key driver of personal and professional growth. Whether in education, careers, or simply staying connected in the modern age, digital competences are the currency of the digital era, offering individuals the tools to thrive in an increasingly digitalized world. Based on Digicomp Agile2Learn identified 7 digital competences:

1. **Digital Collaboration at Professional and Learning Level:** Proficiency in digital collaboration equips educators to effectively use technology for professional networking and collaborative learning environments. It enables them to leverage digital tools for communication, cooperation, and knowledge sharing, fostering a global community of learners.
2. **Selecting Digital Resources:** Educators with expertise in selecting digital resources can identify, assess, and choose appropriate digital materials for teaching and learning. They consider factors such as learning objectives, pedagogical approaches, and learner characteristics when making resource selections.
3. **Creating and Modifying Digital Resources:** This competence empowers educators to adapt and create digital educational materials, enhancing their teaching resources. They can modify existing resources to suit specific learning needs or create new content, providing personalized and engaging learning experiences.
4. **Managing, Protecting, and Sharing Digital Resources:** Educators proficient in managing digital resources organize and make them accessible to learners while ensuring data privacy and copyright compliance. They understand the importance of protecting sensitive digital content and can effectively share resources with students, parents, and colleagues.
5. **Actively Engaging Learners:** Educators with expertise in actively engaging learners use digital technologies to foster students' active participation and creativity in the learning

process. They employ pedagogical strategies that encourage transversal skills, deep thinking, and creative expression.

6. **Digital Content Creation:** This competence involves incorporating digital means for students to express themselves and learn. Educators guide students in creating and manipulating

   digital content in various formats, teaching them about copyright, licensing, and proper source referencing.
7. **Digital Problem Solving:** Educators skilled in digital problem-solving incorporate activities that require students to identify and solve technical problems or apply technological knowledge to novel situations. This competency prepares students to tackle real-world challenges in a digitally driven society.

## Conclusions

In conclusion, the Agile2Learn curriculum stands as a beacon of innovation and adaptability in the field of education. Its overarching goal is to equip educators with a holistic skill set and a deep reservoir of knowledge that transcends traditional teaching methods. By nurturing a profound understanding of Agile methodologies, transversal competences, and digital proficiencies, this curriculum empowers educators to be dynamic catalysts for change in the learning process. The aim is not merely to impart knowledge but to foster a mindset of continuous growth and adaptability, preparing educators to navigate the ever-evolving educational landscape. Through the Agile2Learn curriculum, educators are poised to create learning environments that mirror the dynamism of the 21st century, where students are not just equipped to face challenges but are inspired to become active contributors to a rapidly changing world. It is a transformative journey that promises to reshape education and, in doing so, shape the future.

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# Agile Learning Glossary

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## Agile Learning Coach

An educator or facilitator who guides learners through the agile learning process, providing support, mentoring, and expertise in adapting agile methodologies to educational contexts.

## Agile Learning Manifesto

Similar to the Agile Manifesto in software development, the Agile Learning Manifesto outlines principles that prioritize individuals and interactions, adaptability, and collaboration in the learning process (Peha, 2011). It emphasizes responding to change over following a rigid plan. More specifically these values are :

- Individuals and interactions over processes and tools: The school focuses on the relationships between students, teachers, and parents. These relationships are more important than the processes and tools used for teaching and learning.
- Meaningful learning over measuring learning: The school focuses on providing meaningful learning that has an impact on the lives of students. Learning should not only be measured by tests, but also by other means, such as student participation, creativity, and problem-solving skills.
- Stakeholder collaboration over continuous negotiation: The school collaborates with all stakeholders, such as students, teachers, parents, the community, and businesses. This collaboration is essential for providing a quality education that meets the needs of all students.
- Responding to change over following a plan: The school is flexible and adaptable to change. Teachers and school administrators are willing to change their plans and practices when necessary, in order to provide students with the best possible education.

The Agile Learning Manifesto is a powerful vision for the future of education. It is a vision of a school that is student-centered, flexible, adaptable to change, and provides meaningful learning that has an impact on the lives of students.

## Agile Learning

Agile learning is an educational approach inspired by agile methodologies used in software development. Agile learning is a method of developing and delivering training that emphasizes speed, flexibility, and collaboration. It is based on the agile methodology, which is a set of principles for project management that emphasizes iterative development and continuous improvement.

In agile learning, the training content is developed in short cycles, called sprints. Each sprint focuses on a specific learning objective, and the content is constantly being refined and improved based on feedback from learners. This allows for a more responsive and adaptable approach to learning, which is essential in today's rapidly changing world.

Agile learning also emphasizes collaboration between learners, instructors, and other stakeholders. This helps to ensure that the training is relevant and meets the needs of the learners.

## Agile Mindset

A mindset that embraces change, values collaboration, and is open to experimentation and continuous learning. It's fundamental for successful agile-based learning. The twelve principles of agile schools that constitute the agile mindset are the following (Peha, 2011)

- Our highest priority is to satisfy the needs of children and their families through early and continuous delivery of meaningful learning.
- Welcome changing requirements, even late in a learning cycle. Harness change for the benefit of children and their families.
- Deliver meaningful learning frequently, from a couple of days to a couple of weeks, with a preference to the shorter timescale.
- School and family team members work together daily to create learning opportunities for all participants.
- Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
- The most efficient and effective method of conveying information to and within a team is face-to-face conversation.
- Meaningful learning is the primary measure of progress.
- Our processes promote sustainability. Educators, students, and families should be able to maintain a constant pace indefinitely.
- Continuous attention to technical excellence and good design enhances adaptability.
- Simplicity-the art of maximizing the amount of work not done-is essential.
- The best ideas and initiatives emerge from self-organizing teams.
- At regular intervals, teams reflect on how to become more effective, then tune and adjust their behavior accordingly.

## Continuous Improvement:

A core principle of agile-based learning that emphasizes making regular adjustments and enhancements to the learning process based on feedback, outcomes, and changing goals.

Continuous improvement is the ongoing effort to enhance processes, products, or services. It involves identifying opportunities for refinement, implementing changes, measuring the effects, and then iterating based on the results. This approach aims to achieve higher levels of efficiency, quality, and effectiveness over time.

## Eduscrum

"Eduscrum " is a portmanteau of "education" and "scrum." It refers to applying the principles of Scrum, an agile framework for project management, to educational settings. EduScrum is an educational framework based on the agile methodology. It is a set of roles, activities, and artifacts, and interaction rules that binds them all together. It is designed to help students learn in a more self-directed, collaborative, and iterative way. It was defined by Wijnands and Stolze, (2019) as an edit is an edit of Scrum a framework for an active, collaborative, co-creative education process.

# Eduscrum : Content of assignment

In EduScrum, an assignment's content is referred to as a "story." A story comprises a description of a learning objective that students engage with during a sprint. It is crucial for the story to adhere to the SMART framework: specific, measurable, achievable, relevant, and time-bound.

Furthermore, the story should encompass "celebration criteria," which serve as benchmarks to ascertain the story's successful completion. These criteria must be unequivocal and quantifiable to provide students with a clear understanding of the necessary tasks to fulfill the story's requirements.

An illustrative example of a story along with its celebration criteria is as follows:

**Story:** Create a presentation on the history of Scrum.

**Celebration criteria:**

- The presentation must be at least 10 slides long.
- The presentation must include a clear introduction, body, and conclusion.
- The presentation must be well-organized and easy to follow.
- The presentation must use clear and concise language.

The content of an assignment can vary depending on the learning objective. However, it is important that the story is specific, measurable, achievable, relevant, and time-bound. The celebration criteria should also be clear and measurable so that the students know what they need to do to complete the story.

## Eduscrum : Definition of Doing

The Definition of Doing in EduScrum is a definition of what it means to be "doing" work on a learning objective. It is a set of criteria that the students and the teacher agree on to determine whether the work is considered to be "done".

The Definition of Doing can vary depending on the learning objective. However, it should be clear and measurable so that the students know what they need to do to complete the work.

Here is an example of a Definition of Doing for a story about creating a presentation on the history of Scrum:

The work is considered to be "done" when the presentation meets the following criteria:

- The presentation is at least 10 slides long.
- The presentation includes a clear introduction, body, and conclusion.
- The presentation is well-organized and easy to follow.
- The presentation uses clear and concise language.

The Definition of Doing should be agreed upon by the students and the teacher at the beginning of the sprint. This helps to ensure that everyone is on the same page and that the work is completed to a high standard.

The Definition of Doing and Celebration Criteria are two important concepts in EduScrum. They are both used to define what it means to complete a piece of work, but they have different purposes. The Definition of Doing is a definition of what it means to be "doing" work on a learning objective while the Celebration Criteria, on the other hand, are the criteria that will be used to determine whether the story has been successfully completed.

## Eduscrum : Definition of Fun

The Definition of Fun in EduScrum is a definition of what makes the work fun for the students. It is a set of criteria that the students agree on to determine whether the work is enjoyable and engaging.

The Definition of Fun can vary depending on the students. However, it should include some basic principles, such as:

- Being challenging but not overwhelming.
- Being creative and open-ended.
- Being collaborative and social.
- Being relevant to the students' interests.
- Being rewarding and satisfying.

The Definition of Fun should be agreed upon by the students at the beginning of the sprint. This helps to ensure that everyone is on the same page and that the work is enjoyable.

Some examples of how the Definition of Fun can be used in EduScrum:

- The students agree that they will take breaks to play games or do other activities that they enjoy.
- The students agree that they will work on projects that are relevant to their interests.
- The students agree that they will collaborate with each other on projects.
- The students agree that they will celebrate their accomplishments.

## Eduscrum : Flap – eduScrum board

The Flap - eduScrum Board is a visual representation of the backlog, the sprint goals, and the work that has been completed. It is a tool that helps the students and the teacher track the progress of the sprint and identify any blockers.

The Flap is typically a physical board, but it can also be a digital board. It is divided into three columns:

- **To Do**: This column contains the stories that have not yet been started.
- **In Progress**: This column contains the stories that are currently being worked on.
- **Done**: This column contains the stories that have been completed.

The Flap is updated regularly during the sprint. The students move the stories from column to column as they work on them. This helps the students to visualize their progress and to identify any areas where they may be falling behind.

The Flap is also a communication tool. The students and the teacher can use the Flap to discuss the progress of the sprint and to identify any blockers. This helps to keep the team on track and to ensure that the sprint goals are met.

## Eduscrum : Key artifacts

The artifacts are:

- Content of assignment (stories with Celebration criteria): This is the list of learning objectives that the students will work on during the sprint.
- The Flap - eduScrum Board: This is a visual representation of the backlog, the sprint goals, and the work that has been completed.
- Definition of Doing: This is a definition of what it means to be "doing" work on a learning objective.
- Definition of Communication: This is a definition of how the team will communicate with each other.
- Definition of Fun: This is a definition of what makes the work fun for the students.

## Eduscrum : Key concepts

The key concepts of EduScrum:

- Sprint: A sprint is a short period of time (typically 2-4 weeks) during which students work on a specific learning objective.
- Backlog: The backlog is a list of all the learning objectives that need to be addressed.
- Product Backlog Refinement: The product backlog refinement is a meeting where the students and the teacher discuss the backlog and prioritize the learning objectives.
- Daily Scrum: The daily scrum is a short meeting where the students and the teacher discuss what they have worked on the previous day, what they plan to work on today, and any blockers they are facing.
- Sprint Review: The sprint review is a meeting where the students present their work to the teacher and get feedback.
- Sprint Retrospective: The sprint retrospective is a meeting where the students and the teacher discuss how the sprint went and what can be improved for the next sprint. Therefore, the meeting focuses on reviewing the effectiveness of the learning process, identifying areas for improvement, and adjusting the learning strategy for future cycles.

## Eduscrum : Key roles

EduScrum defines a number of roles and artifacts. The roles are:

- Teacher (Product Owner/eduScrum Master): The teacher is responsible for setting the learning objectives, creating the backlog, and facilitating the scrum events.
- Team Captain: The team captain is responsible for leading the team and ensuring that the team meets its goals.
- Student's Team: The student's team is responsible for working on the learning objectives and delivering the final product.

## Epics

An epic is a big idea or feature that can be broken down into smaller user stories.

For example: an epic called 'Improve Mobile UI' can consist of 3 user stories: 'Add mobile Shopping Cart', 'Optimize Speed', and 'Improve fonts and graphs'.

## Iterative Learning

Iterative learning involves repeating cycles of learning, receiving feedback, and making improvements. This approach allows learners to refine their understanding and skills progressively over time.

## Kaizen Education

Kaizen education (Wiid, 2018) is an educational approach that emphasizes continuous improvement and problem-solving. It is based on the Japanese philosophy of kaizen, which means "continuous improvement".

Kaizen education is often used in business settings, but it can also be applied to education. In an educational setting, kaizen can be used to improve the curriculum, teaching methods, and learning environment. Some of the key principles of kaizen education are:

- Focus on continuous improvement: Kaizen education emphasizes the importance of continuous improvement. This means that educators and students are always looking for ways to improve the learning process.
- Empowerment: Kaizen education empowers students to take ownership of their learning. Students are encouraged to identify problems and come up with solutions.
- Collaboration: Kaizen education emphasizes collaboration. Students work together to solve problems and improve the learning process.
- Feedback: Kaizen education relies on feedback. Students and educators receive feedback on their work so that they can make improvements.
- Flexibility: Kaizen education is flexible. It can be adapted to different settings and needs.

Kaizen education can be a valuable tool for improving the quality of education. It can help to create a more student-centered learning environment, improve the learning process, and empower students to take ownership of their learning.

## Kaizen

Kaizen is a Japanese term that translates to "change for better" or "continuous improvement." It refers to the practice of making small, incremental improvements in processes, products, or systems over time. Kaizen involves a mindset of constant adaptation and refinement to enhance efficiency, quality, and overall performance.

## Kanban

Kanban (Singh & Singh, 2009) is an agile methodology that uses visual boards to manage work tasks. Applied to learning, it involves creating a visual representation of the learning journey, breaking down tasks into cards, and moving them through different stages of completion. Kanban allows for flexibility and visualization of the learning process.

## Lean Education

Lean education applies lean principles to the field of education. It involves identifying and eliminating inefficiencies in educational processes to improve the learning experience for students, educators, and other stakeholders. Lean education seeks to optimize resource allocation, reduce unnecessary administrative burdens, and enhance the overall educational journey.

## Lean Teaching

Lean teaching refers to the application of lean principles to instructional practices. Educators who practice lean teaching focus on identifying the most effective teaching methods, eliminating redundant or ineffective activities, and optimizing the learning experience for students. This approach encourages educators to reflect on their teaching strategies and make data-driven adjustments to enhance student outcomes.

## Lean

Lean is a methodology that originated in manufacturing and has been adapted to various industries, including education. It focuses on maximizing value while minimizing waste. Lean principles aim to eliminate activities that do not contribute to the final outcome, resulting in streamlined processes, reduced costs, and improved outcomes.

## Learning Velocity

In the context of agile learning, learning velocity is a measure of how much learning a student can accomplish in a given period of time. It is typically calculated by taking the total number of learning objectives completed in a sprint and dividing it by the number of sprints. Learning velocity can be used to track the progress of a student and to identify areas where they may need more support. It can also be used to set goals for future sprints (Doma, 2017). To calculate learning velocity, you need to know the following:

- The total number of learning objectives in the sprint.
- The number of learning objectives that were completed in the sprint.
- To calculate the learning velocity, divide the number of learning objectives completed by the number of sprints.

For example, if there were 10 learning objectives in the sprint and 5 were completed, then the learning velocity would be 5/10 = 0.5.

Learning velocity can be a helpful tool for tracking the progress of a student and for setting goals for future sprints. However, it is important to note that learning velocity is not a perfect measure of learning. There are many factors that can affect learning, such as the difficulty of the learning objectives, the student's motivation, and the quality of instruction.

## Scrum:

Scrum is an agile framework originating from software development that focuses on teamwork, accountability, and iterative progress. In the context of agile-based learning, Scrum involves structuring learning tasks into time-boxed periods (sprints), holding regular meetings to review progress, and adapting the learning plan accordingly (Schwaber & Sutherland, 2011).

Scrum is a lightweight framework, and it can be used to manage any type of project, from software development to marketing campaigns. It is a popular choice for teams that need to be able to adapt to change quickly and efficiently.

The Scrum framework is made up of a number of different roles, events, and artifacts. The roles are:

- **Product Owner:** The Product Owner is responsible for defining the product backlog and prioritizing the work.
- **Scrum Master:** The Scrum Master is responsible for facilitating the Scrum process and ensuring that the team is following the Scrum framework.
- **Development Team:** The Development Team is responsible for completing the work in the sprint.

The events/ceremonies are:

- Sprint Planning: The Sprint Planning meeting is where the team plans the work for the sprint.
- Daily Standup: The Daily Standup meeting is a short meeting where the team discusses their progress and identifies any blockers.
- Sprint Review: The Sprint Review meeting is where the team presents the work they completed in the sprint to the stakeholders.
- Sprint Retrospective: The Sprint Retrospective meeting is where the team reflects on the sprint and identifies areas for improvement.

The artifacts are:

- Product Backlog: The Product Backlog is a list of all the work that needs to be done for the product.
- Sprint Backlog: The Sprint Backlog is a list of the work that the team will complete in the sprint.
- Burndown Chart: The Burndown Chart is a visual representation of the team's progress towards completing the sprint backlog.

## Scrum: Burndown Chart

A Scrum Burndown Chart is a graphical representation of the amount of work remaining in a sprint. It is typically plotted daily, and it shows the progress of the sprint over time. The Burndown Chart is a valuable tool for tracking the progress of a sprint and identifying any potential problems. It can also be used to communicate the progress of the sprint to the stakeholders.

## Scrum: Daily Standup

The Daily Standup is a short, daily meeting where the Development Team discusses their progress and identifies any blockers. The meeting typically takes place at the same time and place every day, and it should last no more than 15 minutes. The Daily Standup is a standing meeting, hence the name. This is to encourage brevity and focus. The purpose of the Daily Standup is to:

- Ensure that everyone is aligned on the work that needs to be done.
- Identify any blockers that may impact the team's progress.
- Plan for the day ahead.

The Daily Standup is a great opportunity for the team to communicate and collaborate. It is also a chance for the Scrum Master to identify any potential problems and to offer support to the team.

## Scrum: Product Backlog

The Product Backlog is a list of all the work that needs to be done for the product. It is a living document that is constantly being updated as the product evolves. The Product Backlog is owned by the Product Owner, who is responsible for prioritizing the work and ensuring that it meets the needs of the stakeholders. The Product Backlog is typically organized into three categories:

- Must-haves: These are the features that are essential for the product to be successful.
- Should-haves: These are the features that would be nice to have, but are not essential.
- Could-haves: These are the features that are not yet needed, but may be needed in the future.

The Product Backlog is a dynamic document, and it is important that it is kept up-to-date. As new features are identified, they should be added to the Product Backlog. As features are completed, they should be removed from the Product Backlog.

## Scrum: Sprint Backlog

The Scrum Sprint Backlog is a dynamic, detailed plan that outlines the set of tasks, user stories, and features that the Scrum Team commits to completing during a specific sprint. It is created during the Sprint Planning meeting and serves as a guide for the team's work throughout the sprint duration. The Sprint Backlog includes:

- User Stories: These are the individual items of work that need to be completed to fulfill the sprint goal.
- Estimations: The Sprint Backlog often includes estimates of the effort required for each task or user story, usually using story points or other estimation techniques.
- Priority: The items in the Sprint Backlog are typically ordered by priority. The most important and high-priority items should be at the top of the list, allowing the team to focus on delivering the most valuable work early in the sprint.
- Responsibilities: The Sprint Backlog identifies the team members responsible for each task or user story.
- Progress Tracking: Throughout the sprint, the Scrum Team updates the Sprint Backlog to reflect the progress made. Tasks are marked as in-progress, completed, or facing obstacles.
- Changes: If necessary, the Sprint Backlog can be adjusted during the sprint in response to changing circumstances, newly discovered insights, or unexpected challenges.

The Sprint Backlog is a crucial tool for effective sprint execution and collaboration within the Scrum Team. It aids in organizing the team's work, maintaining focus on the sprint goal, and enabling transparent communication among team members and stakeholders.

## Scrum: Sprint Planning

Sprint Planning is the first event in a Scrum sprint. It is where the team plans the work they will complete in the sprint. The meeting typically takes place at the beginning of the sprint, and it is attended by the Product Owner, the Scrum Master, and the Development Team.

The goal of Sprint Planning is to create a Sprint Goal and a Sprint Backlog. The Sprint Goal is a high-level description of what the team will achieve in the sprint. The Sprint Backlog is a list of the work that needs to be done to achieve the Sprint Goal.

The Sprint Planning meeting is a facilitated discussion, and the Scrum Master is responsible for ensuring that the meeting is productive and efficient. The Product Owner shares the prioritized Product Backlog with the Development Team, and the team then discusses the work that can be completed in the sprint. The team will negotiate with the Product Owner to finalize the Sprint Goal and the Sprint Backlog.

## Scrum: Sprint Retrospective

The Sprint Retrospective is an event in Scrum where the team reflects on the sprint and identifies areas for improvement. The meeting typically takes place at the end of the sprint, and it is attended by the Product Owner, the Scrum Master, and the Development Team. The goal of the Sprint Retrospective is to:

- Identify what went well in the sprint.
- Identify what could be improved.
- Make plans to improve the process for the next sprint.

## Scrum: Sprint Review

The Sprint Review is an event in Scrum where the team presents the work they completed in the sprint to the stakeholders. The meeting typically takes place at the end of the sprint, and it is attended by the Product Owner, the Scrum Master, the Development Team, and any other stakeholders who are interested. The goal of the Sprint Review is to:

- Demonstrate the work that was completed in the sprint.
- Get feedback from the stakeholders.
- Identify any areas for improvement.

The entire group collaborates on what to do next, so that the Sprint Review provides valuable input to subsequent to Sprint Planning. The Sprint Review is a great opportunity for the team to get feedback from the stakeholders. This feedback can be used to improve the product and to make sure that the team is meeting the needs of the customers. 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 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.

### User Stories

A user story is a short, informal description of a piece of functionality that a user wants. It is typically written from the perspective of the user and describes what the user wants to achieve, not how it should be done. User stories are a popular way to capture requirements in agile software development. They are easy to understand and write, and they can be used to communicate requirements to both technical and non-technical stakeholders. The three parts of a user story are:

- **Who:** The actor or user who wants the functionality.
- **What:** What the user wants to achieve.
- **Why:** Why the user wants the functionality.

The Who part of the user story should be a specific user or role, such as "the customer" or "the administrator." The What part of the user story should be a clear and concise description of the functionality, such as "add a new product to the catalog" or "delete an old user account." The Why part of the user story should be a brief explanation of the reason for the functionality, such as "to make it easier for customers to find the products they want" or "to improve security."

Suggested links for further information on agile terminology:

Agile Alliance: https://www.agilealliance.org/agile101/agile-glossary/

Scrum org: https://www.scrum.org/resources/scrum-glossary

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# Agile2Learn Workplace Scenario

## "A step-by-step guide on how to design a classroom workshop for a project entitled "How I imagine the Perfect Class" using agile methodologies"

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## Purpose of the project

**The purpose of the project is to make students imagine and define how a "perfect class" should be according to them.**

Students will be divided into groups and each group will do its own research and it will identify the characteristics a perfect class should have. The topic is multidimensional, and each group can approach it from different perspective. For example, it can be approach from one or more perspectives such as:

- efficient class
- healthy class
- relationships between the students and teachers
- Quality of curriculum
- Encouragement and innovation
- Supportive environment
- Etc.

## 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
- Learn about available tools, ways, and complex solutions for collaboration and digital collaboration.

- Produce a solution how to organize team collaboration based on the needs, resources available and desired outcomes.
- Learn communication mechanisms in classroom.
- Understand the meaning of agility within the context of teamwork.
- Highlight the distinct roles within agile teams.
- Development of effective decision-making practices that combine as many as possible viewpoints of team members.
- Development of the ability to think creatively.
- Development of solution selling skills
- Develop critical thinking and creativity.
- Learn to provide and accept feeedback

## Related Learning Outcomes

✓ Select one or more agile methods for application based on the setup of the individual learning setting.
✓ Prepare the implementation of the selected method(s) in the classroom through a creation of a teaching scenario using agile methods.
✓ Understand the concept of user stories for capturing requirements.
✓ Create the initial product backlog using user stories.
✓ Understand how agile ceremonies are applied to a classroom environment.
✓ Acknowledge the role and usability of various agile artifacts and ceremonies in the process.

## Pre-game

This phase includes all the all the preparatory steps that should take place before the project implementation begins. These are:

✓ ***Introduction***: Start by introducing the concept of Agile methodologies and explain how it will be applied to the specific project.
✓ ***Team Formation*****:** In this step, students divided into small teams of 4-5 members each, ensuring a diverse mix of skills and personalities within each team. Teacher inspects the entire operation and do not encourage team formation based on personal relationships.
✓ ***Define the Project***: The teacher presents the project and in collaboration with his/her students sets the objectives of the project as well as the evaluation criteria that will be used for the assessment of each team's results. At this stage brainstorming techniques can be used that motivate students and make them share their ideas in the class about their vision of a perfect class. The approach should not be too detailed, but stay in a more abstract level mainly in defining the dimensions that define the perfect class. During this stage various tools can be

used such as a whiteboard, or paper, or a digital tool suitable for brainstorming and teamworking.

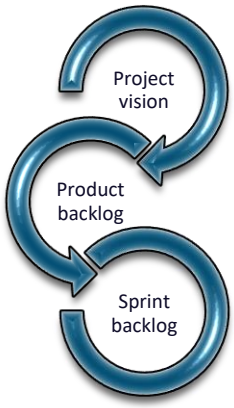
- ✓ ***Project inception:*** Next each team, according to its vision about the project the project will define its strategy for the next step and will develop the initial project plan, as well as the initial set of project requirements that will lead to the creation of project backlog. Project requirements should have the form of "user stories".
- ✓ ***Creation of the project Backlog:*** A project backlog is list of requirements that each team should satisfy during project execution. If needed, it can be adjusted as the team moves through the project. The items on the backlog can be broken down into smaller tasks, and additional items may be added as needed. The goal is to keep the backlog flexible and responsive to the needs of the team.

  A product backlog for this project can be based on the following general requirements and students can set more specific requirements for each item:

  - *Define what students mean by the term "Perfect Class*." (To do this the team can conduct a survey of student preferences. As such a more detailed approach in form of a user story can be " I want to conduct as survey among my colleagues to identify how they mean the 'perfect' class". The team will create a survey to gather data on what students consider to be the most important aspects of a perfect class. This action includes the steps of creating questionnaire, distribute it, collect the answers, and analyze survey results. Alternatively, interviews with students can also be done. The team will analyze the results of the survey and identify the key themes that emerged).
  - *Determine the key aspects of "Perfect class" as they emerged from students. (*The team will determine e.g., through brainstorming ideas, how to create the perfect class based on the survey results.
  - *Prioritize the ideas.* (The team will prioritize the ideas generated in the brainstorming session and select the most important ones to focus on. At this point students need to use time management aspects as well as prioritizing techniques. An interesting approach would be to use prioritization poker e.g.: https://airfocus.com/glossary/what-is-priority-poker/ ).
  - *Develop a plan for implementing the perfect class*. (The team will create a plan according to their vision for the perfect class using materials such as paper, cardboard, whiteboards, or e-tools. Miro.com or canvas.co are nice digital options.)
  - *Present the plan to the rest of the class.* (The team will present their plan to the rest of the class and receive feedback. Modules of agile2learn pilot raining such as Selecting digital tools, and digital problem solving can be used as source for appropriate tools for this purpose ).
  - *Refine the plan according to feedback* (Based on the feedback received, the team will refine their plan and make any necessary changes).
  - *Finalize the design of the plan* (The team will finalize the design of the perfect class and present it to the teacher).

- ✓ The **Trello tool** can be used to support the **product backlog creation.** Since Trello tool is basically a general purpose collaboration tool, the corresponding Trello template should be used. The configuration of the board should be done in such a way that there is a direct supervision of the pending and completed requirements. It is advised to create 4 basic lists:
    - The Product Backlog that contains all the project requirements.
    - The Sprint Backlog which contains the requirements included in each 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: 2-4 hours




*Picture 1: The steps of the project*

## The game

The second or main game phase includes the "Sprint" phase, where is the phase the project is executed. This phase includes:

*Sprint Planning*: Teams will attend a sprint planning meeting, where they will prioritize the items on their estimate of the effort required to complete each task and agree on which tasks they will complete during the sprints, forming the Sprint backlog. Usually at least three sprints should be implemented. (More details about sprints can be found at the module Agile Ceremonies)

An example of the three sprint structure is the following:

Sprint 1:

Conduct a survey of student preferences.

Gather ideas for creating a perfect class.

Sprint 2:

Prioritize the ideas based on student feedback.

Develop a plan for implementing the top ideas.

Sprint 3:

Refine the plan according to feedback and adjust as needed.

Finalize the plan of perfect class.

*Sprint Execution*: Teams will begin working on the tasks agreed upon during the sprint planning meeting. They will hold daily stand-up meetings to share progress and identify any obstacles.

*Dailly sprint:* Team members should have a quick (max 5 min) meeting at the beginning of each day during the sprit to discuss the progress and set the daily plan.

*Sprint Review*: At the end of the sprint, teams will review the work completed and demonstrate the results to the rest of the class.

Note: The acceptance criteria that must be met for a User Story to be accepted as completed have been set by the teacher at the beginning of the project. They reflect the requirements set by the teacher for students during the sprints. At the end of each sprint, the students´ team must demonstrate the relevant knowledge that accumulated during the sprint.

In the Figure below the Scrum process is presented.


*Figure 2 Scrum process*

## Post- game

At the third or postgame phase a presentation of the entire project, and a general review (retrospective) take place. It is the phase where each team evaluates its performance, reflects on good or bad practices applied during the previous phases, identify good practices and identify what competences they felt that developed of improved during the Sprints. Specifically, they can focus on:

- What they learned (knowledge related to the subject they dealt with)
- What they learn from the process - collaboration (emphasis on competencies)

- Whether their collaboration improved from Sprint to Sprint
- If not, what was at fault?
- What should have been done?
- What would they 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

The above is an example outline of how a the specific classroom project can be executed through the implementation of agile methods but it is not the only alternative. Teachers can adjust the previous approach or use their own approach as long as they respect the steps of agile methodologies and follow the guidelines described within the modules offered in the pilot training of Agile2Learn project.

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EPMA EUROPEAN PROJECTS & MANAGEMENT

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