

Applied Educational Innovation MOOC: Learners' experience and valorization of strengths and weaknesses

Francisco J. García-Peñalvo, Vanesa Fernández Hermo
GRIAL Research Group, Research Institute for Educational Sciences, University of Salamanca, Spain
fgarcia@usal.es, vane89.fdez@gmail.com

Ángel Fidalgo Blanco
Technical University of Madrid, Spain
afidalgo@dmami.upm.es

Marisa Sein-Echaluce
University of Zaragoza, Spain
mlsein@unizar.es

ABSTRACT

Due to the increasing training demand, technological advances, access to information and movements such as open social learning or open educational resources have fostered the emergence of new educational approaches, a clear example of this is the Massive Open Online Courses or MOOCs. Focusing on the development of one of these massive courses, the MOOC "Applied Educational Innovation", this research aims to study the participants' experience in this MOOC, just in order not only to meet their interests when making the course, but also what attitudes they had during the development of it and how they valued aspects such as organization, content, materials or evaluation, all of this, trying to know the MOOC strengths and which aspects can be improved. To do that, a quantitative and descriptive approach has been taken into account, using variables as gender, age, nationality, professional profile, previous experience in this kind of courses, interest in the topic of the MOOC, interest for the course and level in performing the MOOC. For data collection, a questionnaire has been designed following the SEEQ model that has been fulfilled by 1,047 MOOC participants. After analyzing the data, very interesting results have been drawn, underlining that heterogeneity of profiles has not presented a significant difference in the responses of the participants. Given the good results obtained, we may consider this MOOC as a model that provides substantial improvements that may be adopted by other institutions that want to develop new courses under the MOOC trend. However, there is much ground to cover and this study has also raised proposals for helping us improving the proposal based on two sources: the participants' opinions reflected on the questionnaire, as well as those who have contributed in a semistructured interview.

Categories and Subject Descriptors

D.1.2 [User/Machine Systems], H.3.5 [Online Information Services], H5.2 [User Interfaces], H.5.4 [Hypertext/Hypermedia], K.3.1 [Computer Uses in Education]

General Terms

Design, Human Factors.

Keywords

MOOC; Participant experience; SEEQ; Quantitative research.

1. INTRODUCTION

We are now in a the so called Digital Era, in which the technological advances have revolutionized the way people relate, communicate and even learn. Internet has been a before and an after, it has opened the doors to unlimited information resources and technological phenomena such as Web 2.0 [17] have changed the role of Internet users definitely becoming them more active agents.

In this situation where technological advances and unlimited access to information are combined, it is usual speaking about online learning or eLearning [9; 10], blended learning [13] or mobile learning [19] among others, but with the support of open approaches such as Open Access, Open Educational Resources and Open Social Learning [11; 12], a new approach in about online learning with a massive context has born, the Massive Open Online Courses or MOOCs [20; 21; 24].

Not long time ago talking about massive courses would have been almost unthinkable, based on open educational resources, without teachers to monitor the students' learning, with a pre-design method for self-assessment, with flexible timetables and all for free (or not it depends on the business model behind the course [14]). However, there is now a definite interest in MOOCs that is causing a context in which higher education institutions (HEIs) are re-evaluating their online learning provision [23].

Today MOOCs are really trending topic in educational research [15; 16], even the New York Times coined 2012 as the year of the MOOCs due to the great impact they had at worldwide. The increase of institutions that offer such courses [18] and their high enrollment rates also reflects the success of this model of online training. However, their dropouts of around 95% [1; 6] and the assessment model are the most criticized aspects. There are indications that some MOOCs are becoming more focused on corporate training, which suggests that they may not pose a immediate threat to the existing pedagogical, revenue or business models of HEIs [23], as a result, the commercial MOOC providers, such as Udacity and Coursera, have moved on to professional and corporate training, broadening their offerings to appeal to employers [2].

With the aim of improving the pedagogical issues related to the MOOC development, we defined a methodological approach based on three main elements:

- Adaptivity [6].
- Collaborative work [8].
- Introducing informal learning activities [7].

We implemented the proposed methodological approach in the MOOC entitled *Innovación Educativa Aplicada* (Applied Educational Innovation) [5] that was developed in MiriadaX platform (<https://www.miriadax.net/>).

This paper is devoted to present the Applied Educational Innovation MOOC participants' experiences with the goal of knowing their motivation to enroll in this MOOC; their attitudes in the development of it; and how they evaluate aspects such as organization, contents, resources or assessment issues in order to meet the strengths and the weaknesses of this MOOC and its methodological base.

The rest of the paper is organized as follow: Section 2 is devoted to present briefly the structure of the Applied Educational Innovation MOOC. Section 3 describes the methodology and the instruments used in the study. Section 4 presents the most significant results of the study. Finally, Section 5 closes the paper with some conclusions and remarks.

2. APPLIED EDUCATIONAL INNOVATION MOOC

The Applied Educational Innovation [5] was the chosen MOOC to put in practice the methodological framework [6-8] developed to improve learning outcomes in massive online courses.

The main characteristics of this MOOC are:

- **Platform:** MiriadaX (<https://www.miriadax.net/>).
- **Dates:** From March 6th, 2014 to April 10th, 2014.
- **Previous required knowledge:** Internet and social networks.
- **Language:** Spanish.
- **Estimated required effort:** 6 hours per week.
- **Faculty:** Ángel Fidalgo PhD, M^a Luisa Sein-Echaluce PhD and Francisco J. García-Peñalvo PhD.
- **Methodology:** MiriadaX is a xMOOC based platform, the instructional design introduces cMOOC activities and informal learning activities, using a Google+ community also (<http://www.conectivismo.net/>).
- **Modules:** The MOOC is composed by 6 modules. Modules 0-3 were opened from the beginning, modules 4 and 5 were opened one and two weeks after respectively. Module 0 was for introducing the course: Module 1 established the conceptual basis for the Educational Innovation; Module 2 presented indicators about Educational Innovation; Module 3 was devoted to discuss about Educational Innovation impact; Module 4 had a more practical orientation regarding how to apply innovation in real educational contexts; and Module 5 introduced the searching and dissemination activities of the Educational Innovation good practices.
- **Main resources:** Short videos (with a 2-7 minutes duration, see Figure 1); Blog entries [4]; Tests; PDFs; Google+ Learning Community; Forum.



Figure 1. Example of one of the videos.

3. RESEARCH METHODOLOGY

The study made is based on a quantitative and descriptive method. We are going to use a closed responses instrument with questions about the participants' experience in the MOOC. This is an exploratory and non-experimental study, then no experimental hypotheses were established.

This kind of massive courses is open to different profiles of participants due to no previous knowledge is required. This means a wide participant heterogeneity, thus we need taking into account different variables: genre, age, nationality, professional profile, previous experience in MOOCs, interest in the MOOC topics, personal motivation in the course and level of development of the MOOC.

Regarding the population and the sample we have to take into account the following data:

- **Number of the enrolled participants:** 6,149.
- **Number of participants that started the course:** 3,736.
- **Number of participants that finished the course:** 1,735.

Then, the population is 3,736 persons and we work with a sample of 1,047 participants that answered the questionnaire of this study.

The questionnaire was developed based on the Students' Evaluation of Educational Quality (SEEQ) model [22]. This model has a structure that permits analyzing the teaching effectiveness and identifying areas for improvement using a series of factors including learning, enthusiasm, organization, interaction with students, personal attitude or assessment among others. All of these factors are rated with a Likert scale from 1 to 5.

We adapted SEEQ model taking into account the needs of the study. First, due to the diversity in the participants' profiles, we defined a set of questions regarding the participant profile. After that, we proposed different items in order to appreciate the MOOC. These items were grouped following the SEEQ model factors in these categories:

- Learning.
- Enthusiasm.
- Contents.
- Organization.
- Personal attitude.
- Assessment and workload.
- Interaction with the group.
- Other opinions.

The questionnaire was evaluated by experts and following their feedback it were adjusted to be sent to the participants. The questionnaire was implemented using Google Drive and its final version may be seen in [3] (in Spanish).

To deepen the data collected with the questionnaire a semi-structured interviews process was designed to interview those voluntary participants that wanted collaborating with us.

4. STUDY RESULTS

4.1 General data

Figure 2 shows the participant progress in the MOOC, taking into account those who finished each module. The trend is clearly downward, considering the number of participants who started the course, 60.8% of those enrolled, ending the first presentation module, 3,304 of 3,736 participants who had started and finished the last module 1,735. Despite being a small number in relation to those who started, we have achieved a 46.4% completion rate, a success in these massive courses.

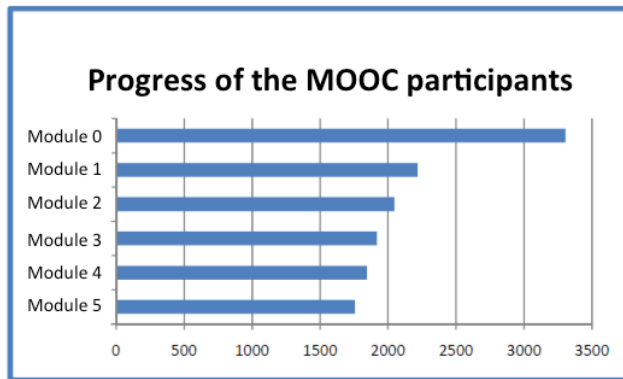


Figure 2. Progress of the MOOC participants by module.

4.2 Participants' profiles

Due to the massive characteristic of the MOOC courses, it is very important to do a good classification of the participants' profiles in order to make a suitable interpretation of the gathered data. Taking into account the 1,047 questionnaires collected, we may have the following profile data.

Figure 3 presents the genre variable. We received 635 questionnaires from women (60.6%) and 412 from men (39.4%).

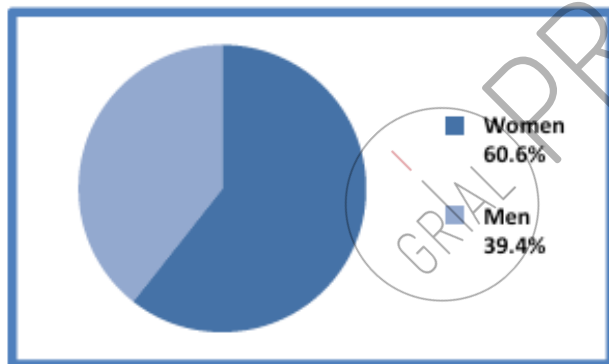


Figure 3. Genre variable (N: 1,047).

	Participants	Rate
More than 50 years	175	16.7%
Between 40 and 49 years	292	27.9%
Between 30 and 39 years	304	29%
Less than 29 years	276	26.4%

Figure 4. Age variable (N: 1,047).

Figure 4 presents the age variable. The interval between 30 and 39 years is the most representative (29%) and the less one is the interval of more than 50 years (16.7%).

The nationality variable is presented in Figure 5. MiriadaX is a Latin-American platform, thus the nationality variable is localized into two main groups, Spain and Latin America.

	Participants	Rate
Spain	572	54.6%
Latin America	460	43.9%
Europe (except Spain)	12	1.1%
Africa	1	0.1%
USA	1	0.1%

Figure 5. Nationality variable (N: 1,047).

Figure 6 shows the professional profile of the participants. The most significant one is the university teacher.

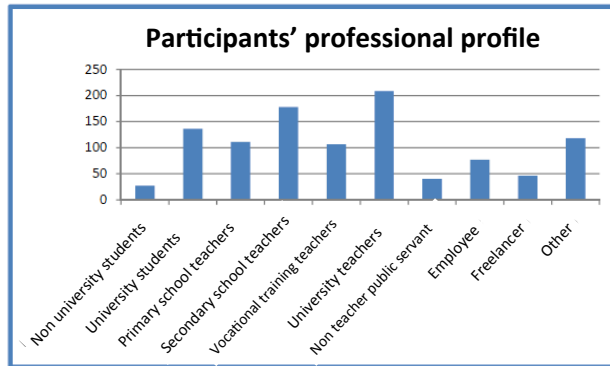


Figure 6. Professional profile variable (N: 1,047).

Figure 7 presents the previous experience of the participants with other MOOCs. The 45.7% of the sample has not previous experience with this kind of massive courses, however 569 participants of the sample (54.3%) had followed one MOOC at least.

	Participants	Rate						
Yes	569	54.3%	Nº	Started		Finished		
				Nº	%	Nº	%	
				Till 3	325	31.8	385	36.8
				Between 4 and 10	203	19.4	155	14.8
				Between 11 and 20	36	3.4	29	2.8
More than 21	5	0.5						
No	478	45.7%						

Figure 7. Previous experience with MOOCs variable (N: 1,047).

Educational Innovation is the main topic of the studied MOOC, thus it has certain importance to know what knowledge the participants have about it. It is significant, as it is shown in Figure 8, that 662 participants of the sample (62.9%) have no previous experience in Educational Innovation issues or only they know the term in Internet. On the contrary, the 37.1% has applied Educational Innovation principles or practices or has played a role related with the Educational Innovation.

	Participants	Rate
No previous experience in Educational Innovation	375	35.5%
Only has seen information in Internet	287	27.4%
Has applied or applies Educational Innovation practices	323	30.9%
Has played or plays a role related to the management of the Educational Innovation	65	6.2%

Figure 8. Previous experience with Educational Innovation variable (N: 1,047).

There were different motivations to follow the Applied Educational Innovation MOOC. Figure 9 presents the participants' answers to this question.

	Participants	Rate
Knowing what Educational Innovation is, but I do not think to apply it by now	76	7.3%
Starting to apply the Educational Innovation practices	273	26.1%
Having a new perspective about Educational Innovation	239	22.8%
Broadening the education in general	193	18.4%
Professional interest	247	23.6%
Knowing how is organized the course and its materials	8	0.8%
Obtaining a certificate	6	0.6%
Other	5	0.5%

Figure 9. Motivation to make the MOOC variable (N: 1,047).

The last variable regarding participants' profile is the finalization degree of the MOOC. It is notable the high rate of the participants that has finished the MOOC at the moment to answer the questionnaire (see Figure 10), taking into account that the 56.4% did all the activities, including those in the learning community that were optional ones, and the 33% that finished the course without doing the optional activities.

	Participants	Rate
I completed the MOOC including the optional activities in the learning community	591	56.4%
I completed the MOOC, but not the optional activities in the learning community	345	33%
I completed 75% of the MOOC	47	4.5%
I completed between 50% and 75% of the MOOC	35	3.3%
I completed less than 50% of the MOOC	22	2.1%
I did not follow the MOOC	7	0.7%

Figure 10. MOOC finalization degree variable (N: 1,047).

4.3 MOOC global evaluation

The global evaluation of this MOOC, especially wondering to know if the MOOC had been exciting, dynamic and active, was very positive, with a mean of 4.3591 over 5. As it can be seen in Figure 11, only 32 participants of 1,047 evaluated the MOOC negatively with "little" or "nothing", while 901 considered it "quite well" or "too much". 114 participants considered the neutral grade of 3 in a Linkert scale that means "well".

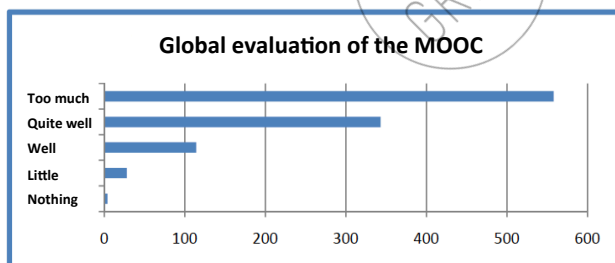


Figure 11. Global evaluation of the MOOC (N: 1,047).

4.4 Participants' expectations evaluation

The participants were asked if their expectations had been met. Their answers are presented in Figure 12, with a ratio of 86.6% of "quite satisfied" or "very satisfied" persons.

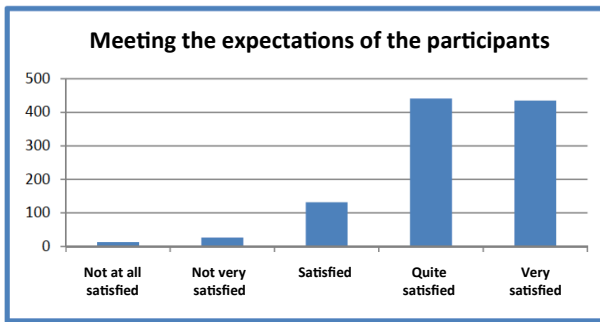


Figure 12. Participants' expectations evaluation (N:1,047).

4.5 Participants' attitude evaluation

The participants also were asked about their sensations and feelings when they were involved in the MOOC. The Figure 13 presents the means of each sensation. We may consider that this MOOC has caused, in general terms, interest, motivation and enthusiasm, without causing confusion or loneliness. It is curious that the positive aspect less valued was "Being part of a learning community" with a mean of 3.3 when this is precisely one of the principal aspects of the proposed methodology.

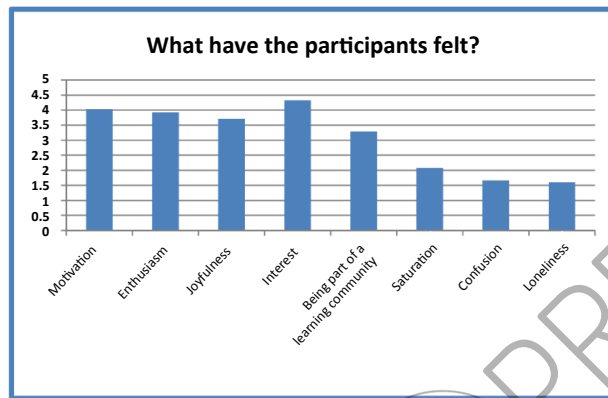


Figure 13. Participants' sensations and feelings (N: 1,047).

4.6 Self-evaluation of the participants' learning

In general terms, the participants have considered that they have learned during this MOOC, with a mean of 4.3962 over 5 (see Figure 14).

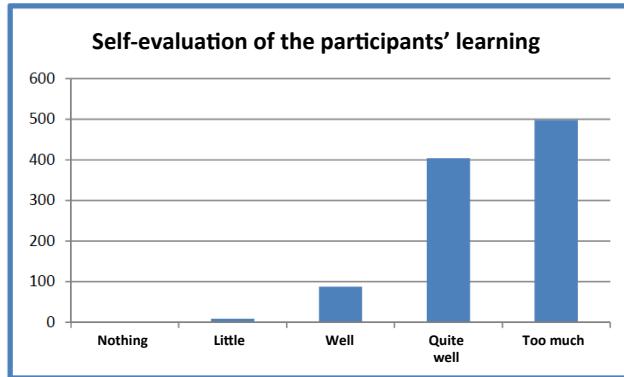


Figure 14. Self-evaluation of the participants' learning (N: 997).

4.7 Evaluation about different aspects of the MOOC

Different aspects of the MOOC such as the organization, the methodology, the resources, the activities, the assessment, the work invested, the received motivation to participate, the learning community and the forum.

In general all the items had good scores (see Figure 15). The resources has the highest value and the worst valued is the forum with a mean of 3,0888, but this data is not too much relevant for this study because of the forum was only used for technical doubts and it has no relation with the learning process.

The methodology was a very important item for the research team. With a mean of 4,1911 over 5 it was also consider as a key element for the MOOC participants.

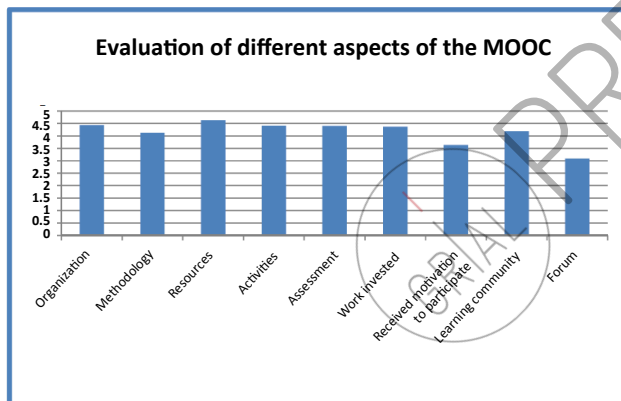


Figure 15. Evaluation of different aspects of the MOOC (N: 1,047).

Also the participants were asked about the MOOC goals. Literally the question was formulated "The initial objectives in the course match those actually achieved". Figure 16 shows the answers, with a 86.7% that is agree or strongly agree with the statement, and only a 2.2% is disagree or completely disagree with it.

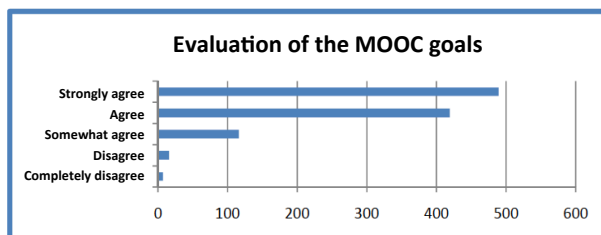


Figure 16. Evaluation of the MOOC goals (N: 1,047).

4.8 Analysis of the open comments of the questionnaire

529 participants of the sample gave us feedback about positive aspects about the MOOC, while 425 expressed some weaknesses or improvement areas about it, as it can be seen in Figure 17.

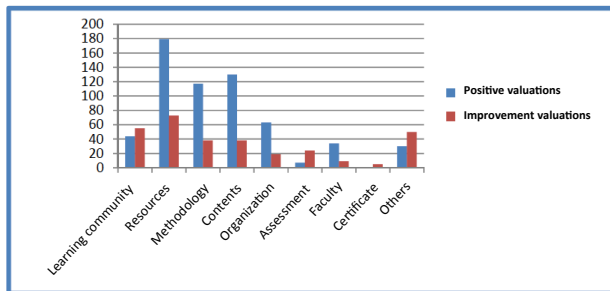


Figure 17. Positive and negative aspects of the MOOC.

Regarding positive feedback, resources received good valuations (179 positive comments), especially the videos, due to their clarity and duration, and Fidalgo's blog entries [4], as a perfect complement to the videos. Contents have 130 positive comments highlighting the quality and the innovation of the presented topics. Methodology, with 117 positive comments, was other well-valued element distinguishing its dynamism, flexibility and the proposed activities. Faculty received 34 positive comments emphasizing their effort, compromise and proximity.

The learning community received 44 positive valuations regarding sharing new resources and other perspectives, but it also receives a significant number of improvement proposals related to information overload that makes the interaction more difficult, duplicated information, bad resources cataloguing and labeling by the participants, and lack of moderation.

The assessment method received several critiques too. The participants demand other assessment methods different than the tests, for example peer reviewing, and more feedback in the failed questions of the tests.

5. CONCLUSIONS

This study has been very successful for the MOOC involved team, especially because we have received very valuable feedback that allows us first relying in the proposed methodological framework and second detecting improvement areas in which ones we have to go deeper and propose new approaches.

One of the main conclusions of this study is that having only a methodological framework it is not enough to cover all the problems related to MOOCs, because we had to use a specific platform that was not under our control, thus we had to accept its limitation and offer other technological alternatives for some of the defined activities.

Some highlighting aspects to take into account are (although we do not want to make generalizations because the study is based on only one MOOC):

- The finalization rate has been very successful (46.4%).
- Although participants had heterogeneous profiles, this has not presented a big difference in the evaluation they have made about the MOOC.
- Regarding the personal attitude during the MOOC, the participants expressed a positive perception with a mean of 4.3 over 5. It is important to say that the participants that have valued better this aspect were those that had previous knowledge in Education Innovation.
- Learning community had good valuations but also interesting improvement areas were detected. Some of the most significant positive comments were related to the initiative to maintain the community open and active beyond the end of the MOOC edition.
- Participants demand other assessment methods, with more interaction and feedback beyond the typical test based assessment methods.

MOOCs have pedagogical and technological problems, weaknesses and significant improvement areas, however they are a very interesting option for lifelong learning education and they support the open education principle.

In our opinion MOOCs are not valid for everything and their goal or value is not oriented to substitute the Higher Education models we have at the present, but they are raising the debate to improve and change educational models and especially online learning models in HEIs and also in corporate training departments.

6. ACKNOWLEDGMENTS

Authors would like to thank the partners of their respective research groups for the received support (LITI, <http://www.liti.es>; GRIAL, <http://grial.usal.es>; and GIDTIC, <http://gidtic.com>).

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