



Mobilizing Opportunities in Vocational Education with Innovative Technologies

ref. no. UK/12/LLP-LdV-TOI-520

*Insert your logo
here*

*Framework for a Virtual Learner
Network*

Work Package 5

CESGA

1. Aims and Objectives of Virtual Learner Support Platform

To identify a solution for communication with learners and between learners to create a virtual learner network and improved mechanism for supporting learners in the workplace:

- Demonstration by the Supercomputing Centre of the virtual support platform used in YES project and of existing learner support used by partner organisation
- Analysis and proposal of different solutions. Identify a solution that can be flexible, sustainable in the future that can adjust to partner needs
- Build a flexible and appropriate virtual learner network framework for peer support and tutor support Testing with a small group of learners in each country
- Final solution for use in the piloting phase
- Facilitate collaborative learning and peer support

2. Original scenario

Since the beginning of the project, CESGA wanted to deliver a flexible tool that could provide a stable framework for learning and also a communication platform between students and teachers, to share knowledge, experiences and materials and to interact with people, like a social network does.

In order to build this, we searched for possible existing solutions and platforms and before we identified a couple of options. We took a more in-depth look at Moodle and realized that this tool was oriented to facilitate learning but had no social features. A decision was made to create a Moodle VLE with a tool, more oriented to interact socially like Elgg. This new VLE is published by CESGA as an Open Source plugin for Moodle, with GPL v3 licensing.

3. Reasons for choosing ELGG

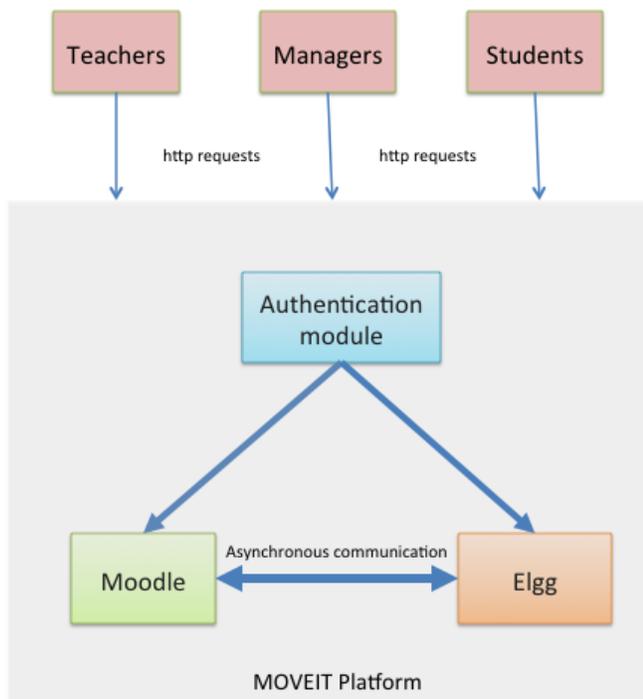
A considerable amount of time was invested in searching for a suitable package of software that could be integrated with Moodle, provide mainstream functionalities of a Social Network and allowed acces to the code so that it could be extensively modified. Elgg as an Open Source suite, fully documented with a strong community provided us with the right framework to build the MOVEIT portal/platform. Movim, EasySocial and Noosfero were also considered and although they are interesting projects they were not in the shape and maturity that was needed.

Elgg provides Moodle with a set of features that were not available until now in any VLE. Moreover, the reason why CESGA chose Elgg instead of Facebook is that Facebook is a third-party service provided “as is” with no learning environment and tools. Due to the nature of the project, linked to Education and Technologies, Facebook doesn’t have any of the functionalities required by a web-based e-learning education system that models conventional in-person education by providing equivalent virtual access to classes, class content, tests, homework, grades, assessments, and other external resources. Also, Moodle does only have chat and messaging capabilities, and the academic world and Moodle users are demanding more advanced functionalities and Social Network integration (with Facebook, Twitter, Google plus etc etc).

That’s why CESGA decided to use Elgg and integrate it seamlessly with Moodle creating a unique VLE platform with Social Network feature-rich. Also Facebook is a 3rd party provider and this could generate some privacy issues because all the data would be hosted in the Facebook servers. With the MoveIT platform, social and learning data is gathered and stored securely in the same platform.

4. The MOVE IT VLE Platform with Integrated ELGG: Architecture overview

CESGA created a Moodle Platform for the MOVE IT project that would enable partners to create courses, assess and grade students work and include social networking tools.



As depicted in the above figure, there are 3 main elements in the MOVEIT platform. The first one and most important is the Authentication module. It supports single-side auth in both Moodle and Elgg and also manages the users of the platform transparently. We designed and coded this element in the form of a plugin, so that it could connect with any Moodle and Elgg installation.

In order to get the most of the platform, some features of Moodle were deactivated and redirected to the new ones, provided by Elgg (like post updates, groups, friends, etc). All this info share the same layout (seamless integration), in which one student could select the courses he's enrolled in, post an update in his "wire" (similar to Facebook's Wall) or chat with a friend from another course or school, to give an example.

Both modules (Moodle and Elgg) exchange information asynchronously, in order to update the status of notifications, messages and posts. When an event occurs Elgg send a message (via an event) to Moodle with all the updates.

From a technical point of view, Elgg provides a set of interesting features like:

- Templating engine
- Widgets framework
- Plugin APIs
- Social graph
- Web services API
- jQuery-based JS framework
- Session management
- Custom URL routing

Most of these are deactivated like the widget framework or Social graph because the platform isn't using them, but we left open the possibility of using them, if needed for new features.

In order to extend Elgg functionalities, using plugins are strongly encouraged, which makes for a more stable system that also has visible benefits for the end user. Content created by different plugins can be mixed together in consistent ways, which are programmed using generic principles, in other words, plugins are faster to develop, and are at the same time much more powerful.

In Elgg, everything runs on a unified data model, based on atomic units of data called entities.

ElggEntity is the base class for the Elgg data model and this entity is used extensively within Moodle. The benefit of such an approach is that, apart from modelling data with greater ease, a common set of functions is available to handle objects, regardless of their (sub)type.

As explained before, Elgg has an event system (asynchronous communication) that are used to replace or extend core functionality.

Plugins influence the system by creating handlers (callable such as functions and methods) and registering them to handle two types of events: Elgg Events and Plugin Hooks.

When an event is triggered, a set of handlers is assembled in order of priority, then each is executed. Each handler is passed arguments and has a chance to influence the process. Finally the “trigger” function returns a value based on the behavior of the handlers.

Plugin Hooks provide a way for plugins to collaboratively determine or alter a value. E.g. this could be to set a configuration array or to decide whether a user has permission to edit an entity.

There are a few big differences between Elgg Events and Plugin Hooks:

1. Most Elgg events can be cancelled; unless the event is an “after” event, a handler that returns *false* can cancel the event, and no more handlers are called.
2. Plugin hooks cannot be cancelled; all handlers are always called.
3. Plugin hooks pass an arbitrary value through the handlers, giving each a chance to alter along the way.

Both Moodle and Elgg use [AMD \(Asynchronous Module Definition\)](#). The size of JS on the web is growing quickly, and JS in Elgg and Moodle is growing too. It is desirable to be able to offer a solution that makes JS development as productive and maintainable as possible going forward.

Choosing AMD has provided some benefits to the platform sustainability like simplified dependency management and that AMD works in all browsers.

5. Platform functional features

The best way to describe the platform features is creating a couple of manuals for both teacher and user.

All the menu elements of the platform are described in-deph in the user and teacher manuals, published at <http://moveit.cesga.es/moodle/xxxxxxx> and also in the project website.

Also a set of screencasts describing the main elements of the social module (Elgg), how to create a gradebook for students ... and other general activities focused on a day-to-day basis use of the platform have been published at:

<http://moveit.cesga.es/moodle/mod/resource/view.php?id=128>

These screencasts are interesting complements to the manuals, because they provide a visual feedback on a set of typical activities developed by students, teachers and administrators.

6. Benefits for the Learners

The main benefit of the platform is straightforward: To learn using the tools provided by the VLE and also share and learn socially by using the tools provided by Elgg.

The VLE platform provides a common framework for learning. Both modules deliver a stable ground for students to share knowledge and experiences via the social network and also receive contents and courses via Moodle. Also teachers have a course platform, to grade the students and facilitate their learning process.

All the partners got benefits from the use of the platform, by adapting the use of the platform to their methodologies and learning processes. This flexibility was a key element in the success of the Project. For example, some partners used their grading method and the social features of the platform, but others used all the functionalities of the platform but some learning elements (quizzes and assignments).

The overall perception of teachers and students was very positive and they were very happy to use a platform that allowed them to interact between them in a more informal fashion (social network features).

We created a special account for people interested in using/testing the platform:

<http://moveit.cesga.es>

login: moveit
password: Moveit_2014

The plugin is available at the Moodle website xxxxx with info about the installation process and also about the development.