RETHINKING ASSESSMENT POTENTIAL IN MASSIVE OPEN ONLINE COURSES TO SUPPORT STUDENT LEARNING: THE EXPERTS' POINT OF VIEW

Maite Fernández-Ferrer, Universitat Oberta de Catalunya, Spain

Summary

In recent years, the need to rescan distance education as a future strategy for higher education institutions has been called for. 2012 was the year in which Massive Open Online Courses were the trend for excellence in the world of online education, and from 2013, they began to find themselves among the emerging technologies on the horizon for the following years, and as a learning modality that represented an important development in open education. Thus, MOOCs are presented as an appropriate, current and emerging topic and, moreover, they are of great importance and relevance in the context of learning designs in higher education. This paper specifically focuses on the subject of assessment for learning in the context of MOOCs through the findings relating to experts in online assessment interviews with the participation of 13 university professors at Spanish level. These results are divided into two sub headings: the assessment strategies in MOOCs and the strategies, tools and practices for formative assessment from these experts' point of view. Personalized learning, adaptive teaching, formative assessment and feedback are the main and most recurrent themes analysed in the context of this research that is part of a doctoral thesis.

Introduction

Massive Open Online Courses (MOOCs) have generated great interest as agents of change in higher education. Since their inception, these courses have been the subject of educational and pedagogical reflection. They have also generated new debate in the line of these being a new vehicle to experiment, investigate and innovate teaching and new educational models in college campuses, and to better understand how to teach and how to learn in these contexts. In this regard, MOOCs had emerged as an opportunity to rethink learning. This was how this new learning modality has ended up being not only a tool for improving access to education (Fernández-Ferrer, 2017), but also as a key element to improve the teaching and learning process and as a stage to carry out research on how these MOOCs are changing the way teachers teach and students learn.

Indeed, in 2012, the New Media Consortium (NMC) (an international consortium of schools, universities, museums, corporations and other organizations worldwide engaged in the exploration and use of new media and new technologies) already indicated that the new MOOCs would be implemented in higher education institutions in a four-to-five year horizon

(Durall, Gros, Maina, Johnson, & Adams, 2012) and that during 2014, they would be among the technologies having the greatest impact on the university context, together with tablets, video games, gamification, learning analytics, 3D impressions and laptop technology. Then, in 2013, the 9th edition of the Horizon Report (Johnson et al., 2013) particularly emphasized the impact of these Massive Open Online Courses in the current scene, and in 2015, this same learning modality was among the "Top eLearning Trends for 2015" according to the e-learning industry.

In this regard, in 2014, when the presented research began, there was little empirical research on the effects of this new modality in learning and, moreover, its true influence and the possible changes that MOOCs could generate in the educational processes were not highlighted. In this sense, the study presented below covers a space, in the beginning, marked by the lack of knowledge and research, which aims to respond to the initial concerns about this new learning modality and to its relevance in the academic context and in the framework of higher education.

This research specifically focuses on the subject of learning assessment in the context of these MOOCs. From a didactic point of view, assessment in Massive Open Online Courses, and especially the lack of a formative type that provides constant feedback to the participants, has been one of the most criticized by the educational community. In this sense, the question has been raised as to whether these courses could really become educators considering that they do not have guidance, since the presence of a tutor or a teacher to conduct monitoring and immediate feedback is: a true key to learning. This lack of formative assessment in these virtual environments has brought about the implementation of alternatives and the use of new strategies to analyse student activity throughout the course and so providing feedback that could improve their learning processes. For this reason, all of these elements relating to the assessment of learning have endeavoured to be specifically analysed in the context of the study.

Methodology

This paper is part of a doctoral thesis that tries to open a clear line of research that allows the possibility to have real data on the possibilities, limitations and problems of this new learning modality. The main objective of this thesis is to understand the meaning and scope of MOOCs in the context of higher education today pursued through eight specific goals needed to achieve this overall objective. These specific objectives have been responded from the use of the six sources of data collected: bibliographical documental analysis; teachers of educational technology' open questionnaires (27 responses) (Cabrera & Fernández, 2017); experts in Massive Open Online Courses' open questionnaires (20 responses) (Cano García, Fernandez Ferrer, & Crescenzi Lanna, 2015); edX, Coursera, Udacity and Miríada X MOOCs documental analysis (1,401 MOOCs) (Fernández-Ferrer, 2018); higher education students' closed questionnaires (1,425 responses) (Ferrer, 2017) and experts in online assessment interviews (13 responses).
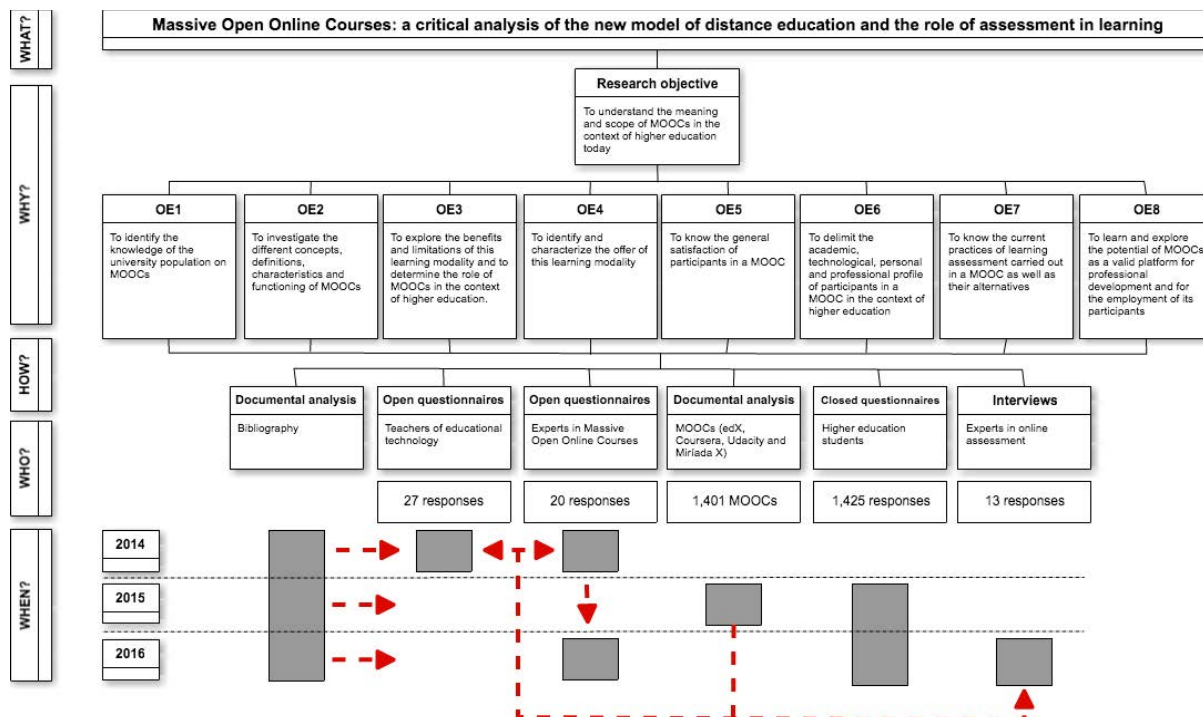
Figure 1. Diagram on the research design

Specifically, the main objective of this paper is to know the current practices of learning assessment carried out in a MOOC as well as their alternatives – the seventh specific objective (OE7) of the doctoral thesis presented above (Figure 1). This part of the research presents the results of the findings relating to experts in online assessment interviews with the participation of 13 university professors at Spanish level. The design of this interview was brought together through the analysis of the results of the first stages of the thesis regarding the topic of learning assessment (both documental analysis and open questionnaires). Those first results were embodied in an infographic to be discussed by the informants during the holding of these interviews.

The qualitative analysis of the contributions of these experts was achieved through the description and interpretation of their contributions and putting their voice as verbatim quotes. The analysis is divided into two sub headings: the assessment strategies in MOOCs (1) and the strategies, tools and practices for formative assessment (2).

Results

Assessment strategies in MOOCs (1)

In relation to the most used assessment strategies (*questionnaires or multiple-choice questions and, to a lesser extent, exercises, assignments or tasks*), through analysing in 2015 the platforms edX, Coursera, Udacity and Miríada X, most experts in online assessment were not surprised. From their point of view, many of these results reinforce the idea that assessment activities used in Massive Open Online Courses were easier to develop and implement with technology, more comfortable and, moreover, consistent with online learning and teaching processes and

the features of a MOOC (the number of its students and the limited capabilities of designers and teachers in this modality). However, and despite being the most widely used instruments, many of these respondents said that if they continued this line, MOOCs probably would not be considered as student learning. Other experts concluded that this was a typical type of assessment in most cases and not only in MOOCs, being a reproduction of the traditional models of education.

> (…) I find it very consistent that most are multiple-choice questions and exercises, assignments or tasks. That these two items are the majority I find it consistent with the idea that I have of what online education is, whether it is a MOOC or not (interviewed LL.C.).

> I believe that MOOCs, from a methodological point of view, are a repetition of the most classic learning schemes but using new technologies (interviewed G.R.).

On the other hand, the fact that *projects* appear as assessment activities in some of the MOOCs analysed during 2015 surprised the experts in online assessment, especially regarding the issue of complexity in assessing this type of activity. At the same time, within this concept of the projects, these informants valued similar instruments such as case studies, problem-solving activities and other activities related to entrepreneurship and, in general, in how to apply knowledge, i.e. practical and applied types of projects.

> And what I am surprised of is the topic of the projects. Because if they are MOOCs linked to professional aspects or which are looking for a specialization in some professional competence, it seems that this is a very interesting strategy to assess students' competencies. What happens is that, possibly, it has a complexity with regard to the assessment and to be able to verify this learning (interviewed J.A.J.).

Moreover, the experts in online assessment made reference to these *forums* not only as communication spaces but also as environments to develop strategies for peer assessment and to promote, in general, the interaction among the students of the course. Experts in online assessment proposed the registration of participation in these discussion forums as a strategy to enhance formative assessment. In any case, future research should consider whether this activity under the MOOCs context is being used more as a learning activity or as an assessment strategy.

Strategies, tools and practices for formative assessment (2)

The *electronic portfolio* was a recurring strategy between the views of some experts in online assessment. These experts bet on this instrument to gather evidence of learning, and to reflect and attach evidence on the acquisition and development of competencies, which could

become a validation of the MOOC related to a possible accreditation or badge at the end of the course:

> *The portfolio allows you to gather evidences of everything that you have learned, and you reflect it and reflect on it, commenting and attaching the documents or the evidences you have to show that you have developed those abilities, and in the end (...) it is the document that provides a validation of the MOOC to finally obtain a diploma or a badge (interviewed L.).*

The informants of this research proposed a variety of specific strategies and practices to work towards formative assessment in MOOCs. Online assessment experts introduced the concept of *authentic assessment* reinforcing the need for what is being asked to students to be connected with their intellectual and professional interests (although everyone is different), and being based on reality. This relationship with reality could then be one of the key elements that could make assessment more attractive in the context of Massive Open Online Courses.

Regarding the specific activities, strategies and assessment tools, the online assessment experts in the last phase of this thesis made reference to elements such as *continuous assessment tests*, a report in which to write what they have learned, *role playing* or the *simulators* in which MOOCs' participants could see the consequences of their actions through a more automated assessment. In addition, to the interview held with these experts in online assessment, *rubrics, scales or checklists* (namely, instruments to assess the task) also appeared with the idea that it could help students to orient themselves on how it would be good to do the exercise, what should have been done or what would not be proper conduct. In this sense, these tools could be used to guide the students to self-regulate and not necessarily only to assess the work they have done. In a MOOC, applying the rubric or scale in question, that assessment could be thought up by the teacher or by the peers, that is, through peer review. Therefore, it would involve showing the students the rubric with which they would be evaluated, before requesting the exercise

Furthermore, in relation to these online strategies with a more formative assessment component in the context of MOOCs, the use of *social networks* and, in general, in areas of communication between participants in the learning process appeared in several interviews as a fundamental aspect, and it would be wise to take advantage of all their opportunities. And besides, as an example of the social and participative web (in which one of its key principles is collective intelligence), the wikis (another assessment activity underrepresented by the documental analysis of MOOCs made in 2015) or any tool cropped up that could generate virtual models of collective work.

The experts in online assessment mainly dealt with the issue of *automated assessment*. In this sense, for example, in a multiple-choice questions' activity, automated feedback would be introduced so if the student does not mark a correct answer, the tool automatically informs

him/her of why it is wrong and why this distractor is not a good option or a right one. Specifically, the experts in online assessment made reference to the initiative of many universities in the use of this information for two different purposes. On the one hand, to get information on how students learn to make institutional decisions or decisions on the design of the course, for example. And, on the other hand, to make pedagogical and educational decisions so that this *Learning Analytics* would allow to have information about students' performances and, at the same time, give feedback to them. In this second line, the interviewed experts in online assessment had no knowledge if whether it was an issue that was being carried out. So it could be argued that using LA to provide feedback to the learner is a proposal that is still standing and that raises many questions around it: how to select what information is needed to analyse; how to really interpret this data; and how to transform the quantitative data provided by the platform to offer this qualitative feedback aimed at improving the quality of students' future tasks:

> *And you make a test, that when you are mistaken automatically the system answerers you why you are wrong, what errors are you committing, etc. I think that it is here where part of the assessment based learning problems could be solved a bit (interviewed M.J.).*

> *This automated assessment I really believe is a problematic issue. I believe that the value of a course is given by the feedback that student can received from the teacher who knows the subject, who is experienced and who can logically offer you this added value that does not give you a much more aseptic and automatic assessment (interviewed J.V.).*

> *It is true that the system can provide information about the tracking process but this information must be interpreted by someone. Because this data itself do not contribute. You always need someone to complement and interpret it from a more qualitative perspective (interviewed M.G.).*

In the case of online assessment experts, many of them pushed for the inclusion of *collaborative learning* activities and for the involvement of the student groups themselves both in the construction of knowledge (peer learning) and in the assessment of their own group (*self-assessment* through self-correcting tests, for example, and *peer assessment*). Peer assessment, according to these informants, was one of the key elements both to help counter the two main limitations of MOOCs according to the results of this study (the massiveness and the lack of formative assessment or the absence of monitoring and immediate feedback), and to strengthen and improve guided self-study amongst students in a MOOC. Beyond this peer review, strategies based on co-assessment should be considered so that the students of this learning modality could self-assess, and also their peers and their teacher or tutor. However, an important group of experts was against this alternative of peer assessment due to several factors related to, for example, the difference in the level of knowledge among one student and another, and in short, between these students and the teacher, an aspect that

could also appear in online education in general, and even in face to face education. In this regard, some of the proposals that emerged during the interviews in relation to these problems of peer assessment were: to control the number of students for which there is sufficient participation in this assessment; for evaluators to ensure that students have a similar level of education, and to use more quantitative systems to facilitate the work of these reviewers, for example, the rubric.

Finally, in the formula of how to make teachers and teachers' assistants more accessible, online assessment experts raised the solution as a method of payment for registration with complementary assessment actions (like tutorials or the assessment in general) (an element that, according to one expert, has begun to be implemented in some platforms). In the same line, it could be that the assessment and qualification of MOOCs was not mandatory and that if the students wish to have it, they themselves could take care of this cost. However, this would completely degrade the free philosophy of these new environments of distance education:

> (...) As the student has paid, the costs can be reached that a team and some people look for an exam with guarantees to prove that the student has not only made the MOOC but also has learned what he had to learn (interviewed P.M.).

Conclusions

The paper presented on the subject of assessment for learning in the context of MOOCs could in the future allow: to make more informed decisions about the design of MOOCs; to improve their pedagogical effectiveness; and to find more motivation for students and start exploring what would be the best way to assess their learning in this new modality. Specifically, these are some key elements that according to the experts' point of view should help to rethink the potential of assessment in Massive Open Online Courses to support student learning:

- We should consider whether another form of assessment in online environments is possible, and how to automate these creations and interactions between students and between students and teachers (Sancho, 2016).
- These results shed light on a new response to formative assessment in the context of MOOC activities of a more qualitative and open nature as long as there is a technology development to carry out these more complex assessment techniques. However, we would be facing the same challenge: once the projects have been requested from the students, for example, how and who could assess them taking into account, in particular, the massiveness of the course?
- The electronic portfolio was a recurring strategy between the views of some experts in online assessment, strengthening the literature that enforces the importance of these strategies such as the portfolio (along with peer review or badges) for the recognition of competencies or achievements (Yuan, Powell, & Olivier, 2014).

- With the use of automated assessment, many critics emerged based on the possible deterioration of learning and of its personalization, which could convert this assessment strategy in such a problematic issue in line with making a commitment to rather superficial and non-authentic learning.

- In the context of MOOCs, the use of social networks has so far been beyond the competency assessment purpose and have been used to advertise the course for new participants, or as a meeting, exchange or repository of experiences (Calvo Salvador, Rodriguez Hoyos, & Fernández Díaz, 2016).

- In this sense, the results of this research clearly point to the need for new degree programs in data analysis (Ferguson, 2014; Williamson, 2015). It also reinforces this idea raised by all respondents who address the topic that, at present, Learning Analytics is not yet powerful enough or sufficiently developed to obtain the necessary information in order to provide feedback to the student. The reasons could be for impossibility; for a lack of interest; because the platforms have been focusing on providing data to the director of the course to increase the registration' levels or to make decisions about the resources and materials offered; or because it would involve standardizing and returning to the idea of adaptive learning that pedagogy and education already overcome.

- Shedding light on studies such as Ruiz Bolívar (2015) and Calvo Salvador et al. (2016) on the one hand peer review does not always provide a fair and efficient assessment result (which is often a cause of discomfort and protests among the participants of the courses). And on the other hand because of the type of rubric used to assess students' task, and because of the quantity and quality of the feedback received about participants on the work done (Calvo Salvador et al., 2016).

- One of the key formulas in MOOCs should be how to make teachers and teachers' assistants more accessible to students (Jacobs, 2013).

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