SpicE

Special EduCation STEAM Academy

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

Co-funded by the Erasmus+ Programme of the European Union

WP3 Professional Development of STEAM Special Need educators

D3.4 SpicE Virtual Learning Environment (VLE)

August 2024
ReadLab
Authors: Kostas Kazantzidis

Table of Contents

Co-funded by the Erasmus+ Programme of the European Union
Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

Index of Figures

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

Executive Summary

The SpicE VLE report provides a comprehensive overview of the online platform, detailing the user requirements, system specifications, and key features that support its functionality. It provides explanations regarding the design and development process of the platform, highlighting how it was created to meet the needs of educators engaged teaching STEM subjects to students with Mild Disabilities (Special Education).

The report also covers the modular online content available on the platform, which is designed to facilitate microlearning and ensure an engaging experience for users. Furthermore, it explains how Moodle, the platform's technical architecture, enables efficient course delivery, user progress tracking, and certification. It also lists the main features of the platform from a navigational point of view, the functionalities offered by the platform, the structure of the content and the different methods of delivery. Through this report, readers gain insight into how the SpicE platform was developed to provide a state-of-the-art, technology-enhanced environment where teachers can access the training, resources, and tools developed over the course of the project.

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

1. Introduction to the VLE

The objective of this document is to present the contextual and technical requirements for the design and development of the SpicE e-learning platform. The SpicE e-learning platform follows the latest technology in Online Training to allow for collaborative interaction between its users through both learning and assessment activities. The SpicE e-learning Platform will be linked to the project website https://spiceacademy.eu/ and accessible at the subdomain: https://vle.spiceacademy.eu/

1.1 Technical Specifications – System description

The centerpiece of the SpicE e-learning platform is the Moodle platform, an open-source learning management system designed to provide educators with tools to create and deliver courses online. Moodle's architecture is modular, allowing for extensive customization and integration with other systems. The core of the Moodle platform is built with PHP and follows a modular plug-in architecture, enabling various functionalities like course management, assessments, and communication tools.

Moodle's server-side code is primarily written in PHP, with the front-end components using HTML, CSS, and JavaScript. The platform supports themes that allow customization of the user interface, and it uses Bootstrap as the front-end framework for responsive design. JavaScript is heavily utilized for interactive features, with jQuery and AJAX playing key roles in enhancing user interaction.

Moodle is deployed using MariaDB as the database management system, ensuring robust and scalable storage of user data, course content, and interaction data. This setup guarantees that all course-related activities are recorded and retrievable for analysis and reporting.

Moodle's analytics and reporting features are robust, offering insights into learner behavior, course engagement, and performance. The platform captures events related to user interactions, such as logins, resource views, quiz attempts, and assignment submissions. These data are stored in the MariaDB database and can be accessed through Moodle's built-in reporting tools or external tools via the Moodle API. This allows instructors and administrators to monitor learner progress and course effectiveness through a user-friendly interface.

Moodle's flexibility is further enhanced by its support for various third-party plugins and integrations, including learning analytics tools, which can be used to track and analyze learner data in more depth. The platform's REST API facilitates integration with other systems, allowing for the seamless exchange of data and the extension of Moodle's capabilities.

1.2 Methodology

The SpicE online platform is based on the Moodle software. Moodle is an open-source learning management system designed to make online learning easier and more

Co-funded by the Erasmus+ Programme of the European Union
Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

accessible. Originally developed in 2002, Moodle has been widely adopted by educational institutions around the world, including universities, colleges, and schools.

This software platform is designed to engage students and teachers in an interactive and flexible manner. It supports active learning through features such as quizzes, forums, assignments, and collaborative tools. Moodle also allows for the integration of multimedia content, enabling a rich and engaging learning experience.

Moodle powers thousands of online learning environments globally, serving millions of users across various educational and training institutions. It is considered a global success in hosting blended and fully online courses, providing a versatile and scalable solution for educators and learners.

The SpicE VLE was designed and implemented in an iterative manner. To ensure the successful delivery of the final product, several key factors had to be taken into consideration, including user engagement, content delivery methods, and platform scalability.

The SpicE VLE contains:

- External links to the project's website and social media accounts.
- The SpicE course organized in the form of an online learning course (MOOC).
- A description page about the course including information about the learning objectives of the course (see Annex 1 – Course information page).
- Legal documentation addressing Privacy Policy and Terms of Service.
- A custom theme in line with the SpicE visual identity.
- The SpicE course in all partner's languages.
- An audiovisual tutorial to guide users through the VLE usage

All SpicE online resources are released under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License (CC BY-NC-SA 4.0). This means that a user must:

- Give appropriate credit, provide a link to the license, and indicate if changes were made. The user may do so in any reasonable manner, but not in any way that suggests the licensor endorses the user or their use.
- Distribute any contributions under the same license as the original, meaning that if they remix, transform, or build upon the material, they must share the resulting work under the same CC BY-NC-SA 4.0 license.

Co-funded by the Erasmus+ Programme of the European Union
Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

- This license allows users to adapt and share the resources, as long as they do not use them for commercial purposes and they maintain the same licensing terms.

From a technical point of view, the platform should be up and running 24/7 for at least three years. During this wide uptime service duration, updates and maintenance tasks should also take place so the “maintenance tasks” should be implemented during low traffic time zones.

ReadLab, as coordinator of the development of the VLE platform, adopted the main points of the ADDIE instructional design model towards splitting the tasks between the different actors and facilitating parallel work for time effectiveness. The key phases of the ADDIE model are depicted in the following picture.

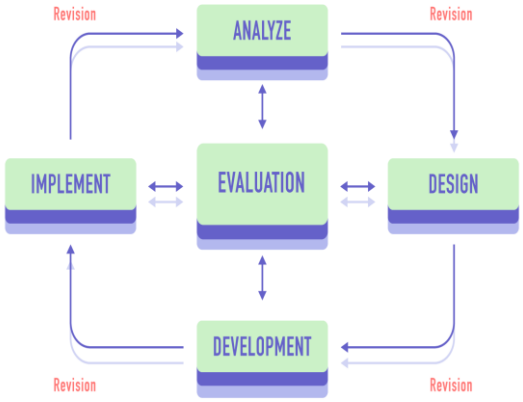

Figure 1 ADDIE instructional design model- Wikipedia

1.3 Analysis

During the analysis phase, the target audience and the overall objective of the courses were set. The overall description of the SpicE course was mainly defined in this step and its contents are described in more detail later on.

1.4 Design

During the design phase and based on a set of learning objectives, the following key concepts were defined:

Instructional strategy. The main outcome was to combine various resources and tools for delivering the content and be able to allow flexibility at lesson level. The topics were structured around a combination of text/pdf (and short videos in the near future) – including external sources.

Horizontal aspects. All modules include quizzes.

User engagement. The engagement of learners strongly depends on the user experience of the online course. A user-friendly interface along with a clear learning sequence design ensured a smooth flow of topics and builds on learned concepts and ideas. By design, after the user completes the information-gathering pre-survey, the content is fully unlocked, meaning that participants can freely navigate between the different topics of the course. It is, however, highly recommended to follow a sequential navigational flow.

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

Moreover, the partnership decided to create an “award” (certificate of attendance) for the successful learners.

Acquire user feedback. To better analyse and evaluate the SpicE learning experience, a questionnaire was designed to be integrated in the online platform (post-course survey).

1.5 Development

During the development phase the platform (Moodle) was installed and configured according to the design specifications. The developed content followed the micro-learning approach and was split in several learning components.

Define roll-out timeline. The final dates of each MOOC were depending on the progress of the two major tasks:

- Installation, user acceptance testing and configuration of the learning platform
- Development of the content and integration into the platform.

The first, stand-alone, task was finalised before the actual learning material was developed. ReadLab created a testing environment for deploying and testing the needed features of the application. **Internal testing and manual Quality Assurance tasks** were performed in order to ensure stability and smooth operation of the application. The next step was to deploy the application to an identical environment - “production environment” – where the learning material would be hosted.

The second task was in two stages. First, a “vertical slice” was created with the full integration of one module into the platform, to serve as a **pilot**. This module was then thoroughly reviewed by the consortium and was adapted in accordance to the feedback received. Then this module served as the guide upon which the rest of the material was modelled in the process of its own integration.

Each individual piece of learning material was created by the content developers uploaded in the platform and tested online.

Co-funded by the Erasmus+ Programme of the European Union
Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

2. The SpicE VLE

The SpicE online platform can be accessed through the link: https://vle.spiceacademy.eu. Users have direct access to the available course descriptions and can retrieve information related to information management regarding the platform and the SpicE project.

ReadLab has designed and deployed a custom theme following the visual identity of the SpicE project, ensuring responsiveness. The SpicE platform design is ideally in line with the SpicE website taking into consideration the main visual elements such as the project logo, colors, fonts, sizes, buttons, labels, etc.

2.1 Landing page

The platform provides an initial set of information to the user without registering in the platform, including:

- A courses information page (VLE landing page depicted on the right).
- A dynamic "News" section with SpicE-related articles posted to the main project website.
- Footer links describing the Terms of Use, and the Privacy Policy governing the use of the platform as well as providing access to a contact form to report technical issues.
- A short "About" section providing an overview of the project and its goals.
- The EU emblem with the accompanying disclaimer text applicable to the project.

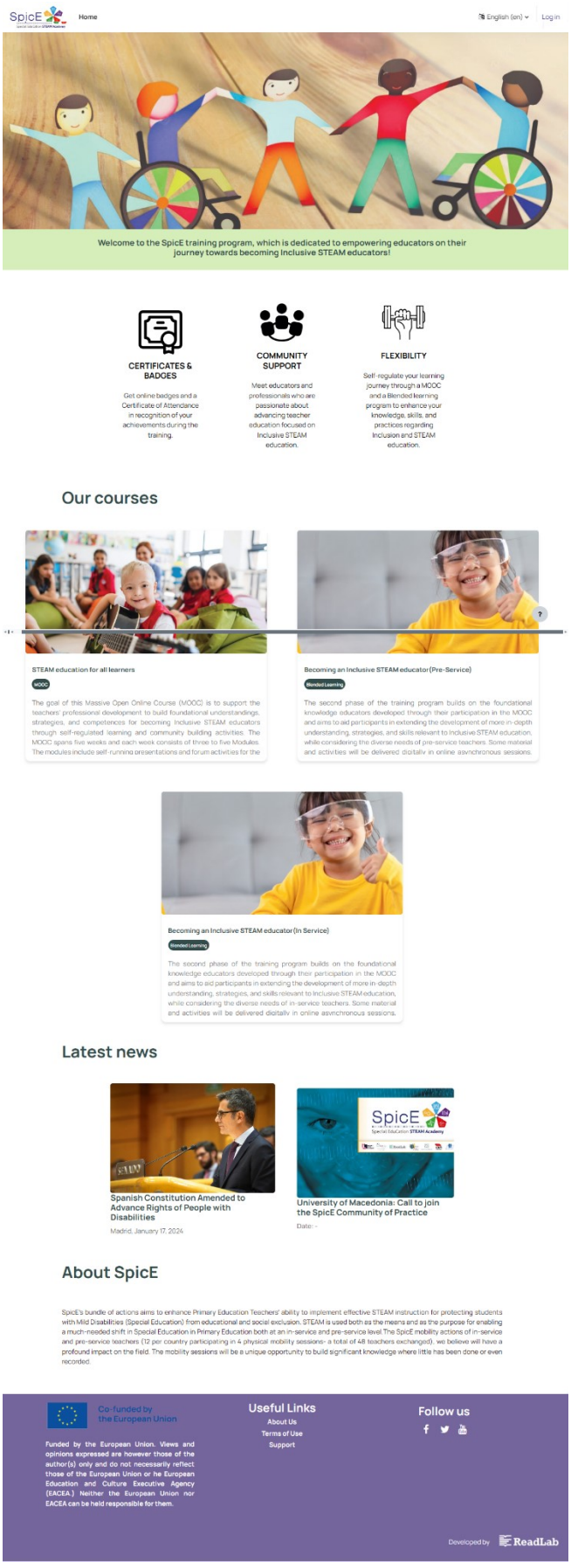

Figure 2 VLE landing page

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

2.2 Courses description

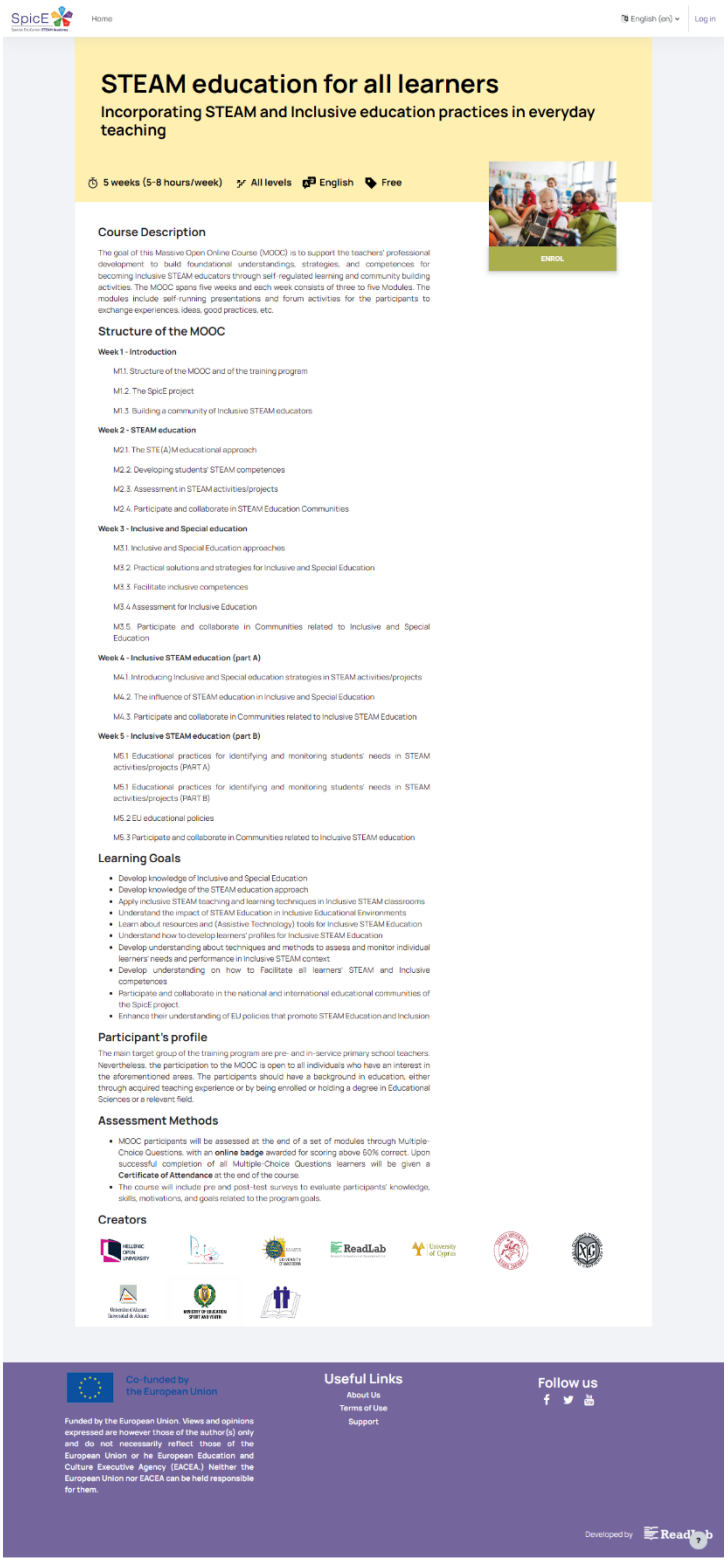

Figure 3 MOOC Course Information

By clicking on each course, the users (without registering) can visit a separate page that provides more information about the course. Each course description page includes the following information:

- A general description of the online course
- The learning objectives of the course
- An overview of the course syllabus
- The assessment methods used
- The consortium partners which contributed to the creation of the course

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

2.3 Registration\Login

To get started the user needs to create or register an account to the SpicE platform. Upon creating a SpicE account, the user has then the possibility to access/enroll in all SpicE available courses.

Any users who had created an account on the SpicE Community of Practice can login with that account into the VLE by using the sign in options on the right hand side.

Lastly, users can access the MOOC course as guests without creating an account, without however enjoying the features dependent on having an account.

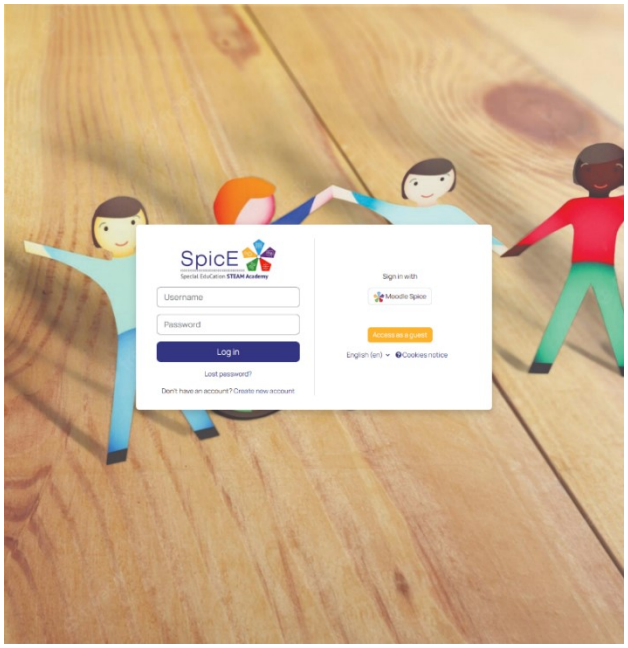

Figure 4 Login Screen

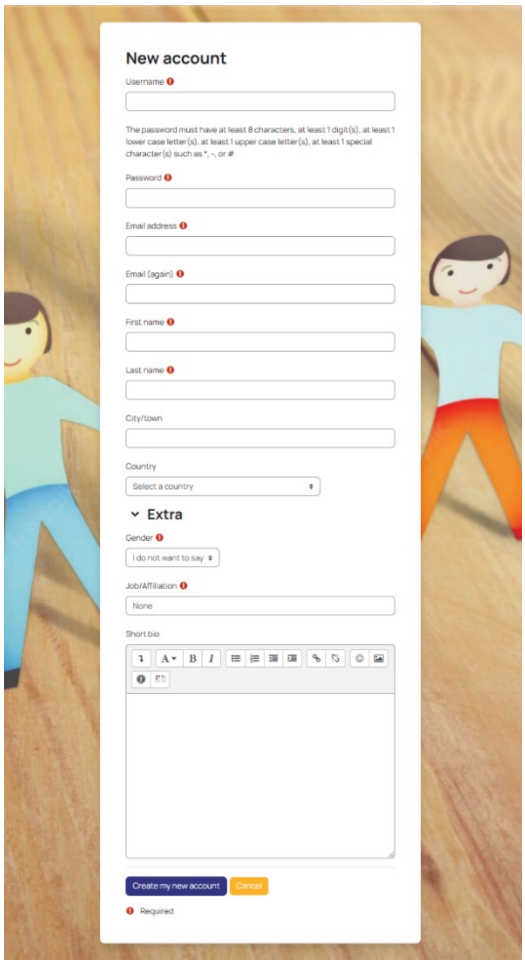

Figure 5 Registration Screen

The registration functionality is a two-steps process.

The user creates the account by filling in Username, Password, Email, Full Name and optional information related to location, gender, and professional affiliation.

The second step is to activate his/her account through an activation link sent to his/her registration email. The registration process is performed only once. Having the account activated, the user can login/log out or change the password.

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

2.4 Account Features

Each registered user had access to the following pages:

My Courses. This page provides information on which courses the user is enrolled in.

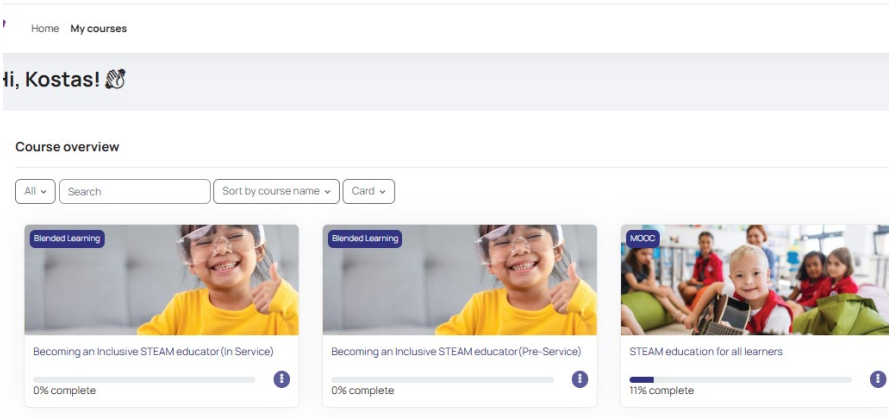

Figure 6 My courses page

It includes information on the progress achieved in each of the courses.

Profile Page. The user profile screen offers a comprehensive overview of a user's personal and academic information within the Virtual Learning Environment (VLE). It allows users to update personal details such as their name, email address, and profile picture. Additionally, it provides access to a summary of course enrollments, activity logs, and an overview of grades across all courses. Users can view any badges they have earned, access certificates for completed courses, and manage their preferences related to notifications and messaging.

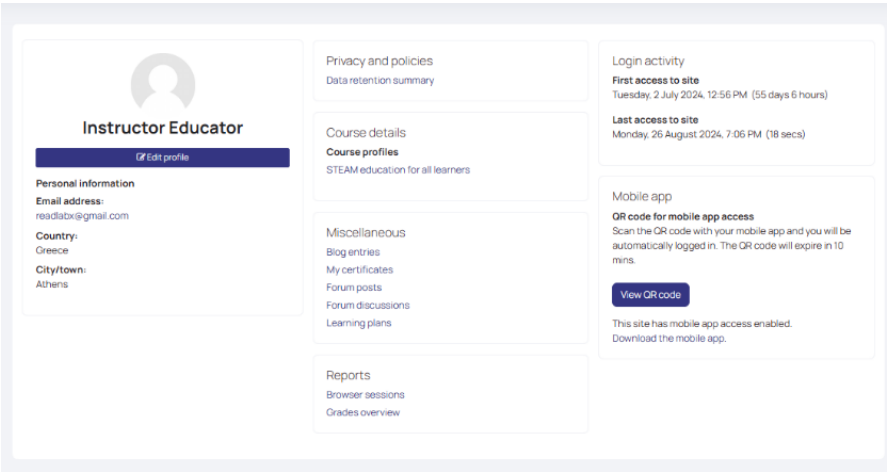

Figure 7 Profile Page

All personal data will be processed according to GDPR rules. A detailed data privacy policy addresses the following topics: what kind of personal data is processed, the

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

rationale behind the data-tracking, data subject rights, retention policy, etc. The privacy policy is available in the footer section accompanied by a Terms of Service description.

Other

In addition, registered users can easily access the following functionalities by clicking at their user icon which is always available by clicking on the top bar of the interface:

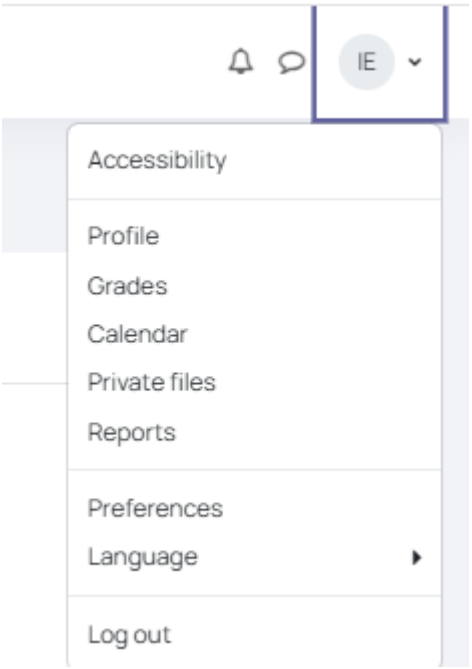

Figure 8 Drop down quick access menu

- **Notifications**: Keeps users informed about important updates, such as assignment deadlines, new forum posts, and other course-related events, ensuring they remain engaged and up-to-date.
- **Messages**: Enables direct communication with peers and instructors, promoting collaboration and support within the learning community.
- **Calendar**: Provides an organized view of all upcoming events and scheduled activities, helping users effectively manage their time and commitments.
- **Language Preferences**: Allows users to personalize their experience by selecting their preferred language for the platform user interface.
- **Accessibility Options**: Offers customization of accessibility features, such as enabling screen reader support and adjusting text size, to ensure the platform is inclusive and meets individual user needs.

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

2.5 Course Content and Navigation

Each registered user has access to the *STEAM education for all learners course.* The *Becoming an Inclusive STEAM educator* courses are available to verified educators that have been selected by the consortium members.

The following section describes the structure of the SpicE courses along with the underlying instructional design methodology and the navigation al capabilities of the platform

The microlearning approach

The SpicE VLE user interface offers a brief course sidebar overview that help learners see the full scope of the course contents and facilitates the learners to return to the last content area they were viewing. In the following picture the outline of the *STEAM education for all learners* course is presented. The course is structured in a modular manner and organized in sections (Weeks), subsections (Modules) and at a further level Units.

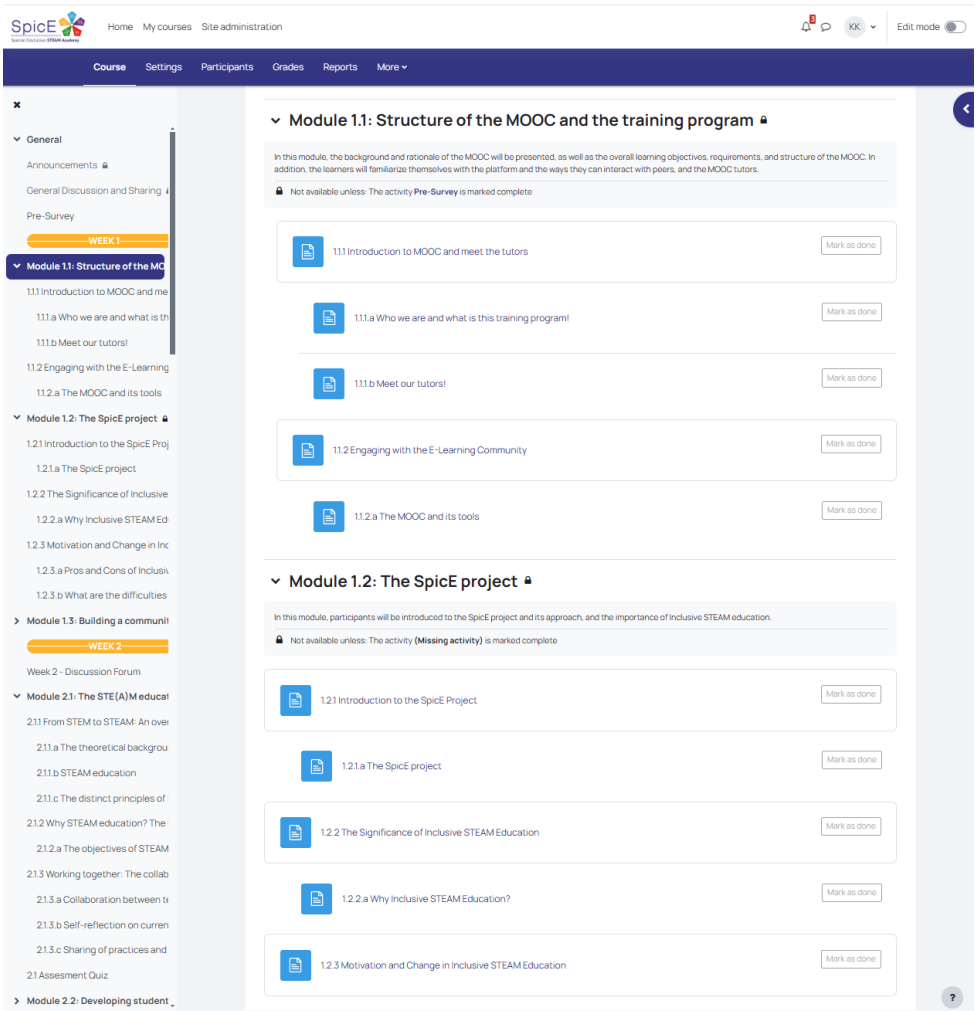

Figure 9 MOOC Course

This is in line with the relatively new microlearning concept. With microlearning, the content is broken down into bite-sized pieces of learning material. This instructional

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

approach is very efficient when incorporating various learning styles and the basic design elements adopted during the SpicE online courses.

Modularity – Navigational form

As a consequence of the micro-learning approach, the SpicE training material was built up of many bite-sized components, including different learning components.

Learning modules are organised so that learning material (e.g. video modules/reading material/PowerPoint presentations) alternate with exercises. This structure facilitates any updates or re-organisations needed during the course lifetime since it minimises the impact on adjacent material.

In this context, the architecture of the SpicE courses included the following general building blocks:

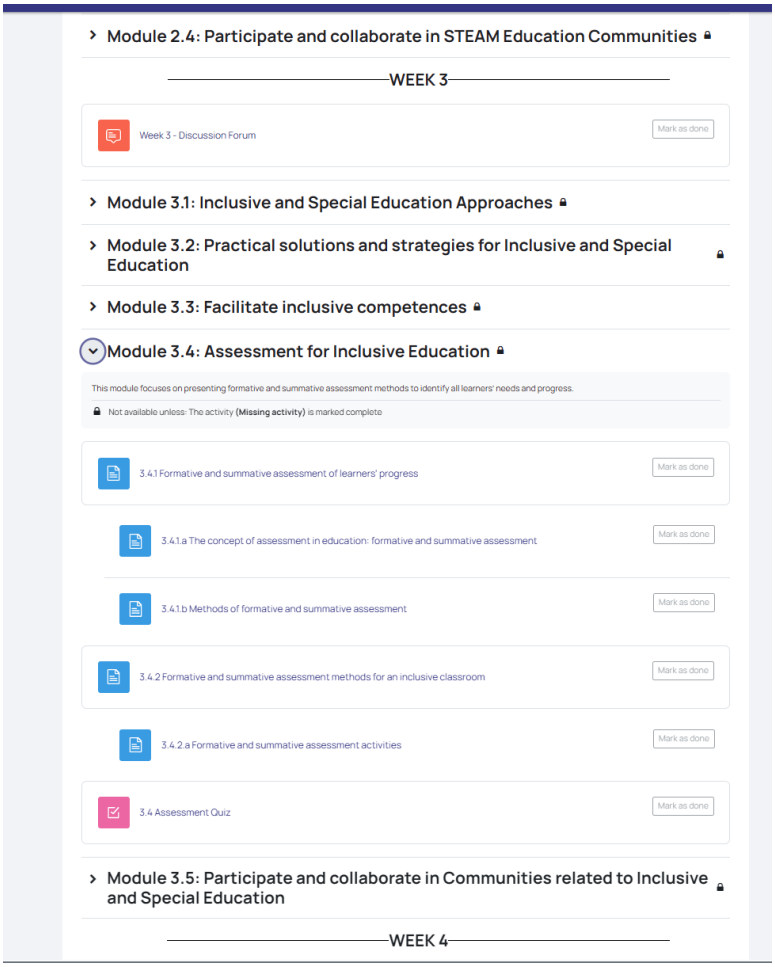

Figure 10 Example section and subsection breakdown

- Course sections (Weeks) are at the top level of the course and typically represent a period. Each module may contain one or more sections.
- Each section of the module contains subsections (Lessons) and represent a topic or other organising principle. Subsections are usually called "lessons" or "learning sequences". A lesson contains one or more units.
- Course units are lessons in a subsection that students view as single pages. A unit contains one or more components.
- Course components are objects within units that contain the actual course content: Videos, reading material, problems/quizzes and discussion forums.

Each lesson was structured as a series of units forming the "learning sequence". The learning sequence comprises a set of different learning experiences combining free text, pdfs, online videos lectures, different types of assessments, discussion spaces, etc. From a User experience (UX) perspective, the learner is constantly aware of his

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

web path through the sidebad course index as presented before. In addition, the users can mark units they have finished as *Done*, in order to keep track of their progress.

Learning components in SPICE courses

The courses are comprised of the following components:

Embedded PDF Study Documents

In our VLE, essential study materials are provided through embedded PDF documents, ensuring that learners have easy access to all necessary readings directly within the course interface. These PDFs are seamlessly integrated into each lesson, allowing students to view, download, and print the documents as needed. This ensures that all learners can engage with the material at their own pace, whether online or offline.

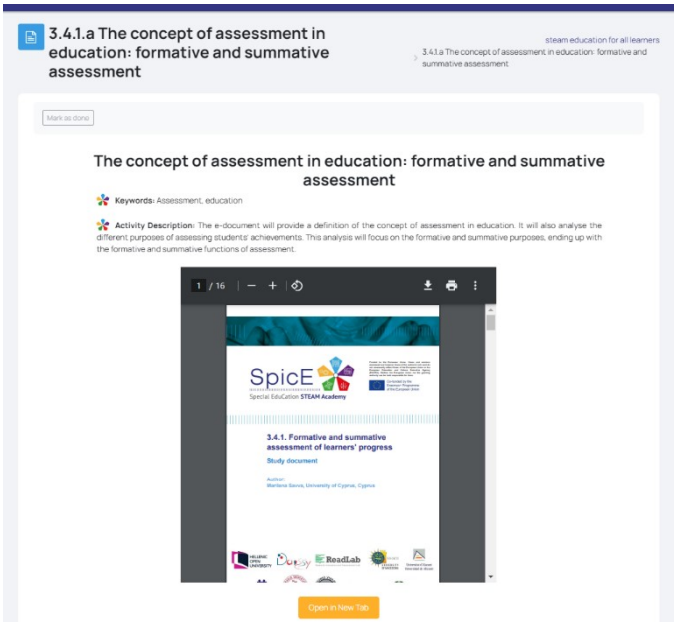

Figure 11 Study Document Example

Videos

Figure 12 Video example

Videos are a central component of our Moodle courses, delivering content in an engaging and dynamic format. Each video is embedded directly within the course pages, allowing learners to watch lectures without leaving the platform. These videos are designed to complement the written materials, providing visual and auditory learning opportunities that cater to different learning styles. Each of the videos is accompanied by timed subtitles and a transcript below the video, to allow easy consumption of the text material.

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

H5P Activities

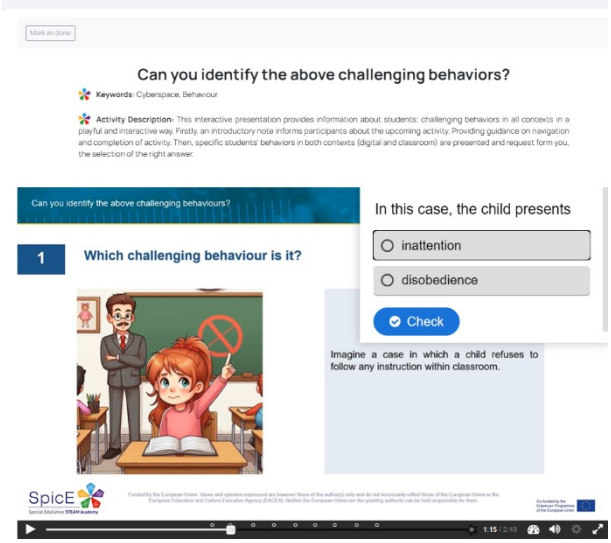

Figure 13 H5P Example

To foster interactive learning, our VLE utilizes H5P activities, which allowed instructors to create rich, interactive content that goes beyond traditional teaching methods. These activities include interactive quizzes, presentations, drag-and-drop tasks, and more, all designed to engage learners actively. These activities are seamlessly embedded within lessons, making it easy for students to interact with the content and receive instant feedback. This interactivity not only enhances comprehension but also makes learning more enjoyable and effective.

Discussion Activities

The VLE includes robust discussion activities that facilitate meaningful interaction among students and instructors. Discussion forums are embedded throughout the courses, providing spaces where learners can ask questions, share insights, and collaborate on projects. These forums are integral to building a community within the course, encouraging peer-to-peer learning and continuous engagement. Each discussion activity is clearly linked to the relevant content, ensuring that discussions are focused and productive.

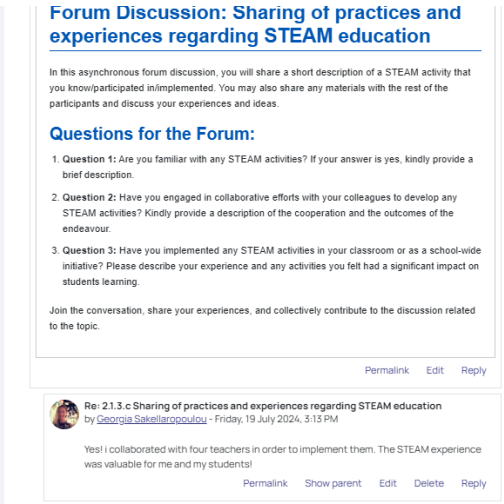

Figure 14 Discussion activity example

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

Assessment Quizzes

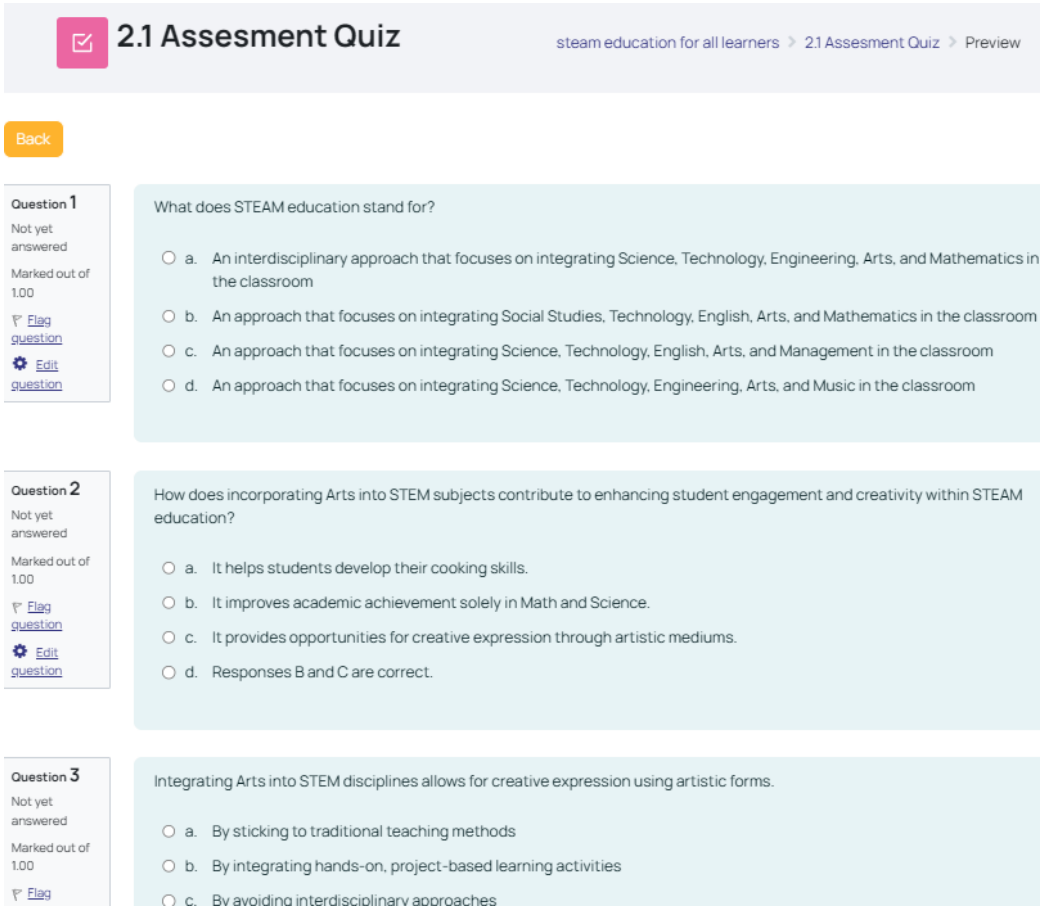

Figure 15 Assessment Quiz Example

Assessment quizzes are strategically placed throughout our Moodle courses to evaluate learners' understanding of the material. These quizzes are designed to reinforce learning by providing immediate feedback, helping students to identify areas where they may need further study. Each quiz is automatically graded by the system, allowing learners to track their progress in real-time. A passing score of 60% has been set for the Assessment Quizes.

Certificate

The MOOC platform was set up to enable learners to obtain their online certificate once they have successfully met all course requirements. To qualify for the certificate,

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

students must complete all 15 module assessment quizzes successfully. As mentioned above the threshold for successfully passing each assessment quiz is 60%.

Figure 16 Example Certificate

2.6 Blended courses

Besides the MOOC, the VLE includes two courses specifically designed for blended learning, combining both synchronous and asynchronous elements to enhance the learning experience. The blended learning approach is particularly effective in providing flexibility while maintaining a high level of engagement and interaction.

In our VLE, the asynchronous component is complemented by scheduled synchronous sessions, where learners can participate in live discussions, receive real-time feedback from instructors, and collaborate on projects.

VLE features, such as its calendar, help learners keep track of these live sessions and manage their time effectively. Additionally, the discussion forums remain active throughout the course, offering a space for ongoing dialogue and reflection between sessions.

This blended approach leverages the strengths of both online and in-person learning, ensuring that participants not only benefit from the flexibility of online education but also from the depth of interaction and personal engagement typically found in traditional classroom settings.

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

2.7 Accessibility

The SpicE VLE complies with Web Content Accessibility Guidelines WCAG 2.0 (Level AA) that makes web content more accessible to individuals with disabilities. It has been successfully tested with common web accessibility evaluation tools such as Wave https://wave.webaim.org/ , as shown at the figure below:

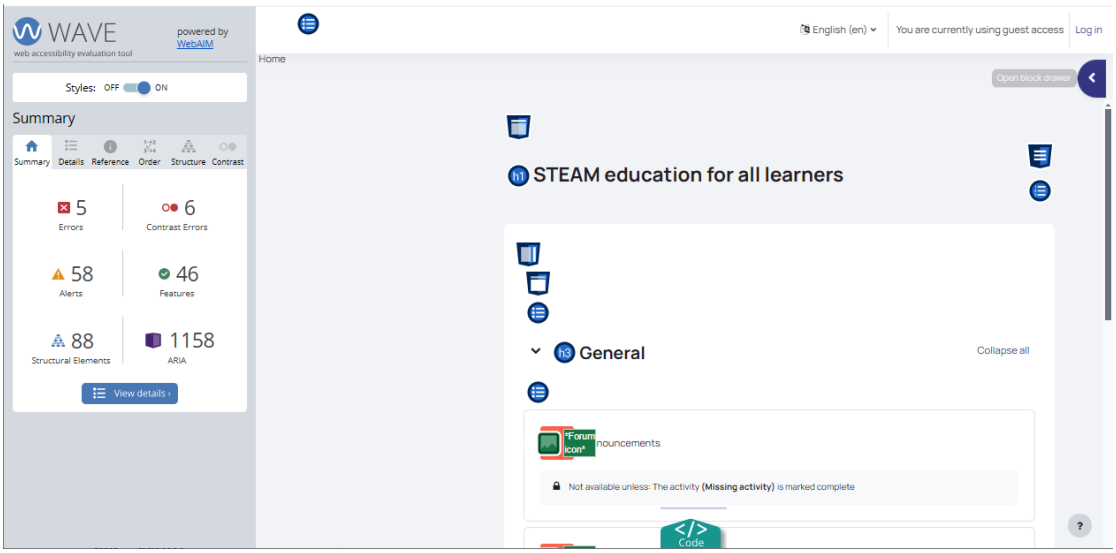

Figure 17 Wave Report

Each certificate is accompanied with a unique ID that was generated from the system. This was a must-have functionality in order to secure uniqueness and verification procedures if needed by an official accreditation authority.

Co-funded by the Erasmus+ Programme of the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

Conclusion

Through the SpicE platform, instructors have been able to create engaging learning sequences which promote active participation providing learners the opportunity to alternate between learning concepts and solving simple exercises to check their understanding and knowledge. As already mentioned, the course content was presented through learning sequences: a set of reading material and exercises.

Participants can move at their own pace following a self-regulating learning process while they received instant feedback upon completion of different types of assessments providing superior pedagogy.

Concluding, the SpicE MOOCs were designed and developed adopting the following general best practices and features offered by the platform:

- Create a clear grading policy by setting a passing score and defining assignment types. All assignments add up to 100%.
- Design and enable course certificates
- Build diverse learning sequences. Empirical studies and research show that a diverse content experience drives learner engagemen. Each SpicE module includes a variety of type of learning material.
- Manage unit depth. Each SpicE unit contains a manageable number of components. Breaking up course contents into manageable pieces promotes learner engagement. Thus, no more than 5 components per unit were used in the SpicE courses.
- Include timed text captions and transcripts for all media-based content.

Co-funded by the Erasmus+ Programme of the European Union
Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

Annexes

Annex 1: Course details

This section provides the general syllabi of the modules which comprise the courses:

STEAM education for all learners

WEEK 1

- Module 1.1: Structure of the MOOC and the training program
- Module 1.2: The SpicE project
- Module 1.3: Building a community of Inclusive STEAM educators

WEEK 2

- Module 2.1: The STE(A)M educational approach
- Module 2.2: Developing students' STEAM competences
- Module 2.3: Assessment in STEAM activities/projects
- Module 2.4: Participate and collaborate in STEAM Education Communities

WEEK 3

- Module 3.1: Inclusive and Special Education Approaches
- Module 3.2: Practical solutions and strategies for Inclusive and Special Education
- Module 3.3: Facilitate inclusive competences
- Module 3.4: Assessment for Inclusive Education
- Module 3.5: Participate and collaborate in Communities related to Inclusive and Special Education

WEEK 4

- Module 4.1: Introducing Inclusive and Special Education strategies in STEAM activities/projects
- Module 4.2: The influence of STEAM education in Inclusive and Special Education
- Module 4.3: Participate and collaborate in Communities related to Inclusive STEAM education

WEEK 5

- Module 5.1 (PART A): Educational practices for identifying and monitoring students' needs in STEAM activities/projects
- Module 5.1 (Part B): Educational practices for identifying and monitoring students' needs in STEAM activities/projects
- Module 5.2: EU educational policies

Co-funded by the Erasmus+ Programme of the European Union
Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.

- Module 5.3: Participate and collaborate in Communities related to Inclusive STEAM education

Becoming an Inclusive STEAM educator(Pre-Service)

Week 1

B1. Introduction

Week 2

BP2.Theoretical underpinnings of Inclusive and Special education

Week 3

BP3.Theoretical underpinnings of STEAM education

Week 4

BP4.The added value of STEAM Education in Inclusive Educational Environments

Week 5

BP5. Adapting inclusive STEAM education activities

Becoming an Inclusive STEAM educator(In Service)

Week 1

B1. Introduction

Week 2

BI2.Theoretical underpinnings of Inclusive and STEAM education

Week 3

BI3.Accessibility and inclusion in STEAM education

Week 4

BI4. Designing inclusive STEAM education activities

Week 5

BI5. Organization methods in inclusive STEAM Classrooms

Co-funded by the Erasmus+ Programme of the European Union
Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Education and Culture Executive Agency (EACEA). Neither the European Union nor the granting authority can be held responsible for them.