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A Comparative Analysis of the Moodle and Edx Educational Platforms from a Tutor-Student Perspective

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Abstract

Traditional eLearning platforms are teacher centred and do not allow open and free access to education. To follow a course on a traditional platform the students must have a certain profile (knowledge background) and, at the end, they obtain new knowledge / abilities / competences. In 2011-2012 have been developed the first MOOC (Massive Open Online Courses) platforms with the aim to vastly increase access to education. The MOOC platforms have some differences compared to traditional eLearning platforms: the number of students in a course can be very high (tens of thousands or even hundreds of thousands), the role of the tutor is less significant, the learning assessment is based on surveys and peer assessments and courses may be enriched with multimedia and hypermedia materials. Among MOOC platforms, open edX is a very popular platform developed by a consortium of universities from USA. Due to the fact, this platform can be installed for free, it is under continuous development, scalable and well documented, it has been chosen for many educational projects. This paper presents a comparative analysis between a traditional learning platform (Moodle) and a MOOC platform (open edX) taking into consideration the data achieved in four educational projects.

Keywords: Educational platforms, Massive Open Online Courses, Moodle, open edX.

1. Introduction

The web and technology development has changed the way how instruction is delivered and how the learning is produced (Rovai & Jordan, 2004). According to Barr and Tagg (1995), universities are moving away from a faculty-centered and lecture-based paradigm to a model where

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learners are the focus, where faculty members become learning environment designers, and where students are taught critical thinking skills.

Moodle is the most popular e-learning platform. Its main goal is to give teachers, students and the tools used to teach and learn. Unlike Moodle which is focused on course management for a learning environment and to expand the learning space for students, Massive Open Online Course - MOOC represents a paradigm encompassing online open access courses designed for large-scale participation. Such a course: connects tutors and students distributed in different geographic locations; maximizes the opportunity to connect students who can share and criticize; provides just-in-time educational content to learners and ensures development of MOOC's itself.

The development of MOOC type platforms began in 2008 and has become a popular method of learning in recent years. MOOC has become a mean to test new methods of teaching and learning. MOOC phenomenon has attracted new sponsors and numerous institutions interested in MOOC implications, such as Google, Yahoo, Gates Foundation, UNESCO, etc. (Matkin, 2014).

In recent years greatly increased the number of MOOC courses and articles providers, discussion groups and blogs about MOOC. MOOC development has generated new directions of research which can be classified into the following categories: experience using MOOC, MOOC impact (MOOC utility, long-term impact, the impact of MOOC in under-developed countries, etc.) and analysis of learning through MOOC (Matkin, 2014). Most of these analyzes and developments are based on the economic (scalability, productivity and gratuity) and technology (platforms that supports a large number of learners, components that improve platforms such as forums, support for collaborative learning and automated scoring) perspectives. Only few contributions analyze MOOC from the perspective of educational sciences.

2. Methodology

This paper presents the findings achieved during a period of six years (2010-2016) of working in blended and on-line teaching training programs in Romania. The learners who participated in these programs were in-service teachers of different teaching subjects and different ages. The table 1 present the project descriptions and the number of users who participated in on-line training using Moodle platform in the frame of these projects.

Table 1. Projects with traditional on-line courses

Project description	Educational platform	Number of users
Training System for Teachers to Increase Efficiency of ICT Use and Quality Assurance of Computer-Assisted Instruction in Primary and Secondary Schools – EDUTIC (POSDRU/19/1.3/G/37002)	Moodle 1.9.9+	800
Professionalizing teaching career - new competencies for actors of changes in education in Dambovita and Buzau counties – FOREDU (POSDRU/87/1.3/S/62624)	Moodle 2.0.3+	2500
Network for training teachers to use multimedia, virtual instrumentation and web 2.0 in curriculum of Mathematics and Natural Sciences – PROWEB (POSDRU/157/1.3/S/141587)	Moodle 2.6.4+	1600

The teachers who have been participated in the activities of the projects mentioned above were invited to become part of the community of practice of Engage project. ENGAGE (Equipping the Next Generation for Active Engagement in Science) is a three-year European Project (2014-2017), which includes 14 Institutions in 13 countries. Engage project purpose is to increase awareness of Responsible Research and Innovation (RRI) through Inquiry Based Learning (IBL) by reaching more than 12.000 teachers in Europe and 360.000 students. Members of Engage community of practice have participated in face-to-face workshops and on-line courses. Table 2 presents the list of the courses organized in Romanian language, in the frame of Engage project using open edX platform.

Table 2. On-line courses in Engage project

Course name	Duration	Enrolled users
Methods of promoting RRI dimensions in Science Education – 1 st Edition	40 hours	58
Methods of promoting RRI dimensions in Science Education – 2 nd Edition	40 hours	101
Ways of capitalizing Responsible Research and Innovation in designing science lessons	60 hours	41

The presented data in this paper were extracted from the answers provided by the teachers to open questions from the initial and final evaluation questionnaires, comments of the tutors, learners email messages sent to tutors and technical specifications of the e-learning platforms.

3. Findings and discussions

3.1. MOOC versus traditional e-learning platform

Table 3 presents the main differences between a traditional e-learning platform and a platform that supports massive open on-line courses.

Table 3. Traditional e-learning / MOOC differences

Criterion	Traditional e-learning platform	MOOC platform
User orientation	Centered on the teacher	Centered on the student
Type of access	Closed	Open and free
Course style	Oriented on readings and tutorials	Oriented on multimedia and hypermedia
Tutor role	Important	Less significant
Assessment style	Tutor and machine grading	Machine grading and peer review
Communication between users	Promote synchronous and asynchronous interaction	Promote asynchronous interaction
Number of users in a course	Proportional with the number of tutors	Up to 200.000
Software management	Easy to install and maintain	Difficult to install and maintain
Hosting infrastructure	Can be installed on a single server	Should be installed on multiple servers

3.2. Course creator perspective

Staff members who have experience with Moodle platform and want to create a new course in open edX are facing an unexpected interface. In Moodle a teacher can update the course content by changing the LMS (Learning Management System) interface in editing mode. Practically, the changes in course structure is visible in the same screen, using the same web tool / interface. The open edX platform can be seen as a collection of web applications. The open edX LMS interface is used to view and follow the course and edX Studio interface is used to create a course. In open edX, the course content and the settings can be modified only in the Studio interface and to observe the changes in course content, a course creator must open the LMS interface.

Taking into consideration that a MOOC must offer access to a very big number of students to a large number of courses, the management of resources is very important. Storage capacity is limited on servers where the

MOOC applications are installed and it is impossible to estimate what is the real need of the users for storage space. The open edX platform is conceived to lead the course creator to store the course materials (especially big files) on external servers. As an example, in the courses created on open edX in the frame of Engage project, the Power Point presentation files were stored on SlideShare and video files were stored on Youtube.

3.3. Tutor perspective

In open edX, the tutor is a registered user, member of the staff group. The tutor role in open edX is similar with the non-editing teacher in Moodle. The tutor has access only in the LMS interface and can manage the course through Instructor Dashboard. The tutor cannot change the course structure, he can have this role if he is member of the admin group.

Using Instructor Dashboard, a tutor can enroll new students, view the Gradebook, inspect the Student Progress Page, download students profile information and more.

In general, the tutors cannot grade the assignments, but they have instruments for reset the students attempts. Even if MOOC philosophy is to grade assignments by machine, in case of closed questions and by peer review in case of open questions, tutors can be able to do that if a special module is installed (staff graded assignment).

3.4. Learner perspective

All the users enrolled in courses presented in table 2 had a previous experience in working with Moodle, in a traditional on-line course style. They were enrolled at least in one of the projects listed in table 1.

The users had difficulties in registering to the course and following the course. Many users complain about “the strange interface”. They expect to see after authentication the structure of the course, organized in some style, but in open edX, the first page after authentication is Course info, that shows the course updates and news. The main course structure can be accessed by clicking on Courseware in the upper menu. In order to get access to a resource, the user must navigate through sections and subsections of the course. Due to the fact, the subsections can be divided in many slides, it looks very complicated to students.

MOOC philosophy sustains peer review grading for the assignments with open questions. In open edX, a peer review force the user to follow few steps before completion: provide his response, learn to assess responses, assess peers, assess his response. The steps of a peer-review assignment are not understood by many users. Some of them remained blocked in an

intermediary step and could not complete the assignment. In this case, even if they submit the right answer to the question, the grade was missing from the Grade Book.

Another difficulty for the Romanian users was the open edX interface in English. For the moment, there is no functional translation of the interface in Romanian. There is a work in progress for open edX interface translation, but now the translation is made at 16%.

4. Conclusions

Traditional e-learning platforms are focused on course administration and class management. In general, this kind of platforms do not allow open and free access to education.

A MOOC allows students, teachers, researches, educational and/or societal actors to study in open form, attracting them with themes that often are not in the curricula proposed by educational institutions.

Former students that participate previous in on-line traditional e-learning platform find the MOOC platforms interface strange and consider the working style unexpected. Other studies (Onah et. al., 2014) shows that the completion rate of the courses on MOOC platforms is higher if the number of enrollments is low (under 200) and if the assignments are graded by machine.

Even if open edX platform was developed to sustain massive open online courses and this platform is leading the users to adapt to new concepts, in reality, MOOC is a philosophy which can be implemented successfully using Moodle platform. Also, open edX platform can be customized to host courses to a very close traditional style.

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