ENVRI^plus DELIVERABLE

D15.5
EeTP e–Learning, description of implementation of new functionalities

WORK PACKAGE 15 – TRAINING, E-LEARNING AND COURSES

LEADING BENEFICIARY: UNIVERSITY OF SALENTO

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ABSTRACT

This is the deliverable for Task 15.4, "Development of training packages for the use of Environmental Research Infrastructure products training of e-Infrastructure Technologies", which aimed at the development/customisation of the ENVRIplus e-Training Platform (EeTP) and the development of training products and packages for the optimising access to ERIs and use of ERIs products.

The deliverable describes the architecture of e-Training Platform (EeTP), the new functionalities developed and how it has been integrated in the ENVRIplus context. In particular this is the report on available training/ courses on the use of data processing tools from the existing Research Infrastructure's (RI's) and the priorities for using these in a transversal platform.

Project internal reviewer(s):

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ENVRI

PROJECT SUMMARY

ENVRIplus is a Horizon 2020 project bringing together Environmental and Earth System Research Infrastructures, projects and networks together with technical specialist partners to create a more coherent, interdisciplinary and interoperable cluster of Environmental Research Infrastructures (ERIs) across Europe. It is driven by three overarching goals: 1) promoting cross-fertilization between infrastructures, 2) implementing innovative concepts and devices across RIs, and 3) facilitating research and innovation in the field of environment for an increasing number of users outside the RIs.

ENVRIplus aligns its activities to a core strategic plan where sharing multi-disciplinary expertise will be most effective. The project aims to improve Earth observation monitoring systems and strategies, including actions to improve harmonization and innovation, and generate common solutions to many shared information technology and data related challenges. It also seeks to harmonize policies for access and provide strategies for knowledge transfer amongst RIs. ENVRIplus develops guidelines to enhance trans-disciplinary use of data and data-products supported by applied use-cases involving RIs from different domains. The project coordinates actions to improve communication and cooperation, addressing Environmental RIs at all levels, from management to end-users, implementing RI-staff exchange programs, generating material for RI personnel, and proposing common strategic developments and actions for enhancing services to users and evaluating the socio-economic impacts.

ENVRIplus is expected to facilitate structuration and improve quality of services offered both within single RIs and at the pan-RI level. It promotes efficient and multi-disciplinary research offering new opportunities to users, new tools to RI managers and new communication strategies for environmental RI communities. The resulting solutions, services and other project outcomes are made available to all environmental RI initiatives, thus contributing to the development of a coherent European RI ecosystem.

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Introduction

TASK OVERVIEW

The task 15.4 aims at the development/customisation of the ENVRIplus e-Training Platform (EeTP) and the development of training products and packages for the optimising access to Enviromental Research Infrastructures (ERIs) and use of ERIs products. It includes the following actions:

- Implementation of the ENVRIplus e-Training Platform (EeTP), which incorporates platforms and contents developed in tasks 15.5 (Secondary School education), and 15.1 (training course on ENVRI Reference Model), and it is open to Research Infrastructures (RIs) e-training programmes;
- Realisation of e-training courses targeting scientists and science stakeholders on the use of ERIs products, covering types of products common to most ERIs as well as areas of interests and products characteristics of the ERIs contributing to ENVRIplus. These include an e-training course on the use of EeTP itself;
- Implementation of user-friendly tools and products complementing the e-training course through:
    - Online support system for EeTP users;
    - TED-like seminars on the core areas of interests of the ERIs, on ERIs products and societal benefits from ERIs activities;
- In situ and hands on courses, limited to a small number of key user groups (defined in Theme 6) integrating the e-training activities and being supported by all materials made available on the EeTP. Courses on modelling web-services, targeting early career scientists, are an example of the products realised within this sub-task.

This task is developing advanced, state of the art course materials and webinars, where appropriate, in close cooperation with the ERIs, making available on the e-Training Platform, deepening and extending or adapting already existing materials, whenever it will be possible.

Together with task 17.5, this task will ensure the availability of the EeTP and the developed courses for the ERIs beyond the project life-time, defining opportunities and conditions for sustainability. In particular University of Salento, is directly involved in LifeWatch, the European e-Infrastructure on Biodiversity and Ecosystems Research, University Salento is the base of the Service Centre, one of the three LifeWatch Common Facilities. The LifeWatch Service Centre is the main interface between the infrastructure and its stakeholders; it is in charge to provide services to the final users. In this context LifeWatch can concretely give sustainability to the EeTP platform after the ENVRIPlus project period.

MOTIVATION

The development ENVRIplus e-Training Platform (EeTP) and the Scientific Game Platform is a part of the EVNRI community Platform. The ENVRI community is a community of ERIs projects, networks and other diverse stakeholders interested in environmental research infrastructure matters. The community also includes e-infrastructures supporting the Research Infrastructures in data solutions.

In this this way, the EeTP gives ERIs the opportunity to publish the e-training courses targeting scientists and science stakeholders on the use of ERIs products.

Moreover, on the EeTP there are published TED-like seminars interviewing the Environmental RIs, which participate at the ENVRIplus Project. The TED-like seminars are short videos (three minutes) produced by a video maker, who had the opportunity to interview 18 RIs of the ENVRIplus Project. The participants of the video, were representative persons of the Environmental RIs, The TED-like seminars were made introduce the interests and the activities of the ERIs and also to emphasize the uniqueness of each ERIs included in the EVNRI community (www.training.envri.eu). The purpose of the TED-like seminars were to communicate the activities of the Environmental RIs in the society in a more direct way, as well as to influence the scientist, the stakeholders and the citizens on the importance of the activities that have been developed from the Environmental RIs.

The Scientific Game Platform host the ENVRIplus Scientific Game, where teachers and students can find game guides and other supporting material on game topics on the core areas of interests of the ERIs (www.scientificgame.envri.eu).

LAYOUT
The remainder of this document is laid out as follows:

Section 2 "Implementation of the ENVRIplus e-Training Platform (EeTP)", the platform is one of the main deliverable of the project. In this section we draw upon its architecture, how it has been customized and extended for the needs of the ENVRIplus project.

Section 3 "Courses: Creation and Management", provides a practical user-guide on how create and manage Courses for editors and teachers.

Section 4 "The Scientific Game Platform", we introduce the description of the requirement elicitation phase, the design and the development phase of the scientific gaming platform.

Section 5 "Roadmap" provides a provisional schedule for task 7.2 activities, addressing the interaction points with other concurrent tasks, particularly the release of critical design documents to which our activities should comply and the release of key demonstrators to which our activities should contribute.

Section 6 "Summary" wraps up the deliverable, summarising its main points and contribution to the project, and providing a number of technical recommendations regarding future development in the area.

Implementation of the ENVRIplus e-Training Platform (EeTP)

ARCHITECTURE

The ENVRIplus e-Training Platform (EeTP) is based on Moodle [1]. The aim of this section is to quickly give an overview of how the Moodle works at a technical level.

Moodle is a Learning Management System (LMS), Course Management System (CMS), or Virtual Learning Environment (VLE). Its goal is to give teachers and students the tools they need to teach and learn. Moodle comes from a background of Social Constructionist pedagogy; however, it can be used to support any style of teaching and learning.

There are other types of software systems that are important for educational institutions, for example ePortfolios, Student Information Systems and Content repositories. Generally, Moodle does not try to re-invent these areas of functionality. Instead, tries to be the best LMS possible, and then interoperate gracefully with other systems that provide the other areas of functionality. This is the main raison why we selected Moodle for the EeTP architecture.

Moodle is a web application written in PHP. Moodle is open source. Copyright is owned by individual contributors, not assigned to a single entity, although the company Moodle Pty Ltd in Perth Australia, owned by Moodle's founder Martin Dougiamas, manages the project.

Like many successful open source systems, Moodle is structured as an application core, surrounded by numerous plugins to provide specific functionality. Moodle is designed to be highly extensible and customizable without modifying the core libraries, as doing so would create problems when upgrading Moodle to a newer version.

Plugins in Moodle are of specific types. That is, an authentication plugin and an activity module will communicate with Moodle core using different APIs, tailored to the type of functionality the plugin provides. Functionality common to all plugins (installation, upgrade, permissions, configuration etc.) are, however, handled consistently across all plugin types.

The standard Moodle distribution includes Moodle core and a number of plugins of each type, so that a new Moodle installation can immediately be used to start teaching and learning. After installation a Moodle site can be adapted for a particular purpose by changing the default configuration option, and by installing add-ons or removing standard plugins.

Physically, a Moodle plugin is just a folder of PHP scripts (and CSS, JavaScript, etc. if necessary). Moodle core communicates with the plugin by looking for particular entry points, often defined in the file lib.php within the plugin.
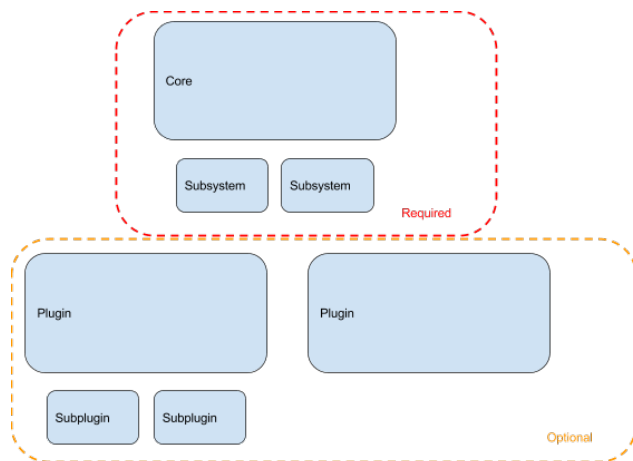
FIGURE 1. MOODLE COMPONENTS

In the EeTP development different kind of plugins has been developed and used. Building a new plugin for Moodle it was good to think about how to best structure the code. Following the development guidelines the code has been separated into layers of functionality. This approach provides a secure and comprehensive API that can be called from inside, or outside of the component, or from web-services (like the Mobile App or AJAX).
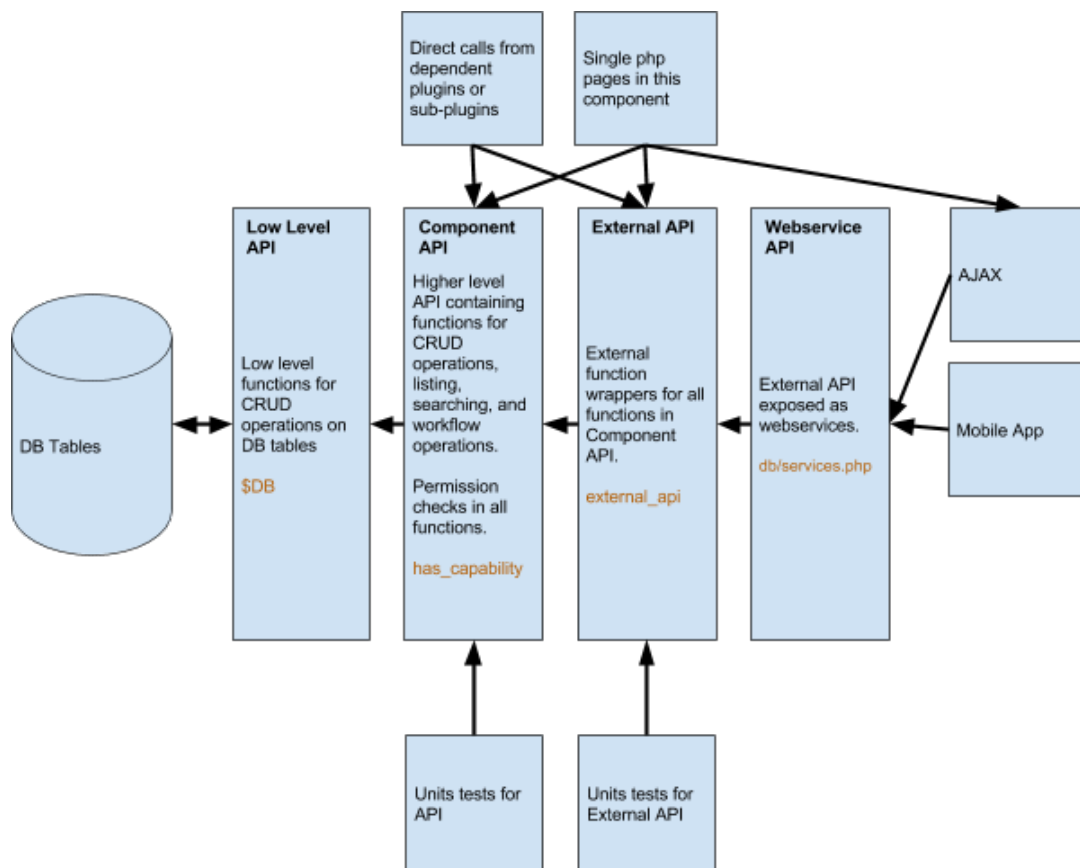

FIGURE 2. PLUGIN DESIGN

Moodle core provides the entire infrastructure necessary to build a Learning Management System. It implements the key concepts that all the different plugins will need to work with. These include:

- **Courses and activities:** A Moodle course is a sequence of activities and resources grouped into sections. Courses themselves are organized into a hierarchical set of categories within a Moodle site.
- **Users:** In moodle, users are anyone who uses the moodle system. In order to participate in course users need to be enrolled into course with a given role, such as:

  - Students
  - Teachers

- **Course enrolment**: Enrolment gives user the possibility to participate in course as a student or teacher.
- **User functionality in Moodle:**

  - User roles in Moodle: Roles assigned to users give them a set of capabilities in given context. For example: Teacher, Student and Forum moderator are examples of roles.
  - User's capabilities in Moodle: A capability is a description of some particular Moodle feature. Capabilities are associated with roles. For example, mod/forum:replypost is a capability.
  - Context: A context is a "space" in the Moodle, such as courses, activity modules, blocks etc.
  - Permissions: Permission is some value that is assigned for a capability for a particular role. For example, allow or prevent.

- **Added facilities provided by Moodle:**

  - Creation and editing of user profiles: In Moodle, the moment an user creates his account, a profile is created for that user. The user needs to fill in his initial details for completing his profile. The users generally always have the permission to edit their own profile anytime on Moodle.
  - Groups and cohorts: Cohorts, or site-wide groups, enable all members of a cohort to be enrolled in a course in one action, either manually or synchronised automatically.
  - Enrolments and access control: Users are generally enrolled into some courses and according to their permission settings and the groups to which they belong; they have limited access on Moodle.

- **Logs and statistics in Moodle:**

  - Statistics in Moodle: The statistics graphs and tables show how many hits there have been on various parts of your site during various time frames. They do not show how many distinct users there have been. They are processed daily at a time you specify. You must enable statistics before you will see anything.
  - Log in Moodle: Logs in Moodle are activity reports. Logs are available at site level and course level.

The updated implementation of the EeTP is reachable to https://training.envri.eu.

INTEGRATION WITH THE ENVRI COMMUNITY PORTAL

To connect the e-Training Platform (EeTP) to the ENVRI Community the following links has been realized:

- LEARN link using a dedicated banner in the ENVRI COMMUNITY home page has been created (Figure 3);
- TRAINING PLATFORM item in the lateral menu of the ENVRI COMMUNITY home page (Figure 4);
- ENVRI COMMUNITY link in the Training Platform home page
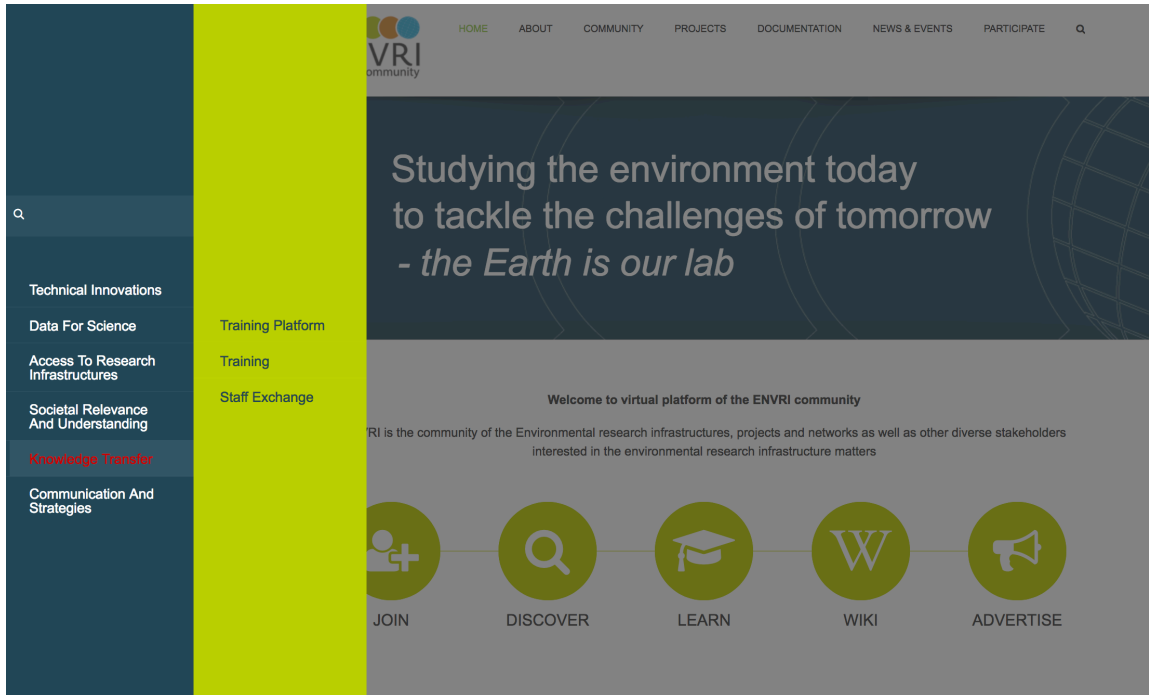

FIGURE 3. LEARN LINK IN THE ENVRI COMMUNITY HOME PAGE

FIGURE 4. TRAINING PLATFORM LINK IN THE ENVRI COMMUNITY HOME PAGE LATERAL MENU

FIGURE 5. ENVRI COMMUNITY LINK IN THE TRAINING PLATFORM HOME PAGE

AUTHENTICATION METHODS

The Moodle Platform has been connected to the ENVRI SSO system using a SAML plugin.

SAML for Moodle is an open-source implementation for federated identity-based authentication infrastructure based on Security Assertion Markup Language (SAML) that allows the Moodle users log in through SimpleSAMLphp.

The ENVRI SSO user database can be used from external services using SAML **Identity Provider** (IdP).

On the Moodle server the SimpleSAMLphp SAML **Service Provider** (SP) has been deployed, and mutual trust with the ENVRI IdP has been established.

In particular the following steps has been done for the SP:

1. Install the SP software
2. Establish mutual trust with ENVRI IdP
    - add ENVRI IdP's metadata from https://www.egi.eu/idp/shibboleth to the SP configuration
    - generate the metadata of their SP and send them to it-support@egi.eu
3. Configure ENVRI IdP in their discovery service or as a single IdP for their SP

The IdP provides the attributes in Table 1.

TABLE 1 IdP ATTRIBUTES

attribute	friendlyName	content
urn:oid:0.9.2342.19200300.100.1.1	uid	username from ENVRI SSO
urn:oid:0.9.2342.19200300.100.1.3	mail	email address registered in ENVRI SSO
urn:oid:1.3.6.1.4.1.5923.1.1.1.6	eduPersonPrincipalName	username with appended @egi.eu
urn:oid:2.5.4.3	cn	full name in English, ASCII characters only
urn:oid:2.16.840.1.113730.3.1.241	displayName	full name in original alphabet, can be Greek, Chinese, etc.
urn:oid:2.5.4.42	givenName	first name
urn:oid:2.5.4.4	sn	surname, suitable for alphabetical ordering
urn:oid:1.3.6.1.4.1.5923.1.1.1.7	eduPersonEntitlement	contains list of groups in the form of URIs like *urn:egi.eu:group:somegroup*

urn:oid:1.3.6.1.4.1.11433.2.2.1.9	userCertificateSubject	distinguished names from X509 certificates in OpenSSL notation
https://www.egi.eu/attribute-def/egiPartnerOrg	egiPartnerOrg	value from a fixed list of partner organizations, or "other". The fixed list is specified in the drop-down list of organization in SSO edit form
https://www.egi.eu/attribute-def/egiFreeTypedOrg	egiFreeTypedOrg	anything the user typed, can be misspelled
urn:oid:2.5.4.10	o	organization - if egiPartnerOrg!=other then same as egiPartnerOrg, else same as egiFreeTypedOrg

COURSES: CREATION AND MANAGEMENT

1. To create a course the first step is to login in the e-Training Platform (EeTP) with an account with Editor rights.

Username

nfiore

> Forgot your password?

Password

••••••••••

☐ Don't Remember Login

☐ Clear prior granting of permission for release of your information to this service.

Login
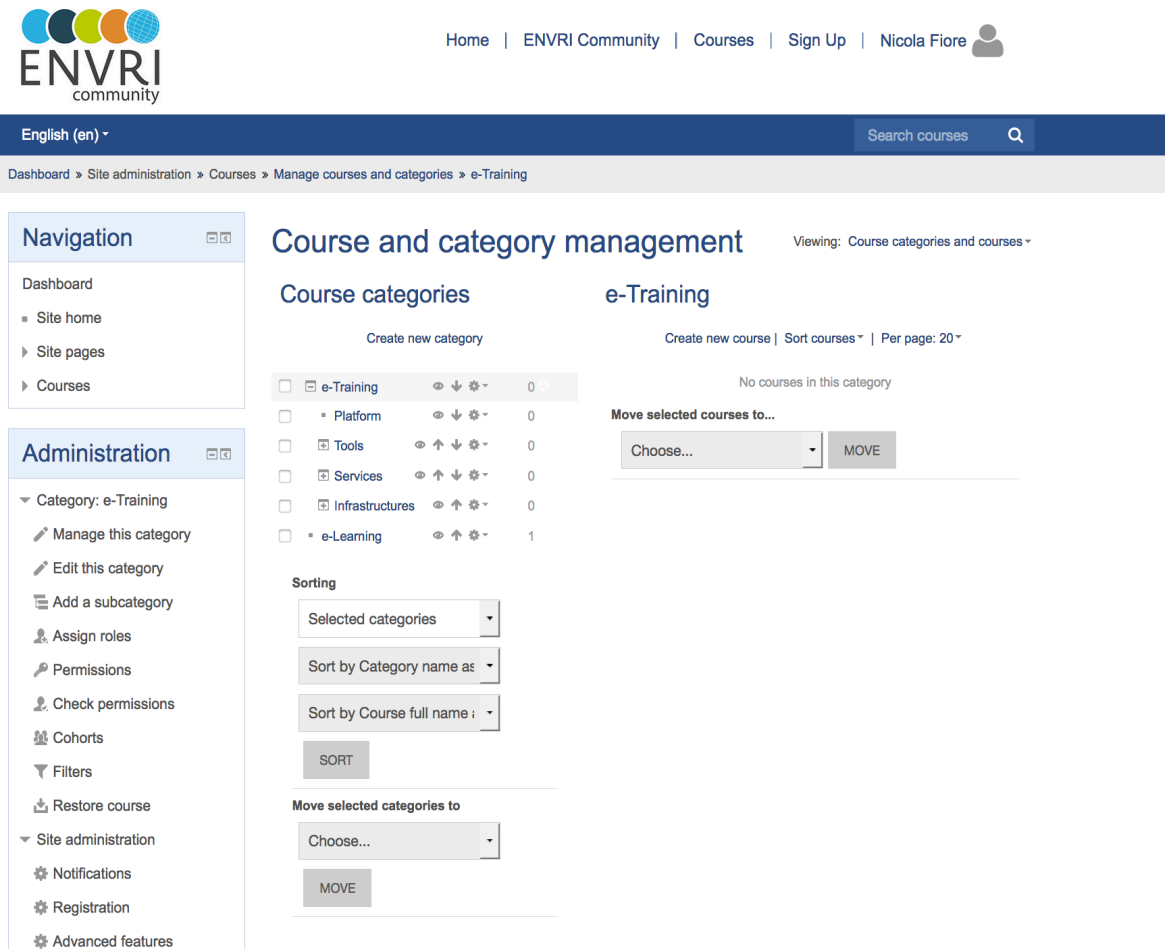
2. On the left menu '*Administration*' you need to click on Courses item and after click on '*Manage courses and categories*'

3. In the '*Course and Category management*' click on '*Create new Course*' and the 'Add New Course' form will appear.

Add a new course

▼ General

Course full name* ⑦   [   ]

Course short name* ⑦   [   ]

Course category ⑦   [e-Training ▾]

Visible ⑦   [Show ▾]

Course start date ⑦   [20 ▾] [April ▾]

[2018 ▾] 🗓

Course ID number ⑦   [   ]

▼ Description

Course summary ⑦

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The Scientific Game Platform

REQUIREMENTS ELICITATION

The project proposes practical and didactic works which combine theoretical activities with ICT in order to introduce students to the scientific research. The proposed innovative game will use a range of "game based features" to support learning. The goal of Scientific Game is learning a methodology; the project uses experimental research planning as the process through which this can be learnt and taught. Research planning means producing a scientific idea and testing it with experimental activities. The research plan is the vehicle for learning the methodology. The important thing here is the 'methodology' and the research work process, not the end results or the individual skills required.

The Scientific Game focuses on the scientific methodology (i.e., the learning goals), specifically it is oriented on scientific/ecological content contextualized to the country of each partner. The game in centred on developing a research plan on ecological contents (i.e., biodiversity), and verifying the acquired competences. The game itself consists of different steps to acquire the research methodology and of a competition among teams.

STAKEHOLDERS

We identified the following stakeholders directly related to the game:

- Mentor: normally an educator (teacher, teacher trainer, etc.) interested in adopting the Research Game method.
- Student: the target of the Research Game project. The main goal of the student is to learn through playing.

GAME RULES

Teachers and students, participating to the game and organized in teams, have to complete two steps in order to try to become final winner: *i)* Phase 1 – carry out a research experimental work, and *ii)* Phase 2 – participate to the online competition playing the serious game.

During the experimental work, all students and teachers (as mentors) carry out all activities required to learn and apply the scientific method. They have to make a research planning that's mean producing a scientific idea and testing it with experimental activities; so the research plan is the vehicle for learning the methodology. The main important thing here is the 'methodology' and the research work process, not the final results or the individual skills required.

At the end of this step, teams add to the platform, on the team wiki area, the products (as video, poster, report etc.) of their own research in order to earn score and to participate to the competition with the highest starting score possible. More information about the organization and presentation of the research project are available on the project's website.

During the online competition, teams have to play the serious game in which players are required to answer questions, solve problems, drag and drop correct images and concepts, analyse figures and tables, read and understand summaries of scientific papers, identify the

correct hypotheses to work about Ecology and Earth sciences. The competition fulfils aspects of the proposal and serves to consolidate the basics of the scientific method referred to each topic selected.

The teacher (mentor) and the students, representing the winning team (first position), will be invited to a conclusive awarding ceremony.

TECHNICAL REQUIREMENTS

The game is accessible and usable by all users (students, mentors) with a normal web browser with a standard Internet connection and includes user track systems.

Since Facebook is often blocked by many school networks, we planned the game to be independent from this social media.

REQUIREMENTS ANALYSIS & DESIGN

We conceived the platform to satisfy the requirements and build the access point to all the resources related to the game. The game should be accessed only from the platform, which has also to host all documents and information about it. The platform shall provide guide for teachers and students and guidelines for the competition between teams in which the winning team(s) will ultimately be awarded.

The platform needs to include:

1. Registration functions:
    a. Students register individually
    b. Mentor registers and creates the team
    c. Teams can welcome new members even if the game has started
2. Direct access to all resources and games
3. Good work/practices from previous players.

The platform requires to be divided in an open area and reserved one dedicated to registered users. In the open area interested students, teachers or parents should be able to find information about the system and the scientific content; learning goals and the games available in different languages.

The platform needs to be very simple and intuitive to use, so to be suitable also for educators with low technology capability. The platform shall run on low-spec PC, typical of what would be found in schools and conform to Web accessibility standards/guidelines.

A login is required to participate to the game. Once logged on, the options will be dependent upon the role (students, mentor etc.) of the user.

Mentors shall create their own teams (each team will have a name and a list of students). Registered students (as team) and mentors can access Phase I. For some of the played steps, a team can earn a 'badge' that is displayed on their profile and reflects their progress through the game. During this first phase, students (indicating the name of their own team) can exchange information with the others on the 'team forum'. At the end of the first phase all teams have to publish the products (i.e., papers and videos) of our 'research project' on a dedicated space known as the 'team wiki area'.

Score and preferential votes are earned as new badges from the team.

The achievements in the games will be related to the team profile so that badges can be collected, scores can be displayed and the progress with regard to the learning goals can be tracked.

The teams may enter the second phase (i.e., competition) with a starting score. Each team has to play the competition in a fixed time (3 hours) during the same day. The architecture of the game is shown in Figure 6.
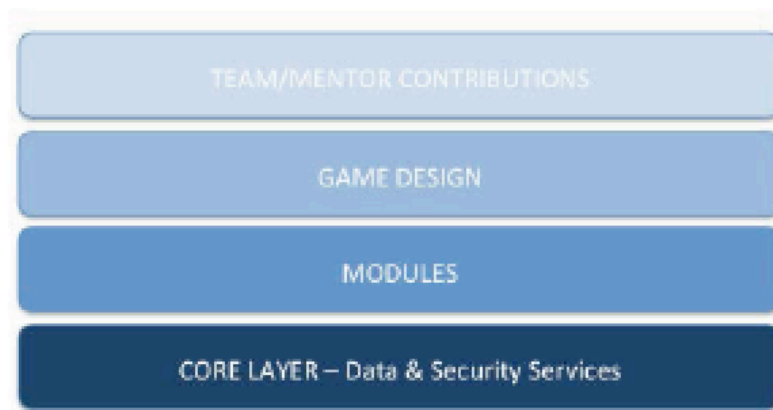

FIGURE 6. OPEN RESEARCH GAME MANAGEMENT SYSTEM.

IMPLEMENTATION

The Scientific Game platform has been implemented customizing the Moodle Platform [1].

A mapping from the Research Game concepts (Player, Mentor, Team, etc.) and the Moodle concepts has been developed together with the interface.

Usually Moodle, as specified in the previous chapter, is used as an e-learning platform, where teachers and students can create different online courses in the traditional e-learning way, connecting to the system only to follow a class or download materials. In this case we decided to make an innovative use of Moodle, rethinking it as a game based platform system. The classical Moodle structure has been replaced by a team structure, where each teacher (mentor according to the Research Game terminology) can create his/her own team of students. Moodle's interaction with the game has been enhanced in a way to permit an immediate recognition of participants' commitment in the project and their achievements.

The second aspect redesigns Moodle as a Social Community System, able to connect phase one and phase two of the project, and to create a link between the offline and online activities of the participants, providing a place to show their progresses in the creation of the research project, publishing and sharing the results of their researches, evaluating them through a Facebook-like system. Furthermore, Moodle has acted also as link among the different online activities, as participants used the platform as a way to compare and contrast their approaches to the project, interact on the topic of ecology and biodiversity sharing relevant information and materials (in particular didactic pictures), and, in few words, creating a thematic expert community working through the online interaction and used by all those teachers and students interested in sciences

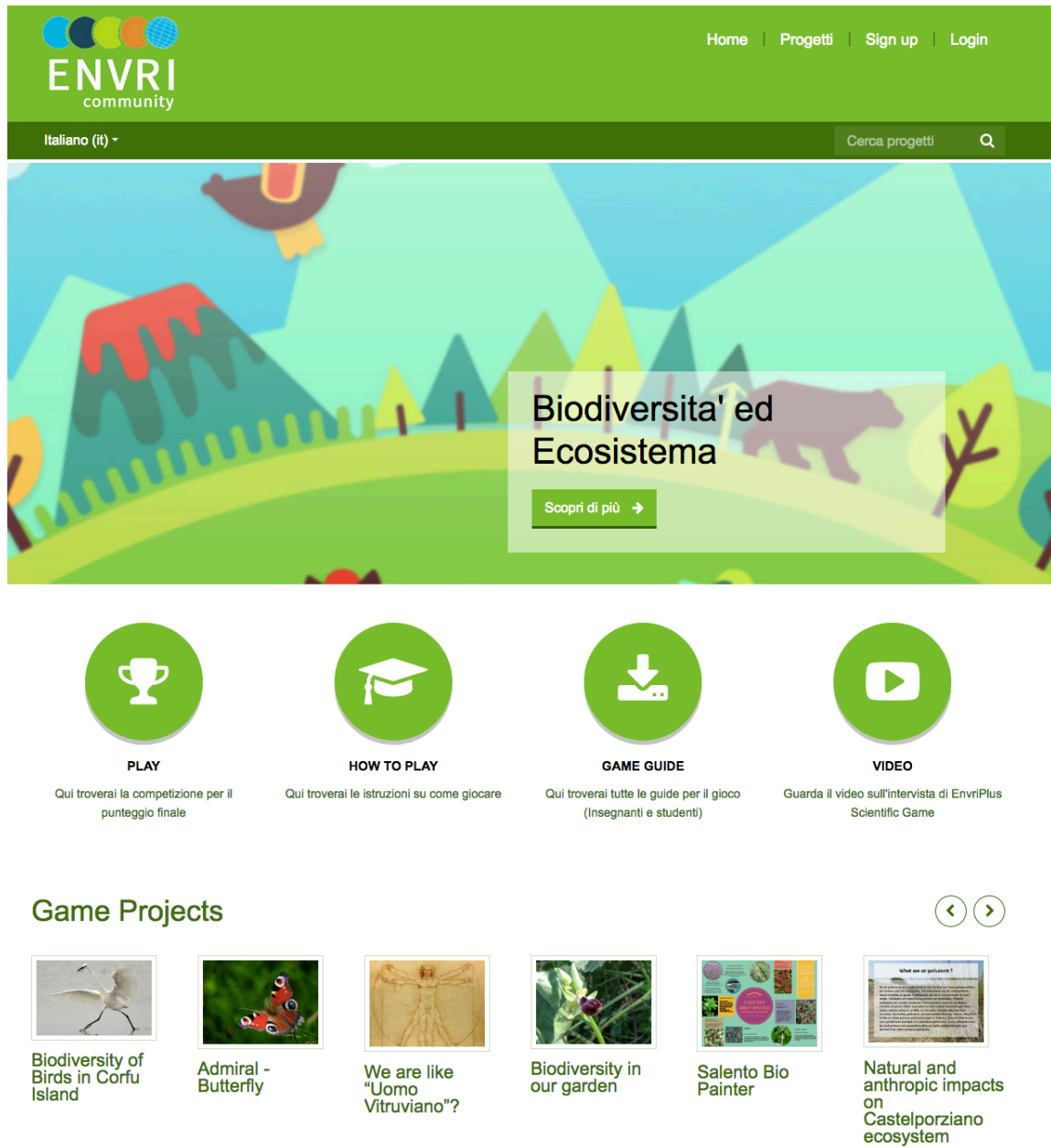and biodiversity involved in our project. Figure 7 shows the interface for the user.

FIGURE 7. PLATFORM OF THE ENVRI SCIENTIFIC GAME

Roadmap

The game is developed as product of the *training action*, carried out within the project ENVRIplus. The final version of the game is developed, organizing the final competition, producing training and supporting material for students and teachers of middle and high schools to introduce them, in an attractive way, into issues about environmental research and the role of the project's research infrastructures within the research. The educational material is referred to documents and guides useful to get a background on the subject of the game and to deep the understanding of the methodology for the scientific research. The game is developed to test the skills of the students in the field of the scientific method and on the research based on Ecology and Earth sciences; it is for students (ages 10 and up) coming from schools through all Europe.

The game allow students to study and apply the method of scientific research in an entertaining way through the use of a serious game focused on environmental topics, such as biodiversity and ecosystems, hydrogeological risks, marine sciences and ICT such us computing environment. Each step of the game has a fixed structure in order to facilitate the playing: *i*) Game Rule (at the top), including the description of the rules for the game; *ii*) Question (on the left side) including the objectives of each step and the question that students are going to answer; *iii)* Specific requests for each step of the game (in the central section); moreover, the passed time and the earned score are reported (Figure 8).
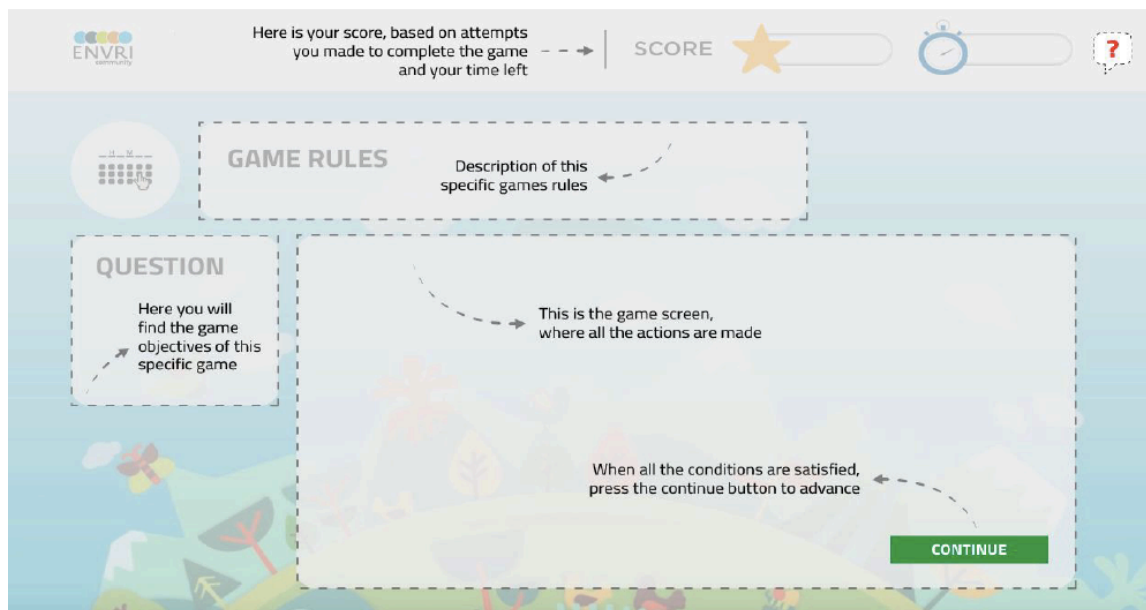

FIGURE 8. SCHEME OF THE GENERAL STRUCTURE OF THE GAME.

The development of the Scientific game is organized into 4 topics (Biodiversity and Ecosystems, Geological Risks, Computing Environment and Marine Science) and includes the development of game guides for the teachers and the students, as well as the demo of the Serious Game and the complete Serious Game for each topic: 1. The topic Biodiversity and Ecosystems is based on the expertise of the UNILE and LifeWatch, 2. The topic Geological Risks is based on the expertise of the INGV and EMSO, 3. The topic Computing Environment is based on the expertise of the EGI Infrastructure and 4. The Marine Science on GROOM, EURO-ARGO,INGV and EMSO.

The development of the Scientific Game platform and their documentation has been completed. The New platform integrates the 4 topics and during this year is going to be available online and the documentation as well. A demo of the game is already published on the platform and student/players can select the topic of major interest among: Biodiversity and ecosystems,

Hydrogeological risks, Marine sciences, Computing environment (Figure 9 and 10).

For each topic, players are asked to reach several objectives proceeding step by step: answering questions, dragging species images and drop in the proper ecosystem type, matching items with the corresponding ranks and more. Some examples of the game's steps are reported in the Figure 11 and 12.

The game is designed to include a practical experimental work and the real online game. On www.scientificgame.envri.eu teachers and students can find game guides and other supporting material on game topics.
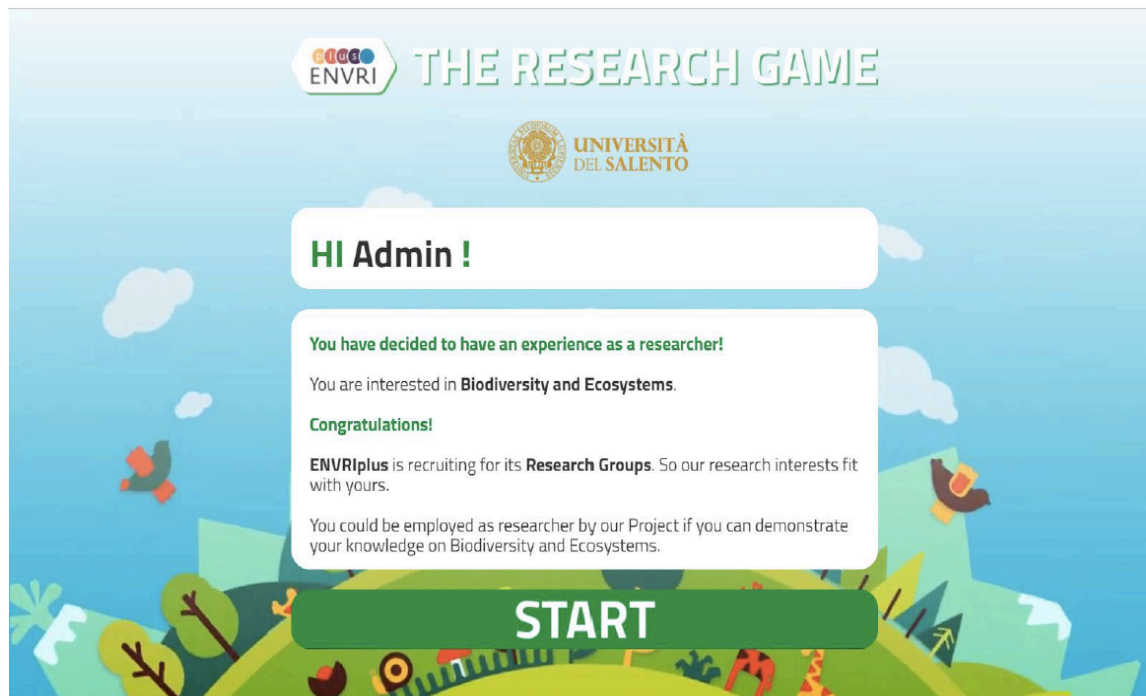

FIGURE 9. SCREENSHOT OF THE FIRST SLIDE OF THE GAME FOR THE TOPIC ON BIODIVERSITY AND ECOSYSTEMS.
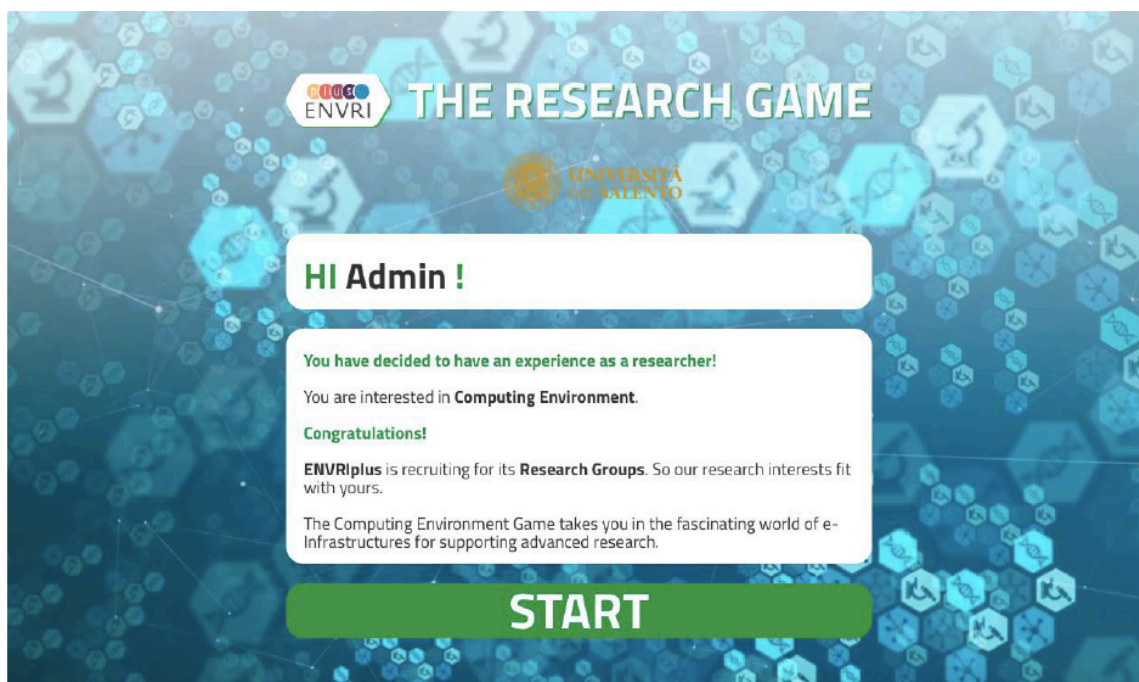
FIGURE 10. SCREENSHOT OF THE FIRST SLIDE OF THE GAME FOR THE TOPIC ON COMPUTING ENVIRONMENT
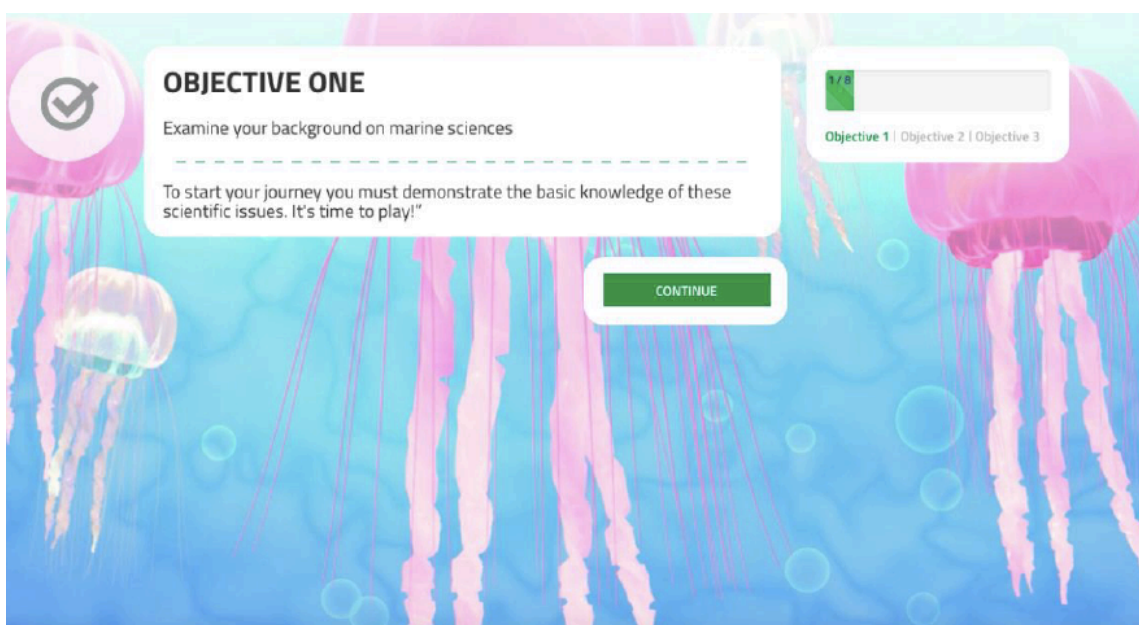

FIGURE 11. SCREENSHOT OF THE FIRST GAME'S OBJECTIVE IN WHICH PLAYER IS ASKED TO EXAMINE HIS/HER BACKGROUND ON MARINE SCIENCES
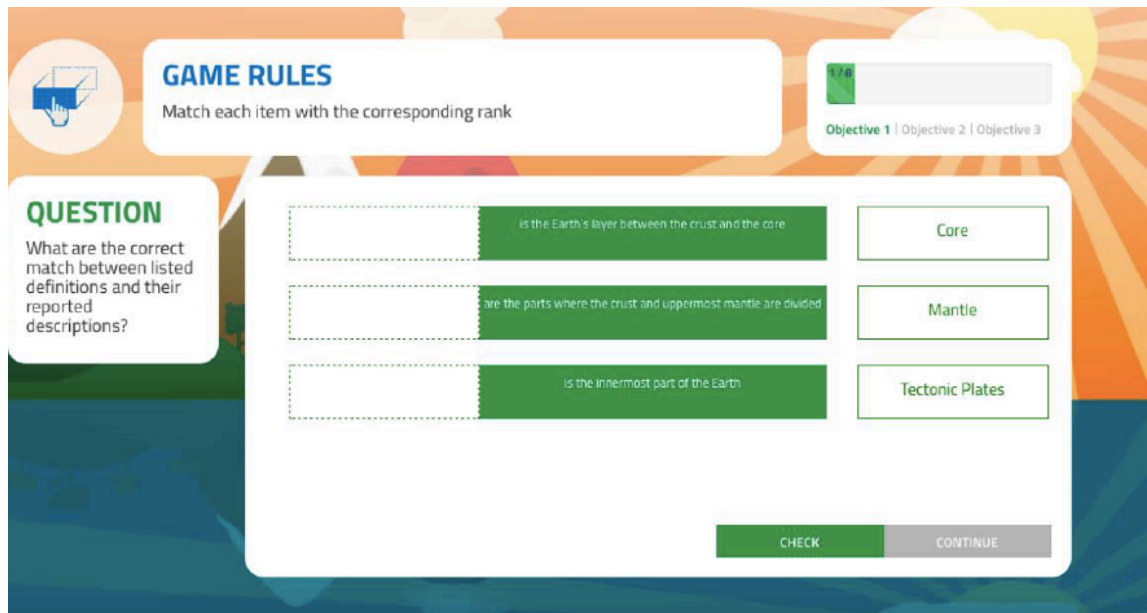
FIGURE 12. SCREENSHOT OF ONE OF THE GAME'S OBJECTIVES IN WHICH PLAYER IS ASKED TO MATCH ITEMS WITH THE CORRESPONDING RANKS (HERE FOR THE TOPIC ON GEOLOGICAL RISKS)

This year, we run a Pilot ENVRIplus Scientific Game with school from 5 European Countries (Italy, Greece, The Netherlands, Romania and Belgium). The 15 school participating developed the experimental work, where all the students and their teachers carried out all activities to apply the scientific method. They produced a scientific idea and tested their hypothesis using the right methodology. The results of the scientific project had a high level of research work.

All the student of the 15 European School participated on the online competition with high scores, which achieved by answering correctly to the questions and solved scientific problems of the online Scientific Game.

The winning school are the schools, which achieved the higher score and the schools, which had the most innovative idea for the Scientific Project. The award ceremony of the winning schools will be held at the next ENVRI week, where 2 schools are going to be awarded for the high final score and 2 schools are going to be award for the innovative idea of the Scientific Project, which they produced.

Summary

This is the deliverable for Task 15.4, "Development of training packages for the use of Environmental Research Infrastructure products training of e-Infrastructure Technologies", which aimed at the development/customisation of the ENVRIplus e-Training Platform (EeTP) and the development of training products and packages for the optimising access to ERIs and use of ERIs products.

The deliverable describes the architecture of e-Training Platform (EeTP), the new functionalities developed and how it has been integrated in the ENVRIplus context. In particular this is the report on available training/ courses on the use of data processing tools from the existing Research Infrastructure's (RI's) and the priorities for using these in a transversal platform.

The ENVRIplus e-Training Platform (EeTP) is based on Moodle [1], a Learning Management System (LMS) open source largely used in the academic field. Moodle has been also customized to support the proposed innovative game SCIENTIFIC GAME that use a range of "game based features" to support learning. The goal of Scientific Game is learning a methodology; the project uses experimental research planning as the process through which this can be learnt and taught.

Scientific Game proved to be a very successful experience in using informal educative approaches and teaching the scientific method. First feedbacks show a wide group of students and teachers from many different countries enthusiastic about the game and willing to see a new editions. This marks the good performances of the game and the pedagogical approach, and welcomes the innovative use of Moodle made during the project, establishing a new exploitable option for this kind of platforms.

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REFERENCES

[1]   https://www.moodle.org

Documentation Review Checklist

WP:	Deliverable:	Document Title:	
Reviewer:		**Email:**	
Date:		**xyz:**	

Section	Item	Y	N	Comments/Changes
Front Matter/ Overview	The title page includes required Project information (e.g., logo, title of the deliverable, project information, authors' names, beneficiaries, deliverable type).	☐	☐	
	The purpose of the document is clear and complete.	☐	☐	
	All known stakeholders/users are described thoroughly and accurately.	☐	☐	
	The scope of the document is accurate and complete.	☐	☐	
	All tables, graphs, and diagrams are labeled accurately and consistently.			
	The table of contents reflects correct page numbers and section names.	☐	☐	
Text	Project-specific terminology is used consistently throughout the document.	☐	☐	
	Acronyms are spelled out completely in the first instance.	☐	☐	
	List of Acronyms/Terminology is attached as an Appendix using the latest Master list available at ENVRI wiki.			
	All hyperlinks have been tested and work.	☐	☐	
	The document flow and structure logical for the audience to follow.	☐	☐	
	Spelling and grammar check are complete.	☐	☐	
	The document text is concise and clear.	☐	☐	

Section	Item	Y	N	Comments/Changes
Format Review See [Deliverable Guidelines](#) for the template	Body text matches standard font, color, size styles.			
	Footer contains standard information (e.g., Grant Agreement number, EU flag, page number, date).	☐	☐	
	Headings match standard font, color, size styles.	☐	☐	
Content See the [Description of work](#) document for more information on expected coverage	The Deliverable is clearly written and understandable by its potential readers	☐	☐	
	The Deliverable is complete, i.e., there are no missing parts, missing references, missing explanations of concepts			
	The content of the Deliverable covers the expected topics, as outlined in the Work Package description of work	☐	☐	
	The quality of the writing of the document is of high standard, with respect to style, errors, organization; readability, and illustrations	☐	☐	

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