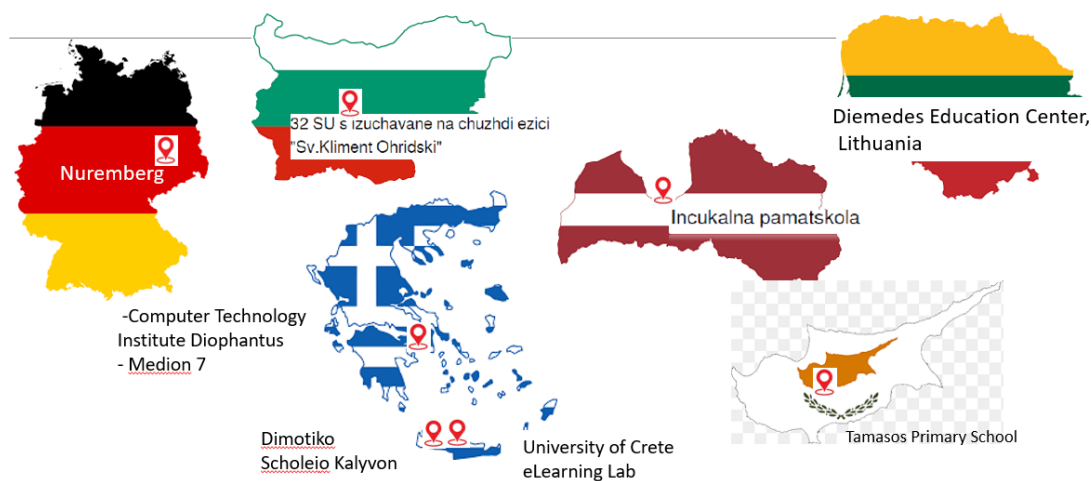




Intelligent iLearning-eCreativity-eDiversity

RESULT 3 Intelligent e-Learning & Social Environment (leSLE)



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Report

How to access it

The development of the Intelligent e-Learning & Social Environment (leLSE) combined a complete Intelligent e-Learning Environment [ILE] with an Advanced Learning & Social Network [ALSN]. leLSE was used to host the eLearning part of the Blended Training Course (LTTA) of the project. The Interactive Educational Material: Result 2: Interactive Content under the principles of distance learning (i Content) was integrated on leLSE for trainees to study.

<https://ielse.edivea.net/>

If you would like to access the platform via a demo account please contact us : edivea2@edc.uoc.gr

Click on the Course "Erasmus+ Intelligent Learning – eCreativity - eDiversity"

Select one of the available Learning paths on the list to view the Interactive Educational Material: Result 2: Interactive Content under the principles of distance learning (i Content)

Platform Development Justification – Innovative Approach (ILE)

Most currently existing Learning Management Systems, either open-source or commercial, have been built for the needs of University education, as this is the most fitting environment for an LMS to supplement or substitute traditional course delivery. Primary and secondary education have never been a primary focus of LMS providers, since these sectors were always considered as more fit for class-based educational processes. The onset of the COVID-19 worldwide pandemic has forced educators to reconsider this assumption, as schools were locked down and rushed into online lessons within a few days in many countries around the world.

A flexible LMS platform should be able to cater to many different needs, without restricting the users from what they would want to achieve, such as:

- Creating structured courses with appropriate presentation themes for primary education
- More interactive courses for secondary education
- Courses promoting research and collaboration for university education
- Massive Online Open Courses (MOOCs) for vocational and continuing education for adults

Each of these paradigms required a different approach in course creation methodologies, learner performance evaluation, activity tracking and reporting, which are not currently offered effectively by the existing Learning Management Systems. The existing offerings mostly focus on one of these educational processes, and if someone tries to use them for a different target audience, they are forced to make several compromises in the way they structure their educational workflows.

This objective was achieved by combining existing open-source software packages and libraries, such as content authoring tools, content management systems, external services used through an API (e.g. using Wordpress as a content creation and delivery platform through the Wordpress API), and several open source PHP and Javascript packages that enhanced the flexibility and usability of an LMS for these different educational target groups.

The leLSE was built with this approach in mind, enabling educators to structure their courses differently according to their target audience, and providing students of all the above groups with an easy-to-use educational environment.

Platform Development Justification – Innovative Approach (ALSN)

Most existing open-source LMS application were mainly structured around course delivery functions and had a limited integration with social media. On the other hand, people who would enroll in an online course, are mostly using social networks in one way or another, but in order to purposefully interact with the educators or other course participants, they mostly had to use the actual social networking sites, outside of the learning environment.

With the currently increasing restrictions on in-person delivered education due to the worldwide COVID-19 pandemic, educators who recognise the contribution that student interaction has in the successful implementation of most courses, were looking for ways to substitute class-based face-to-face interactions with other sufficient internet-based alternatives, that can provide measurable activity indicators for every course participant.

On the other hand, the fragmentation of social networking sites can make them difficult for a course instructor to utilise, since some of the course participants might prefer one social network over another. The instructor would have to split his attention between several social networking sites to cater to all people, and would have a problem getting an overview of how the online class is doing in terms of engagement with each course and group interactions.

Therefore, the integration within an LMS of the tools that people mostly use in social networking sites, similar to the wall of Facebook, the timeline of Twitter, the gallery of

Instagram, messaging facilities, follows and likes, etc., could be very beneficial to the enhancement of an online course, by firstly giving to the educator clear and measurable indications of student engagement with the content, and secondly promoting the establishment of longer term relationships between educators and students.

leLSE development approach

Combining an ILE with an ALSN helped us to create a powerful learning platform that not only delivers high-quality training but also fosters collaboration and social learning.

The leLSE offers learners a range of features that support both individual and collaborative learning, promote engagement and motivation, and foster a culture of continuous learning and knowledge sharing. By following these learning experiences and social features, the effectiveness of training programs is improved, benefitting both learners and the organization that provides the knowledge.

Generally, the completed leLSE has the following features.

- **Course Management:** Allows teachers to create and manage courses, add course materials such as files and images, and set up assignments, questions and quizzes.
- **User Management:** Provides an interface for teachers and administrators to manage students and monitor their progress and performance. Students can access the course materials, complete assignments, take quizzes and track their progress through the platform.
- **Communication and Collaboration:** Provides tools for teachers and students to communicate and collaborate with each other, such as discussion forums, groups and messaging.

A more detailed description of the two components (ILE & ALSN) is laid out below:

1. Intelligent e-Learning Environment (ILE)

The Intelligent e-Learning Environment (ILE) is a software application that allows the educational institution to manage, deliver, and track educational programs. Content management inside the ILE involves creating, organizing, storing, and delivering course content. Content management is an essential component of the ILE as it helps to facilitate the delivery of online courses and training programs.

The ILE was built using the Laravel PHP Framework and the Vue.js Javascript Framework, as a Single Page Application (SPA), enabling rich interactivity with the user, with all page functions running on the user's web browser.

The ubiquity of the technologies involved will ensure that the ILE web application can remain well-maintained for the duration of the project and beyond.

The ILE provides a centralized platform where teachers can create Courses. The courses have an open registration period where the students can see the course in the platform and decide whether they want to register.

The teacher has the ability to organize the course into Learning Paths and add Learning Path Items within each Learning Path. The Learning Path Items can be interactive like a quiz (using H5P content), an assignment or an open question. These interactive items have the option to be gradable items and the students can submit their answers directly through the ILE platform, which makes it easy for teachers to access and review their work. The Learning Path Items can also be not interactive such as a file, a Web page or an image.

Also, among the capabilities of the ILE is that the teachers can monitor students' progress and performance through the grading page. In that page a grading overview for each student is provided and that can help the teacher decide the overall grade of that student in the course. For each gradable Learning Path Item, the teacher has the option to provide feedback for the student to enhance the learning experience either before grading the item or after.

The content management system within the ILE provides teachers with tools such as creating H5P content and embed this content to the Learning Path of the course as a Learning Path Item, using a separate Wordpress application with an H5P plugin as a content authoring and content delivery infrastructure.

Teachers can also use the content management system to upload and manage course content such as lecture notes, presentations, and image assets. They organize course content into Learning Paths, making it easier for students to navigate and find the materials they need.

The content management system within the ILE also allows teachers to track student progress with the course content.

Content management helps delivering effective online courses and training programs. It allows teachers to create and organize course materials, track student progress, and provide a more engaging and interactive learning experience for students.

Platform documentation was provided in the form of a Teacher's manual and a Student's manual. Both of these contained short, step-by-step instructions for common tasks of teachers and students with screenshots of the platform, helping them to quickly be able to utilize the available features of the ILE.

2. Advanced Learning & Social Network (ALSN)

The Advanced Learning & Social Network (ALSN) is used to promote engagement and motivation by offering learners a range of social features such as posts, forums, wikis, docs, media, likes and comments. These features can motivate learners to take an active role in their learning, connect with other learners, and share their achievements and knowledge. ALSN provides a platform for learners to collaborate and share their knowledge and expertise

with others. This includes online discussions, group projects, peer-to-peer feedback, and knowledge sharing communities. By fostering collaboration and social learning, the system can create a culture of continuous learning and knowledge sharing.

The ALSN is a WordPress Website that was built to provide all the above features. As soon as a course is created in the ILE platform a group with the name of the course is automatically created also on the ALSN. All the students that are registered to the ILE platform have an account on the ALSN automatically and when they register to a course, they are also registered to the group of the course on the ALSN platform. From the course they can access the group and interact with their teacher or other students.

The ALSN enables students and teachers to connect, communicate, and collaborate with each other online. ALSN tools provide a way for students to engage with their peers and teachers in a more interactive and social way, creating a more engaging and personalized learning experience.

The features of the ALSN include:

- Profiles: Students and teachers have personal profiles that include information about them.
- Groups: Users form groups around courses as explained above. Group members can communicate and collaborate with each other through discussion forums, messaging, and file sharing.
- Messaging: Users can send private messages to each other, either individually or in groups.
- Notifications: Users can receive notifications about group activities
- Activity streams: Users can see a real-time stream of activities, such as posts, comments, and group updates.
- User connection: Users can follow another user's activity stream and they can also send friend requests to other users, which, if accepted, become active.

The ALSN encourages collaboration and communication among students and teachers, facilitating the exchange of ideas and fostering a sense of community. It can also provide opportunities for peer-to-peer support, mentoring, and networking, enhancing the overall learning experience.