

Massive Open Online Courses: edX vs Moodle MOOC

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Abstract—This research provides the overview of general possibilities of two massive open online courses edX and Moodle MOOC. The presented results show the comparative analysis of edX and MOOC pointing out different categories. The short discussion of performed analyses is also presented. The future work will be focused on the analysis of advanced features which both environments provide.

I. INTRODUCTION

The term MOOC (Massive Open Online Course) coined during 2008 and it was related to an online course "connectivism and Connected Knowledge", designed by George Siemens and Stephen Downes. According to [1], MOOC integrates the advantages of social networking, a collection of open educational resources and the support of experts in a relevant field.

"Massive" refers to the number of the course's participants, as well as the capacities of the course in terms of allowing access to a large number of activities. George Siemens defined "massive" as: "Anything that is large enough that you can get subclusters of selforganized interests. Three hundred plus students could be one benchmark; another could be Robin Dunbar's number of 150 people, which is the maximum after which the group starts to create smaller fractions." [2, page 26].

"Open" usually refers to free access to individual courses, and sometimes it also applies to open or open content platform.

"Online" refers to MOOC access via the Internet.

"Course" means organizing content in a given time interval, from a subject area, which contains a set of resources with clearly defined goals and outcomes.

With the increased expansion MOOC imposes the choice of the platform for the creation of courses. This paper analyzes Moodle MOC [3] and edX [4] platforms. Moodle LMS has been used for about thirteen years in the educational process. Taking into account the needs of teachers regarding examination and application of Moodle possibilities, a short and structured MOOC was created. It is called "Learn Moodle". The aim of this course is to introduce teachers with a way the students understand the activities, as well as with the features that Moodle provides.

edX platform provides a huge number of courses in different fields in one place. edX courses are organized by prestigious universities, with the possibility of obtaining the certificate. With the necessary Internet connection, participants receive in one place learning materials,

consultation with the teacher, and the possibility of evaluating the acquired knowledge.

There is a large number of studies dealing with the use of MOOC. A way of facilitating the integration of ICT tools in teaching through open environments is described in [5]. The authors plan the preparation of MOOCs together with the preparation of creative activities with the evaluation of the individual characteristics of the courses, the success rate, etc. The research in [5] demonstrates that the organization of communication activities during the course, highly affects course performance. Starting from this point of view, special attention was placed on the course activities that enable communication between teachers and students in the course, as well as among the participants themselves.

The researchers in [6] are engaged in open learning environments for their openness beyond existing learning management system. There are a large number of the research dealing with the possibilities of MOOCs.. Bearing in mind that Moodle is a free LMS system which is predominantly used at universities; it has been selected for the analysis. According to [7] the number of Moodle users is approx. 69,602,223. On the other hand, the last few years there is significant increase in using MOOCs. According to [8] edX aims to reach no fewer than one billion of users, and is used by the prominent institutions such as the Massachusetts Institute of Technology (MIT) and Harvard University.

II. PURPOSE, TASKS AND GOALS

Bearing in mind the expansion of MOOC the purpose of the research relates to the comparative analysis of the possibilities of MOOC Moodle and edX. The aim of the research was to determine the capabilities of both platforms in terms of teachers (course creators). Specific research tasks have been derived from the research objectives:

- Access to the two mentioned platforms (edX and Moodle MOOC)
- Creation of a course on the platform and edX and examination of designed course
- Examination of the possibilities of an open course within Moodle MOOC
- Comparative analysis of both platforms
- Overview and discussion of the capabilities for both platforms

III. METHODOLOGY

In order to create a comparative analysis of edX and Moodle MOOC, an account and a course have been created within edX platform in the field of programming language C. The platform is developed within the EU

project Baektel (TEMPUS project BEAKTEL “Blending academic and entrepreneurial knowledge in technology enhanced learning”, <http://baektel.eu>). There is a number of courses within it, and some of them are shown in Figure 1.

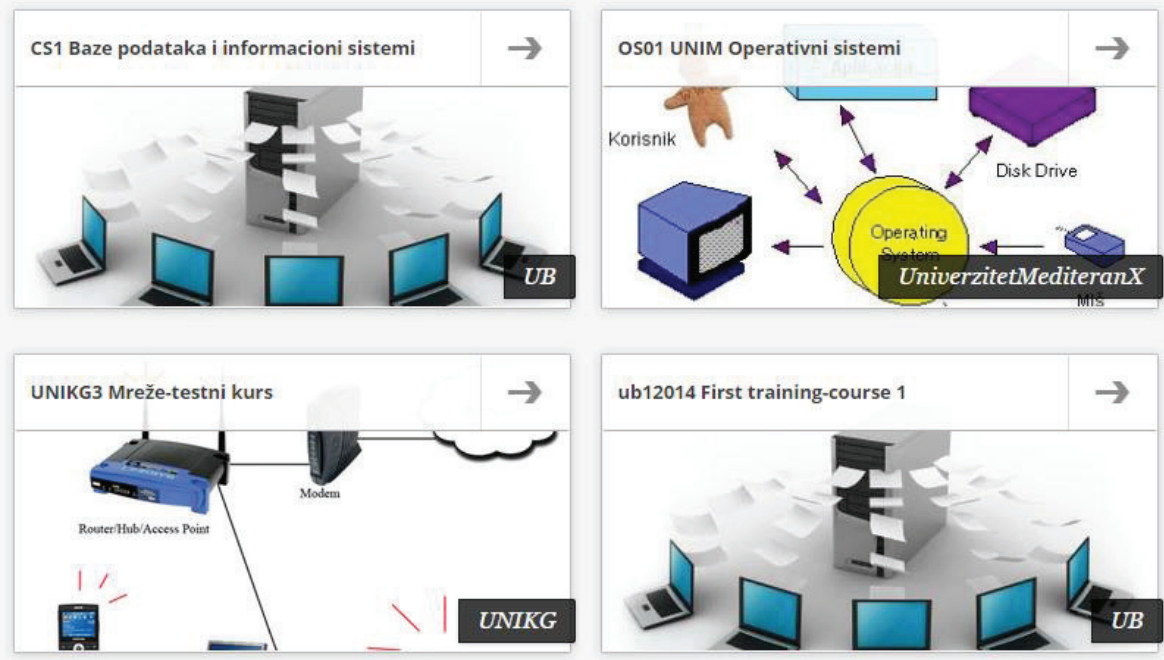


Figure 1. Overview of courses on edX platform

While the course analyzed within edX platform has been created, the same courses within Moodle MOOC were created already before. The comparative analysis of

the features has been performed afterwards. Figure 2 gives the appearance of a part of the course within Moodle MOOC.







-  [Week 2 tasks and webcast tutorial](#)
-  [Book: How can I help my learners learn?](#)
How and why you might use the activities listed in the **activity** chooser.
-  [Glossary: Terms used in Teaching](#)
Add an **educational** term, phrase or **acronym** with its definition here.
-  [Wiki: First day in school](#)
Add to or edit the story pages to give the teacher an interesting choice of day!
-  [Forum: Teach the group!](#)
-  [Quiz: Week 2](#)

Figure 2. Overview of the course work within Moodle MOOC

IV. COMPARATIVE ANALYSIS OF EDX AND MOODLE FEATURES

Comparative review of the courses within Moodle MOOC and edX was done through following categories:

A. Course structure

In terms of course structure and organizational units the differences between edX and Moodle MOOC can be noticed. When accessing the topics and resources in

Moodle MOOC, complete organization can immediately be perceived. List of topics with the contents are presented in the central part of the course, while the side plug-ins provide additional options.

Within edX structure list of content is located on the left side, while the content of the topic can be seen when you open a single topic.

Figure 3 shows a comparative overview of the structure of the course within Moodle MOOC and edX.

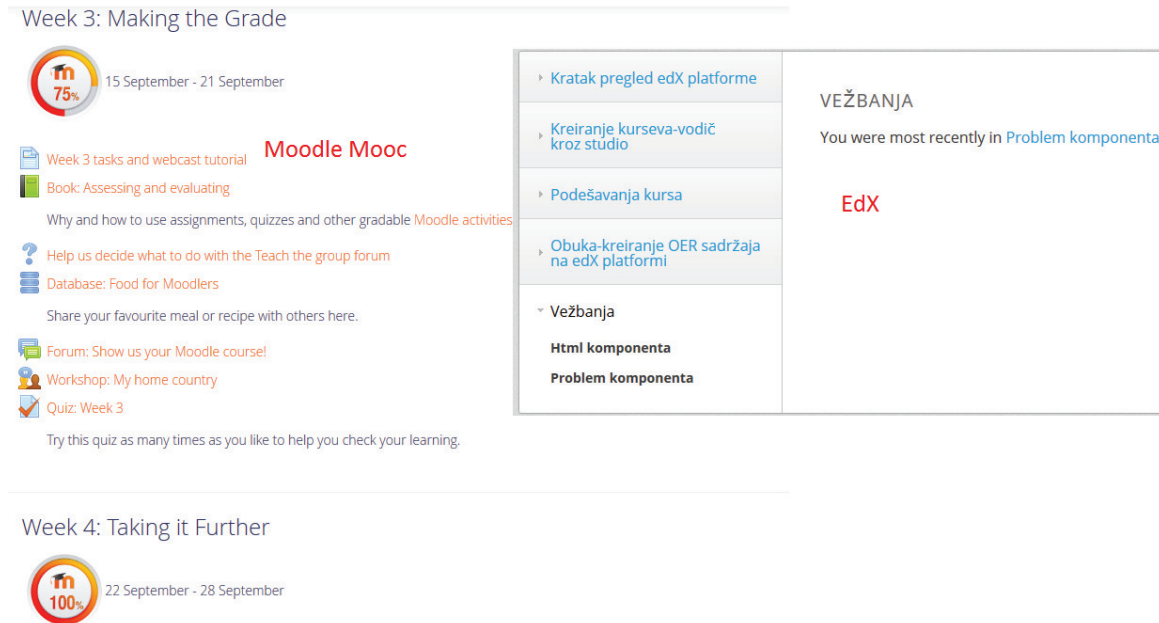


Figure 3. Comparative overview of the structure of the course within edX and Moodle MOOC

B. Collaborative modules

Moodle MOOC provides a possibility of organizing collaborative activities, through wikis and workshops. edX offers a possibility of collaborative activities for participants through the wiki, and also virtual labs are planned for more participants to work together.

C. Communication tools

Both systems possess the communication tools, in the form of a forum. However Moodle MOOC also has the possibility of communication through the chat rooms. Forums in both systems are organized so as to be used intuitively and without special preparation. Forums are meaningfully developed within Moodle MOOC because they provide more types of discussions.

D. Reports

Both systems provide the option of reporting on user activity. Moodle MOOC and edX provide an overview of the activities for each module that is placed in the course. Moodle MOOC allows detailed specification of activities, by user, user group, time in which the activity is taking place, etc. EdX also provides an overview of grouped activities. However, exports of these data provide more

opportunities within Moodle MOOC, as compared to edX, in terms of possible formats in which the reports are exported. Visualization of the results is provided by both systems.

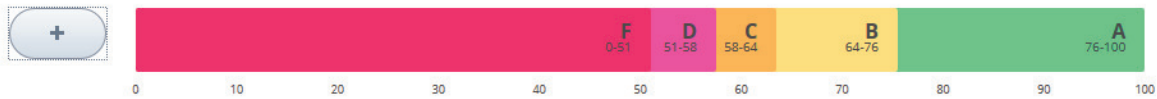
E. Tests and grades

Both systems provide an opportunity to test the participants, with the difference in the choice of the type of tasks, which is wider within Moodle MOOC. However, edX introduces the participants with advanced features setup tasks, such as mapping the correct answers in the pictures. In terms of defining score, edX provides the ability to define the scope of assessment, more meaningful regulation of the obligations of participants through the midterm and final exam, and it also provides the definition of the types of activities that will be included in the assessment.

Figure 4 shows a part of the possibilities of defining a grade in edX.

Overall Grade Range

Your overall grading scale for student final grades



Grading Rules & Policies

Deadlines, requirements, and logistics around grading student work

Grace Period on Deadline:

Leeway on due dates

Assignment Types

Categories and labels for any exercises that are gradable

Assignment Type Name	Abbreviation:	
<input type="text" value="Homework"/>	<input type="text" value="HW"/>	
<small>e.g. Homework, Midterm Exams</small>	<small>e.g. HW, Midterm</small>	
Weight of Total Grade	Total Number	Number of Droppable
<input type="text" value="15"/>	<input type="text" value="12"/>	<input type="text" value="2"/>
<small>as a percent, e.g. 40</small>	<small>total exercises assigned</small>	<small>total exercises that won't be graded</small>

Figure 4. Overview of assessment opportunities within edX

V. EVALUATION AND DISCUSSION

The basic features of both systems that are commonly used in the classroom are listed in a comparative review of the items. The characteristics of both systems, with illustrative examples, are compared in more detail in [9]. This evaluation is the result of the subjective assessment by experienced user of both systems, unlike the one shown in [9]. The similar evaluation is performed in [10]. The evaluation of individual components, the appraisal of the available options on a scale from 1 to 5 (where 1 denotes the lowest satisfaction and 5 the highest), as well as the applicability of the remaining possibilities in teaching are made from the perspective of teachers is done. Table 1 shows the results of the subjective evaluation possibilities. As it can be noticed from the table, Moodle MOOC has advantages with communication tools, which is still under development within edX. On the other hand, edX has better assessment capabilities comparing to MOOC Moodle. Other categories are generally consistent with small differences in favor of one of analyzed systems.

TABLE I. SELF-ASSESSMENT OPPORTUNITIES WITHIN MOODLE MOOC AND EDX PLATFORM

	edX	Moodle MOOC
Course structure	4	5
Collaborative modules	4	4
Communication tools	3	5
Reporting	4	5
Tests	4	4
Grading	5	3

VI. CONCLUSION

On the basis of the obtained results, certain conclusions about the differences in the capabilities of EDX and Moodle MOOC can be drawn. Both systems support massive open online courses, but the individual segments differ regarding the features and use in terms of teachers. Depending on the specific needs the teacher in the classroom can make a choice between the analyzed platforms. The performed analysis has shown an original approach in the field of evaluation of both systems, while the similarities are reflected in the overview of its capabilities. Taking into account that according to [8] MOOCs may well be a leading element in the future of

higher education, the future work will be focused on the analysis of advanced features of both systems.

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