

Equipping the Next Generation for Active Engagement in Science



DELIVERABLE D.2.4. Supporting Web Tools

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Equipping the Next Generation for Active Engagement in Science

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1. EXECUTIVE SUMMARY

The aim of this deliverable is to describe the ENGAGE Supporting Web Tools (D.2.4) introducing the ENGAGE on-line course environment, ENGAGE learning analytic tools, which will be embedded in the learning materials, as well as present necessary documentation and guidelines for main stakeholders. This work was developed by WP2 Knowledge Hub team with contributions by WP1 Framework.

The work reported in this document was developed during the Preparation Phase (January 2014 - August 2014), being based on the ENGAGE framework and user scenarios presented in D.2.3. This content is about to be updated after the first stage of the Deployment Phase (September 2014 - February 2015) when the Knowledge Hub multilingual platform is completed with all functionalities. During this phase, the ENGAGE CPD Programme will be also completed and the first pilot (*ADOPT*) tested. During the second stage of the Deployment Phase, which starts with *ADOPT* (March 2015), first workshops and courses will be delivered, and courses for *ADAPT* and *TRANSFORM* will be updated and finalised. Both Knowledge Hub and Web Tools will be improved and completed before the main period of the Sustainability Phase, which starts with *TRANSFORM* (February/March 2016). The final stage - *Maintenance* will occur until December 2016, whose aim is to monitor the input from our stakeholder groups and evaluation working package.

Here is the schedule proposed to the specific stages:

- ADOPT M14 (February/March 2015);
- ADAPT M19 (June/July 2015);
- TRANSFORM M26 (February/March 2016).

This Report introduces also the *EdX platform* selected by the partnership as having the role of *Massive Open On-line Course*, the specific activities of its testing and the related supporting tools. The *EdX platform* which is integrated into ENGAGE Knowledge Hub and ENGAGE CPD path, aims to provide:

- the necessary support for the whole ENGAGE on-line community of practice that supports teacher reflection, on-going of the on-line courses and workshops, coaching and feedback (*ADOPT*);

- a proper environment for teachers who have to access expert's toolkit of examples, explanations, anecdotes and activities, in order also to help students to learn effectively (*ADAPT*);

- a useful instrument for teachers and students, where in the format of open-ended projects, they will constitute partnership with practising scientists, on learning about RRI (*TRANSFORM*).

It is evident that the following months will show how the Virtual Learning Environment for On-line courses will react on thousands of accessing, uploads and downloads from teachers and students parts. The supporting web tools will try to help the teachers and students in the process of knowledge understanding (Video Library), and will illustrate the level of interaction (Learning Analytics). In addition, even the basic concepts of designing of the Brokering System are presented in this Report; the final image of this Brokering System will be presented in an updated version of this document in Month 18, being specific to Transform stage.



2. INTRODUCTION

• Purpose of the ENGAGE Supporting Web Tools

The ENGAGE Supporting Web Tools comes to complete the *Project Knowledge Hub* (Engagingscience.eu) - the multilingual environment developed for the on-line community,

Based on the ENGAGE DoW, the main supporting web tools consist of: the Virtual Learning Environment for On-line courses (the *MOOC*), the *Video Library* and the *Learning analytics tools*.

Section three of this report focuses on the *edX platform*, and explains the reasons that edX has been selected for the ENGAGE on-line course. It then describes the edX key functionalities that will be used to address ENGAGE user scenarios requirements, which has been already introduced in D.2.3. It also presents how the edX will be integrated to the Knowledge Hub multilingual platform and video library.

Section four then introduces the methodology used in this report, illustrating the technical and pedagogical tests implemented. It presents tools, procedures and activities performed, useful for the whole consortium. It also specifies guidelines and references for further technical support.

Section five describes the learning analytics tools, video library and partnership brokering system that will be implemented for the ENGAGE on-line community. This current version introduces the connection with video library and edX, as well as learning analytics for edX and Knowledge Hub. It also presents initial guidelines that will be applied in each country for supporting their communities during the phases of the CPD programme (*ADOPT*, *ADAPT* and *TRANSFORM*).



3. ENGAGE KNOWLEDGE HUB & THE ON-LINE COURSES PLATFORM

3.1 Rationale & Background

The Virtual Learning Environment for On-line Course represents an important part of the ENGAGE Knowledge Hub, which has the following specific objectives:

- to create a platform acting as an access point for tools, materials and user-generated contents;
- to integrate the platform in the web environment of the existing portals and platforms used by teachers;
- to provide information, guidance and support to the use of tools and sharing of experiences.

In the first phase of the project, there were defined the key features of the ENGAGE Knowledge Hub, as follows:

- focusing on effective use of Materials: through multilingual OER platform with discussion forum on RRI pedagogies and knowledge around actual practice;
- ensuring communication tools: interactive interfaces forum, blogs, web conferencing;
- providing/hosting high quality resources: Materials, Articles from experts, Links to tools and on-line media;
- enabling co-Leadership: Learners, practitioners, experts and MOOC facilitators;
 - building trust: Community of Practice "moderators", who are expert RRI teachers:
 - to communicate openly about their challenges, (novices can share their issues).
 - \circ to welcome new members, and provide 'social presence' with a profile area.

In order to achieve all the proposed goals, the ENGAGE Knowledge Hub has been designed in order to be equipped with the following tools and activities:

- *platform* for establishing and maintaining a secure and trusted on-line environment for the ENGAGE Knowledge Hub;
- *project website* for presenting partner's information, deliverables files, papers, photos and videos, including also a consortium area for news and on-going events created during phase 2 Deployment;
- *partnership brokering* for supporting the schools on finding and selecting relevant "RRI experts" and creating scheduled mentoring partnerships (during the Transform phase)
- *MOOC & Video Library* for establishing the virtual learning environment (VLE) for delivering online courses for teachers;
- *learning analytics* for providing learning analytic tools for collecting data about students' opinions, values and knowledge before and after using ENGAGE curriculum resources, with the view of formative and summative evaluation, by embedding quizzes and short surveys within the activities of the curriculum resources.

The work made so far tried to reach the various purposes of ENGAGE's goals and activities, having as result the selection of the following platforms for the Knowledge Hub / Virtual Learning Environment for On-line courses:

• *WordPress* (*WP*) - the WordPress platform hosts the project web site (<u>http://www.engagingscience.eu/</u>).



• *EdX platform* – this platform has been suggested (https://www.edx.org) for the development and management of the ENGAGE MOOC and agreed by the partners. In this regard, there have been mapped the following *urls* for the training course environment: <u>http://ENGAGE.exactls.com</u> and <u>http://studio.ENGAGE.exactls.com</u>.

3.2 Strategy and Requirements Analysis

The choice of an on-line course, as a key strategy for ENGAGE project objectives, is based on the need to:

- build in "conceptual inputs" (a process in the teacher learning cycle);
- enable teachers to learn "just in time", choosing a module when they are ready;
- minimize time out of school;
- easily replicate quality across partner countries (a train the trainer model can dilute impact).

Massive Open On-line Courses (MOOC) aligns properly to the ENGAGE strategy and objectives, but also to the identified need. MOOC represents "an on-line course with no formal entry requirement, no participation limits, and (generally) free of charge". As example, the Oxford dictionary defines MOOC as "a course of study made available over the Internet without charge to a very large number of people".

It is obvious that MOOCs are also showing a potential for providing CPD (continuing professional development) of teachers.

Generally, a MOOC has to answer to several *requirements*. In the case of ENGAGE, the following requirements are defined to be met:

• satisfying the *massive* characteristic – in this respect, it will grant the access to a larger group of teachers, students and other stakeholders. However, even the edX platform is designed to host a big number of users, the courses developed in ENGAGE will be followed by a reasonable number of participants in each country, based on ENGAGE project objectives and targets;

• satisfying the *open* characteristic – in this sense, the open access refers to the lack of the requirement of a test of prior knowledge. In this respect, Science teachers are about to be involved in the courses, aiming to present RRI issues in scientific contexts;

• satisfying the *free of charge* characteristic – in the case of the ENGAGE courses, the participants enrolled in the courses are clearly not asked to pay for the access to content and/or communication issues;

• satisfying the *on-line* characteristic – this refers to the method of delivering the most of what the web medium has to offer (on-line). So, in the context of ENGAGE, this means practically, that each participant will have access and use the multiple modes of delivering content (text, audio, video, animation).

• satisfying the *course* characteristic – this targets to a specific way of study, including time-sensitive elements towards a specified learning outcome or a set of outcomes. The edX platform proposes a specific organization of the course in: sections, subsections, units and components;

• satisfying the *on-line course* characteristic – in this respect, it will enable and facilitate the asynchronous interaction between as many participants as possible. In the case of ENGAGE, this is possible using course-specific forums and /or discussion/argumentation embedded environments.

Concluding to the natural requirements of a MOOC, and particularly to ENGAGE objectives, the selected EdX platform respond naturally to the ENGAGE legacy strategy, offering the proper support for organizing and putting in practice the designed course (it will be available also "post-ENGAGE", but charging for participation). In this respect, ENGAGE will produce 3 MOOCs, whose objectives matches the learning defined in each stage of *ADOPT*, *ADAPT*, and *TRANSFORM*:

1. Module 1 (ADOPT stage)



- This module represents an on-line version of the f2f workshop, with same purpose and similar content. It gives teachers highly valuable 'take-aways': learn RRI strategies through a video library demonstrating how *expert RRI teachers* make them work.

However, at the ADOPT stage, the edX platform allows the participating students:

- easy access to the ENGAGE interactive On-line Modules, guided by the course facilitators;
- easy access and ability to download the *RRI Toolkit*;
- make use of the ENGAGE *Video Library*;
- establish and support an *On-line Community of Practice* that enables them to communicate with the facilitator of the course, with peers and with RRI experts.

2. Module 2: (ADAPT stage)

- This module gives teachers highly valuable 'take-aways': a toolkit of anecdotes, analogies, and explanations' to enhance RRI teaching.

3. Module 3: RRI content (TRANSFORM stage)

- this module gives teachers highly valuable 'take-aways': new RRI materials, co-created with other teachers (a powerful CPD strategy).

The teachers participating in the MOOC's (in the *ADAPT* and *TRANSFORM* stages) should be able to use all the materials of the previous stages, as well as to be able to develop their own materials individually or collaboratively, and share with their peers.

Each MOOC will last several weeks, with one topic and task set per week, and be delivered twice per year, in terms 2 and 3, when teachers have had an opportunity to use Materials, and to sign up in advance. The stages Adopt and Adapt (modules 1 and 2) will run from year 2 to year 3, whereas the module3 (the Transform stage) will start in year 3. In total, this gives a total 154 on-line courses across 11 countries. Teachers will be assessed by peers, by the *Course facilitator* or by computer marked quizzes for on each assignment. Course content has been planned during WP1 - Framework and developed during WP3 - Open Resources. The RRI content of each is reviewed for accuracy in its representation of the nature of science by '*RRI science experts*', practicing scientists or science communicators, who have been recruited to ENGAGE for interacting with schools in our Projects.

Course participants use a wide range of media and interactive on-line tools to engage with other colleagues and learn alongside them. Those tools include video lectures, on-line discussion boards, blogs, wikis and social networking sites. Initial materials are to be developed in English, adapted and translated into country languages.

In this respect, the courses are to be delivered by a combination of 3 different people:

- teacher education professional working for the partner, to set tasks, and provide feedback;
- moderator, to encourage and facilitate discussion;
- *'expert RRI teacher'*, to seed discussions and give feedback.

The training process is sustained generally by the *Video Library* which consists of short videos (2-3 minutes) that illustrate key RRI Pedagogies in use by *expert RRI teachers* from each country. Those will show what teachers do to make them effective. Each video includes an interview with the teachers on the thinking behind their actions. The primary use of the videos is the f2f workshops and on-line courses (making them public on the Internet would devalue the related courses).

3.3 edX Platform - Adoption & Definition of Functionality

We have chosen to use EdX platform, by analysis of the needs for the ENGAGE MOOC, as defined by the *Pedagogical Framework*.



The function of duplicating courses in edX studio, editing the existing courses, but also the collaborative features of the platforms (discussions, wiki and hangouts) are all supporting the educational demands. Table 3.1 illustrates the main functionalities which are useful for pilot-partners.

As an example, the ability to create a course textbook was also considered as an important feature by the designers of the team, in order to design specific "textbooks" for the students: collections of RRI papers, pedagogical toolkits etc.

ENGAGE Role	Functionalities	Observations
LL: edX/ENGAGE platform Course admin	edX/ENGAGE platform Management of the whole e admin edX/ENGAGE Platform	
ENGAGE partner: Course admin representative in each country	Requesting authorisation for creating a course to edX/ENGAGE platform Course admin	LL will be responsible for the authorizations requested by each partner
Course Author / Administrator	Able to create a course; able to manage the RRI courses; able to set up course team, facilitators & learners	An edX-Studio user can requests to became course-author
Course team (editors)	Able to edit the course and visualize analytics	The course-author or the site administrator can invite users to became team members of a course
Course Facilitators	Able to use the course to facilitate & see learners progress	Team member
Course Students	Able to access all activities and interact	Teachers - learners
Any User (including learners)	Creating an edX-studio account	Users
Course team	Creating a course outline	The course admin can invite team members
Course team	Adding new units and new subsections to an existing outline	The course admin can invite team members
Course team	Writing free texts in English including links to external URLs, videos etc.	The course admin can invite team members
Course team	Uploading external resources to the course	The course admin can invite team members
Any user	Discussion: Writing free texts	The user must be signed in
Course team	Creating forum for different	The course admin can invite team

Table 3.1. Some of the key functionalities of EdX which are useful for all pilot-partners

The Engage project is supported by the European Commission under FP7 SIS 612269 http:// EngagingScience.eu



	types of topics or question	members		
Course team	Inserting discussion as a subsection	The course admin can invite team members		
Course team	Creating a course textbook	The course admin can invite team members		
Course team	Publishing course updates	The course admin can invite team members		
Course team	Exploring the possible edX course checklists	The course admin can invite team members		
Course team	Course Checklist	The course admin can invite team members		
Course team	Export	The course admin can invite team members		
Course team	Import	The course admin can invite team members		

3.4 edX Platform – Installation & Adaptation to ENGAGE Requirements

According to the ENGAGE project purposes, with particular regard to the MOOC features mentioned, the WP2 partners (LL, OU, VUT, with the support also of WZ) have undertaken a selection process for the identification of the most suitable platform, taking into account that it should fit the majority of the MOOC requirements highlighted above. In this regard several platforms have been analysed before the definitive selection and then the adoption of the Open edX platformm (<u>http://code.edx.org/</u>).

Below the main platforms have been analyzed and underlined the reasons for the final selection:

- Moodle
- Joomla!
- Drupal
- Magento
- WordPress
- Learn Dash
- Coursera
- Udacity
- BSCW
- OpenMOOC
- edX



3.4.1 Platforms Overviews

Moodle

It is 'THE LMS', but just because is more LMS oriented, it doesn't suite very well as MOOC platform. Features:

- Widely used especially in University/School environment;
- "Old" interface concept;
- Not "Open": the teacher must enroll students in courses;
- The forum is present;
- The chat is present;
- The courses are a list of activities;
- The editor is limited to create the list of activities.

Joomla!

Joomla! Is a generic CMS web application, to make it a MOOC player, can be used the JooMooc¹ extension.

JooMooc is a new extension for Joomla 2.5 that allows front end creation of MOOC style courses. It however, is still in early developmental phases and still has many things to be worked out.

There is a free and a payment version, but no explanation on the differences. Apparently it is not widely used.

Drupal

Drupal is a generic CMS and does not have a specific and broad development for MOOC implementation. It has been suggested a conceptual model of a MOOC named Metaversia, as a proposal for a Drupal based MOOC publisher (2013).

Magento

Magento was also analyzed. As an open-source content management system especially used for ecommerce web sites, it presented some developments towards on line courses creation (e.g. through some plugins and specific cloud-based tool - e.g. Magento Go) but it cannot be considered as wide customizable platform

WordPress

This is the platform used for ENGAGE web site. Due to its CMS nature, it has a lot of plug-ins to accomplish different functions. In relation to the 'learning' aspects there are the following plug-ins, not completely suitable for MOOC: NamasteLMS (free) - almost complete LMS solution for wordpress, not for the MOOC.



Learn Dash

This is a commercial WP plug-in very well supported but, as the previous one it is a LMS-oriented platform. Being not an open source platform, thinking about ENGAGE exploitation and sustainability after the project lifetime, Learn Dash again has not been selected.

Coursera

Coursera is an education platform that partners with top universities and organizations worldwide. It offers courses online (free of charge). It is a platform where professors and teachers can create and upload their courses. It is a closed source, hosted by Coursera servers. The business is based on the certificates that should be paid by the participants.

Udacity

Similarly to Coursera, it is an on-line MOOC platform, used by numerous institutions. It is not open source and then it has not been selected

BSCW

Suggested by the VUT partner already during the kick off meeting, despite that it was considered as user friendly platform for teachers, BSCW (Be Smart, Cooperate Worldwide - <u>http://bscw.de</u>) has not been selected mainly because it is not an open source platform. Besides that, languages issue should be checked, and in particular the possibility of having an effective site in the Hebrew language.

OpenMOOC

It was in the list of tested MOOC platforms, according to its proposed functionalities.

OpenMOOC is an open source platform (*Apache license 2.0*) that implements a fully open MOOC solution. It has been developed by a Spanish project

Main features:

- 100% open source solution
- Video integration with documents and teacher's remarks
- Extremely simple course creation interface
- Self assessment progress
- Social discussion forum
- Follow up own/others' questions
- No need to stream videos from a local platform (uses YouTube)
- WYSIWYG interface for creation of questions
- Medals (badges) for assessing your social behaviour in the forum
- Federation of identities based on standard (SAML2)

Now the main site (<u>http://openmooc.org</u>) is unreachable, however it remains in the GitHub repository (<u>https://github.com/OpenMOOC</u>) with few people to develop the platform.

Open edX

"Open edX" is born from the "edX" platform developed initially by MIT and Harvard University and become open source in June 1, 2013.



"Open edX" is an open source platform with a lot of universities, private and public organizations involved (among the others: Kyoto University, Beijing University, Tokyo University, Google, Linux foundation etc...).

Main features (edX-Platform):

- An advanced MOOC player Learning Management System (LMS)
- A course-authoring tool
- Machine learning-based grading APIs for computational as well as written responses
- Discussion platforms offering voting systems and allowing endorsements by instructors

3.4.2 On line courses platform - The final selection

Due to the previous considerations, the most suitable platforms for the ENGAGE Knowledge Hub are:

- Udacity
- Coursera
- Open edX (edX)

All three platforms are the best in the market, but regarding to the ENGAGE requirements Open edX has been chosen. Here the main motivation:

- Supported by the major US university;
- Supported by private institutions;
- Open source;
- Constantly updated to fix bugs and add features;
- Installable in private server;

• Courses created inside the platform can be downloaded so that can be archived locally, copied, modified manually, re-imported in the original platform or in an another platform;

• Courses created inside the platform can be uploaded in the main edX site (www.edx.org) that contains already more than 300 courses;

- Is expandable by developing new components (XBlock) or simply by using java script inside a course;
- Administrator, team members and users are managed internally by the ENGAGE consortium;
- Theme support;
- Multi-site support (early stage);
- Doesn't require a base of courses already installed.

3.4.3 Installation and Adaptation of edX into Open edX

edX is an "old" platform (born in 2012) developed initially by MIT and Harvard University, which became open source in June 1, 2013. The proper name must be "Open edX". For simplifying of terminology, we will use edX in the following paragraphs / sections.

The source code is hosted by GitHub, and it is available in 2 branches:

- Development: the entire suite is configured to run in a virtual machine but the source files are hosted externally to that machine, so that the developer can use his tools to edit the code;

- Production: the suite is installable in a *linux* machine conformant to the minimum requirements of the suite itself.

The Production is also divided in 2 main branches:



- Master: is the most updated version not properly stable;
- Release: is the last stable version.

For the ENGAGE project, the *full stack Production/Release* branch is installed.

The *full stack configuration* has the following components:

- LMS (student facing website)
- CMS Studio (course authoring)
- Xqueue (queuing server that uses RabbitMQ for custom graders)
- Forums / elasticsearch / ruby (discussion forums)
- Demo course

• ORA - take a submission, passes it through machine learning grading, peer grading, and staff grading as appropriate

- Discern machine-learning-based automated textual classification as an API service
- Ease a library that allows for machine learning based classification of textual content

The recommended specifications to support the *full stack configuration* are:

- Ubuntu 12.04 amd64 (oraclejdk required)
- Minimum 2GB of memory, 4GB recommended for production servers (with only 2GB some swap space is required, at least during installation)
- At least one 2.00GHz CPU or EC2 compute unit
- Minimum 25GB of free disk, 50GB recommended for production servers

After various tests in the ENGAGE case the final configuration is:

- Ubuntu 12.04 amd64 hosted in a esX Server infrastructure
- 4GB RAM
- Two 2.2GHz CPU
- 18GB of space for the OS
- 50GB of space for edX
- 2GB of primary swap
- 4GB of secondary swap

Once the installation of the platform will be finished (some compatibility problems between the version of the packages installed in the OS and the required package), it will be needed to modify the configuration files in order to have an installation conformant to the ENGAGE requirements.

There are 2 main web applications with which the user can interact: the student facing website (LMS) and the course authoring (CMS). Technically, these web applications are managed by NGINX web server.

The LMS (Learning Management System) is used to deliver the courses to the users (learners). This service is installed by default on port 80 so that it is reachable from the users by simply using the address:

http://<server address>



The CMS (Content Management System) allows the users (authors) to create and modify courses. This service is installed by default on port 18010 so that when the hosting server is inside a private network and protected by a firewall usually this port (so that the service) is unreachable from the external users as it is in the Engage environment.

To make visible this web app from outside the LAN, it is necessary to modify the configuration of the web server NGINX changing the port from 18010 to 80 and, in order to avoid the overlap with the LMS service, map the CMS service to another virtual server. In our case, we map this service with the virtual server:

http://studio.<server address>

So that, in our case, the two web applications are reachable by everyone with:

http://engage.exactls.com

http://studio.engage.exactls.com

Other customizations involve:

- Set the email for the services: support, technical, contact, bugs, feedback, 'from'
- Addresses of the server/services
- Language, time zone
- Facebook account, Twitter account

By default the platform allows users registered as learners to create new courses: due to the ENGAGE recommendations this ability is disabled.

Due to the relative youth of the project, updates are always desirable to fix bugs, improve the user experience and to add new functionalities.

For the same reason not always the "release" branch is stable, forcing the maintainer to update the different services with different branches: in the current installation all the service are in the release branch, while the forum is in the master branch.

3.5 Integration of edX Platform in ENGAGE Knowledge Hub

The integration of edX in ENGAGE Knowledge Hub foresees the configuration of the platform in order to have:

- Web application: a functional and customized ENGAGE-edX web site;
- Email service: the edX platform uses emails to communicate with the authors and learners. edX must be configured in order to enable the ENGAGE Consortium to receive all the information addressed via emails to the participants (support emails, link to the portal etc.), instead of to the source web site (edx.org.).

The ENGAGE Knowledge Hub contains:

the content authoring platform;



- the learner web site;
- the project web site hosted by WordPress.

All the systems must be integrated allowing the users to log in the different platform using the same credentials.

The first 2 web applications are already integrated, being part of the same platform and using the same database for the user management.

WordPress uses a different table, and different database to manage the users.

There are different approaches to integrate those two worlds:

• Central Authentication System:

"It is a single sign-on protocol for the web. Its purpose is to permit a user to access multiple applications while providing their credentials (such as user ID and password) only once. It also allows web applications to authenticate users without gaining access to a user's security credentials, such as a password. The name CAS also refers to a software package that implements this protocol".² Apparently it is supported by edX.

It is not natively supported by WordPress.

• Database alignment:

The users can be registered only on platform 'A', but the user info are sent to the database of the platform 'B'.

• Database query:

The users can be registered only on platform 'A', the platform 'B' will query the database of the platform 'A' to check the user credentials.

• Web Services:

The users can be registered only on platform 'A', the platform 'B' will use the web services made available by the platform 'A' to check the user credentials.

More studies and tests must be performed to find the right solution in order to have a stable system and a minor change in the original source code of the two platforms.

3.6 Guidelines - The ENGAGE Way to Create and Use Courses through edX

In ENGAGE a specific methodology is followed for creating courses, with the aim to have the same user experience in any course.

The possible profiles involved are:

- the administrator(s),
- the author(s)
- team member(s).

Various activities are necessary in order to create a course. Below there are presented the main steps:



Sign in

In order to be linked directly to the ENGAGE area, the author (or course administrator) must sign in the platform using the address:

http://studio.engage.exactls.com

Once signed in the user/author is going to receive an email with a link to activate the account. The link is in the form:

http://studio.engage.exactls.com/activate/91564844f31447649107037cddec66f3

From this space it is possible to get access to personal dashboard.

New Course

The author, in order to create new courses, must be enabled by the administrator of the portal. In the dashboard there is a visible button to request to became an author.

The creation of a new course requires few informations:

- Course Name
- Title of your course. Use title capitalization
- Organization
- Name of your organization without whitespace or special characters.
- Course Number
- Main identifier of the course without whitespace or special characters.
- Course Run

Secondary identifier of the course without whitespace or special characters.

Usually it is used to specify the year and term in which your course will run.

Settings \rightarrow Advanced Settings

Once the course is created it is visible to everyone.

It is possible to change the visibility towards a private set:

Invitation Only = true

Then, the course is invisible but accessible by the course administrator, the staff members and the all invited learners.

Settings \rightarrow Course Team

Invite at least 1 author as team member so that the authoring of the course can be done easily

Content Overview Guidelines

Content \rightarrow File & Uploads



Add an image for each member of the course;

Add an image representative of the course (to use as course image);

Settings \rightarrow Schedule & Details

Add a "Course Short Description" that will appear in the course catalogue;

Fill the "Course Overview" removing or adding parts, add the members images and a brief description for each one;

Fill the "Course Image" to have a nice image for the course

(optional) YouTube video.

Content Guidelines

It is a very course specific task.

The courses are divided into Sections, sub-sections and units.

Each unit will contain the effective content, and will be shown to the learner in a single page: don't use long units.

An "Introduction" section can be useful for the learner to be introduced to the course,

Images and Videos are very effective.

Mathematical Expressions

To add mathematical symbols and expressions inside a unit, it is possible to use "MathJax".

It can be used in HTML (text) components and in Problem components; to the author it appear as simple text, but to the students it will be rendered as mathematical symbol or expression.

E.g - Inserting the text: (x^{i_2}) the learner will see: x^{i_2}

LaTeX

It is not enabled by default, in order to enable it:

Settings \rightarrow Advanced Settings

Enable LaTeX Compiler = true

Then latex syntax can be used in HTML (text) components and in Problem components;

HTML:

In the unit where you want to create the component, click html under Add New Component, and then click E-text Written in LaTeX. The new component is added to the unit.

Problem:



In the unit where you want to create the problem, click Problem under Add New Component, and then click the Advanced tab. Click Problem Written in LaTeX.

4. ENGAGE PROJECT VIRTUAL LEARNING ENVIRONMENT FOR ON-LINE COURSES

4.1 Tools, Procedures and Activities Performed for Technical Testing

Software testing is an investigation conducted to provide stakeholders with information about the quality of the product or service under test. Software testing can also provide an objective, independent view of the software to allow the management to appreciate and understand the risks of software implementation.

There are many levels of testing:

- (a) unit testing refers to tests that verify the functionality of a specific component;
- (b) integration testing verify the interfaces between components against software design;
- (c) interfacing testing test the data flow between different system components;

(d) system testing - tests a completely integrated system to verify that it meets its requirements.

4.1.1 Aims of technical testing of the ENGAGE platform

The purpose of the ENGAGE platform technical testing is to respond to the following questions:

- Is the webserver connection bandwidth well dimensioned?
- How many concurrent connections will be supported?
- What is the average time for the response of the web server?
- Is the webserver accepting HTTP compression?
- What is the average data transferred in a time interval?

4.1.2 Tools for technical testing of the ENGAGE platform

Three software tools were selected to test ENGAGE platform: *WBox*, *Siege* and *http_load*. All those tools are open source and free software. Those applications were compiled and installed on a Linux server at Valahia University Targoviste. The team from Valahia University Targoviste performed the tests on the ENGAGE platform, using *WBox*, *Siege* and *http_load*.

WBox was used to perform many tasks, including the following:

- (a) Benchmarking how much time it takes to generate content for a web application;
- (b) Web server and web application stressing;
- (c) Testing virtual domains configuration without the need to alter a local resolver;
- (d) Check if the web redirects are working correctly emitting the right HTTP code;
- (e) Test if the HTTP compression is working and if it is actually serving pages faster;

(f) Use it as a configuration-less HTTP server to share files.



Siege is a multi-threaded http load testing and benchmarking utility. It was designed to let web developer's measure the performance of their code under duress. It allows one to hit a web server with a configurable number of concurrent simulated users. Those users place the webserver "under siege." Performance measures include elapsed time, total data transferred, server response time, its transaction rate, its throughput, its concurrency and the number of times it returned OK. These measures are quantified and reported at the end of each run. Their meaning and significance is discussed below. Siege has essentially three modes of operation: regression (when invoked by bombardment), internet simulation and brute force.

http_load runs multiple http fetches in parallel, to test the throughput of a web server. However unlike most such test clients, it runs in a single process, so it doesn't bog down the client machine. It can be configured to do https fetches as well. It load a file containing a list of URLs that may be fetched, a flag specifying how to start connections (either by rate or by number of simulated users), and a flag specifying when to quit (either after a given number of fetches or a given elapsed time). There are also optional flags for checksums, throttling, random jitter, and progress reports.

4.1.3 Specific Results of ENGAGE platform testing

The test was made for different numbers of virtual clients (10, 50, 100 and 500 clients) / concurrent connections with all three tools. The tests results of *WBox* software are presented in table 4.1., the tests results obtained using *Siege* software are presented in table 4.2. Table 4.3. describes the tests results obtained using *http_load*.

Test no.	No. of clients	Iterations	Using compression?	Average response time	Server response
1	10	4	No	175 ms – 380 ms	200 OK - 100%
2	10	4	Yes	140 ms – 301 ms	200 OK – 100%
3	50	5	No	195 ms – 867 ms	200 OK - 100%
4	50	5	Yes	150 ms – 846 ms	200 OK - 100%
5	100	5	No	185 ms – 1219 ms	200 OK – 100%
6	100	5	Yes	134 ms – 1128 ms	200 OK – 100%
7	500	3	No	933 ms – 5003 ms	200 OK – 100%
8	500	3	Yes	146 ms – 4328 ms	200 OK - 100%

Table 4.1. T	est application	stressing u	using	WBox
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 Table 4.2. Performance test using Siege

Internet mode Benchmark mode



	10 *	50 *	100 *	500 *	10 *	50 *	100 *	500 *
Transactions:	243 hits	509 hits	806 hits	1044 hits	839 hits	1644 hits	1522 hits	1360 hits
Availability:	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %	100.00 %
Elapsed time:	16.07 secs	7.59 secs	6.67 secs	5.18 secs	12.61 secs	8.40 secs	6.94 secs	6.28 secs
Data transferred:	1.04 MB	2.17 MB	3.44 MB	4.46 MB	3.58 MB	7.02 MB	6.50 MB	5.81 MB
Response time:	0.14 secs	0.22 secs	0.32 secs	1.01 secs	0.15 secs	0.25 secs	0.44 secs	1.10 secs
Transaction rate:	15.12 trans/sec	67.06 trans/se c	120.84 trans/sec	201.54 trans/se c	66.53 trans/sec	195.71 trans/sec	219.31 trans/sec	216.56 trans/sec
Throughput:	0.06 MB/sec	0.29 MB/se c	0.52 MB/sec	0.86 MB/sec	0.28 MB/sec	0.84 MB/sec	0.94 MB/sec	0.92 MB/sec
Concurrency:	2.05	14.53	38.91	204.53	9.93	49.38	96.85	238.85
Successful transactions:	243	509	806	1044	839	1644	1522	1360
Failed transactions:	0	0	0	0	0	0	0	0
Longest transaction:	0.85	1.55	1.66	4.42	1.33	1.78	1.43	5.99
Shortest transaction:	0.11	0.11	0.11	0.00	0.11	0.16	0.16	0.00

* concurrent users

Table 4.3. Testing throughput of the web server using *http_load*

Test	Fetches	Connections	Bytes/conne	fetches/sec	Average	Average	Bad byte
no.			ction		msecs/		counts
						msecs/	



					connect	first-response	
1	195	10 max parallel	16112	39	53.9289	141.921	0
2	894	50 max parallel	16112	178.8	53.9446	163.432	0
3	1156	100 max parallel	16112	231.193	53.9638	298.908	0
4	1051	500 max parallel	12418.7	210.195	54.1082	827.139	817

4.1.4 Conclusions related to the Technical Testing

The webserver and hosted applications were on-line and available the whole testing period. The testing results show that the availability was 100% in all tests.

The application stressing test using *WBox* evidences that the server accept compressed transactions and responded with "200 OK" all the time, even when the number of concurrent users was 500. These tests also show that the average response time was significant increased when the number of concurrent users was over 500.

The *Siege* application was used in Internet and Benchmark mode. Better results were obtained in Internet mode. Also, all the initiated transactions were successful, even when the server served over 200 transactions per second at some moments in testing period of time.

Testing parallel connections with *http_load* shows that the system is working well if the maxim number of parallel connections is under 500. Over this level, error occurrence will be unavoidable.

As a general conclusion, the system is working well and responds quite fast, but when accessed by hundreds of users in the same time it may become slower.

4.1.5 Defining the Methodology to User-Interface Testing, as Base for Educational Testing

In the process of designing / testing the MOOC interfaces, it is important to know who the future users of the related applications are. In the case of edX interface, the users are coming mainly from the educational area, having different knowledge in relation to the use of an e-learning platform. Here, it can be said, that the level of knowledge must be a medium one, but containing good skills and experience in using computers and basic software applications. There are also required abilities related to the relationships with other people and patterns in various communication patterns.

Scenarios are designed often regarding the interaction between the users and the designed program/interface, including some questions at the beginning:

- What specific wants the user from the designed program / interfaces?
- Who is leading and tutoring the participant groups, offering assistance step-by-step?
- What kind of screens, sketches or other objects are preferred and understood by the users?
- What kind of equipment is needed to access/fully exploit some interfaces?
- What the user could think on some specific arrangements of the key interface sections in a screen?

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The Testing activity of a specific application and its related interfaces can be made by experts, or key persons who have experience in e-learning and educational platforms. The testing can be made also on a predictive base, according to a methodology, but also on an empirical base. It is obvious that all the results have the role to address the corrections of all errors and non-communication issues, but also the avoiding of the future problems those learners could face.

In the case of edX platform, the group of tests have the role to express the possible mismatch of platform functionalities and communication problems between the user and the edX interfaces, from the point of view of *course administrator*, *course designer* and *learner*. Four institutions were asked to upload specific courses in edX, in order to test the platform functionalities. The section below presents the specific testing activities.

Generally, the testing sessions addressed the basic functionalities of edX - creating an edX account, creating a specific course, creating a course outline, adding new units and new subsections to an existing outline, writing free texts in English including links to external URLs, videos etc., uploading external resources to the course, writing free texts in several languages, creating different types of questions, inserting discussion as a subsection, creating a course textbook, publishing course updates, exploring the possible edX course checklists etc.

4.2 Tools, Procedures and Activities Performed for Educational Testing

4.2.1 Goals for Educational Testing

The goals for educational testing of edX platform were:

- to assess the ease/difficulty of a novice facilitator (who has never used edX before) to design a course and to use a variety of functions;
- to assess the suitability of edX to the pedagogical requirements;
- to assess the edX ability to support also non-Latin language (e.g. Hebrew used by the Israeli partner).

4.2.2 Tests Performing

For the educational testing of the edX platform, we have created several trial courses. The tests that were performed were:

- Defining a course designed by a novice user of eX (made by the Israeli partner (*WZ*) and called *ELS101 Test*. The Israeli partner has limited experience with platforms as *Moodle* in the past);
- Defining courses designed by a more technological oriented facilitator (in this respect, Open University (UK) proposes the course called *RRI01 RRI*, Valahia University Targoviste (RO) uploaded the course called *VUT1 Virtual Instrumentation in Science Education-Test Course* and Lattanzio Learning Spa (IT) introduced the course named *ELS001 Introduction to ENGAGE*);
- Testing the visibility of different functions using the role of a student using the MOOC.

In the following paragraphs, there are presented the description of the tests. For avoiding the duplication of the testing issues and redundancy of the testing information, different approaches related to the procedures and results of testing are illustrated.



A. Basic Tests done by Weizmann Institute and Specific Results

The tests are undertaken from the perspective of an edX inexperienced user. Following the methodology, the tests were performed on the WZ course, having as results the information included in Table 4.4.

Function	Description
Creating an edX-studio account	Some confusion occurred between creating an edX account, edX-studio and edX support accounts. Support from LL resolved this issue
Creating a course (course name: <i>ELS101</i> <i>Test</i>)	Done with no problems
Creating a course outline	Done with no problems
Adding new units and new subsections to an existing outline	Done with no problems
Writing free texts in English including links to external URLs, videos etc.	Done with no problems
Uploading external resources to the course	Done with no problems
Writing free texts in Hebrew (including titles)	Done with no problems
Creating different types of questions	Done with no problems
Inserting discussion as a subsection	Done with no problems
Creating a course textbook	Done with no problems
Publishing course updates	Done with no problems
Exploring the possible edX course checklists	Not performed

Table 4.4. Results of the testing sessions on WZ course

The Israeli team summarized the results of the educational testing as concluding ones, underlining that the edX platform is a proper environment to be considered as MOOC in the ENGAGE project.

B. Introduction to the Basic Tests done by Open University and Specific Results with Feedback Tests made by VUT

Tests on the all three mentioned courses were done: *RRI01 RRI* (OU), *ELS101 Test* (WZ), *VUT1 Virtual Instrumentation in Science Education-Test Course* (VUT), emphasizing on the aspects that were not met as expected in several actions and in the related interfaces.

Information, appreciations and questions were posed, but also the requests for the other tester partners to check and offer solutions. Figures 1-7 illustrate some screenshots saved from the testing sessions.

The aims of the OU tests were to check some of functionalities presented in the existing courses for learners, course facilitators and course authors, and to include possible questions that could be raised by those groups of users.



Figure 1 shows the list of the courses available in ENGAGE edX studio, as well as the options for creating a course.

The user registered in "Studio" is a "simple user", to become an author in order to create new courses, he/she must request the authorization by clicking on [Request the Ability to Create Courses]

Any user can register in the on-line courses as student (e.g.teacher learner) by requesting and confirming by e-mail the signing up process. All the registered users can then access the course information, content, activities (e.g. *Wiki*, *Quiz*), assessment and progress (figure 2).

The course interactions can also be checked by course facilitators (figures 3-6), as well as their progress and a list of assessment (figure 7)

The tested platform functionalities (see the completed table 3.1.) for the course team authors, represented the basic set that might be useful to initiate a course: creating the course outline, setting up activities and learning tasks (as illustrated in figure 5), such as: course introduction video (fig. 8), discussion forum and wiki (fig. 6), voting (fig. 9), Argumentation mapping and reasoning (fig. 10), accessing ENGAGE video library (fig. 11), adding new article (fig. 12), organizing Groups (fig 14).

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Fig. 1. Accessing the courses available in edX Studio



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Fig. 2. Testing as *learner* the VUT course



Fig. 3. Testing as *course designer* the WZ course





Fig. 4. Testing as course admin the OU course



Fig. 5. Several issues encountered during the tests





Fig. 6. Several questions posed related to image re-dimensioning and introducing hyperlinks





Fig. 7. Several issues expressed related to evaluation/ learning assessment in edX which will be discussed with WP1 experts during the course implementation for pilots

C. Basic Tests done by Valahia University and Specific Results

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Tests were made gradually in edX, on the mentioned courses - particularly on the *RRI01 RRI* (OU) course -, especially on the aspects related to the main platform functionalities, but also on the problems encountered by other tester partners, trying to answer to specific questions and offering solutions for different raised issues. As examples, figures 8-12 emphasize on the facilities for accessing the course components - *Introduction, Discussion, Argumentation*, but also on using the *Wiki* and calling the *ENGAGE Video Library*. Other examples (figures 13-25) are oriented on presenting the screenshots resulted in the process of testing/verifying the platform, with the view to offer the necessary feed-back to the problems and questions raised in the section B.



Fig. 8. Accessing the OU course (Introduction component)



← → C □ engage.exactls.com/courses/En	ngage/RRI01/RRI/courseware/0b718e3b40ec432ea84f0765a1b38746/86d7ded02ee44	dQ☆ ≡
	Hide Discussion Kew Post Add A Response	
	aleokada 1 Vote about 2 hours ago Im Dear Edi great questions There are several European projects about RRI and Science Education that suggests events and activities for acientists. We will publish soon a report which describes these projects. See this uri At the moment, RRI seems to be in the priorities of EU, in the programmes dedicated to Education. This means that an important component of education must take into consideration the opening of the research results to the society through different channels. In this respect, there are several project approved and started in 2013 and 2014 that try to emphasize the role and the importance of RRI	
engage evants com/courses/Engage/RPI01/RPI1/courseware/0	in education, and particularly in Science Education. It is obvious that "Science education" can contribute in a large scale to the promoting of RRI, out for a proper understanding, the teachers must follow and graduate proper CPD programmes related to this topic. ENGAGE seems to be very well anchored in what RRI and the related issues could add to the main objectives of EU in the actual stage of development. posted about a minute ago by Laura Add a comment	

Fig. 9. Replying to a proposed Discussion and Voting (accessing the *Discussion* component)

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	~ ARGUMENTATION	Explore the map below and bring your ideas to the Argumentative Narrative (wiki)
	Argumentative Map? 👸 Homework	Implementing RRI in the Classroom: Preparing the Teachers
	Argumentative Narrative 👸	
		Topic Issue Idea Supporting Argument Counter Argument Connections: 36
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Fig. 10. Accessing the Argumentation component



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Fig. 11. Accessing the VideoLibrary from the OU course

	Add new article	
	TITLE	
	Responsible Research and Innovation in Wikipedia!	
	SLUG	
	/Engage.RRI01.RRI/ responsible-research-anc	
	This will be the address where your article can be found. Use only alphanumeric characters and - or Note that you cannot change the slug after creating the article.	
	CONTENTS Markdown syntax is allowed. See the cheatsheet for help	
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-	+ Create article Go back	-
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Fig. 12. Accessing the Wiki and adding a new article

In the following paragraphs, some answers to the raised issues are illustrated.

Raised issue: Testing if a course can be set up for 3 different groups.



Answer to the raised issue: edX has possibility to work with groups, but this feature it is under testing and is disabled by default. To setup groups in edX, first of all, it is necessary to activate "split_test" option in Advanced Settings, Advanced Module List (figure 13).

S	
n	
nless you are familiar with their purpose.	Show Deprecated Settings
["split_test"]	
	S n Ness you are familiar with their purpose.

Fig. 13. Activating group working

After this step, in the Settings menu, it will be activated another option named Group Configurations (figure 14).

ect Studio	VUT VUT1 Virtual Instrumentation in	Content 🔻	Settings 🛎	Tools 👻	
			Schedule & I	Details	
Settings			Grading		
Group Conf	igurations		Course Team	n	
	0		Advanced Se	ttings	
			Group Confi	gurations	
 VGroups 					
ID: 993820072736					
3 Groups for the cours	se				
Group A					33%
Group B					33%
Group C					33%
This Group Configurati	ion is not in use. Start by adding a conte	ent experiment to a	ny Unit via the u	Course Outline	

Fig. 14. Group configuration interface

edX offer possibility to group students in smaller communities within a course (cohorts). Students who are in a cohort can communicate and share experiences privately within course discussion topics.



When it's enabled the cohort feature for a course, cohort divides the discussion topics that are included in units by adding discussion components. This means that each post that a student makes to those content-specific topics can only be read, and responded to, by members of the same cohort. However, any course-wide discussion topics that it is set up for the course remain unified. This means that all posts can be read, and responded to, by every student (figure 15).

Cohort Configuration	{ "auto cohort groups": [
	"Example Group Name A",
	"Example Group Name B",
	"Example Group Name C"
],
	"cohorted": true
	,
	Enter policy keys and values to enable the cohort feature, define automated student assignment to groups, or identify any course-wide discussion topics as private to cohort members.

Fig. 15. Enabling cohort feature

In the figure 16, it is presented the Cohort management interface available in Instructor Dashboard, Membership.

imple Group Name A (0) \$\$	+ Add Cohort Group
xample Group Name A (contains 0 students)	
udents are added to this group automatically. What does this mean?	Edit settings in Studio
dd students to this cohort group	
dd students to this cohort group ote: Students can only be in one cohort group. Adding students to this group overrides any previous group assignment. Inter email addresses and/or usernames separated by new lines or commas for students to add. *	
dd students to this cohort group ote: Students can only be in one cohort group. Adding students to this group overrides any previous group assignment. nter email addresses and/or usernames separated by new lines or commas for students to add. * e.g. johndoe@example.com, JaneDoe, joeydoe@example.com	

Fig. 16. Adding students to cohort

Raised issue: Testing how to embed a PowerPoint presentation in a Unit.

Answer to the raised issue: A PowerPoint presentation can be embedded in a unit using *IFRAME* element. The presentation file must be uploaded first on a service provider web site like Google Docs or SlideShare (figure 17).



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Fig. 17. Embedding a PPT in a unit

Raised issue: Testing how to create quizzes.

Answer to the raised issue: edX Studio allows users to create a wide variety of exercises and tools for the course. Many of these exercises and tools have templates in Studio so that can be created easily. Depending on the exercise or tool, it can be used an HTML, Problem, or Advanced component. The page for each individual exercise or tool contains an example of each exercise or tool, together with all the files, code, and step-by-step instructions that are needed to create the exercise or tool.

The exercise and tools can be grouped as following:

- (a) General Exercises and Tools;
- (b) Image-Based Exercises and Tools;
- (c) Multiple Choice Exercises and Tools;
- (d) STEM Exercises and Tools.

In figure 18, it is presented a multiple-choice question with answers type checkbox.





Fig. 18. Creating a Multiple-choice question

Furthermore, there is also the possibility to embed using *IFRAME* a questionnaire or quiz located on another web site (figure 19).

VUT: VUT1 Virtual In:	strumentation in Science Education - Test course	û bizoi
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Welcome to our course!		
 Initial evaluation 		•
Questionnaire 1		VIEW UNIT IN STUDIO
Questionnaire 2	Initial Evaluation (1st Questionnaire)	
	Basic data	
Seminars	1. Name	
	2. School subject you teach	
Laboratories	3. Personal e-mail	
	5. School address	
Final evaluation	6. School e-mail	
	7. The length of your teaching career	
	School facilities	
	8. The possibility to use the computer during your lessons.	
	There is a computer in my classroom.	
	I have a constant access to a computer room. I have a rare access to the computer room	
	I have a rare access to a school computer.	
	I have no access to a school computer.	
	9 The characteristics of the computer(s) in use	

Fig. 19. Embedding external questionnaire

Raised issue: Testing how to include URLs and images in Wiki.



Answer to the raised issue: URLs and images (graphics) can be inserted in Wiki pages using a special syntax - Markdown (figure 20). The users view is presented in figure 21.

Engage: RRI01 RRI	☆ bizoi ▼
Courseware Course Info Discussion Wiki Progress	
Wiki > Engage.RRI01.RRI >	+ Add article
TITLE	View
Engage.RRI01.RRI	/ Edit
CONTENTS Markdown syntax is allowed. See the cheatsheet for help.	 Changes
whole research and innovation process. It aims to better align both the process and outcomes of R&I, with the values, needs and expectations of European society.	LAST MODIFIED: Oct. 24, 2014, 4:05 p.m.
In general terms, RRI implies anticipating and assessing potential implications and societal expectations with regard to research and innovation. In practice, RRI consists of designing and implementing R&I policy that will:	See all children
engage society more broadly in its research and innovation activities, increase access to scientific results,	
ensure gender equality, in both the research process and research content, take into account the ethical dimension, and promote formal and informal science education.	
[H2020 Science with and for Society, Responsible Research and Innovation](http://ec.europa.eu/programmes/horizon2020 /en/h2020-section/science-and-society)	
<pre>I[Engage Project](http://engage.exactls.com/c4x/VUT/VUT1/asset/engage-logo.png "Engage")</pre>	

Fig. 20. Inserting URL and image in Wiki page



Fig. 21. Users view

Raised issue: Testing how to reduce the size of an image or video.

Answer to the raised issue: The edX Studio doesn't offer the possibility to reduce images size or video size. The image size must be reduced before uploading the file on the platform. The visible image in web page can be resized using HTML code (figures 22 and 23).



-Wingage							
		Ado	d New Compo	onent			
	Д	Q		?	Ħ		
	Advanced	Discussion	HTML	Problem	Video		

Editing: Raw HTML	EDITOR SETTINGS
<pre>1 2</pre>	

Fig. 23. HTML code to reduce image size

The visible area in a unit of a video can be changed only if the movie is embedded in an *IFRAME* and the dimensions of *IFRAME* are reduced (figure 24). The movie can be played at this dimension or can be maximized on the entire screen.

U	n	it	1
-			1.07

IFrame	/ EDIT	ළු	Ē	· · · · · · ·
ENGAGE Victor Puntes				
Add New Component				

Fig. 24. Reduced size of a visible part of a movie



Raised issue: Testing if there is any analytics tools in edX.

Answer to the raised issue: All the course staff has access to Instructor Dashboard (figure 25) where are presented general course information and analytics page. The analytics page show information about gender distributions and level of education.

COURSE	INFO	MEMBERSHIP	STUDENT ADMIN	DATA DOWNLOAD	ANALYTIC	S	
ENROLLN	IENT II	NFORMATION					
Number of	enrollees	s (instructors, staff	members, and students	s) by track			
Verified	0						
Audit	õ						
Honor	5						
Total	5						
BASIC CC	URSE	INFORMATION					
• Organ	instion	41 T					
Course							
• Course		2014 11					
• Course	e Name.	Name: Virtual Inc	trumontation in Ecion	so Education Test cou			
- Course	e Display	Name: Virtual ins	trumentation in Scien	ice Education - Test cou	irse		
• Course	ie course	started? Yes					
CourseHas th							
 Course Has th Has th 	e course	ended? No					

Fig. 25. Instructor Dashboard

D. Basic Tests done by Lattanzio Learning Spa and Specific Results

Lattanzio Learning have tested the following courses in edX, playing different roles:

- RRI01 RRI (OU) as a 'staff member'
- ELS101 Test (WZ) as a 'staff member'
- VUT1 Virtual Instrumentation in Science Education-Test Course (VUT) as a final 'users'

In both cases as a 'staff member' and final 'user' a lot of functionalities have been tested and some other have been added. During the testing phases some issues have been raised, some of them already addressed in the previous paragraphs.

Below some other issues related in particular to the 'user' role, for which a solution is highlighted.



Raised issue: Testing if there is a way to see the users enrolled in edX course.

Answer to the raised issue: In a course, the users with the role of course-admin or team-member have the possibility to generate user profile information of the enrolled users by accessing to the Instructor page/Data download (fig. 26)

report is g	generating.	not click those	buttons multi	pla timos (Clicking those	buttops mult	plo timos wi	ll cignificantly clo	w the generat	ion process
lick to ge	enerate a CSV fil	e of all student	s enrolled in t	his course,	along with pr	ofile informat	ion such as e	email address ar	nd username:	ion process.
Downloa	ad profile informat	tion as a CSV								
or smalle	er courses, click	to list profile in	nformation for	r enrolled s	tudents direc	tly on this pag	e:			
List enro	olled students' pro	file information								
User ID	Username	Name	Email	Language	Location	Birth Year	Gender	Level of Educa	Mailing Address	Goals
)	aleokada	Alexandra Okada	alexandra.okad							
3	bizoi	Mihai Bizoi	bizoi@ssai.vala			1978	m	D		
7	FantiEdi	Edi Fanti	e.fanti@itaforch ina.com			1962	f	b	edi.fanti@gmail .com	test the platform
9	Gabriel	Gabriel Gorghiu	ggorghiu@gmai			1968	m	P	19 Unirii Blvd., Bl 64 Ap 54	
3	Laura	Laura Monica Gorabiu	lgorghiu@gmail			1971	f	p	Di. 01, Ap. 01,	
29	mauro2	MV	vannux2@gmai I.com							
				nrolled stu	dents.					
lick to ge	enerate a CSV gr	ade report for	all currently e							
lick to ge	enerate a CSV gr	ade report for	all currently e							
lick to ge Generat	enerate a CSV gr • Grade Report	ade report for	all currently e							
Generat	enerate a CSV gr • Grade Report	ade report for	all currently e							

Fig. 26. Instructor page/Data download

Raised issue: Testing if there is a way to see the users grading in a edX course.

Answer to the raised issue: In the page Instructor / Student Admin is possible to see the "gradebook" for the all the enrolled students or a student-specific grade inspection (fig. 27).



rseware Course Info	Discussion	Wiki Progress	Instructor		
Instructor Dashbo	oard			REVERT TO LEGACY DASHBOARD	VIEW COURSE IN STUDIO
COURSE INFO MEN	IBERSHIP	STUDENT ADMIN	DATA DOWNLOAD	ANALYTICS	
STUDENT GRADEBO	DK				
Click here to view the grade View Gradebook	ebook for en	olled students. This fe	eature is only visible to co	ourses with a small number of total enro	lled students.
STUDENT-SPECIFIC G	GRADE INS	PECTION			
Specify the Engage email a	ddress or use	mame of a student h	ere: Student Email or U	Isernar	
Click this link to view the st	udent's prog	ress page: Student Pro	ogress Page		
STUDENT-SPECIFIC G	GRADE AD	USTMENT			
Specify the Engage email a	ddress or use	rname of a student h	ere: Student Email or U	Isernan	
Specify a problem in the co	urse here wi	th its complete locatio	n: Problem location		
You must provide the comp i4x://edX/Open_DemoX/problem	plete location /78c9839088424	of the problem. In the 43689f6023745231c525	e Staff Debug viewer, the	location looks like this:	
Next, select an action to pe	rform for the	given user and probl	em:		
Reset Student Attempts	Rescore Stud	lent Submission			
You may also delete the en	tire state of a	student for the speci	fied problem:		
Delete Student State for Pro	blem				
Rescoring runs in the backg for this problem and stude	ground, and s nt, click on th	tatus for active tasks is button:	will appear in the 'Pendir	ng Instructor Tasks' table. To see status i	for all tasks submitted
Change De alterna end Tarala USat					

5. SUPPORTING INSTRUMENTS

5.1 Learning Analytics Tools

Generally, learning analytics are used for prediction purposes, personalization and adaptation, intervention and information visualization. There are some software applications that have been designed for integrated analytics tools, most of them duplicating the functionality of web analytics software, being also applied to learner interactions with the content. More, several social network analysis tools are also used to map social connections and discussions.

In the frame of ENGAGE project, learning analytics tools have been proposed for collecting data related to students' opinions, values and knowledge, before and after using the designed curriculum resources, for formative and summative evaluation. One proposed channel is to embed quizzes and short surveys within the activities of the curriculum resources.



In the frame of ENGAGE project, a detailed tracking of 'user activity' on KH (Knowledge Hub - website) has been created, taking into account the possibility of segmenting users communication/reporting. The type of data taken into consideration for learning analytics tools are quantitative (usage statistics of ENGAGE web tools, used external software) and qualitative (web questionnaire or quizzes for formative and summative evaluation, and two sets of data - course participant's evaluation, ENGAGE platform evaluation by the course participants).

For ENGAGE purposes, a free solution - *Ninja Forms* (WordPress plugin) - is taken into consideration. This represents a powerful form building framework that allows users to easily and quickly design complex forms through a drag and drop interface. Even it is very simple for the users, it has a ton of hooks and filters that can be used to do absolutely anything is needed. In figure 28, it is presented the particular interface for creating a questionnaire.

Form Settings	Field Settings	Notifications	Form Preview			
Favorite Fields		Save Field	Settings			
Template Fields		T. Which co	ountry have you been te	eaching?	List	v
Tauthou	Chackboy	2. Name of	f school:		Textbox	Ŧ
	Hidden Field					
Submit	Anti-Spam	3. What is	your gender?		List	
Honey Pot	Timed Submit	4. How old	are you?		List	v
Textarea	Password	E Miller in			1.1.1	
Star Rating	Calculation	you have o	completed?	hal education that	LIST	v
Number		6. What su	bject is your highest qua	alification?	List	Ŧ
Layout Elements		v				
hr	Text	Firstname			Hidden Field	Ŧ
		Lastname			Hidden Field	v
User Information		Vuser email	1		Hidden Field	v
First Name	Last Name		τοι.			
Address 1	Address 2	Submit			Submit	٣
City	State					

Fig. 28. Creating a form with Ninja Forms plugin

As example, figure 29 presents the questionnaire designed in the interface presented before.



Qι	lest	io	nn	ai	re

Teachers' opinions
Fields marked with a * are required
1. Which country have you been teaching? *
Cyprus
2. Name of school:
3. What is your gender? female male
4. How old are you? O Under 25 O 25-29 O 30-39 O 40-49 O 50-59 O 60+
5. What is the highest level of formal education that you have completed?
Post-secondary non-tertiary education
6. What subject is your highest qualification? Physics Mathematics Chemistry Biology Earth Science Submit

Fig. 29. On-line questionnaire developed by Ninja Forms

All the data collected by the Ninja Forms are stored in the database and can be viewed or exported later (e.g. Excel datatype). Figure 30 shows the submission list for the questionnaire presented before.

Submissions									
All (2)								Search	h Submissions
Bulk Actions · Apply Teach	hers' opinions 🚽 Begin Date	2	End Date		Filter				2 items
#	1. Which country have you been teaching?	2. Name of schoo	ol:	3. What is your g	ender?	4. How old	are you?	Date	
2	Romania	National College "I Văcărescu", Târgov	enăchiță ⁄iște	female		30-39		1 hour ago Submitted	
1	Romania	Valahia University		male		30-39		1 hour ago Submitted	
□ _#	1. Which country have you been teaching?	2. Name of schoo	d:	3. What is your g	ender?	4. How old	are you?	Date	
Bulk Actions Apply Download A									2 items

Fig. 30. List of form submissions

Concerning the Analytics Quantitative issues, popular tools are used, answering to ENGAGE aims (*Google Analytics* - Google Analytics for WordPress plugin, *AWStats*).

As example, Google Analytics, in collaboration with AWStats, gives analysis and statistic tools to improve the learning analytics. Some screenshots are illustrated in figures 31-37.



tatistics for:	Last Update:	24 Oct 2014 - 1	7:01			
www.engagingscience.eu	Reported period:	Oct ‡	2014 ‡	ОК		
ummary						-
/hen:	Back to main page					
onthly history						
ays of month		Visitors de	omains/co	untries		
ays of week	Domains	/Countries	Pages	Hits	Bandwidth	
ho:	2 Unknown	in	4.046	22,544	794.87 MB	
untries	Cormanu	da	3 393	12 642	265 00 MB	
Full list	Germany	de	3,282	12,043	363.09 MB	
osts	Italy	it	3,149	7,058	159.15 MB	
Full list	Network	net	1,659	10,240	1.63 GB	
Last visit	Commercial	com	1,639	7,447	313.52 MB	
a Unresolved IP Address	France	fr	1,563	6,490	156.96 MB	
Full list	Israel	1	1 117	2 043	49 99 MB	
Last visit			047	2,015	0.10.10	
avigation:	European country	y eu	847	847	8.18 MB	
sits duration	Lithuania	It	643	5,905	235.86 MB	
e type	China	cn	286	286	3.91 MB	
wnloads	Spain	es	252	2,619	113.70 MB	
Full list	United Kingdom	uk	178	1.858	125.59 MB	
Full list	Likraine		173	173	2 14 MB	
Entry	o in the		175	175	2.14 110	
Exit	Switzerland	ch	126	1,509	202.34 MB	
erating Systems	Romania	ro	98	1,117	34.47 MB	
Versions Versions	Netherlands	nl	52	622	27.32 MB	
Unknown	Russian Federatio	on ru	42	42	477.03 KB	
owsers	Australia	au	30	367	47.27 MB	
Versions	Greece	or	15	214	0 70 MB	
ferrers:	Greece	. Si	15	214	5.75 110	
igin	Norway	no	13	197	3.22 MB	
Referring search engines	💽 Brazil	br	13	326	14.48 MB	
Referring sites	Czech Republic	cz	13	187	7.84 MB	
arch	Hungary	hu	12	128	5.05 MB	
Search Keyphrases	Portugal	pt	10	301	14.61 MB	
Search Keywords	Argentina	pr.	0	0	37.75 KB	
cellaneous	Argentina	a		50	2 20 10	
TP Status codes	Singapore	sg	8	56	2.39 MB	
Pages not found	😴 Cyprus	су	8	87	4.03 MB	
	C Turkey	tr	6	94	4.17 MB	
	Xietnam	vn	4	4	103.81 KB	



Statistics for:	Operating Systems (Top 10) - Full list/Versions - Unkno	wn					
www.engagingscience.eu	Operating Systems	Operating Systems					
	H Windows		66,761	77.7 %			
When:	K Macintosh		15,082	17.5 %			
Monthly history	A Linux		2 551	2 9 %			
Days of month			2,551	2.5 %			
Days of week	7 Unknown		1,488	1.7%			
lours	U Unknown Unix system		15	0 %			
Who:	🛃 Java		4	0 %			
Countries							
I Full list							
TOSTS	Browsers (Top 10) - Full list/Versions - Unknown						
I Last visit	Browsers	Grabb	er Hits	Percent			
Unresolved IP Address	Eirefoy	No	40.238	46.8.%			
Robots/Spiders visitors		NO	40,250	40.0 %			
I Full list	🤨 Google Chrome	No	27,961	32.5 %			
Last visit	6 MS Internet Explorer	No	6,050	7 %			
Navigation:	Mozilla	No	5,068	5.8 %			
/isits duration	🙆 Safari	Safari No					
-ile type	9 Unknown						
E Full list		UTIKITOWIT ?					
/iewed	Android browser (PDA/Phone browser)	Android browser (PDA/Phone browser) No					
I Full list	Opera	Opera No					
Entry	Netscape	No	112	0.1 %			
I Exit	IPhone (PDA/Phone browser)	No	68	0 %			
Operating Systems	Others		30	0.9%			
Versions	oticia	outers					
Unknown							
Versions	Connect to site from						
Unknown	connect to site from						
Referrers:	Origin	Pages Perce	nt Hits	Percent			
Drigin	Direct address / Bookmark / Link in email	3,536 76.9	% 3,981	72.2 %			
Referring search engines	Links from an Internet Search Engine - Full list	Links from an Internet Search Engine - Full list 83 1.8 %					
Referring sites	- Google 71 / 87						
Search	- Baidu 11 / 11						
Search Keyphrases	- Yahool 1 / 1						
Search Keywords	links from an external name (other web sites excent search engines) -	1 422	25.0.0				
Stners:	Full list	1,433	25.9 %				
HTTP Status codes	- http://10.10.8.65/phpmyadmin/import.php P5 96						
Pages not found	- http://10.10.8.05/phpmyadmin/import.php 95 96						
	- http://10.10.8.65/phpmyadmin/index.php 88 104						
	 http://10.10.8.65/phpmyadmin/querywindow.php 24 24 						

Fig. 32. Top operating systems and Browsers - AWStat



Google Analytics provides powerful digital analytics for anyone with a web presence, large or small. Google Analytics provides customizable dashboards that can be used to display the data you're most interested in and is able to investigate the following:

- (a) How many visitors your site has at the moment;
- (b) Who has visited your site recently, and how many of these are unique or repeat visitors;
- (c) How often repeat visitors come back to your site;
- (d) How visitors get to your site (e.g. referral, ads, direct, links or email);
- (e) What other sites are referring visitors to yours;
- (f) Where your visitors are coming from (e.g. the U.S. or other countries);
- (g) Which pages on your site have been visited the most;
- (h) How the site is faring in social networks;
- (i) What is the "bounce rate" (the number of visitors who leave without examining other pages);
- (j) The average time spent viewing your site;
- (k) What kind of browsers visitors are using;
- (l) The speed of the ISPs involved.



Fig. 33. Sessions by country - Google Analytics



Sessions by Browser	
Browser	Sessions
Chrome	385
Firefox	216
Internet Explorer	127
Safari	103
Android Browser	10
Opera	7

Fig. 34. Sessions by browsers - Google Analytics



Figure 35. Users age - Google Analytics





0 (0.00%)

5.65

0 (0.00%)

Fig. 36. New visitors versus returning visitors - Google Analytics



Fig. 37. Users flow - Google Analytics

5.2 Video Library

The ENGAGE video library aims to stimulate and support the target audience with a short inspirational scene-setting video or image animation including a series of 'engaging ideas'.

The duration of video clips will be short approximately 3 minutes (preferably no more than 5 minutes). The Video Library team will be constituted by ELS (responsible for ENGAGE private videos), OU (responsible for Dissemination videos), HIV (responsible for the quality content) and representatives of each pilot partners (responsible for videos in their country).



5.2.1 Video Library Categories

Video library Platform will be organised though categories described in the table 5.1.

Categories (tag)	Function	Target	Access	Platform	Upload
ENGAGE Project videos	Present the project, offer an overview about ENGAGE aims, benefits and key issues Include also video clips interesting for the consortium	This is also strategy part of WP7 dissemination plan and the target will be wide dissemination for all different stakeholders	Public	YouTube (with clear description)	Videos will be uploaded by WP7 team and will be widely disseminated through social media as well (see D7.1 – Okada, 2014)
RRI experts	Present the ideas of RRI experts who are ENGAGE collaborators	Schools interested in ENGAGE project through brokering partnerships	Public	YouTube (with clear description)	Videos will be uploaded by WP7 team
RRI Seminars	Present key ideas of leaders and experts from other RRI projects	Teachers interested in obtaining more references about RRI projects	Public	YouTube (with clear description)	Videos will be uploaded by WP7 team
Pedagogical strategies	Teach RRI strategies (argumentation, analyzing and questioning) by demonstrating how <i>expert RRI</i> <i>teachers</i> make	These can be used in workshops, MOOC and online community.	Most private access only for MOOC community (accessible only for logged	ENGAGE Knowledge HUB platform (hosted by ELS)	videos will be uploaded manually by each country (responsible) using an account

Table 5.1. Categories for Video Library

Page **49**



	them work.		users)		ELS
Expert RRI Teachers Interviews	Teach also RRI strategies or present feedback about ENGAGE materials and courses	These can be used in workshops, MOOC and online community as well as a short part of the dissemination engage project.	Most public Except the ones which are focused on strategies (accessible only for logged users)	YouTube (with clear description)	videos will be uploaded manually by each country (responsible) using an account provided by ELS
MOOC Introduction	Introduce a topic useful for course or workshop as well as support in the dissemination of the course.	This video is useful particularly in MOOC.	Public	YouTube (with clear description)	Videos will be produced by partners & RRI guest uploaded in YouTube for introducing a course and dissemination
Curriculum materials	Offer extra resources	This is useful for teachers to introduce in their lessons for their students	Public	YouTube (with clear description)	Existing web Videos
Students production	Show rich, creative outputs from their in- depth inquiries.	For instance they could present their views in a debate, or produce a short YouTube video, with commentary for the school	Public (best videos can be awarded and included in ENGAGE online community).	YouTube or school video private channels	By schools but the best videos will be uploaded by each representative of ENGAGE project pilot

5.2.2 Platform and Integration

Video Library platform will be integrated to ENGAGE Knowledge Hub - in the "For Teachers" section (Figure 38). It will include the ENGAGE YouTube Library with all public videos, in addition to the private videos that are accessible only for logged users.



				Search	1	Search
≥ngage	Home	The Project	For Teachers	Blog	Contact Us	Log in
			Materials For	Teachers)	
			Coming Soon			
COMING SOON						
ENGAGE workshops and mini online courses will be available in the next semester.						
If you would like to receive more information please sign-in.						
Video library about ENGAGE project and content will be also available soon.						
This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no. 612269				f	У Р	You (100
						SA

Fig. 38. Video Library for Teachers in the Knowledge Hub

Video Library platform will be integrated to ENGAGE MOOC - in the edX sections: introduction and/or activities based on video clips. edX will present public videos as well as private ones, which are accessible only for logged users. The selection will be made by the course designer team.

Figure 39 shows a public video from YouTube which were used by the course design team to introduce the course as well as integrate it in a discussion forum activity.







5.2.3 Platform and Playlists

Video library will be organised by playlists as well, in order to identify easily a group of categories as well as facilitating the searching procedures. Figure 40 shows the play list in YouTube about the curriculum materials with nine video clips. The current ENGAGE video library platform contains public videos that will be available (Table 5.2) organised through 4 initial playlists (figure 40). More videos will be uploaded and new categories will be created for the playlists based on table 5.2.

3 subscribers	ilil 352 views	E Video Manager		💲 Viewas public
-e-			EngagingScience.au	8
Engaging S	Science			
Home Videos	Playlists Cl	hannels Discussion About Q		
Created playlis	ts O Newplayli	st		Last added to 👻 🔢 🔛
	4 videos ➡	RRI Seminar 35 seconds ago RRI Seminar in Science Education - Maite Debry RRI Seminar in Science Education - Antonio Costa View full playlist (4 videos)	2.31 2.05	
	2 videos ■	RRI experts 4 minutes ago ENGAGE Votor Puntes ENGAGE Ignasi Gispert View full playlist (2 videos)	6:27 1:52	
A COLOR	9 Videos	Curriculum Materials 4 months ago Ywis The Fox (What Does The Fox Say?) [Official music video HD] Weld's First 3 Faveet Bables Coming Soon View full playlist (9 videos)	3.45 3.03	
	4 viceos ₩	RRI Seminar 2014 PARIS 1 day ago RRI Seminar in Science Education - Peter van Marion RRI Seminar in Science Education - Pedraig Murphy View full playlist (4 videos)	2:04 3:44	

Fig. 40. YouTube platforms and playlists

Table 5.2.	Plavlists	and	video	clips	quantity
1 4010 0.2.	1 10,11000	and	1400	empo	quantity

PlayList	Video clips	Quantity	Language	Observation
ENGAGE Project videos	It will be initiated (Nov–Dec 2014)		English	It will be translated by each pilot country language
RRI experts	Victor Puntes Ignasi Gispert	2	English	English - however partners can reuse and add translated subtitles
RRI Seminar	Maite Debry Antonio Costa	4	English	



	Padraig Murphy Peter van Marion			
Pedagogical strategies	It will be initiated (Jan–Feb 2015)		Local language	Template, animated videos will be prepared in English, partners will contribute to localisation of the videos, including voiceover in local language.
Expert RRI Teachers Interviews	It will be initiated (Mar–May 2015)		English and local languages	Local Language – they can create their local videos
MOOC Introduction	It will be initiated (Jan–Feb 2015)		English and local languages	Local Language – they can create their local videos
Curriculum materials	TheFoxFirst 3 parentsTake the testMakingdecisions	9	English	English – however partners can reuse and add translated subtitles or dubbing Local Language – they can add other videos in their local language

Fig. 41 presents an example of PlayList (Curriculum Materials)

You Tube 🖙 😑 -	٩		Upload
What to Watch My Channel Fig. My Subscriptions History Watch Later PLAYLIST Corriculum Materials RRI Seminar 2014 PARIS	Engaging Science	1	
3 Parents	Home Videos Playlists Channels Discussion About Q,		
Add channels Add channels Popular on YouTube Music Sports	Curriculum Materials Writeward Science - 9 videos - 15 videos - 20 minutes Videoclips related to Curriculum Materials Discrete thema: The science T		1
Gaming	This playlist is automatically control by ponularity		Add video
Browse channels Manage subscriptions	Ylvis - The Fox (What Does The Fox Say?) [Official music video HD]	TVNorge	3:45
	2 Worlds First 3 Parent Babies Coming Soon	DNews	3:03
	3 Take the test: Dilemma	Engaging Science	2:01
	4 Take the test: What is a screening test?	Engaging Science	1:50
	5 Making decisions: Meet the counsellor	Engaging Science	4:23
	6 Making decisions: Meet the couple	Engaging Science	1:57
	7 Making decisions: Social and economic factors	Engaging Science	1:25
	8 Making decisions: Playing God	Engaging Science	1:19
I	Making decisions: Rights of the child	Engaging Science	0:43

Page



Fig. 41. YouTube - curriculum materials Playlist

As it was presented in D.2.3 (Fanti et al, 2014; pg 31-32) the platform will include an initial list of short videos (3-4 minutes each) by December 2014. The format of the video interviews and pedagogical strategies will depend on the time to obtain the approval to film in schools. For the pedagogical strategies, most of the videos will be animations, in order to facilitate easy localisation at low cost.

5.2.4 Private Video clips Platform

This group of videos will be accessed only for logged users. The files will be uploaded by partners who are responsible for the library in their country under the supervision and guidance of ELS. Partners will be also able to see the list of videos that will be short and make it available for the ENGAGE online course team to integrate it in EdX.

Due to the restrictions of the HTTP protocol, large files as videos, can be uploaded only via the FTP transport protocol.

One responsible person per country will receive the credentials to access to this server via FTP protocol, and each one will use a different folder in order to avoid the mix of files for different languages.

Figure 42 is a screenshot of a English content-administrator: on the left there are the local files, on the right there is the remote file system: note that the ftp user will see only his own resources, according to this table:

Language	Remote folder
English	/en
Cyprus	/су
France	/fr
Hebrew	/he
Romanian	/ro
Latvian	/lt
Spanish	/es



gemma@10.10.8.65 - FileZilla				• X
<u>File Edit View Transfer Server Bookmarks</u>	<u>H</u> elp			
1 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -	E 🕂 😚 🖪			
Host: 10.10.8.65 Username: gemma	Pass <u>w</u> ord:	Port: Q	uickconnect 💌	
Local site: D:\Progetti\Engage\server\wp\en\ -	Remote site: /			•
es es fr he MigrateWP ro vol				
Filename	Filename		Filesize	Filetype
a	1			
🗃 Freedom to choose.m4v	Freedom to choose.m4v		16.759.610	MP4 Video
Making an ethical decision.m4v	Making an ethical decision.m4v		22.031.581	MP4 Video
Meet the counsellor.m4v	Meet the counsellor.m4v		172.412.744	MP4 Video
🔊 Meet the couple.m4v	Meet the couple.m4v		76.229.289	MP4 Video
🔊 Playing God.m4v	Playing God.m4v		51.130.766	MP4 Video
■ Rights of the child.m4v	Rights of the child.m4v		27.940.415	MP4 Video
🔊 Social and economic factors.m4v	Social and economic factors.m4v		55.071.266	MP4 Video
₩ What is IVF with PGD.m4v	🔊 What is IVF with PGD.m4v		47.450.845	MP4 Video
< >	<		Queue: empty	• •

Fig. 42. FTP client to upload videos

In ENGAGE-WordPress the file structure is visible in the Download/Add New Package section, as in figure 43, so that from this page is also possible to create a new downloadable package to link in posts or pages.

In case the author needs to embed the media file directly in the page or post, it is possible to use this formalism:

/wp-content/uploads/XX/YYYY

where

- XX is the language code as reported in the previous table,
- YYYY is the name of the file.

For example to embed a video inside a post or page:

[video src="/w	p-content/u	ploads/en/mv	video.m4v"	width="300px"]	

In figure 44, there is the screenshot of the post with an embedded video.



1	🎙 My Sites 🕋 Engaging Science 📀 4 🌹 0 🕂 New Security	Howdy, Mauro
	Add New Package	Screen Options 🔻
	Enter title here	Attach Dir
	Visual Vext	Attack File
	b i link b-quote def ins img ul ol li X code more close tags	Upload Browse URL
		 □ cy □ de □ download-manager-files □ en □ es □ he □ it □ ithemes-security □ It □ ro
		Publish 🔺

Fig. 43. New download package using the uploaded resources





Fig. 44. Video embedded in a post

5.3 Partnership Brokering System

The Partnership brokering system will be integrated in the Knowledge HUB Platform, having the aim to support schools to find and select relevant RRI experts, and create scheduled mentoring partnerships for carrying out the RRI projects which are part of the Transform stage. This System enables the educational actors to work well together and to ensure the maximum effectiveness of their collaboration / partnership. The System will be implement during the *ADOPT* stage.

For developing the Partnership Brokering System, *Business Directory Plugin* represents the feasible solution. It is the most popular, widely-used, and best-supported WordPress Business Directory plugin available. Business Directory Plugin allows users to build local directories, business provider listings, Yellow-Pages style directories, Yelp-like review sections, create a church directory, and build an address book and much more. In fact, Business Directory Plugin is the proper software to build any kind of directory.

Its features include:

- Fully customizable form fields;
- Built in CSV import and export;
- Support for reCAPTCHA to avoid spam listings;
- Users who post can edit listings without access to WP dashboard;
- Configurable quick-search field and sorting bar for listings;
- Display Category Icons/Allow Parent-Child Category Navigation (using the Enhanced Category Module).



A database with RRI experts can be created easily with the help of Business Directory Plugin. Figures 45-48 illustrate some snapshots related to the constituting of the RRI experts database, registering of a RRI expert, and listing of an international expert.

RRI Experts Database

Submit A Listing	View Listings	Directory				Search Listings
					Advanced Se	arch
• International E	<u>xpert</u> (1)	hase	• <u>N</u> ä	ational Expe	<u>ert</u> (1)	
1 1g. +5. KKI LA	perts Data	Juse				
RRI Experts D	atabase					
Submit A Listing	5					
1 - Category Selec	tion					
Expert type *						
International Expert						
Continue						

Fig. 46. Category selection before completing registration form



Expert Name *		
Short Description		
Long Description *		
Website Address		
URL:	Link Text (optional):	
Phone Number		
Fax Number		
Contact Email *		
Tags		
Continue		

Fig. 47. Registration form of RRI experts



RRI Experts Database

Submit A Listing	view Listings	Directory	Search Listings
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International Expert

Expert Name: Laura Monica GORGHIU

Expert type: International Expert

Short Description: Assoc. Professor, Vice-Rector of Valahia University



Long Description: Laura Monica GORGHIU is associate professor at the Faculty of Sciences and Arts, actually being the Vice-Rector of the Valahia

University. She has a great experience in the field of project management, educational management, ICT and European projects. She participated actively in International Projects (both Educational Programmes and Research Programmes) as member in the team, Local Coordinator and also as General Coordinator (she coordinated the project 118766-CP-1-2004-1-RO-COMENIUS-C21: "FISTE – A Future Way for In-Service Teacher Training Across Europe"). At present, she acts as local coordinator of the FP7 "ENGAGE - Equipping the Next Generation for Active Engagement in Science" project. She has gained great experience in creating and organizing specific frames for developing on-line courses dedicated to in-service teachers and specific training modules for introducing ICT in education, pedagogical use of ICT, e-learning / cooperative platforms, Teacher Training Course for in-service teachers in foreign languages, making analysis and linking with the primary and secondary educational environment.

Website Address: http://www.valahia.ro

Tags: UVT

Fig. 48. Listing of an international expert



6. CONCLUSIONS

The aim of this report was to present the ENGAGE online course platform and ENGAGE supporting tools by describing the key concepts, features, functionalities and tests performed with the adopted methodology.

This report also provides information with examples and illustrations that will be useful for pilot partners to use the platform successfully with enough references and information for guidance.

At the end this report also included a brief introduction of the ENGAGE tools in the process of development (learning analytics with real examples, but also the partnership brokering system), which will be described in details in the next updated version of this deliverable.

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