Equipping the Next Generation for Active Engagement in Science

DELIVERABLE D2.3 The Knowledge Hub Platform

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1. EXECUTIVE SUMMARY

This deliverable describes the ENGAGE Knowledge Hub Platform (D2.3) and introduces the Support web Tools (D2.4) considering that both platforms are interconnected and will be integrated. This work was developed by WP2 Knowledge Hub in collaboration to WP1 Framework.

This deliverable D2.3 focuses on the project website, the materials platform and Online Community. It also presents the virtual environment for the online courses as well as learning analytic tools to analyse the learning materials usage and Online Community Interactions. Both include the initial requirements analysis and first set of guidelines.

The work reported in this document was developed during Preparation Phase (January 2014 –August 2014), whose aims were to consider the ENGAGE framework, develop user scenarios, publish the first set of RRI material in knowledge hub with initial functionalities for the Online Community, which are all relevant actions for the deployment phase. During Deployment Phase (September 2014 – December 2016) the Knowledge Hub and Support Web Tools will be updated and new functionalities will be implemented for the next Phase. The ENGAGE CPD Programme will be completed and implemented through workshops and MOOC platform, which were already implemented and introduced in this deliverable. The knowledge Hub and Web Tools will be improved and completed during the Sustainability Phase (September 2014 – December 2016), whose aim is to monitor the input from our stakeholder groups and evaluation working package.

This report focuses on the first stage – preparation and presents the next steps for the following phase Deployment. It presents a global description of the platforms, functionalities, requirements and strategies which will be improved during the next phase Deployment. This work introduces the key aims and features of the Knowledge Hub and Web Tools platforms and work methodology. It takes into account the project's objectives, target audiences and ENGAGE CPD path based on three levels:

- A first stage, ADOPT, which achieves take-up on a massive scale. An online community of practice supports teacher reflection, while online courses and workshops add coaching and feedback.
- At the next stage, ADAPT, teachers learn an expert's toolkit of examples, explanations, anecdotes and activities to help students learn effectively.
- In the third step, TRANSFORM, open-ended Projects put teachers and students into partnership with practising scientists, to learn about RRI directly.

As part of our evaluation, we will monitor how efficient the Platform and Web Tools are based on the project targets and stakeholders' feedback. By way of illustration, we will use indicators such as website analytics (number of users, page views, material downloads, branding resources downloads, platform hits, Technical problems, User traffic, etc.

An updated version of this report will discuss the online course: ENGAGE MOOC with guidelines as well as examples of learning analytics tools through the deliverable D2.4 in Month 10. The partnership brokering system will be presented in the updated version of this document D2.3 in Month 18.

2. INTRODUCTION

2.1 Purpose of the ENGAGE Knowledge Hub

The ENGAGE Knowledge Hub (Engagingcience.eu) represents a multilingual environment within which several key-actions of the project will take place in order to propitiate an active online community.

The Knowledge Hub aims at providing a collection of tools for an efficient and effective communication among project's participants (from RRI to school teachers and students), besides being a space for the sharing of ideas, experiences and materials. According to such purposes the Knowledge Hub 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

The key features of the ENGAGE Knowledge Hub are:

- Focus on effective use of Materials: through multilingual OER platform with discussion forum on RRI pedagogies and knowledge around actual practice.
- Communication tools: interactive interfaces, such as forum, blogs, and web conferencing ('Flashmeeting' application).
- High quality resources: Materials, Articles from experts, Links to tools and online media (FB / TW/ YouTube/ Pintrest), which provide more to discuss.
- Co-Leadership: Learners, practitioners, experts and Mooc facilitators.
- Building Trust: CoP 'moderators', who are expert RRI teachers:
    - To communicate openly about their challenges, (novices can share their issues).
    - To welcome new members, and provide 'social presence' with a profile area.

In order to reach these goals the Knowledge Hub is focused on the following tools and activities:

- Platform: the aim of this key task is to establish and maintain a secure and trusted online environment for the ENGAGE Knowledge Hub.
- Project Website: the project website presents partner's information, deliverables files, papers, photos and videos. It includes also a consortium area for news and ongoing events created during phase 2 Deployment.
- Partnership Brokering: the partnership brokering system has the aim of supporting the schools in finding and select relevant 'RRI experts' and create scheduled mentoring partnerships (ref. Transform phase)
- MOOC & Video Library: it establishes the virtual learning environment (VLE) for delivering online Courses (MOOC - Massive Open Online Courses) for teachers
- Learning analytics: it aims to provide learning analytic tools for collecting data about students' opinions, values and knowledge before and after using ENGAGE curriculum resources, for formative and summative evaluation. This will be done by embedding quizzes and short surveys within the activities of the curriculum resources.

2.2 Development of the Knowledge Hub

The D2.3 Knowledge Hub Platform is then compounded by several 'elements' mainly usable through the project web site and platform(s), acting as access points for tools, materials and user-generated contents.

Since the project beginning, and especially during and after the kick off meeting (Milton Keynes - February 2014) and a WP2 partners meeting in Genoa (July 2014), the WP2 partners (ELS, OU, VUT) have worked in team – Face-to-face as well as through online discussion - towards the setting up of the online environment.

In particular, the WP2 partners have been focused especially on the first 2 tasks foreseen by WP2, such as: T2.1 the platform(s), T2.2 project web site. Partners have also start to work on task 2.4 MOOC, thanks to the collaboration between the Weizmann Institute (WP1 leader) and Lattanzio Learning (WP2 leader).

Partners have started to work also on WP2 tasks (T2.3 Partnership brokering and T2.5 Learning analytics), for which further development are foreseen in a short time.

The following section presents a description of the different components in order to provide a global overview of D2.3 Knowledge Hub Platform.

3. PLATFORMS for the Knowledge Hub and MOOC

In order to support and satisfy all different purposes of ENGAGE's goals and activities, the Knowledge Hub is based on different platforms.

- *WordPress (WP)* – the Word Press platform hosts the project web site (http://www.engagingscience.eu/).

  The web site, developed in collaboration with the OU, is hosted on Lattanzio Learning (LL) server. Several and different WP plugs in have been set up and developed by LL, now ready to be used according to the ENGAGE needs.

  In order to reach a wide public and achieve a significant impact of the project, the website and the ENGAGE materials is going to be translated in different languages. Therefore a multi-site is going to be developed by LL, thanks also to all partners collaboration which are providing the translation in nine languages, besides English (see § 3.3)

- *edX platform* – Lattanzio Learning (LL) has suggested the edX platform (https://www.edx.org) for the development and management of ENGAGE MOOC, agreed by the partners. In this regard LL has mapped the following urls for the training course environment: http://ENGAGE.exactls.com and http://studio.ENGAGE.exactls.com, .
  The selection process of the edX platform started immediately after the KO meeting (March-April 2014). In line with WP2 partners' indications, several platforms have been analysed and checked, according to the ENGAGE project expectations and needs: WordPress; Joomla!; Drupal; Moodle; BSCW; Coursera; Magento; Learn Dash; OpenMOOC; edX.

Among them edX (https://www.edx.org) has then been selected as the best MOOC player for the project. It is an open source platform, supported by the biggest USA universities and institutions (e.g. Google). In this regard the main Lattanzio Learning activities have been:

- install the edX platform on own servers including the player (LMS part) and the authoring tool (studio);
- mapping the urls "ENGAGE.exactls.com" and "studio.ENGAGE.exactls.com" (for training course environment) on such machine - see: http://ENGAGE.exactls.com; http://studio.ENGAGE.exactls.com
- create some end users profile, as students and teachers

- checking the integration of the login system of Wordpress and edX, users can then use the same user name and password.
- analyse plugins for WordPress concerning different purposes such as: multi-languages use, documents repository, integration with edx, and bbPress forums (figure 2)

At the moment, the Weizmann Institute (as WP1 leader) is working closely with LL for testing edX course interface. After the test phase, it is foreseen the integration between edX and WordPress platforms, along with a customization of edX according to the web site (e.g. colours, graphical aspects etc..). A fake page in WP will be created with the aim of showing participation data (e.g.: n. downloads, n. comments, n. posts etc…) and edX data (e.g. n. registered courses, role, status etc..). This information will be collected through platform for analytics Webaliser (Figure 3)

Figure 1 shows the edX Studio for managing the ENGAGE online courses.

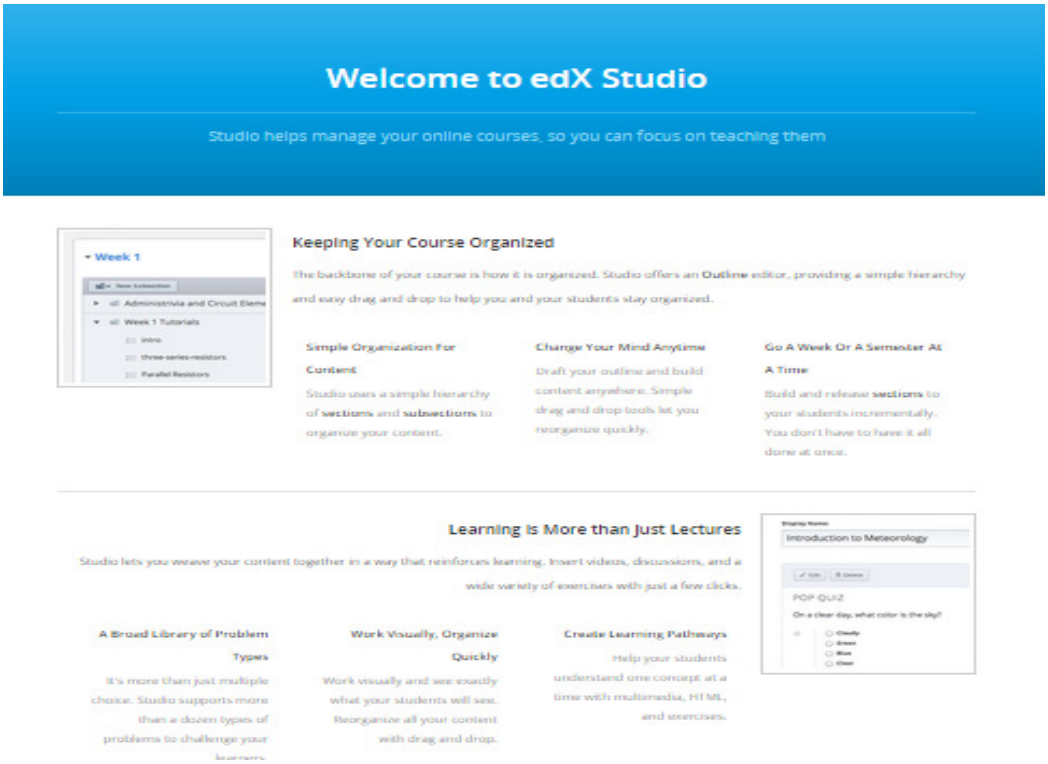


Figure 1: edX Studio for managing the ENGAGE online courses

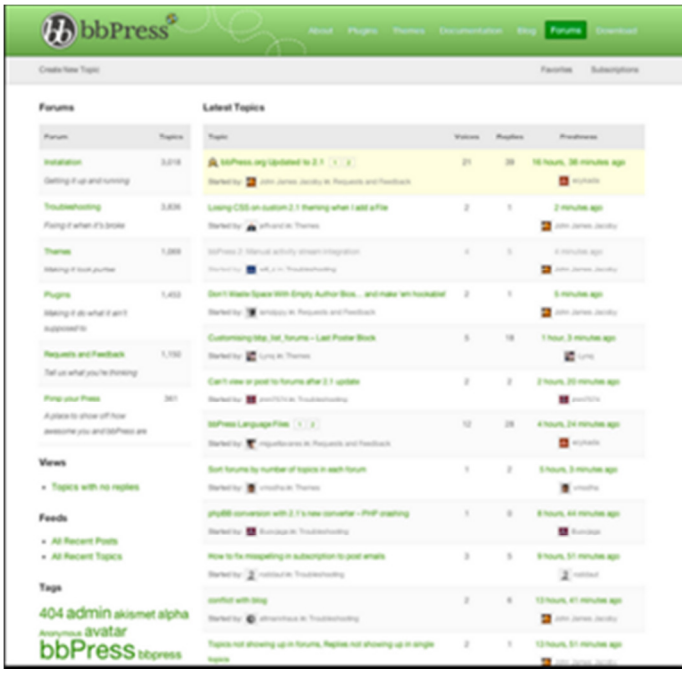


Figure 2: bbPRESS – discussion forum to be integrated to WordPress

A Real Example – Google Analytics, Webalizer and AWStats Visitor Numbers

For example, on 15th July, these two sites had the following stats.

Example Site 1 – Visitor Stats on 15th July 2011

Stats Package	Time Zone Used	Unique Visits Recorded
Webalizer	EST	56
AWStats	EST	32
Google Analytics	EST	18

Example Site 2 – Visitor Stats on 15th July 2011

Stats Package	Time Zone Used	Unique Visits Recorded
Webalizer	EST	821
AWStats	EST	576
Google Analytics	EST	249

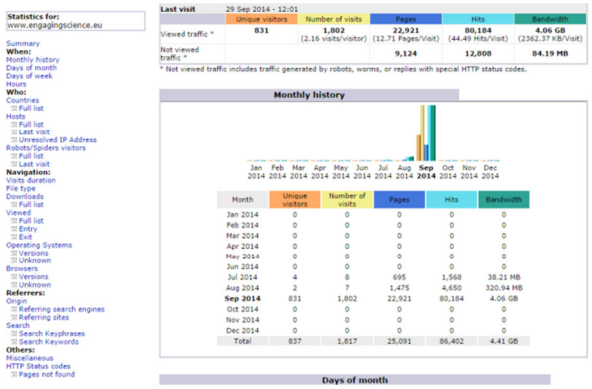


Figure 3: Webalizer Google analytics and AWStats

3.1 User Scenarios & Platforms requirements

Having developed the pilot website, we planned the Adopt stage website by creating a comprehensive set of *'User scenarios'* . The 'user scenarios' have been defined according to all the ENGAGE phases, such as: Adopt, Adapt and Transform. Having seen some difficulties in getting the necessary technical information, the scenarios became necessary - from a technical point of view- due to the several purposes of the Knowledge hub and then the related essential identification of all functionalities for the platforms.
Below the main user scenarios as already defined by SHU.

3.1.1. Background to the scenarios

There are 3 distinct stages for teacher progression in ENGAGE. We have constructed 2 user scenarios for each stage.
From these we identified the main functionality needed for the Knowledge Hub at each stage.
It is critical to remember that teachers have little time to spend looking for things. There are two principles for the Knowledge Hub design which will give teachers a positive experience:
Principle 1) Quick and easy access
To find what they want in the minimum time, with few clicks, and an intuitive interface.
Principle 2) Materials-centric
Materials are the main reason teachers will visit. All community features should be accessed from the Materials pages, not put in a separate part of the site.

3.1.2. Adopt user scenarios

Adopt is the first stage of teacher engagement - for casual users. At this stage they are not part of a community, they just access Materials and read FAQ content and user reviews.
Marie - the 'time-pressured 'teacher

- Profile: Marie is like 75% of ENGAGE science teachers, is looking for new curriculum materials which make difficult topics easier to teach, and engage her more reluctant students.

- Materials Scenario: Marie visits the website to search for particular topics, or when she receives the newsletter. She finds the search facility really useful since it is so easy to find resources that match the topic and level of difficulty her classes need and she can get ideas for future lessons.

- Community Scenario: Marie has very little time and usually just downloads the files and goes away, however she finds the reviews useful to see what others like and how they have used them. Marie does not read in-depth content but finds the just in time FAQ's really helpful - they are easy to click on from the materials pages and give quick useful advice on teaching strategies.

- Online course/ Workshop Scenario: Marie clicks on the course advert link on the website, thinks this is interesting and considers completing course in the future. The face to face workshops also look good. She thinks that both are worth mentioning to her line manager as potential cpd activities for performance management.

- Promotion Scenario: Marie clicks on the advert for Adapt and finds out about the benefits of Adapt and Transform. Wouldn't it be great to get real scientist involved with her classes! She checks out what she would need to do to progress and realises she only has to review the activities she has

already used and reflect on the impact on her pupils learning. This is easy to do using the online survey form, then she'll have access to more materials and 'free' cpd.

Lucas - 'keeno'

- Profile: Lucas, like 25% of ENGAGE science teachers, already tries to use socio-scientific issues to enliven his teaching, but thinks ENGAGE will offer more up-to-date, exciting materials. He wants to equip students to use science in their everyday lives more, but feels the syllabus is too crowded to allow time for teaching skills - maybe ENGAGE could help solve this problem?

- Materials Scenario: Lucas signed up on the website immediately, and downloaded everything. He has used a Material about once every half-term.

- Community Scenario: ('Just-in-time content') Lucas likes the layers of additional content called FAQ's, these are easy to access from the Materials pages and explain quickly how to use the 'teaching strategies' in the classroom and adapt them for different learners. He finds the reviews useful since they tell him what other teachers found useful and what 'works'. He rates other peoples reviews to say if they were helpful or not and adds his own reviews to help other teachers. Lucas has noticed that he often agrees with the comments from another ENGAGE member and can see from their profile that they are teaching in a similar school to him, he'll look out for his reviews in the future.

- Online course/ Workshop Scenario: Lucas is interested in finding out more about how to teach RRI skills, he clicks on the course advert link on the website to find out more about the online courses and workshops. The MOOC looks ideal as he can do it in his own time - he signs up using the online form and is automatically enrolled. Eventually he completes the course successfully and receives a certificate.

- Promotion Scenario: Lucas likes the 'teaser' Sequence Materials for Adapt, and wants to use them. Like 25% of the Adopt teachers, Lucas has reached the criterion for progression to the Adapt stage (use of 'Topical Materials' goes beyond casual use, and has a purposeful intention in the teacher's curriculum - Level 3). He checks out the benefits of Adapt and Transform stages and decides to go forward. He takes the online survey and submits it. Once this is assessed by ENGAGE staff, he is promoted to being an Adapt teacher. He is emailed a login to the ENGAGE community, and a certificate.

3.1.3. Knowledge Hub functionality needed for Adopt

Materials/'Just in time' Community content:
Essential: An FAQ area on the page in a prominent position (no scrolling), where we post questions/answers to help teachers use the Materials. The FAQs need to have URLs or some way to collect analytics data on page views for them.
Desirable: Rate a review as 'helpful' or 'not helpful', and reviews are displayed with most helpful at top.
Search: Essential: Ability to search for Materials by subject/topic/level of difficulty/time/ skill area etc) as well as basic text matching/synonym search. This should ideally respond to rating of materials and support tagging.
User roles/privileges
Users who register will be given the role 'Adopt', with privileges to download Materials and access Materials designated as 'Adopt Materials', but not those of later stages Adapt and Transform.
Profile page.

Each user has a profile page, which they can edit, to give their school, interests and a biography. The system records what users have done: how many Materials downloaded, which FAQ's they've viewed and how many reviews written, which are displayed on the profile page. (We need this to judge whether they can be 'promoted' to the next stage).

Courses:

Advertising boxes to promote: the face to face workshops, and the online course (MOOC), on each Materials page.

Promotion from Adopt to Adapt

Advertising boxes to promote 'Adapt' linking to a page about Adapt, and a link to an online survey which teachers will complete, to progress to next stage.

Ability for partner to change a user's role from 'Adopt' to 'Adapt' to have the privileges to access Materials from the next stage

Other tools we need (external to Knowledge Hub)

Survey tool - which sends an automatic email

Email auto responders - for partners to send to teachers

User analytics

Easy access to data, for ENGAGE partners to monitor Adopt progress towards targets - without having to learn a new software tool:

- no of teachers signed up (cumulative/during last month)
- no of Materials downloaded (cumulative/during last month)
- no of user reviews (cumulative/during last month)
- no of FAQ's viewed (cumulative/during last month)
- no of MOOC courses enrolled/completed (cumulative/during last month)
- dashboard of user data, with columns: name, school, number of downloads, number of reviews, which is sortable on these fields.

3.1.4. Adapt user scenarios

Adapt teacher are committed enough to 'apply' to be promoted to the 2nd stage . They have access to new, more sophisticated materials and our Community allows them to share ideas using forums.

Nils 'learner'

- Profile: Nils went to an Adopt Workshop and wants to teach students the skills for dealing socio-scientific issues, with the help of ENGAGE. He is in his 2nd year of teaching, he used the just in time content to help him understand more about teaching RRI principles and would now like support from more experienced teachers in the community to help him implement this pedagogy in the classroom..
- Materials Scenario: Nils uses part of our 'Curriculum' for teaching the 4 main skills for socio-scientific issues (Question, Analyse, Argue, Community) and uses the 'just in time' online cpd materials.
- Community Scenario: Nils wants help using pedagogical techniques and reassurance with ENGAGE material users. He finds advice from the RRI expert really helpful for pointing him in the right direction as he starts out. He thinks he may need to adapt the materials to use with his pupils and asks questions about this in the forum. He likes the way the community is structured so that he can find other users working on the same sequences of materials and can access the materials they have adapted for different audiences. Nils is interested in cpd opportunities as he wants to learn more and gain confidence. He clicks on the advert to see what is involved in the online course (MOOC) and is considering signing up over the summer holidays, it will improve his knowledge and understanding and might also help him with his performance review.

Emma - 'networker'

- Profile: Emma is comfortable using technology and social media, she frequently uses these in her teaching and participates in a teachers' online community already.
- Workshop/Course Scenario: Emma completed the online course (MOOC) when she signed up for the Adapt stage, she found it was well structured to fit in around her working life and helped her understand how to develop the materials to fit into her school curriculum . She found it very useful and is now sharing her expertise with others in her department and the community and advising others on how to gather evidence of the impact of RRI pedagogy on pupils learning.
- Materials Scenario: Emma integrates our 'Curriculum' for teaching the 4 main skills for socio-scientific issues (Question, Analyse, Argue, Community), throughout 11-16.
- Community Scenario: Emma has shared her experiences of implementing sequences within her school and answers questions from other users. She likes the way that she receives e-mailed notifications of the particular discussions she is following and updates on the latest new discussions. She has also uploaded the materials that she adapted for use with SEND pupils for the community to share and use in the Knowledge Hub. Emma has also been tagging and categorising the materials she has used to make it easier for others to find the ENGAGE materials that are most suitable for them.
- Promotion Scenario: Emma notices the information about the Transform projects that are advertised on the community/website. She is really enthusiastic about getting her pupils working with practising scientists and thinks this would be very good for her pupils and her school. She follows the links reads about the benefits of Transform, and decides to go ahead! Emma takes the 'Transform' test - which is a quiz/survey about her use of materials and her reflections on their impact on pupils learning in each of the five dimensions of RRI teaching . This is emailed to the ENGAGE team for approval and Emma is promoted to a 'Transform' user. As well as a certificate to celebrate her promotion, Emma is given access to the Transform project area and allows her to communicate with scientists directly.

3.1.5.Knowledge Hub functionality needed for Adapt

Note: this functionality is in addition to what is already on the website and in Adopt

Materials - Sequences

Essential: An area for promoting and searching for Sequence materials, this links to a series of Sequence pages (one per activity) where users download/review/rate the materials.

Only users with 'Adapt' privilege will be able to download 'Sequence' materials.

Community content and forums:

Only users with Adapt privileges have access rights to the content below.

Essential: Area to promote and link to free CPD content - detailed information articles/training materials on 4 RRI skills - each article will need its own page. These pages will need to have URLs or some way to collect analytics data on page views for them.

Forums:

Essential: Read/write access to forums for support and advice for each ENGAGE activity (for discussing implementation of lesson materials etc) - to appear below the download page for each Adopt material/Adapt sequence.

Desirable: Rate a review as 'helpful' or 'not helpful', and reviews are displayed with most helpful at top.

Communication with users and e-mail alerts:
Essential: e-mail alert functionality for new postings, upload of materials etc. and ability to sign up to receive alerts on specific discussions.

Desirable: in future we may want ability to have 'live' feedback via chat or live chat support/advice sessions

Tagging materials:
Essential: Include ability to tag materials (Adopt Materials and Adapt Sequences) for ease of search (level of difficulty/ topic area/ skill area etc) and to add time estimate.

Rating materials comments
Ability for users to read, add and rate reviews, ideally view reviews in order of highest rating (most useful).

Sand pit: area for community to upload adapted ENGAGE materials and comment on their use/implementation

Promotion from Adapt to Transform
Essential: Advertising boxes to promote 'Transform' linking to a page about Transform, and a link to an online survey which teachers will complete, to progress to next stage.

Desirable: Automated e-mail sent once user qualifies for promotion to next stage (tbd e.g. at least 1 sequence materials downloaded and used 2 posting in forum and access to course materials)

Ability for partner to change a user's role from 'Adapt' to 'Transform' to have the privileges to access Materials from the next stage

Courses:
Essential: adverts on website for online course and workshops,
Adapt quiz/survey - an online form that needs to be completed and accepted by ENGAGE team for user to progress to next stage. Should include questions on how many sequences used, reflective comments about their impact on students etc. if courses have been accessed, if ENGAGE materials have been shared with other colleagues (how many)… nab this info should be aggregated for reporting on evaluation criteria.

User analytics
Easy access to data, for ENGAGE partners to monitor Adapt progress towards targets - by observing the number of:
- teachers signed up to Adapt(cumulative/during last month)
- Sequences downloaded (cumulative/during last month)
- user reviews/ratings/tagging (cumulative/during last month)
- CPD articles viewed (cumulative/during last month)
- MOOC courses enrolled/completed (cumulative/during last month)
- user data, dashboard with columns: name, school, number of downloads, number of reviews, CPD viewed, which is sortable on these fields.

3.1.6. Transform user scenarios

Transform teachers are a small group, who can access our Projects and interact with scientists, or take leadership roles - moderating forums, and creating content for the site
Markus 'energised'

- Profile: Markus has been teaching for a number of years and has recovered his enthusiasm for teaching by participating in the ENGAGE community. He is keen to teach about more than just the knowledge outlined in his school curriculum and he wants his students to participate in 'real' science.
- Materials Scenario: Markus has been browsing the different Transform projects and found one that fits well with his school and curriculum. He has looked at the advice given about how to implement the projects in his school. He wants to 'spread the word' and disseminate ideas/train colleagues about how to teach RRI principles and is considering setting up an in school training day.
- Community Scenario: He signs up for a project and starts an email conversation with a scientist, they are planning a 'live' conference with his school department to discuss how to set up a structured project for Markus's students and ideas about what questions they might want to answer. When the projects are finished students will write up a case study of their project and upload this to the Knowledge Hub, to share with the Community. Markus is blogging about the progress of his schools project.

Lucia 'expert'

- Profile: Lucia is an experienced teacher who has already implemented ' the ENGAGE Curriculum' for teaching the 4 main skills for socio-scientific issues with her classrooms. She is active in the ENGAGE community sharing her experiences and materials and advising other teachers.
- Materials Scenario: Lucia has been browsing the different Transform projects, she found one that fits well with her school and curriculum. She is in contact with the scientist leading the project and the first students are embarking on their projects. She reports back on progress as each project is completed using the online survey (to include method for reporting back on competence in key RRI skills and information on dissemination of ENGAGE training to colleagues and HE institutions.
- Community Scenario: Lucia is interested in becoming an RRI expert and sharing her expertise, she reads about what is required on the website and can see that she qualifies and then submits an application form. The ENGAGE teams assess her experience and decide to recruit her. She's given a special role and becomes a 'Mentor' (Moderator) in the Community. She's given briefing/training for the role which involves responding to posts, moderating and getting more teachers to join in discussions.

3.1.7. Transform functionality

As for Adapt and in addition:
Materials: Transform project area to give details of available projects, the scientists participating and ability to download materials. It also provides access to advice on how to organise project and how to report back.
Community: Specific area for contacting and communicating with scientists taking part in project (e-mail) and access to virtual classroom or video conferencing functionality for conducting meetings with users, students and scientists (and possibly webinars/training) forums for sharing ideas/uploading/downloading user generated materials.
Knowledge Hub: Area for sharing ideas about implementing research projects (possibly a blog) and sharing products of research project i.e. upload/download materials - add comments/possibly use

forum... (could be shared with area for uploading adapted materials but with different permissions for this content?)

3.1.8. Community managers (ENGAGE team)

WP4-6 Monitoring Scenario

- Support/manage permissions to access and download materials (n.b. distribution of logins to Adopt is automated but Adapt and transform need to be updated once user reaches required level of competence)
- Reports back regularly on Site usage: Total Visits (both: unique users? or just page views?), Page Views, Average Time per Visit, Comments Posted, Submissions, and Files Uploaded.
- Reports back regularly on User activity, broken down by materials downloaded, forum comments/posts, # and type of Courses Accessed, Total Time spent in any course area (Days:Hours:Minutes), workshop applications/attendance, MOOC applications

Moderating Community Scenario

- Writes/translates an article on the pedagogy of Adopt Materials, and publishes this on the relevant Materials webpage.
- Starting and seeding discussion threads
- Managing the discussions to make it easy for users to find their way to relevant topics, (adding tags etc could be useful)
- Reviewing discussion posts - flagging/highlighting good/useful posts, adding motivating feedback where appropriate
- In the long term it is envisaged the RRI experts will take over moderation duties and be given responsibility for moderating a specific area (e.g. subject or set of materials) n.b. are there implications for permissions?

- Promoting membership level Scenario
  - An admin screen to show all users, membership level (Adopt, Adapt, Transform) and points awarded, with ability to change membership level manually and filter for name, membership level and sorting by points.
  - Ability to review online forms (Quizzes/surveys) for progression to progress to tests, and applications for RRI expert teacher to accept/reject - n.b. require e-mail alert once form is submitted and ability to send acceptance e-mail to user once form is approved.
  - tbd manual update of membership level via admin area?
  - assignment of badges for contributions

- Administrating users Scenario
  - deal with login/technical problems
  - answers queries from scientists and teachers engaged in transform projects

3.1.9. Materials managers (ENGAGE team)

- Translating Materials Scenario
  - Organises translation of Adopt/Adapt Materials and associated web page content, uploads, categorises, and publishes on the portal

  Checks the reviews posted on the site daily, removing any inappropriate ones and flagging good postings.
- Adapting materials Scenario
  - Moderates uploaded adapted materials submitted by community in Adapt and Transform - removes any inappropriate or low quality ones (and contacts those involved)
- Supporting Transform projects scenario
  - Promotes Liaising between Scientists and schools where appropriate
  - Provides support content for teachers on how to implement a Transform project and advice on how to train colleagues
  - Support web conferences between schools and scientists

3.2 Pilot website - http://www.engagingscience.eu/

Development began in WP1 Framework stage with a pilot website to enable the dissemination of Materials for the 4 pilot countries. We devised a basic specification for the website, which was to be built upon for the WP4 Adopt phase. The website had the following functionality:

- home page, attractive few line summaries and images for up to 8 Materials
- click to access individual Material pages giving more details,
- create an account very quickly, which allows teacher to download Materials
- download the PowerPoint files with another click
- contribute by adding a review /comments

Below specific indications about the main technical aspects of the website

3.2.1. Structure of the site

The web site is built using WordPress Multi User (WPMU) in order to have a single installation and many sub-sites one for each language.

The Main page – www.engagingscience.eu (figure 4) is the entry point of the site where all the active sub-sites are listed.

Figure 4. ENGAGE website main page

It uses a theme similar but different from the sub-sites, in order to hide unnecessary parts (such as the top menu).

Each sub-site is structured in the same way of the others, in order to maintain the same navigation paradigm: the site must give to the teacher (the user) the fastest way to find and download useful materials.

All teacher-related materials are available for all registered users.

The first page for each sub-site gives to the teacher the list of the materials available (figure 5), this list is created automatically by WP collecting all the “Blog posts” created by the authors and included in the category ‘Resources’

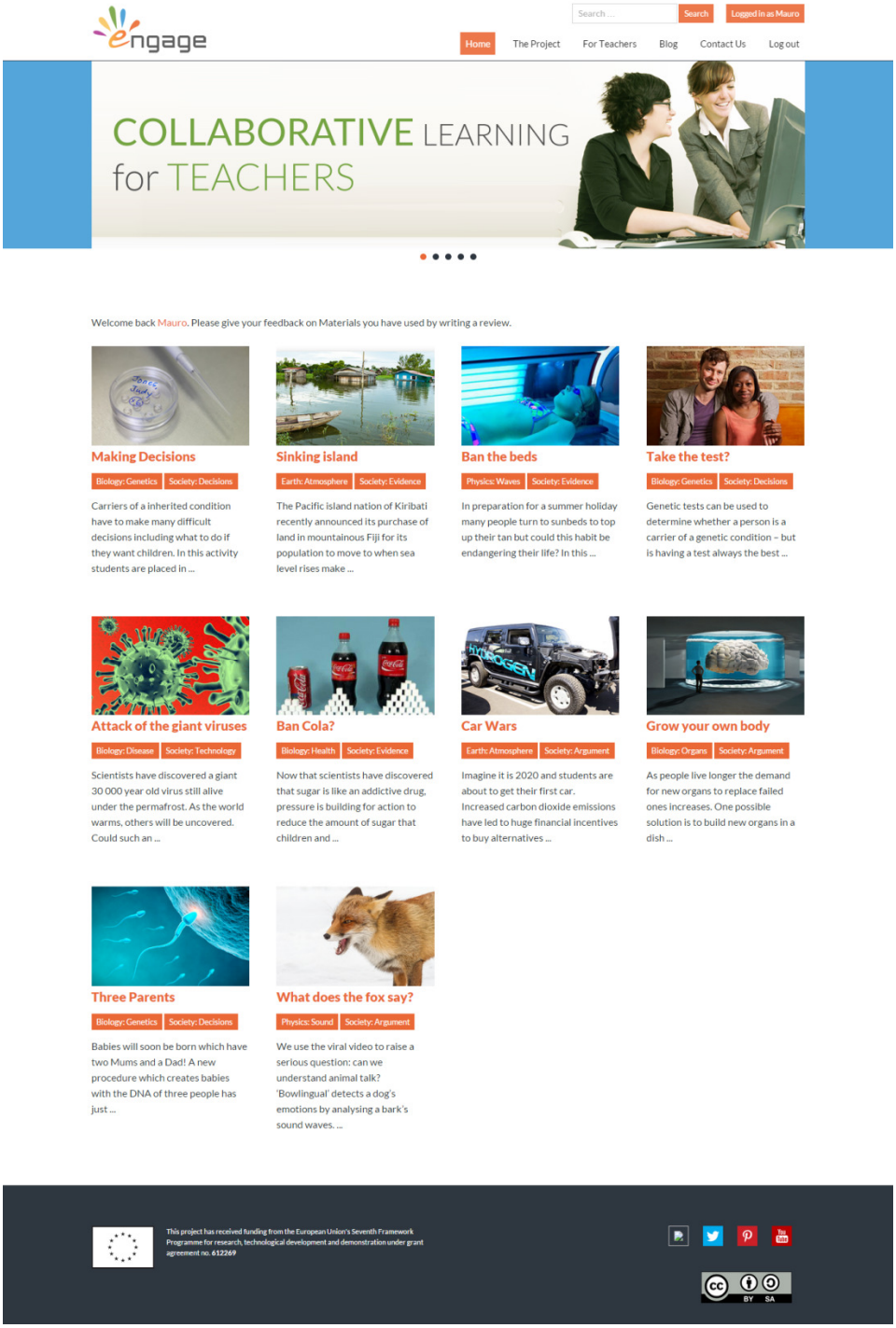


Figure 5. Teaching materials website section

In order to be effective each material is described by different sections:

- Title
- Tags
- Overview
- Learning objectives
- Try the activity (download material section)
- Curriculum link
- Running the activity
- Weblinks
- Comments

For instance the post “SINKING ISLAND?” is presented as below (figure 6):

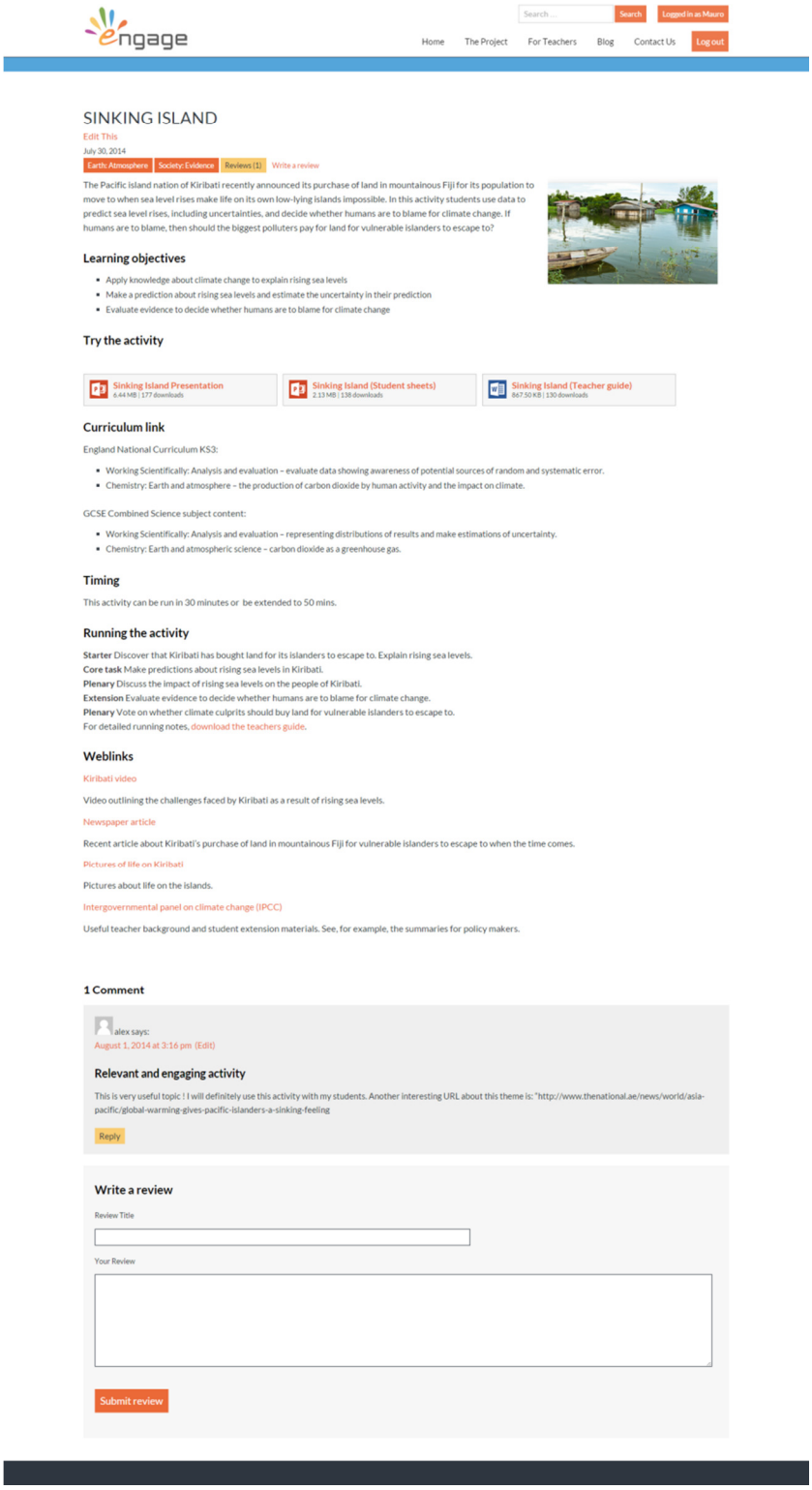


Figure 6. Teaching material “SINKING ISLAND?” in English

The site contains also other contents than the teacher materials:

- Press kit
- Public Project Documents
- Partners
- News
- Contact form

All these contents are accessible via the top menu.

3.3. ENGAGE Multi-Site

As mentioned above, a multi-site in different languages is under development by LL thanks also to all partners collaboration which are providing the translation in the nine partners languages indicated below, besides English: fr, de, ro, il, no, es, lt, el, nl.
The multilingual web site is considered as extremely important in order to ensure a wide diffusion of the ENGAGE materials and a significant impact in all partners' countries, with the real involvement of RRI, school teachers and the students.

ENGAGE web site has now the following translations:

Table 1.URLs of ENGAGE website versions in different languages

English	http://www.engagingscience.eu/en/
Lithuanian	http://www.engagingscience.eu/lt/
Greek (Cyprus)	http://www.engagingscience.eu/cy/
Romanian	http://www.engagingscience.eu/ro
Hebrew	http://www.engagingscience.eu/he/

The other translations will be provided soon (October 2014). In order to ensure a correct and effective use of translated materials, LL has requested a 'Sub-Site administrator 'from each partner who can guarantee a constant monitoring and updating of language aspects during all project lifetime.

The site uses WordPress Multi User in order to have a language per site, and all sites are managed via the "Network Administration Interface".

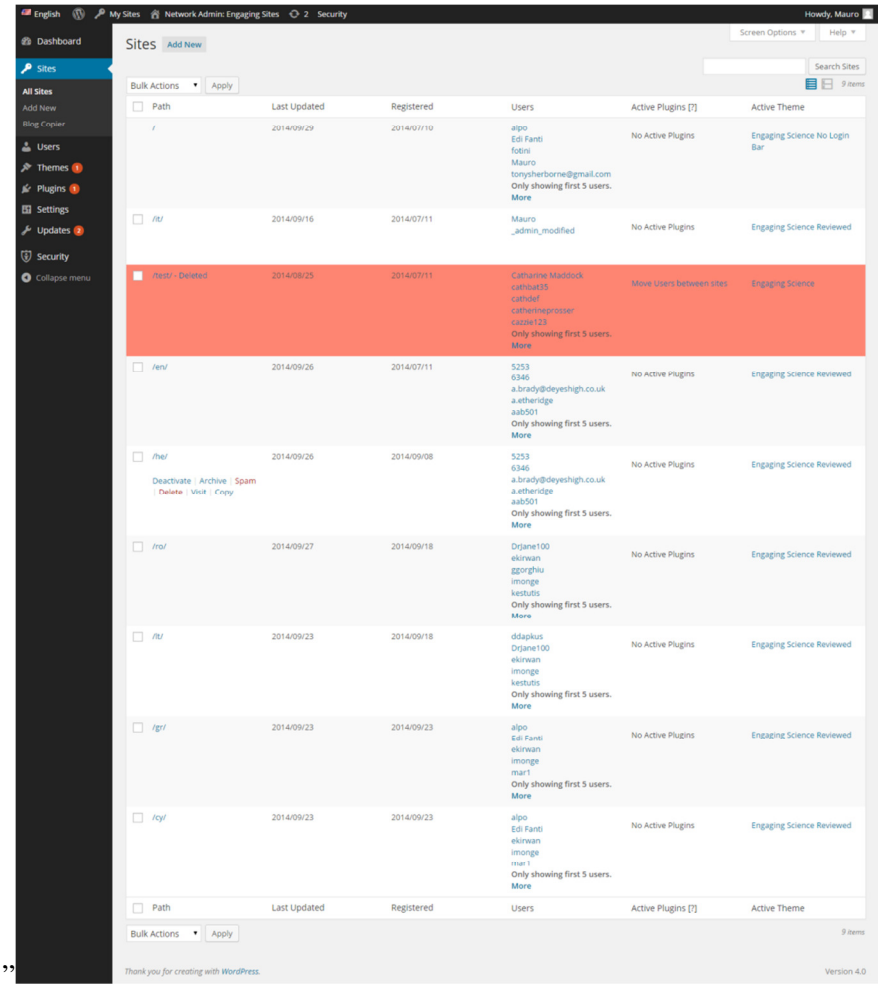


Figure 7. Multisite status overview

As the screenshot shows (figure 7), from that interface is possible to see an overview of all the sites, the state, a bunch of users, site-related plugins and the current theme.

From that interface, it is possible also to add, remove, deactivate/activate, copy and delete each sub-site.

The language for each sub-site depends on:

1. WP translation files:
   all the standard strings in WP (such as “login”, “logout”, “review”) are handled by a WP language file.
   A good number of translation files are available from the WP main site. Languages without this translation file will maintain English as main language, but the resources and materials will be translated to the native language.
2. Theme translation file:
   the ENGAGE theme is built to allow the use of translation files, so that all the sub-sites can use the same theme but the text will be different for each language.
   Menu, Posts, Pages and Materials: These part will be translated manually by each partner coordinate by an sub-site administrator, being set up by LL who has requested a ‘language administrator’ from each partner in order to ensure a constant monitoring and updating of language aspects during all project lifetime.

3.4. WP Plugins

The power of WP is the possibility to add functionality to any level to the site in a very simple way.

To manage all the functions required by the project, a set of plugins have been introduced:

- Blog Copier:
  Enables super users to copy existing sub blogs to new sub blogs.
- Contact Form 7:
  A very customizable contact form plugin.
- Download Manager:
  Manage, Protect and Track File Downloads (useful for statistic on materials download)
- ELS Short codes:
  Allows the possibility to show the username of the current user in a page by using the [elsutils currentuser="username"] shortcode.
- ELS Users Statistics:
  Adds a new item to the administrator menu in order to see an overview of the statistic of the site.
- List category posts:
  Allows to list posts by category in a post/page using the [catlist] shortcode.
- Restrict Content:
  Allows to easily restrict complete or part posts / pages to logged in users only.
- Signup Page CSS:
  This plugin adds the styles to the signup page for a WPMU installation in order to be conformant to the ENGAGE theme.

- WP Native Dashboard:
  It can set the language sub-site administration page independently by the sub-site language.

3.5. WP (ENGAGE) Roles

List of roles currently available on WP and their involvement in the ENGAGE portal:

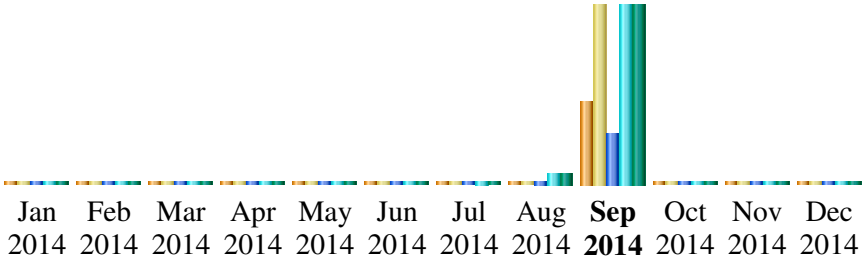
- Network administrator
  is the administrator of the entire site, responsible to add/remove sub-sites, install new languages, modify themes, add/remove plugins
- Sub-Site administrator
  is the administrator of the sub-site, responsible to manage sub-site translations, approve/reject comments, manage users.
- Editor
  helps the administrator to handle users, posts and comments;
- Author
  add/edit/publish new posts
- Contributor
  edit/delete own posts
- Subscriber
  reads contents

The roles listed above ensure an effective and efficient use of the ENGAGE, thanks to the complementarities of their competences and tasks, all of them necessary in order to guarantee a proper and correct use and monitoring of the platforms and ENGAGE multi-site for all project lifetime and beyond.

3.6. Website statistics

Below some **Website statistics** since September 2014 (when the website was moved into LL server)

Monthly history

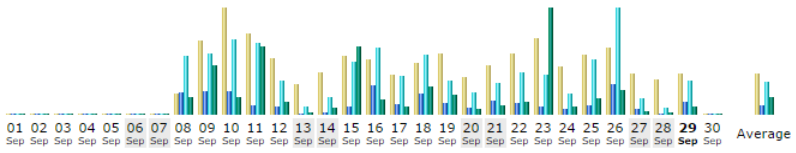


Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2014	0	0	0	0	0
Feb 2014	0	0	0	0	0

Mar 2014	0	0	0	0	0
Apr 2014	0	0	0	0	0
May 2014	0	0	0	0	0
Jun 2014	0	0	0	0	0
Jul 2014	4	8	695	1,568	38.21 MB
Aug 2014	2	7	1,475	4,650	320.94 MB
Sep 2014	837	1,826	23,256	81,463	4.09 GB
Oct 2014	0	0	0	0	0
Nov 2014	0	0	0	0	0
Dec 2014	0	0	0	0	0
Total	843	1,841	25,426	87,681	4.44 GB

Figure 8. Website statistics - monthly history

Days of month



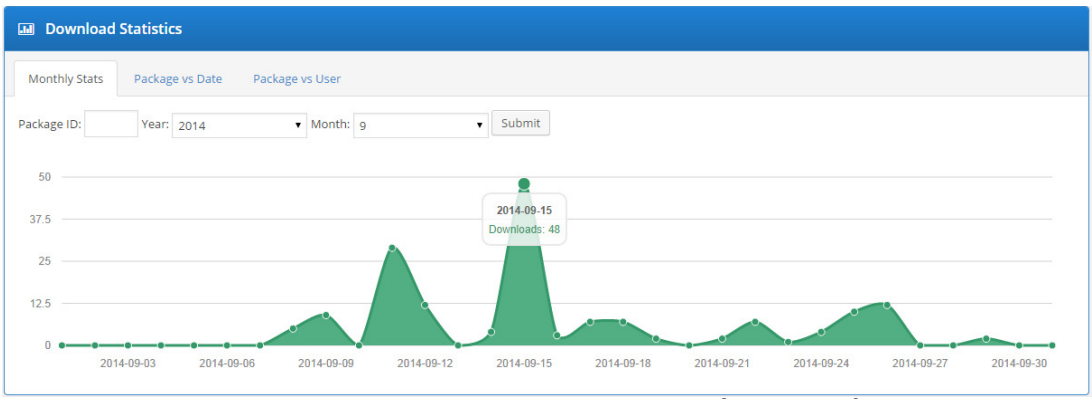
Day	Number of visits	Pages	Hits	Bandwidth
01 Sep 2014	0	0	0	0
02 Sep 2014	0	0	0	0
03 Sep 2014	0	0	1	0
04 Sep 2014	0	0	0	0
05 Sep 2014	0	0	0	0
06 Sep 2014	0	0	0	0
07 Sep 2014	0	0	0	0
08 Sep 2014	31	1,917	5,006	147.08 MB
09 Sep 2014	113	1,966	5,183	412.03 MB
10 Sep 2014	163	2,018	6,479	142.22 MB
11 Sep 2014	124	808	6,155	568.26 MB
12 Sep 2014	86	626	2,850	100.19 MB
13 Sep 2014	47	66	614	17.29 MB
14 Sep 2014	65	176	1,458	54.09 MB
15 Sep 2014	90	705	4,559	562.17 MB
16 Sep 2014	84	2,492	5,768	126.35 MB
17 Sep 2014	60	887	3,260	66.89 MB
18 Sep 2014	78	1,812	5,072	228.38 MB
19 Sep 2014	94	951	2,940	160.41 MB
20 Sep 2014	57	555	1,841	43.75 MB

21 Sep 2014	76	1,193	2,704	72.42 MB
22 Sep 2014	94	922	3,640	105.38 MB
23 Sep 2014	117	697	3,443	885.47 MB
24 Sep 2014	73	427	1,778	60.74 MB
25 Sep 2014	92	762	4,765	127.90 MB
26 Sep 2014	103	2,600	9,129	203.82 MB
27 Sep 2014	63	474	1,333	23.75 MB
28 Sep 2014	54	97	566	17.43 MB
29 Sep 2014	62	1,105	2,919	60.07 MB
30 Sep 2014	0	0	0	0
Average	62	801	2,809	144.35 MB
Total	1,826	23,256	81,463	4.09 GB

Figure 9. Website statistics - days of month

Visits duration		
Number of visits: 1,826 - Average: 337 s	Number of visits	Percent
0s-30s	1,338	73.2 %
30s-2mn	127	6.9 %
2mn-5mn	77	4.2 %
5mn-15mn	85	4.6 %
15mn-30mn	46	2.5 %
30mn-1h	71	3.8 %
1h+	73	3.9 %
Unknown	9	0.4 %

Figure 10. Website statistics - visits duration



In September 2014, 3 weeks (from the 8th to the 29th)

Figure 11. Download statistics per month

In 6 weeks:
8,500 Materials downloaded
1500 teachers registered

More information will be provided through other statistics such as Google analytics, which has started to work a short time ago.

Month	Unique visitors	Page views	Ave. session duration
June	3, 613	19,456	3 min 24 s
July (projection)	4, 640	26,792	3 min 55 s

Figure 12. Website visitors in June and July 2014

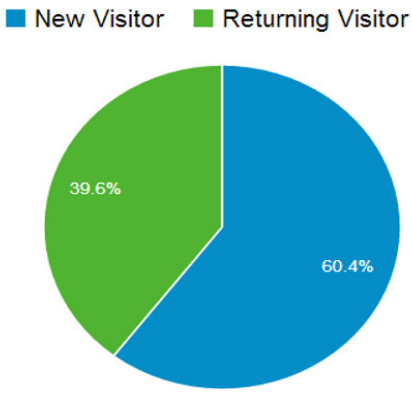


Figure 13. New visitors versus returning visitors

3.7. Learning Analytics

Recent trends in knowledge modelling and representation illustrated that modern computing technique (like: semantic web, data mining, analytics tools etc.) constituted a solid base for knowledge development and analysis. Those kinds of applications can be integrated in learning environments (dedicated for formal education, work-place learning, non-formal education), but also can add real value to social and/or networked learning.

In the actual existed configurations, the learning analytics tools offer a measure of integration of technical, social and pedagogical sides. According to the general accepted definition, learning analytics represents "the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs." (https://tekri.athabascau.ca/analytics/) At the same time, learning analytics is "the use of intelligent data, learner-produced data, and analysis models to discover information and social connections for predicting

and advising people's learning." (http://eyeviewkamloops.wordpress.com/tag/thompson-rivers-university/)

In general, learning analytics are used for prediction purposes, personalization and adaptation, intervention and information visualization. Several software applications 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 this respect, the learning analytics tools proposed to be developed in the frame of the project are framed as extensions of the Knowledge HUB Platform functionalities, using different plug-ins, have been taken into consideration. In this sense, learning analytics tools, as plug-ins for creating quizzes / questionnaires (e.g. Wordpress Simple Survey Extended – plug-in) – represent feasible solutions. More, statistical data based on web-server logs can be retrieved using external software (Webalizer, AWStats).

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.

As learning analytics tools, qualitative and quantitative analysis are considered to be taken into account. In this regard, the following kind of data will be gathered from the learners/users:

- Qualitative:
  - web questionnaire or quizzes for formative and summative evaluation, available in Wordpress (erg. Wordpress Simple Survey) and through EDX tools (when necessary, suitable for formative evaluation).
  - 2 sets of data: course participant's evaluation, and ENGAGE platform evaluation by the course participants.
- Quantitative:
  - Usage statistics of ENGAGE web tools.
  - External software will be used.

In relation to the Quantitative aspects, LL and VUT are considering to develop tools that answer to project aims:

- Google Analytics (Google Analytics for WordPress plugin);
- AWStats;
- (WP plugin) Download monitor stats;
- (WP plugin) User statistics.

Concerning the "User analytics" for the Adopt phase of the "ENGAGE community user scenarios", LL has installed AWStats and Google analytics.

AWStats (http://www.awstats.org/):
AWStats is a free powerful and featureful tool that generates advanced web, streaming, ftp or mail server statistics, graphically. It is used for learning analysis. As a log analyser it shows all the possible information

that the server log contains, in few graphical web pages. It uses a partial information file to be able to process large log files, often and quickly. It can analyze log files from all major server tools.

Google Analytics: In collaboration with AWStats it gives analysis and statistic tools to improve the learning analytics.
Some screenshots are illustrated in figure 14.

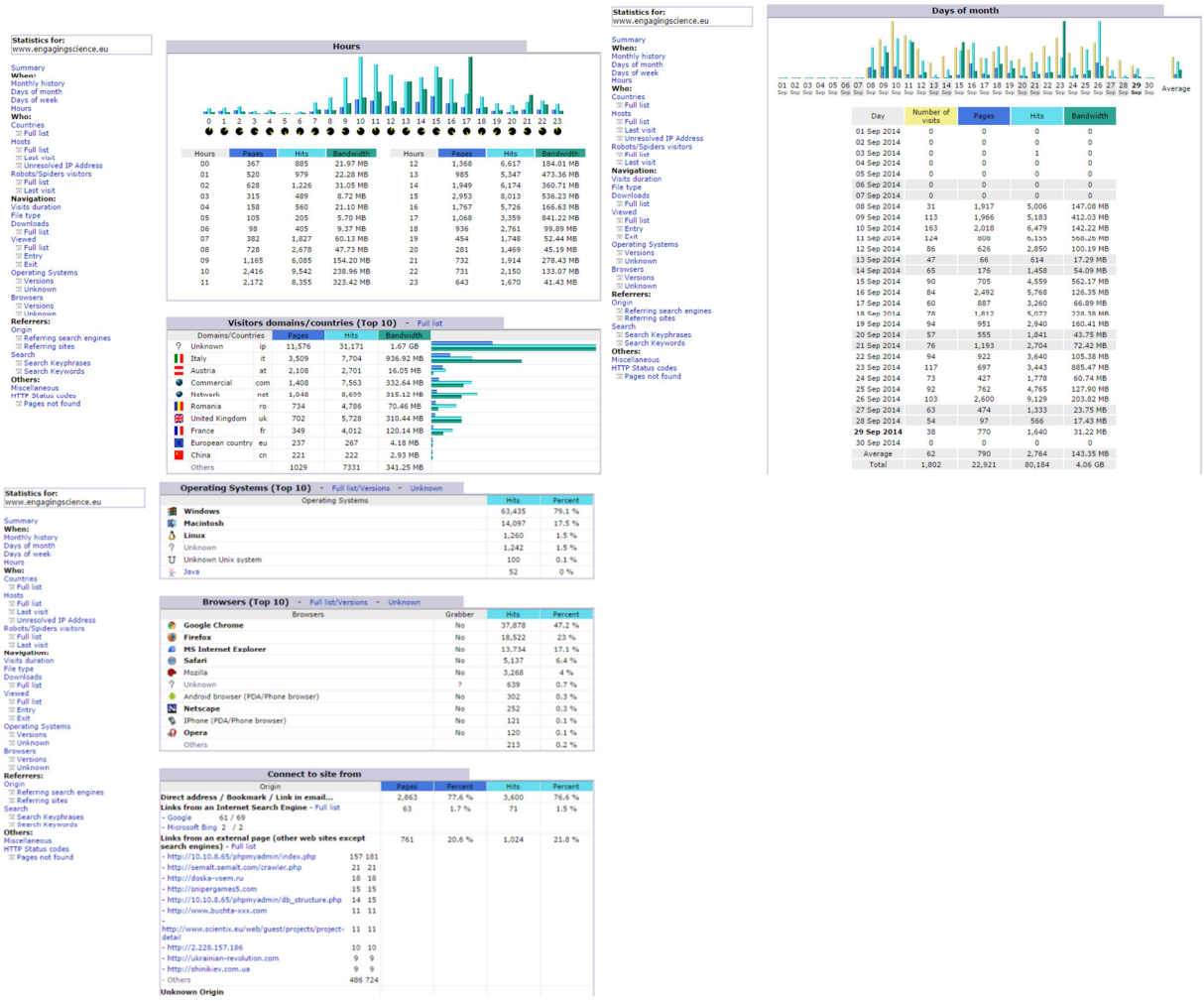


Figure 14. *AWStats* screenshots

Moreover for a wide overview, LL is implementing a simple plugin for WP to show some statistics in a page.

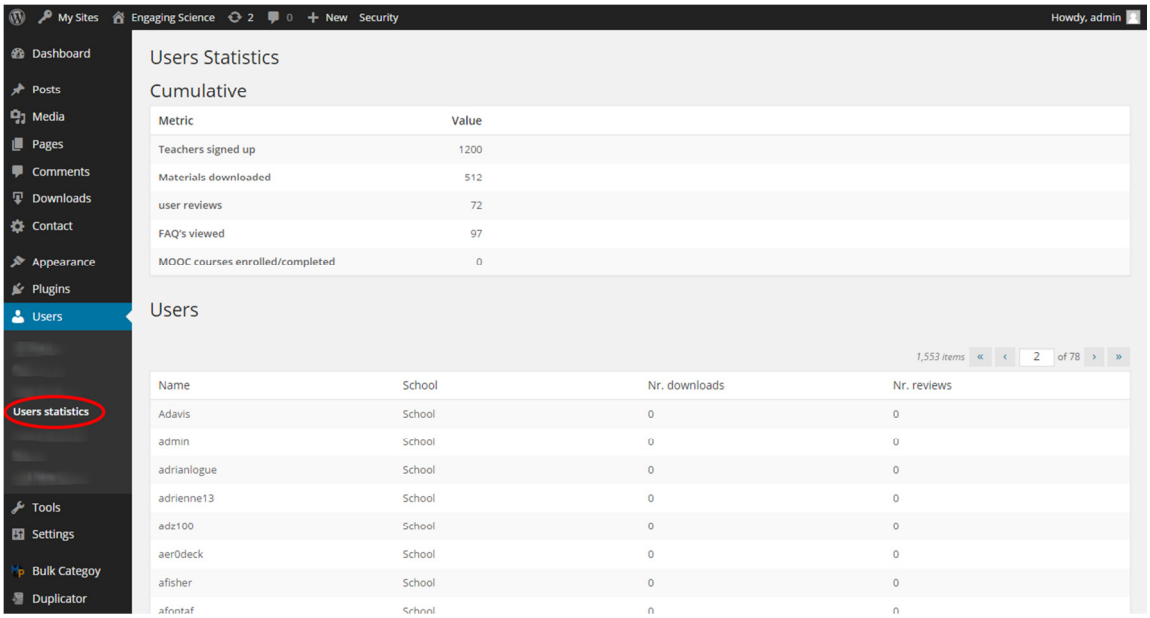


Figure 15. User statistics in *Wordpress*

3.8. Partnership brokering

The partnership brokering system represents an instrument - seen as an intermediate facility - that enables the educational actors to work well together and to ensure the maximum effectiveness of their collaboration / partnership.

In the frame of ENGAGE project, 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.

At this moment, proposals for implementing the partnership brokering system have been discussed around a specific Wordpress plug-in: Wordpress Business Directory Plugin.

3.9. Video Library

Concerning ENGAGE video library, during the Genoa meeting - partners decided to avoid the use of YouTube. Once produced, the videos will be uploaded manually on the platform and a WP plugin will be used for their visualization.

In a first phase it was foreseen the production of 5-4 short videos (3-4 minutes each) by partners who are managing the pilots within December 2014. However the timescale was not feasible for approvals to film in schools. Therefore 11 +4 videos (1 for each ENGAGE 'testing country' + additional to order) will be produced by the partners in their own language and for translation as required.

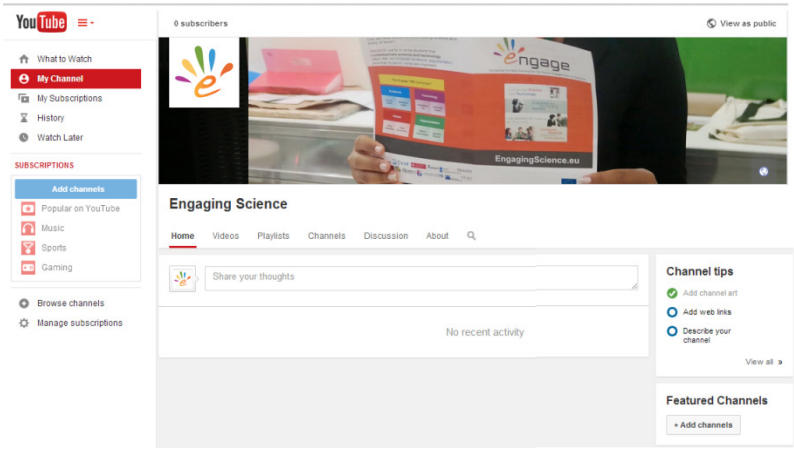


Figure 16. ENGAGE YOUTUBE

3.10. Community of Practice (CoP)

The CoP has already started during this current deployment phase of the project in the UK. As soon as the multilingual Knowledge Hub is completed the CoP will expand in other countries. Some main issues have been pointed out by the partners, such as:

- CoP foresees collaboration between less experience and more experience teachers, besides RRI experts and schools

- CoP includes the definition of a menu structure with categories, besides the possibility of integrating additional contents of modified materials

- CoP comprises forums

RRI mentors – CoP will foresee the design of a training package and feedback forms ready to download for 'transform' teachers in RRI mentors

4. REFERENCES

1st International Conference on Learning Analytics & Knowledge (LAK 2011), https://tekri.athabascau.ca/analytics/. Retrieved 29 September 2014.

Thompson Rivers University - Digital Surveillance in Education, http://eyeviewkamloops.wordpress.com/tag/thompson-rivers-university/. Retrieved 29 September 2014.