

# Turning out a social community into an e-Learning platform for MOOC: the case of AbiertaUGR

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## ABSTRACT

This paper considers the interest of traditional high educational institution to bounce into the world of Massive Open Online Courses (MOOC). This learning approach is defined over the concept of Open Educational Resources (OER) in a basis of a high number of users that interact with the learning materials (mostly multimedia resources). This approach implies some challenges to the software platform that lies behind the learning experience. In this work we are going to evaluate the Open Source Social Networking Engine, ELGG, and how it has strongly evolved to AbiertaUGR.

## Categories and Subject Descriptors

D.2.2 [Software Engineering]: Design Tools and Techniques - *Software libraries*.

J.1 [Computer Applications]: Administrative Data Processing-*Education*

K.3.1 [Computers and Education]: Computer Uses in Education: *Collaborative learning, Distance learning*

## General Terms

Management, Measurement, Design, Experimentation.

## Keywords

Open educational resources, mooc, certification, recognition.

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## 1. INTRODUCTION

At present, there is great interest over the concept of Open Educational Resources (OER) in all of its forms: Open Courseware repositories OCW, spare open resources, or even more recently as Massive Online Open Courses (also called MOOC [1,2]). This panorama has generated considerable debate about the role that higher education institutions play in this context. We understand that students are involved in formal and informal learning activities [3], and require universities to have new models to recognize their skills and abilities over these new scenarios. One case study is the MOOC learning framework, where universities are interested but there are nowadays some doubts and fears about the official recognition as a usual learning activity [4]. High educational institutions (HEIs) willing to offer new and innovative experiences to its students have to address several issues such as the design of the curricula, the selection of pedagogies for enhancing the learner experience and quality of MOOCs, and the technical solutions that enable the learning. Currently there is two main discourses around the pedagogies used [5]: the xMOOCs are primarily based around interaction with content and essentially adopt a behaviorist learning approach; and cMOOCs, which focus on harnessing the power of social media and interaction with peers, adopting a connectivist learning approach. In both cases, a software facility has to be present. It has to be very robust and should operate under a base of scalability and reliability. An e-Learning platform used to support massive interaction, assessment and communication should address firstly the distribution of multimedia content, the possibility of use OpenID, and be ready with many features for administration and reporting of activity, considering its massive nature (thousand users, hundreds of thousands of interactions).

With this panorama in mind, the University of Granada started a pilot experience with more than 3,000 online students, and in about six months developed the platform and the course materials for more than 75 hours of workload. With the experience of running AbiertaUGR [6,7] the leap between what are usual features existing in a standard e-Learning platform and what a HEI adopting MOOC offer is going to need, is what we are going

to detail in the next sections. With this information in mind, a university would have the possibility of evaluate the benefit of running its own platform or is better suited for step into a consortium of institutions with a platform already set in [8,9].

In Section 2, we compare five platforms of different nature, to test not only their ability to create a social community –the base of a connectivist MOOC– but also its features to be used as an e-learning environment. Then we select one platform and explain the steps that we performed to enable that platform to run a MOOC. In Section 3, we give some details of the survey that were conducted for platform evaluation. Finally, Section 4 presents the conclusions of this work.

## 2. BUILDING PLATFORMS

Nowadays you can find multiple social platforms and content that can be useful for learning. Therefore it is essential to be clear the goals of our MOOC project, which kind of features to offer and how to reach them. After searching and reading on the web about which could be the ideal platform for a MOOC pilot, we find several options that could serve really well. In Table 1 and 2 we short summarize their most outstanding features, taking into account given criteria [10,11].

It is difficult to select characteristics that define a platform. In this case we have selected these, as they can be important points in this study. From our previous experience Elgg [12] and Moodle [13] are well known and so we felt comfortable to work on them. This is not the case OpenMooc [14], Dolphin 7.1 [15] and Liferay [16], although previously been studied and analyzed, are new and unknown platforms. From this table we can note several things. On the one hand technical knowledge required to install any of them and all have a usability stand out like. On the other hand we can highlight any platform thanks to its characteristics. This is the case of the high level of interaction of Elgg and its many free plugins against undetermined number OpenMooc or Liferay.

### 2.1 Adopting ELGG for Connective MOOC

The Elgg library [12] has been adopted by the University of Granada as the technology base for its MOOC offer mainly because this platform is oriented to social network. This allows the management of social interactions and also enable collective learning experiences [17] based on the content created by teachers and the students themselves. Our aim is to focus in the part of collective learning, which is not a build-in characteristic of Elgg core. Besides, Elgg is a free open source platform that runs on LAMP, with many developed features through the developer community of plugins. But what is more important we can developed our own plugins, or change existing ones to fit our specific requirements. We face it by having previous experience in the creation of live communities in Elgg, we have some experiences in the case of HEXTLERN (<http://hextlearn.eu>) and MOVINTER (<http://movinter.eu>), both projects funded by the Lifelong Learning Programme of the European Commission.

Table 7. Comparative study of platforms

	Technical Skill Needed	Level of Interaction	Usability
Elgg	☆☆☆☆	☆☆☆☆	☆☆☆☆
Moodle	☆☆☆☆	☆☆☆☆	☆☆☆☆
Liferay	☆☆	☆☆☆☆	☆☆☆☆
OpenMooc	☆☆	☆☆	☆☆☆☆

Dolphin	☆☆☆☆	☆☆☆☆	☆☆☆☆
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Table 2. Comparative study of platforms (cont.)

	Outstanding Features	Number of free plugins
Elgg	Tags, Weblog, Access Control. Great developer community	1,797
Moodle	Moodle Docs. Flexible grading system	626
Liferay	Integration with Microsoft Office ®. Training, consulting and enterprise supported services.	Not known
OpenMooc	Badges System. Video and discussions in a built in forum.	Not known
Dolphin	Implement a payment gateway. iOS and Android mobile applications to connect with site.	Not known

AbiertaUGR [7], the name of our modified Elgg instance, was developed to deploy online courses following the tendency of MOOC (Massive open online courses). The platform came to life with three courses. Our pilot experience was centered on ICT competences, named: "Identidades Digitales" (Digital Identity), "Aprendizaje Ubicuo" (Ubiquitous Learning), "Licencias Creative Commons" (Creative Commons Licenses). The platform included a special course by default for every user called "Cafeteria" (Cantina) to give to all the students a common place for introducing themselves, make contact and also a place for learn about the platform itself, problem solving forums and to access to a mailbox of suggestions to the organizers.

As we have mentioned, Elgg provides a large list of features to create a social net-work: blogging, file repositories for users and communities, podcast support and multimedia embed, full access control even at user level, supports tagging, user profiles, full RSS support, RSS aggregator, communities membership management, collaborative community blogs, possibility of having friends and list of friends, content import, publish to blog, access control list, multilingual, branding/customization, OpenID and import/export friends with FOAF. Over the Elgg core v1.8.x, AbiertaUGR was defined and developed as shown in Figure 1.



Figure 1. Basic schema for AbiertaUGR

AbiertaUGR achieves these benefits from the given functionality, but it was enriched with other new features, mainly to support the concept of courses and the content planning. The easiest way to solve that was to transform the concept of groups into courses,

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and make read-only pages the base of the concept of course planning. Consequently, we benefit from the built-in management of these groups, in the first case, and from the enriched HTML content in the second. In other words, people can create a personal learning environment, additionally to the given course material, and thus, enriching the e-learning experience.

In Table 3 we show the list of active plugins to have the functionality necessary to deploy a MOOC. The Key column qualifies the plugin into three categories: original (O), modified to adapt the given functionality (M), and finally the ones fully developed by our team (C).

### 2.2 Features of AbiertaUGR

The most important change from Elgg to AbiertaUGR is oriented toward the adaptation of group's tool into courses management. Courses have to be managed more deeply, so it was necessary to create new functions.

**Table 3. List of plugins and features included in AbiertaUGR in addition to the included in the standar distribution of Elgg.**

Plugin Name	Features	Key
Group Tools 2.4	Combines different group additions into one plugin: admin transfer, multiple admin, kick off configuration, activity, and others.	M
Au Sub-Groups 1.5	Allows the creation of groups within groups.	O
CEV mooc zone 1.0	This plugin enable static pages in HTML.	C
Elggx Badges 1.8.4	This plugin allows users to be awarded badges based on a configurable number of userpoints.	M
Elggx Userpoints 1.8.4	This plugin provides a mechanism for users to gain or lose points for performing certain set of actions on site.	M
Profile Manager 7.4.1	Provides better use of profile fields, customize profile and group fields.	M
User Import 1.8.1	Create user accounts from a CSV file (batch processing).	M
CEV Footer Pages 1.8	Modification of Site pages to include institutional information, legal terms, and documentation of the service.	M
Videos 1.4	Adds the ability for users to upload/embed videos to Elgg sites. Uploaded videos will be hosted on Youtube.com. Other users can then comment on the videos.	M
Elggx Fivestar 1.8	Fivestar adds a clean, attractive voting widget to Elgg.	O
hypeFramework 1.8.5	Creates a framework for hypeJunction plugin, including reusable views, scripts, and actions.	M
HypeAlive 1.8.5	Creates an AJAX commenting and feed system for Elgg.	M
Welcomer 1.1	Displays a specific page on the first login of a user, optionally a second page on the second login, and a site notification on the next login after it is set.	O
Addthis-Share 1.2	Implementing Addthis social share buttons on your Elgg website.	O
Advanced Statistics	Shows advanced statistics for your site.	O

0.1		
Google Analytics 2.0	Adds Google Analytics tracking code to all Elgg pages.	O
Theme CEV 1.0	Theme developed to give AbiertaUGR institutional appearance.	C

One critical aspect is security, in order to have safe content, i.e. only administrators (teachers of the course in this case) are able to create, modify or delete content. Students are able to interact in the basis of comments to the content, rating, like it and through the connection to other social platform (sharing in Facebook, Google+ or Twitter, as can be seen in Figure 2).

Only in particular occasion the students are allowed to create resources (object in the database other than the mentioned comments, like, rate...) as is the case of essays and the conclusions of the course, where the students reflects about course main concepts and the learning acquired writing in collaborative documents. The benefits of Egg is the strong support to create teams and working in groups for peer reviewing.



**Figure 2. Content in AbiertaUGR is easily connected with other social networks**

Other important requisite is student management facilities. We refer to the possibility of export useful data used in assessment per course (in a bunch or individually per student). Data is referred mainly to access log and user-points detail, being the previous a very powerful source of activity tracking. The access log is more oriented to platform usage information, and the user-point list covers the performance of the student in the course. In general, points (user rewards) are achieved by performing operations in the platform, interaction with other users, the basic following of the course and their contributions to the proposed activities. A key point to assess the effectiveness of the learning experience by the tutor is related with the quality of the points. To check if the student did fair play, the tutor can access to the detailed user-point list. Badges and points are strongly related (more points imply a better badge). Badges are used to informally certificate the course. As an idea of how to massively operate with users, we have used self-implemented functions to restart the badge to every user in the platform (at the beginning of the course) and to add certificates to those students who passed their courses (at the end of the course). These certificates are stored in the students' profiles as an historic of what badge they acquired on each course. By doing this, the request for certificate is greatly simplify. At the end of the course, the student finds the certificate automatically in his/her profile as a private field. These functionalities are of great interest to guarantee the sustainability of the platform and the easiness to massively operate with users.

### 3. MEASURING SATISFACTION

AbiertaUGR has been launched with three courses and more than 3000 user logged in the platform. Around 1800 users were enrolled in the first course, 990 in the second and 750 in the third. One of the main successes reached by AbiertaUGR comes from the way to evaluate which have achieved an excellent completion rate (see Figure 3) taking the data of [18] where others MOOCs platforms with a rate located below the 10%. At the end of every course, users were asked to fill a satisfaction survey. The response

rate is between 35% and 45% in relation to those users who have completed each course; therefore the results obtained are representative of both users and their opinions on the platform. In Figure 4, is noticed that in the first course the most relevant profile is student that has decreased to the detriment of teacher and employed. The main reason for this decline is that the date of the exams matches last weeks of the second course (13/05/2013–10/06/2013) as well as the third (17/06/2013–15/07/2013).

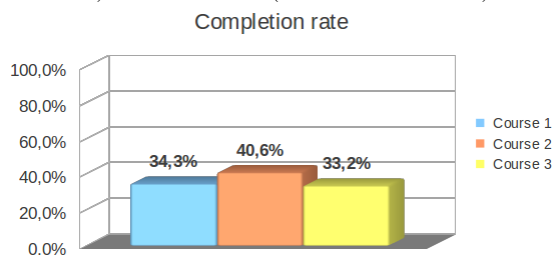


Figure 3. Users completed/enrolled per course

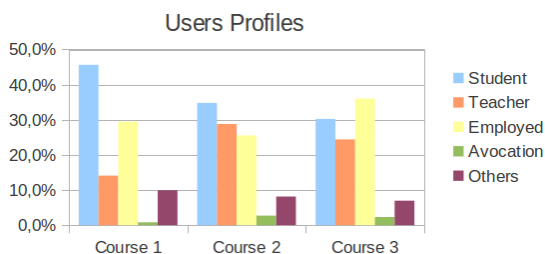


Figure 4. Evolution of user profiles

The data from the surveys present closed and open questions (free text) to collect opinions and preferences related to the courses as well as the evaluation of the platform and its specifics features. The Figure 5 shows the evaluation given in the different courses with a grade where 1 is the weakest mark and 10 is the stronger.

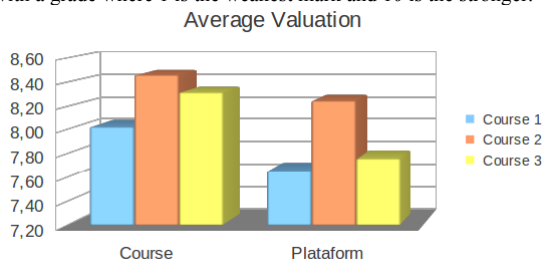


Figure 5. Course and platform valuation

All the specific features in the platform have exceeded the average level that is 3 out of 5. The most valued feature in the platform is the opportunity to take part that has got 4.19 out of 5. On the other hand the less valued feature is the technical support with 3,57 but this feature have evolved positively from the development of the courses. The other important characteristics are: work environment (3.57), community (3.71) and planning (3.94). The platform has achieved highly the management of users' needs, which can be observed because the average grade given by the platform users is 7.88 in a scale of ten. The evolution of the

platform has been very positive as it is shown in the Figure 6; this is the result of the life improvements implemented.

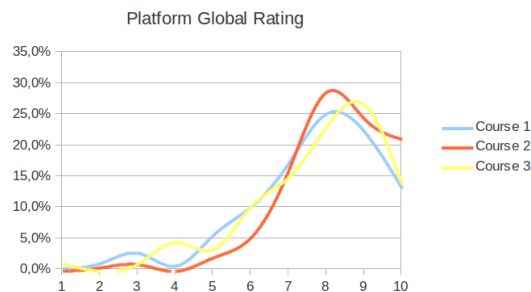


Figure 6. Evolution of the platform valuation through the different courses

#### 4. CONCLUSIONS

Elgg lets the creation of blogs, pages, bookmarks, videos, etc. in a base of self user-space or in collective group-space (e.g., collaborative documents, file sharing, posting blogs). Moreover, it has social resources such as integration with a personal profile (totally customisable in access), gateway with Twitter or Facebook, internal message service and a personal wire to be able to be in contact with other users in a flavored way. We have explored and extended these features.

In this work we have presented AbiertaUGR as a platform for informal and open learning developed by the Virtual Learning Center of the University of Granada, based on the open library Elgg 1.8.x. Within six months we were able to fine tune the platform by selecting, adapting and creating a set of plugins that are built upon the social facilities of Elgg, to create a personal learning environment for the students. Course content equivalent to 75 hours of workload were also provided, together with some massive operations that facilitates the management of courses and certificates. We already had experience building communities with an older version of Elgg, so we have noted the great improvement that the open community of Elgg developers is creating. We plan to open license our platform to contribute with the e-Learning community given the great interest that currently institutions show about the MOOC movement.

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