INTEGRATING MOOCs IN BLENDED COURSES

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Abstract: Recent studies appreciate that "MOOCs bring an impetus of reform, research and innovation to the Academy" [9]. Even though MOOCs are usually developed and delivered as independent online courses, experiments to wrap formal university courses around existing MOOCs are reported by teachers and researchers in different articles [3], [4], [8], [17]. This paper describes a new approach, in which the participation of students in different MOOCs was integrated in a blended course run on a social mobile LMS. The topics of MOOCs delivered on specific platforms and having particular characteristics were connected with the Fall 2013 undergraduate course of Web Programming, at University Politehnica Timisoara, Romania, facilitated by the first author, the co-authors providing a shadow/peer facilitation, for tailoring the course scenario. The main parts of this study deal with: a) The reasons to integrate MOOCs in the university course. b) How the course was designed, how the students’ activities on different MOOC platforms were assessed and integrated in the course scenario. c) The results of a survey that evaluates students’ experiences related to MOOCs: a number of MOOC features were assessed [14]; answers to a few problems are also analysed: Did the participation in MOOCs support students to clarify and expand the course issues? What are students' suggestions for a more active participation in MOOCs? By comparing the learning scenarios of MOOCs with the Web Programming blended course, how can the course and its virtual space be improved? Do students consider that the MOOCs phenomenon is important for professional and personal development? The conclusions of the paper can be used by other teachers/instructors for integrating MOOCs in the courses they deliver/facilitate.

Keywords: Massive Open Online Courses (MOOC); blended learning; blended courses; flipped classroom; distributed flip; higher education

I. INTRODUCTION

Recent studies appreciate that MOOCs “bring an impetus of reform, research and innovation to the Academy” [9] and that the phenomena of MOOCs is part of the wider context of open education, online learning, globalisation of education and constrained budgets [20]. Even though MOOCs are usually developed and delivered as independent online courses, experiments to wrap formal university courses around existing MOOCs are reported by teachers and researchers in different articles [3], [4], [8], [17]. MOOCs offer teachers, researchers and practitioners the opportunity to experiment, to study different possibilities for using their elements in campus settings as a form of flipped classroom or blended learning approach [11].

1.1 Blended Learning and MOOCs

Coined more than ten years ago, the blended learning paradigm, (partially) overlapping with the flipped classroom model, is embraced more and more by teachers worldwide, the Horizon Report 2014 giving this approach a time-to-adoption of one year or less [16]. This pedagogical approach means a mixture of face-to-face and online activities and the integration of synchronous and
asynchronous learning tools, thus providing an optimal possibility for the arrangement of effective learning processes [2], [12], [18].

Anant Agarwal, president of edX, considers that the blended learning model can be achieved by mixing the MOOC technology with traditional/in-person class, this way transforming, democratizing and improving education. Taking MOOCs in the large and applying them in the small can create a blended model of education to really reinvent and reimagine what we do in the classroom [1]. He appreciates that in the summer of 2013, around 100 blended courses that were running around the world were hosted on the edX platform [19], leading to their labelling as “the next-generation textbooks” [1] or “super-textbooks” [4].

On the other hand, Daphne Koller, one of the Coursera founders, was an early Stanford promoter of the flipped classroom paradigm that mixes video-based instruction and automated assessment, accessible in a MOOC space and assuring self-pace learning and interaction with the material, with interactive face-to-face activities: teacher support for deeper understanding of the topics, group projects and problem based learning [17].

MOOCs can also be seen as pools, resources for "distributed flip", a term coined by Caufield and Collier, meaning that content curation, sequencing and community are distributed [6]. Noticing that technology allows us to move more activities out of the classroom than it was possible previously, [7] speaks about the distributed flip, as a way of approaching flipped classroom design, in which „some amount of design of flip materials is done centrally by a group of people, either as a company, consortium, or loose network of individuals”. Then the resulted high quality materials will be used by distributed facilitators / teachers, who will personalize them by considering the particularities of their flipped classrooms. In most cases teachers use parts of MOOCs in their courses just as collections of digital resources, not synchronizing their students’ activities with the cohort activities in the central MOOC (discussions, assignments), so the social features of MOOC are not used.

In Table 1 we propose a systematic view of different possibilities for blending MOOC in courses, one dimension being the synchronicity between the MOOC and the course, and the other the portion / numbers of MOOC to be integrated.

**TABLE 1 VARIANTS OF BLENDING MOOCS IN UNIVERSITY COURSES**

<table>
<thead>
<tr>
<th>Synchronization between the blended course and MOOC(s)</th>
<th>MOOC(s) integrated in the blended course</th>
<th>Part of a MOOC</th>
<th>An entire MOOC</th>
<th>Multiple MOOCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>No synchronization</td>
<td>The content (some modules) of a number of MOOCs are used just as (additional) digital resources. Students study the MOOCs’ content, but the assignments, discussions and evaluations are parts of the blended course.</td>
<td></td>
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</tr>
<tr>
<td>Synchronization</td>
<td>In the MOOCs’ space, students study the materials and also participate effectively in social activities: assignment solving, forum discussions, peer-assessment; class teacher supports them with feedback, additional materials and resources, evaluation; communication also with the local learning community for deepening the topics and group projects.</td>
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Of course the most complex (and efficient) blended courses are those corresponding to the synchronization perspective, in which students study (part of) the content of a number of MOOCs and also participate in their social activities (assignments, discussions, peer evaluation), the task of the teacher being to synchronize the activities of his or her own course with those of (multiple) MOOCs, proving support, feedback, additional resources, moderating and nurturing the local learning community.

For freshmen and students who have not yet developed self-study skills maybe more support from class teacher and colleagues is needed, so the unsynchronized approach could be more suitable.
II. METHODOLOGY

This paper describes a new approach, in which the participation of students in different MOOCs was integrated in a blended course run on the educational microblogging platform Cirip.eu, which acts as a social mobile LMS (Figure 1) [13], [15].

The topics of MOOCs delivered on specific hosting platforms and having particular characteristics were connected with the Fall 2013 undergraduate course of Web Programming, at University Politehnica Timisoara, Romania, facilitated by the first author. The co-authors have provided a shadow / peer facilitation, for tailoring the course scenario.

The topics of this course consisted of a wide range of subjects, covering both the technical and social part of Web2.0:

- HTML/HTML5, Javascript, CSS, XML, Perl, PHP, MySQL, Ajax;
- Web2.0/Social Media (blogging, microblogging, social networks, collaborative applications, curation/collaborative bookmarking systems, RSS feeds, mash-ups), Open Educational Resources and Creative Commons licenses, Massive Open Online Courses.

The valuable face-to-face class time was devoted to discussions for a deeper understanding of the subjects, also for exercises and feedback on assignments.

The online space of the course was a private group of Cirip.eu, hosting the materials, resources and interactions (as multimedia notes) between teacher and students (http://cirip.ro/grup/progweb13). Students could access and study the materials, OERs and additional resources any time they needed them. Messages posted online, via mobile devices or by SMS in the group space assured a live interaction between peers and teacher, being the basis of the local learning community: to ask questions, to comment new resources, to submit the multimedia results of different assignments and projects.

During the course, each student could also build a Personal Learning Environment, monitoring different feeds, interacting with external users or practitioners, or being connected to other Social Media platforms which gather educational resources [13], [15].

2.1 Research goals

During the first part of the term, the topic of Massive Open Online Courses (MOOC) was discussed, together with their challenges and benefits for education. By that moment students have already chosen the theme of the group project and they have split in working groups.

Counting towards 10% of the activity in the blended course they have to select a MOOC and to effectively participate in at least 10% of the massive course activities.

Figure 1. Course group on Cirip: members, number of messages and the tags used for activities
The aims of integrating MOOCs in this university course are listed below:

- Allow students to become familiar (aware) with the MOOC phenomenon and trends:
  - To learn about the most important players/platforms/offers, types of learning, interaction and specific pedagogies
  - To be able to search and evaluate useful and quality MOOCs;
- To enlarge knowledge/topics of the course, to obtain an auxiliary support for students’ group project development;
- Allow students to have concrete views, opinions and proposals on MOOCs and to critically evaluate their usefulness for personal development and for different ways of integration in formal higher education courses.

2.2 Research methods

In order to achieve these aims, we followed the next steps for MOOCs integration:

1. MOOCs discovery and selection:
   - In the first part of the course, in the materials section of the Cirip group, the course tutor has provided a material and resources presenting the Massive Open Online Courses phenomenon, as well as MOOC directories/platforms:
     - http://openeducationeuropa.eu
     - http://mooc-list.com
     - https://futurelearn.com
   - Students were invited:
     - To post a message with the tag #mooc containing the names and links of 1-2 MOOCs connected with the course topics, in which they would like to participate (mandatory activity);
     - To comment / provide new resources on MOOCs (optional activity).
   - Students could discover new courses and find / comment on the opinions of their colleagues.
   - Teacher’s feedback in case the MOOCs proposed by the students were not connected with the course topics.
   - A tagcloud with the names of the courses proposed, then followed by the students was published in the course space.

2. Participation in MOOCs:
   - During the term, students took part in at least 10% of the activities of a MOOC (requirement).
   - Messages with impressions resulted from participation were posted in the course space (optional).
   - Moreover some of the students discussed or asked opinions on their concrete activities in MOOCs, receiving feedback from the local learning community (both colleagues and teacher).
   - As part of the assessment, each student had to present to the teacher the portfolio of the activities carried out on the MOOC platform.

2.3 Summary of data evaluating MOOC participation

Before the Web Programming course ended, students took part in a survey evaluating their experiences related to the MOOCs. 55 of the 70 students enrolled in the course responded (78%).

Overall, it was a dense course with a high interaction, there were 630 (multimedia) messages sent in the course space, which means that each participant sent a number of 9 notes (Figure 1).
A summary of findings is presented in the following:

- Percentage of students who knew about the MOOCs phenomenon before this course: around half of the students (49%) (Figure 2.a).
- Followed at least a MOOC before the course: less than a third of the students (29%) (Figure 2.b).
- Will follow other MOOCs: 100%. All students plan to follow new MOOCs, thus recognizing the importance of enlarging their knowledge during formal education, but also of continuing education (Figure 2.c).
- Even if a participation in 10% of the MOOC activities was required, two thirds of the students (66%) have realized more than half of the assignments, while a quarter (24%) completed the whole massive course (Figure 2.d); the completion rate (24%) is much higher than the average value of 10% for most MOOCs, as reported by current studies [9].
- Almost half of the students participated in MOOCs hosted by Coursera (44%), nearly a quarter on Udemy (23%), the rest have chosen Udacity, edX, Khan Academy, Codecademy, FutureLearn, but also European MOOCs found on the Open Education Europa portal.
- Most of the MOOCs were in English and a small number in French. However, several students have participated in the collaborative translation of materials in Romanian, where possible.
- Some of the students reported that they have followed a few MOOCs in parallel for supporting other disciplines of the Fall term (for a few courses, their activities in MOOCs were formally recognized by other teachers) or just for self/individual study.
- Suggestions for improvement of the Web Programming course: in general, students’ opinions about the course were very positive, they appreciated the multimedia materials, high interactivity, collaborative activities, mobile access, openness to Social Media platforms, OERs and MOOCs; most proposals were for increasing the number of tutorials in video format.

(a)   (b)   (c)   (d)

Figure 2. Distribution of students: who knew about MOOCs before the course (a), followed MOOCs before the course (b), will follow MOOCs after the course (c); Percentages of activities completed in MOOCs (d)
III. DISCUSSIONS

In the open comments section of the survey asking for opinions about ways to improve the involvement / participation in MOOCs, some students reported the need for a direct communication and feedback from MOOC facilitators, not only from peers. This demonstrates the need for direct communication with facilitators for learning motivation and personalization. A solution is the interaction, both f2f and online, with the course tutor / local facilitator / teacher, as an important component of the blended model. Others suggested that the transcript or at least the abstract of each video material should be published (the same as for videos published on TED.com or dotsub.com). This feature would assure the possibility to search and to focus on specific topics presented in the video clips.

Before this blended course half of the students were not familiar with this new opportunity for education, while all students reported that they have decided to attend new MOOCs. So, the aim of integrating MOOCs in order to sensitize students to the MOOC movement was fully accomplished.

Table 2 summarizes the activities realized by students in the blended course and for each activity the pedagogical benefits are underlined [1], [5], [10]. The specific tags used to report the results of different activities as multimedia messages in the course group are also listed (Figure 1).

<table>
<thead>
<tr>
<th>TABLE 2 BLENDED COURSE ACTIVITIES AND PEDAGOGICAL BENEFITS</th>
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<tbody>
<tr>
<td><strong>Activities in the blended course</strong></td>
</tr>
<tr>
<td>Face-to-face activities</td>
</tr>
<tr>
<td>Discussions for deeper understanding of the course topics/requirements</td>
</tr>
<tr>
<td>Feedback on assignments</td>
</tr>
<tr>
<td>Online activities on Cirip group</td>
</tr>
<tr>
<td>Follow multimedia course materials posted in the group space</td>
</tr>
<tr>
<td>Discussions/evaluation of OER projects/initiatives and CC licenses (#oer)</td>
</tr>
<tr>
<td>Discussions/evaluation of free tools / collaborative platforms for learning (#mytools)</td>
</tr>
<tr>
<td>Post collaborative work results on SM platforms as small OERs (#project)</td>
</tr>
<tr>
<td>Posting multimedia notes with comments, feedback, new resources for course topics</td>
</tr>
<tr>
<td>Post evaluation of additional resources, follow/interact with external users/practitioners, monitor RSS feeds</td>
</tr>
<tr>
<td>Group work</td>
</tr>
<tr>
<td>Group project (#project)</td>
</tr>
<tr>
<td>MOOC</td>
</tr>
<tr>
<td>Study MOOC materials (short videos, podcasts, presentations) and answer to corresponding quizzes</td>
</tr>
<tr>
<td>Solve assessments</td>
</tr>
<tr>
<td>Evaluation of peer assignments</td>
</tr>
<tr>
<td>Discussions / feedback in MOOC forums</td>
</tr>
<tr>
<td>MOOC selection (#mooc)</td>
</tr>
</tbody>
</table>
IV. CONCLUSIONS

This case study is a new scenario proposal for open educational practices, bringing new perspectives for integrating MOOCs in blended courses/flipped classrooms. Students have had a high autonomy in assessing their own learning needs for choosing the MOOCs in which to participate in order to deepen the course topics, but also to find useful information for group project development.

The integration of MOOCs exposes students to high quality materials created with top educational technologies, to collaboration in global learning communities and to a broader range of experiences than those to which they otherwise might have access.

New skills and tasks are required for teachers facilitating blended courses integrating MOOCs: complex course design and management, OERs and MOOCs curation, evaluation of distributed and collaborative activities of students, facilitation of the local learning community and nurture of its integration in the global communities of MOOCs and many more. All of these could be accomplished only if teachers adopt a new and open attitude towards the teaching-learning process, have the will to test and to learn new things together with their students, wanting to oppose uniformity and self-sufficiency.

MOOCs offer challenging opportunities to teachers themselves for improving their knowledge in their own area of expertise and for improving their competencies and skills for adopting new models of open educational practices. We consider faculty members should attend MOOCs too on topics they themselves teach and also on topics related to new educational technologies and pedagogies. Under these circumstances, each teacher could become a long-life learning and informed learner.

The blended learning model with MOOCs integration in which local learning communities are involved bring new pedagogical models, make xMOOCs more close to cMOOCs, add the connectivism and constructivism dimensions and values to the learning process.

Even if students don’t effectively participate in a MOOC, the teacher/facilitator could present a list of MOOCs connected with the course topic, to make students familiar with this opportunity for high quality and continuing learning. This is a practice already used by the paper authors, who have introduced a discussion on MOOCs in each course or in the teachers’ training they facilitate (for example the Didatec project [2]).

4.1. Future work

For this particular course, with a wide area of topics, wrapping around a single MOOC would have been difficult. Based on the experience gained in this blended course, on the feedback received from students and the serious research related to blended learning with MOOCs, we will plan a more complex scenario for the next run of the course.

The group of co-authors, faculties from three different universities, has worked as a small community of practice for researching, discussing, finding the most suitable solution for the blended course scenario. This blended course model will be personalized for their own courses, trying new models of blending and collaboration.

In the near future we plan to organize workshops in our universities in order to inform and to engage other faculty colleagues in adopting the blended learning model with MOOCs integration and in contributing to an expanding community of practice of teachers who experienced this blended model, participating in research and design plans.

Different scenarios for blended learning with MOOCs will be formalized, discussed and validated in the Learning Design group of Cirip, as contributions of a community of practice as well [15].

Which are the pedagogical benefits and learning outcomes for different blending scenarios? How to assess the students’ distributed activities? How to curate MOOCs? These are also a few directions for future research.

The authors hope that the findings presented in this paper can be used by other teachers/instructors for integrating MOOCs in the blended/flipped courses they deliver/facilitate.
Reference Text and Citations


