

EVALUATION OF MOOC: HANDS-ON PROJECT OR CREATIVE USE OF ICT IN TEACHING

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Abstract:

The Hands-On ICT project aims at facilitating the integration of ICT tools in teaching through an open and learning-by-doing environment where teachers will develop their skills with innovative educational tools. In the project we are planning to prepare a set of MOOCs (massive open online courses) to achieve aforementioned aim. In 1st round pilot, where we prepared three creative learning activities, we were evaluating certain characteristics of the courses, importance of communication, successfulness of the course, and researched participants' opinion with open questions. We discovered that although communication and mentoring were not the most important course characteristics, they are important for course successfulness. With brief qualitative research of open questions, we found out, that participants liked the fact of being involved in such international project, but wished for more support at pilot. For the next level of piloting we have to improve tutoring role, work on comprehensiveness and usefulness of future course materials and improve towards successfulness of the courses.

Keywords: MOOC, evaluation, e-learning, ICT

1. INTRODUCTION

The model of knowledge transfer as we refer to the education delivery is constantly changing. In 2008 Dave Cormier and Bryan Alexander invented the new model of education delivery, MOOC – massive open online course (Wikipedia), which emerged from the open educational resources movement. MOOC has the structured content in a defined area of study (course) and it is delivered via web (online) to everyone (open) with no limit for enrolment (massive) (Educase 2013).

MOOCs were at first delivered in higher education, so there is no wonder why they are based on syllabus and the content consists of lecture readings, (short) lectures and assignments. The most known MOOC suppliers are from higher education area. The most well known are edX, Udacity and Coursera. The later is a consortium of about 107 member institutions from all over the world and it has a 47% of MOOC market (Cusack, 2014). Even if MOOCs offer higher education courses, the participants come from a wider scope and not just as higher education students. A lot of participants already have a degree and would like only to update, renew or extend their knowledge or they would like to acquire new knowledge to their career without leaving their jobs and going back to school. At this point the MOOCs offer a real support to long-life learning process (LLL). The major part of MOOCs is free of charge and open, and therefore available to wide, usually English speaking, community. Considering different issues, language and culture characteristics may cause huge obstacles for successfully entering in finishing MOOC course.

Regarding the language issue, some other MOOCs in languages different from English were developed and covered other cultures within the last year (EdSurge, 2013). Not only courses for Spanish speaking population offered by Miriada X, but also several courses in French (France Université Numérique), and in Mandarin Chinese by XuetangX and in Arabic language.

MOOC is a generic name for massive courses, but there are different types of courses as well (Cuzack, 2014):

- xMOOC – the most common type of MOOC. The course is organized around core curriculum and lead by a professor.
- cMOOC, where »c« stays for connectivity. Course based on student-to-student interaction. Students discuss about starting point materials they received at the beginning of the course.
- DOCC – the same course materials are distributed to students at different institutions.
- BOOC – a big open online course is similar to traditional MOOC, but limited to smaller number of students (around 50).
- SMOC – synchronous massive online courses include the lectures with live broadcast. This type of MOOC requires students to be online at specific times.
- SPOC – small private online courses similar to BOOC are usually used as a supplement of F2F classes. This type is closely connected to flipped education.

The first MOOCs were developed in the Computer Science and Engineering category, but nowadays these categories cover only 16% of the market. Other categories rise on a daily basis. One fifth of the courses cover humanities subject and 15% of the courses Business and Management topics. The education and teaching topics obtain 8.6% of MOOC market (Cuzack, 2014).

The dropout rate from MOOC is estimated to be up to 90% (Rivard, 2014). For some advocates this is not a problem because at such massive course with around 10.000 enrolments there are still a lot of students that successfully accomplish the course. It is also known that some participants come into MOOC only to see the look and feel of the course or to refresh certain knowledge or chapter etc. and not with intention to finish it completely.

2. MOOC PILOT AT HANDS-ON ICT PROJECT

2.1. About the HANDS-ON ICT project

The Hands-On ICT project aims at facilitating the integration of ICT tools in teaching through an open and learning-by-doing environment where teachers will develop their skills with innovative educational

tools¹. Various partners in the project combine different areas of expertise in horizontal and vertical levels, therefore the project is focused on secondary and higher education and VET – Vacation Education Training. Partners in the project are:

- The Fundació per a la Universitat Oberta de Catalunya (FUOC),
- Ellinogermaniki Agogi (EA),
- Open Universiteit of Netherlands (OUNL),
- Euro-Mediterranean University (EMUNI),
- The MirandaNet Fellowship (MIRANDA).

Project partners are aware that incorporating ICT in teaching activities can be a burden for many teachers. Learning how to integrate ICT tools in practical teaching and learning activities including searching, selecting, setting up, troubleshooting and evaluation is a time-consuming and lonely task. HANDS-ON is a holistic environment that provides teachers with everything they need in relation to making choices in the use of the most suitable ICT tools for a given pedagogical activity. The environment offers teachers a set of learning activities complemented with:

- The competences they address
- Lesson plans
- Open source ICT tools
- Open content
- A sandbox for trying things out.

2.2. Pilot organisation

The pilot part of the project is organized in three separated rounds. In the 1st round 3 short courses were prepared. The OUNL prepared content for 3 creativity techniques that can be used by teachers:

- Mind mapping and concept mapping (Course A)
- Six Thinking Hats (Course B)
- Triggering Questions (Course C).

Each of the courses started on Monday and lasted for one week. The 1st course (Mind mapping, concept mapping and creativity) started on January 13, 2014, the second course (Six Thinking Hats) started on January 20, 2014 and the third course (Triggering Questions) on January 27, 2014. It was planned that in the 1st round each project partner invites at least 2 teachers, which are not part of Hands-On ICT project team, to participate in the pilot. At the end of the pilot we collected answers and data of activity of 18 participants in our 1st round of piloting.

FUOC was in charge to prepare MOOC platform. The LMS Moodle² was selected as appropriate platform, so FUOC converted the content of three creativity techniques in three separated courses.

After the 1st round of the pilot we predicted that teachers participating in the 1st round would participate in the 2nd round as tutors to teach their colleagues how to use creative techniques within prepared courses. In the 3rd round the participants from the 2nd round would take a tutor role to train their students. The evaluation of the first round is presented below.

2.3 Evaluation methodology

The evaluation process was designed to collect data at 3 levels:

- Before the participants enrolled to the first course. With this pre-enrolment survey we collected participant's demographic data and their experiences with MOOC.
- At the end of each course we collected data about current course content, its interactivity and its impact on participants' creativity.
- At the end of the completed 1st round with attention to collect data for the 1st round evaluation.

Data at all three levels were collected by an e-survey³, based on Lime Survey web application. The participants were invited to participate in the survey through the survey system. The respondents'

¹ Hands-On ICT project started in the beginning of 2013 and it ends in April 2015. More info is available at: <http://handsonict.eu/>

² [Http://www.moodle.org/](http://www.moodle.org/)

personal data were removed before analysis. Data were exported to SPSS. Because of the small number of respondents only basic descriptive statistics were used. We used closed questions in general, which were based on 5-degree Likert scale (1 representing the lowest grade and 5 the highest) and open questions that offered us a possibility to collect more qualitative data, as well. During the whole pilot the authors of the report observed how the course was performed.

2.4 Participants

The basic personal data about participants were collected with the pre-enrolment survey. Three quarters of the respondents were female. The youngest respondent was 26 years old and the oldest was 63. Average age of participants was 40.8 years. Respondents reported to work on different areas – 2 came from natural science field, 8 from humanities or language studies, 3 from technical science and 5 from social science areas. Half of them teach courses from different areas, which is significant for lower levels of education – 7 teach at primary schools, 1 works at secondary school, half of them teach at higher education.

We asked participants about their MOOC experiences. Half of respondents have not participated in any MOOC so far. Other respondents had participated in at least one MOOC or more. In average, our participants were successful in 59.3% courses they had taken part in, which is more than is normally reported (5–10%) (Rivard, 2013).

In the final survey we focused also on overall evaluation of the pilot and on participants' experiences in using LMS in general. One fifth of them (21.4%) had never used Moodle so far, so participating in pilot was their first Moodle experience. The same portion had participated in some Moodle as tutors. 28.6% of respondents had already used Moodle as students. The same portion used Moodle for delivering at least one course or is using Moodle on a daily basis. We were wondering if they are using some other available LMS. Ten different LMS were offered to them and individuals tried or used eTutor, Blackboard, Desire2Learning, eCollege, Dokeos, Joomla LMS, SAP, two used SharePoint LMS. Furthermore, participants reported on a 5-degree scale⁴ that the usage skills of LMS were 3.6. On the other hand, 29.4% of participants reported that they are good or confident and independent ICT users. One fifth of them (23.5%) defined themselves as average ICT users. Others are not good users and 2 respondents characterised themselves as beginners.

3. COURSE EVALUATION RESULTS

All three courses were delivered in the same way: started with introduction and welcome message, short course guidelines and course materials and a forum for communicating with other participants and with tutor of the course. Project partner EMUNI invited students into the classroom, carried out survey facilitation and OUNL who were the authors of the content, did the mentoring part.

Participants were invited after each course to explain how communication among them and communication with a tutor were carried out. Communication is a very important issue in online courses and it is crucial for course successfulness (Sulčič, 2008). Students had different communication attitudes using different communication channels. In final survey they were invited to rate 6 communication channels⁵ for participants' communication and for communication with a teacher or tutor.

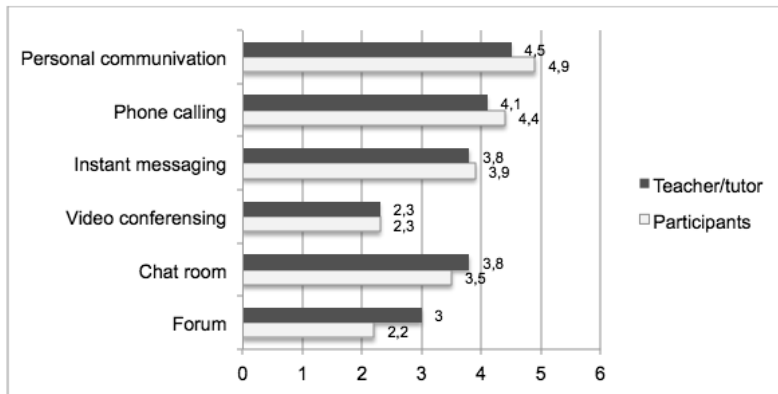
Forum was the most suitable for communication among participants (M=2,2). On the other hand video-conferencing was the highest rated for communicating with teacher or tutor. Video-conferencing is also a suitable communication channel for peer-to-peer communication (M=2,3).

³ [Http://survey.emuni.si/](http://survey.emuni.si/)

⁴ Score 5 was very skilled and score 1 not skilled at all.

⁵ The most suitable communication channel was ranged on the 1st place and the less suitable channel on the last.

Picture 1: Visualisation of HANDS-ON ICT project environment



After each week participants were asked to estimate certain course characteristics that might differ from course to course. But in the final survey we asked them to define how important were in their opinion specific course characteristic. Respondents estimated course characteristics on a 5-degree scale, where 1 stands for not important at all and 5 for very important.

Course comprehensiveness (M=4.6) and usefulness of course materials (M=4.6) were the most important characteristics of an online course for participants. It is interesting that interaction with other course participants and tutor feedback on their activity were not so important (M=4.2) as other characteristics.

Table 1: The importance of course characteristics

| Course characteristic | M | SD |
|--|-----|-----|
| Understand course materials | 4.6 | 0.8 |
| Usefulness of course materials | 4.6 | 0.6 |
| Contemporary (up-to-date) course materials | 4.5 | 0.9 |
| Active tutor support | 4.4 | 0.9 |
| Interaction with a tutor | 4.4 | 0.7 |
| Clearness of course instructions | 4.4 | 0.9 |
| Course design | 4.4 | 0.9 |
| Presentation of course materials | 4.4 | 0.9 |
| Course navigation | 4.3 | 0.8 |
| Tutor feedback on participants activity | 4.2 | 0.9 |
| Interaction with other course participants | 4.2 | 1.0 |

Legend: M=mean, SD=standard deviation

The respondents' opinion about the importance of course characteristics for the successfulness of an online course conclusion was used to recalculate the grades gathered from weekly surveys. Participants estimated particular course characteristic after conclusion of each course. The importance of course characteristics in the final survey was used as weigh.

As shown in Table 2, Course B received the highest grade. The average course grade was weighed by the average estimation of the importance for course successfulness. It is interesting that these grades ranged the courses the same as grade of course performing – course B had the highest score. We assumed that Course A (mind mapping) would not employ so much interest from participants than Course B or Course C. Participants worked very hard in Course C, for which they spent in average 6.4 hours per week. The least amount of time was spent at the highest ranged course, that is Course B. Probably this could be the second reason why Course B is placed so high.

Table 2: Course grades

| Variable | Course A (n=14/17*) | | Course B (n=12/16*) | | Course C (n=13/14*) | |
|-----------------------------------|------------------------|-----|------------------------|-----|------------------------|-----|
| | M | SD | M | SD | M | SD |
| An average course grade (weighed) | 3.08 | | 3.28 | | 3.12 | |
| Estimation of course work | 3.2 | 0.9 | 3.2 | 0.8 | 3.1 | 0.9 |
| Course workload (in hours) | 5.2 | 3.8 | 4.1 | 3.0 | 6.4 | 3.3 |
| Estimation of course performing | 3.3 | 0.9 | 3.5 | 1.0 | 3.4 | 0.9 |

Legend: *n=respondents/course participants

We found out that the Course C there had no tutor support, which can be seen from Table 2. As we explain later on, lack of tutor support influenced the successfulness of the course as well. The topic of the Course C had the power to impact participants' creativity (M=4.1) even more than the two other courses. From this analysis we could see that the reason, why the Course B received the highest grades, were in participants' workload. Course B had the least creativity potential of all three courses. Course A did not offer a particularly new topic, since mind mapping is a common creativity technique. This could be an explanation for lower course grade and lower applicability to their future work with this course (M=2.9). The grades of comparison of all three courses are presented in Table 2

Table 3: Grades comparison in courses

| Variables | Course A | | Course B | | Course C | |
|--|----------|-----|----------|-----|----------|-----|
| | M | SD | M | SD | M | SD |
| Communication | | | | | | |
| - with participants | 3.3 | 0.9 | 3.6 | 1.1 | 2.8 | 1.5 |
| - with teacher/tutor | 3.2 | 1.2 | 3.2 | 1.7 | 2.6 | 1.4 |
| The course impact | | | | | | |
| The course met their expectations. | 3.6 | 0.9 | 3.6 | 0.9 | 3.4 | 1.1 |
| The course will be recommended to their colleagues. | 3.8 | 1.0 | 3.8 | 0.7 | 3.6 | 0.8 |
| They will apply to the future work what they have learned. | 2.9 | 1.1 | 3.4 | 0.9 | 3.4 | 1.2 |
| The course will impact on their creativity. | 3.8 | 0.8 | 3.7 | 0.8 | 4.1 | 0.7 |
| The course should be offered to the others. | 3.9 | 0.9 | 3.9 | 0.7 | 3.9 | 0.8 |

Participants in pilot had to perform different course activities. Data about their successfulness was collected through Moodle grade book and Moodle report statistics. Even though Course C had the greatest impact on their creativity (**Napaka! Vira sklicevanja ni bilo mogoče najti.**), only a few participants finished course tasks in Course C. As shown in

Table number of participants declined from Course A to Course C. One explanation could be that participants that stayed till the end of pilot are the most motivated ones and therefore the impact is so high.

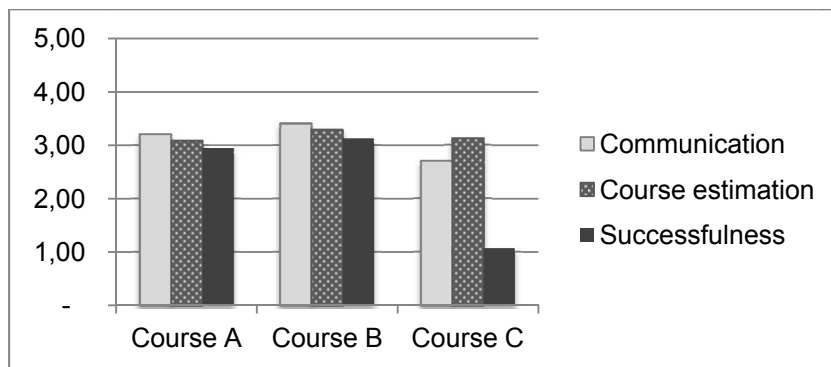
Table 4: Course successfulness

| Course | No. of participants | Concluded all tasks | Concluded most of tasks | Concluded some of tasks | Not active |
|--------|---------------------|---------------------|-------------------------|-------------------------|-------------|
| A | 17 | 5 | 2 | 3 | 7 (41.2 %) |
| B | 16 | 4 | 2 | 3 | 7 (43.8 %) |
| C | 14 | 1 | 2 | | 11 (78.6 %) |

We tried to find out where were the reasons for such dropout even if dropout is common in MOOC. But our courses were not massive yet, colleagues from project partners participated in it and it was expected that participants would continue as tutors in the 2nd round of the project.

We couldn't use inferential statistic methods, so we presented data using only descriptive statistics methods. As shown in Picture 2 there should be some correlation between communication among participants and especially with a tutor that influence course successfulness. This is a challenge for future research.

Picture 2: Course communication, estimation and successfulness



For the future development of the Hands-On ICT project especially for the 2nd round of the pilot the question about their willingness to join as a tutor in such courses is very important. We received 12 answers on this question, where 25% would absolutely join as a tutor, 67% maybe and 8% would not join as tutors. They expressed doubt to be skilled enough to take part as a tutor at such courses.

We added open questions to the survey as well, where participants had the opportunity to discuss the pilot. We figured out the following with a help of qualitative approach research.

In weekly surveys only few respondents left comments. Based on all responses we can conclude that:

- Communication among participants is important even if it wasn't a very important factor for course successfulness.
- The tutor support and feedback is very important as it was estimated in course characteristics as well.
- More cases about how to use creative techniques in practice have to be presented in the future courses.
- More pedagogical and didactical approaches have to be included in the future courses.

In the final survey respondents were asked three open questions:

- What did they like in the pilot?
- What they did not like in the pilot?
- What would they like to change in the pilot?

They liked

- The fact of being from different countries.
- Enthusiasm from the participants.
- The exchange of views and experiences.
- It is an excellent idea and there was some useful information.
- The built in possibility to work out tasks that are directly useful in their daily practice for teachers.
- It is well designed. I made comments for the most important issues.
- Acquiring ICT skills and enjoying the big flexibility.
- The possibility to lift courses to a higher level, that is, to where science and practice meet.
- That we change our minds about the course material and how to use them.
- The materials.
- The Moodle environment was user-friendly.

They didn't like

- Poor participation, easy information tasks except last one: too difficult to make a video.
- Feedback and boost for participation needs improvements.
- I personally needed more encouragement and motivation.

- There was not enough interaction. The course design was not engaging.
- Too little really theoretical sources on used techniques.
- It was short.
- I think that the temporization (structure of the course in time) has been a bit disorganized.
- It keeps surprising me how good we are at distancing ourselves from practice but still pretend to know how practice works.
- The sources were not up to date, I do not prefer a Wikipedia as a serious source, the navigation in courses was poor and not very understandable, I did not get any info from tutor.
- The communication with colleagues and tutors.
- The training content was "poor".

They would like to change

- More feedback.
- Navigation bar.
- More direct feedback, better design of the course and the virtual environment.
- I believe that it was a very useful and interesting experience. Thank you very much!
- More interactivity, variety in modes of instruction. More up to date. Clear and concise information followed up by more detailed but still clear background. Ideas for using the ideas in a variety of classrooms.
- More useful sources; more classroom directed study tasks.
- It would be better if it were enriched with more questions.
- Temporization. An orientate calendar about when to deliver activities would have helped.
- A better level, better connecting theory and practice. This means use scientific input to be deployed practically. The latter clearly needs attention in this platform.
- A better concept of a course, more activity from tutor, more reliable sources, and the theme of first course is the base for the second one and so on.
- I would include tutor feedback after each task and more communication in the forums.
- Enhancement of training content with more articles.

4. CONCLUSION

In the pilot, which consisted from 3 courses with total of 18 participants entered in at least one course activity. The evaluation process of the pilot was designed to collect data at 3 levels: before the participants enrolled to the first course, at the end of each course and at the end of the complete 1st round with attention to collect data for the complete 1st round evaluation.

Participants emphasised that forum is the most suitable for communication among participants and video-conferencing is the most appropriate way to communicate with teacher or tutor.

Course comprehensiveness and usefulness of course materials were the most important characteristics of an online course for participants. Among courses, the second one got the best grade, but workload was the highest in Course C.

We noticed, that in the Course C there was no tutor support and a lack of tutor support influenced the conclusion of the course as well. Even though Course C had also the greatest impact on their creativity, there are only a few participants that finished course tasks in Course C, which were the most dedicated participants. Very important is the fact that the number of participants and their active engagement declined from course A to course C rapidly.

Our general observations and recommendations for following next round of pilot is:

- Since courses are not MOOC courses yet, we need more tutoring support for pilot testing.
- Roles should be clearly defined and followed, because participants exposed in commentaries that they missed the content support.

- Links, which point to the external content or external course materials, need to be opened in a new browser window.
- Participants expressed there was too much text on course front page, which can be reduced and put in separated course pages.

In general, our opinion from the 1st round of pilot is that it was successful, but there are options to improve learning activity especially with tutoring role, work on comprehensiveness and usefulness of future course materials and towards successfulness of the courses. And particular course content should be so interesting and captivating that drop rate would not be so high as we experienced in the 1st round.

REFERENCE LIST

1. Cross, Simon. 2013. Evaluation of the OLDS MOOC curriculum design course: participant perspectives, expectations and experiences. Available: http://latestendeavour.files.wordpress.com/2013/06/evaluationreport_oldsmooc_v1-0.pdf (accessed January 22, 2014)
2. Cuzack, Alex. (2014). MOOC INFOGRAPHICS. MOOCs – Think Massively. Available: <http://moocs.com/index.php/category/mooc-infographics/> (accessed February 8, 2014).
3. Educase. 2013. 7 thing you should know about... Available: <https://net.educause.edu/ir/library/pdf/ELI7097.pdf> (accessed January 23, 2014)
4. Rivard, R. (2013). Measuring the MOOC Dropout Rate. Inside Higher Ed. Available: <http://www.insidehighered.com/news/2013/03/08/researchers-explore-who-taking-moocs-and-why-so-many-drop-out> (accessed February 8, 2014)
5. Sulčič, V. (2008). E-izobraževanje v visokem šolstvu. Koper: Univerza na Primorskem, Fakulteta za management.
6. Wikipedia contributors, Massive open online course, Wikipedia, The Free Encyclopedia, Available: http://en.wikipedia.org/w/index.php?title=Massive_open_online_course&oldid=591752871 (accessed January 23, 2014).