

## Conceptualización, retos, dificultades y posturas de aprendizaje en cursos MOOC

*Conceptualization, challenges, difficulties and learning postures in MOOC  
courses*

*Conceituação, desafios, dificuldades e posturas de aprendizagem nos cursos do  
MOOC*

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### Resumen

En el presente artículo se expone una revisión de los cursos MOOC. Antes de dar paso a las posibles ventajas de esta forma de aprendizaje, los inconvenientes, las metodologías pedagógicas y las distintas herramientas utilizadas, así como los principales retos de estos cursos en el futuro inmediato, se realiza un recorrido sobre su definición, nacimiento, historia y clases. Y a manera de cierre, se presentan distintas conclusiones en cuanto a la validez pedagógica, de calidad y viabilidad económica respecto a esta modalidad educativa.

**Palabras clave:** aprendizaje, calidad, diseño educativo, MOOC.

## Abstract

In this article a review the MOOC courses is presented. A tour of their birth, history and classes is performed. The potential advantages of this form of learning, its difficulties, teaching methodologies and the various tools used as well as the main challenges for these courses in the immediate future are presented. Conclusions are offered regarding the educational validity, quality and economic viability of these courses.

**Keywords:** learning, quality, instructional design, MOOC.

## Resumo

Este artigo apresenta uma revisão dos cursos do MOOC. Antes de dar lugar às possíveis vantagens desta forma de aprendizagem, as desvantagens, as metodologias pedagógicas e as diferentes ferramentas utilizadas, bem como os principais desafios destes cursos no futuro imediato, faz-se um percurso sobre a sua definição, nascimento, história e classes. E como conclusão, são apresentadas diferentes conclusões quanto à validade pedagógica, qualidade e viabilidade econômica em relação a essa modalidade educacional.

**Palavras-chave:** aprendizagem, qualidade, design educacional, MOOC.

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## Introduction

There is a consensus today regarding the birth of the Massive Online Open Courses (MOOC). The MOOC (or MOCA, for its acronym in Spanish) born in 2008 in Canada: when George Siemens and Stephen Downes offer the course called Connectivism and Connective Knowledge at the University of Manitoba. The number of registered to this course was raised to 2300 people. From that moment, the related courses in number of students to this took the adjective of mass (Siemens, 2012). Later, in 2011, a course was organized at Stanford University

by Sebastian Thrun, a professor at that university, and Peter Norvig, director of research at Google, called Introduction to Artificial Intelligence: attendance in this case was 160,000 people.

The first precursor of MOOCs can be found in the year 2001. The Massachusetts Institute of Technology (MIT) provided free and open access to the materials of its official courses: 1900 courses between graduate and postgraduate. Second, there is Open Social Learning, a movement more closely related to informal education; a movement that does not pretend directly to improve the learning process, but rather to discover a series of practices facilitated by a set of tools and conditions, associable to a new way of understanding the processes of teaching and learning (Gil-Jaurena and Dominguez, 2012).

In Spain, MOOCs are the trend in the world of online education par excellence since 2012 (Vizoso, 2013). The most relevant initiative in Spain and Latin America is MiríadaX, an aggregation platform of several MOOCs that was born in December of 2012. It is an initiative of Universia, a network made up of Spanish and Portuguese-speaking universities, promoted by the Bank. Santander, Telefónica and with the collaboration of the Superior Center for Virtual Teaching Foundation. Nowadays, MOOC courses have developed enormously and are part of the landscape of a large number of educational institutions (Meléndez, Román, Pérez and Maldonado, 2017); and they have even crossed the borders of the universities (García, Fidalgo and Sein, 2017).

It is precisely through its name that this type of training can be defined in the most correct way. That is, massive and open online courses. In accordance with Castaño and Cabero (2013):

“MOOCs have the following distinctive characteristics:

- It is an educational resource that has a certain similarity with a class, with a classroom.
- With start and end dates.
- It has evaluation mechanisms.
- It's online.
- Free to use

- It is open through the web, and does not have admission criteria.
- Allows large-scale interactive participation of hundreds of students” (p. 89).

In addition to the characteristics indicated, there are other peculiarities pointed out by some authors. Moya (2013), for example, focuses on the collaborative nature of this type of course, where the tutor is placed in the background. This author, in addition, highlights the non-formal nature of the MOOC courses, by marking the main objective of acquiring a complementary training to the studies of the participants.

For Cormier, McAuley, Siemens and Steward (2010), MOOCs are a learning event within which the interaction between materials, ideas and people are intertwined in a community way.

According to Fernández (2014), this conception breaks the traditional idea of teaching, since logically what is promoted in a MOOC is not a face-to-face or face-to-face teaching, but neither is it what we normally understand by distance learning. MOOCs are a turning point for online teaching, since they constitute a useful tool for the complementary training of the participants.

There are several types of MOOCs, mainly based on their methodological foundations. These are:

- xMOOC: those MOOC courses that give greater prominence to the teacher and the content that is provided from the beginning, therefore, the instructor is the center of the teaching-learning process. They present a rigid structure, with a more directive style and provide greater control over the design of the course and its stability during its development. It is the modality most similar to traditional teaching. They have tended to be the most used eLearning courses throughout the history of this format.
- cMOOC: these are MOOC courses that are based on learning or connectivist theory: they are based on the connectivist learning philosophy of George Siemens and Stephen Downes (Jacoby, 2014). This approach contemplates the student as a starting point, being the student himself who builds his knowledge thanks to the interaction with the other participants and the processing of the information. The design of the course is one more element in the learning network, so the interaction of the participants is vital, which generates diverse contents through blogs, social networks and other media. These cMOOCs

are focused, in a general way, on the personal training needs and interests of their participants, for this reason learning is less quantifiable through objective tests. The role of the teacher is that of a facilitator of the initial content, which a posteriori is completed by the students.

- MOOC focused on tasks: third type of MOOC courses, result of the combination of cMOOC and xMOOC (Marti, 2012). This type of MOOC focuses on the abilities of students to perform a series of tasks that guide learning. The sequence of these activities is clear and decisive, as the participants will not advance in new tasks until they acquire the previous skills to take that step. The learning community is relegated to the background, being used to solve doubts at specific moments. These courses therefore represent a composite of constructivism and instruction.

Also, within what can be considered as derivations of MOOC (García et al., 2017), are the following types:

- Corporate MOOCs, also known as COOC (Corporate Online Open Course): are those that are used in the environment of a company and are aimed at a particular group of employees. This type of MOOC normally uses informal learning, enhancing social networks among employees and combining them with corporate information of the company.
- SPOC (Small Private Online Course): they use the same technology as MOOCs, as well as the same pedagogical approach, the same type of resources, but do not have a massive, free and social scope. These are courses with access restrictions based on the student's profile, therefore, the number of students enrolled is limited and they are usually paid. The SPOCs compete with the online training systems used in universities for continuing education, although they open up new expectations such as refresher courses, extension or complement to the current training offer of the universities. This type of courses begin their integration in the degree studies (López de la Serna, Garrido y Herrero, 2018).

Within the MOOC courses, learning is characterized by its asynchronous and non-linear character, that is, the learning methodology is online and, due to that character, the student has the possibility that synchronization between him and the student does not occur. teacher. In other words: a distinctive feature of online methodology is the rhythm of learning, which is always

chosen by the student, a rhythm that obviously, and as already mentioned, does not have to coincide with that of the teacher (Méndez, 2013).

## Method

Undoubtedly, one of the greatest advantages of a MOOC course is the number of participants that can benefit from learning, which coincides with the fundamental motivation of any teacher, that is, the dissemination of knowledge. Following Méndez (2013), the high number of students and the participation in a generally free model allows people who have not been able, for economic reasons, to follow a traditional type of education to access educational content. Although it is true that there is still a large number of people who currently do not have access to technological means, even within Western society, it is also true that any new form of information disclosure facilitates, in principle, the task of that training and knowledge reaches as many recipients as possible.

There is no doubt that MOOCs allow the participation of a considerable audience. For Liyanagunawardena, Williams and Adams (2013), this high reach provides new learning opportunities, especially for inhabitants of developing countries. Thus, a possible solution is constituted so that a large number of students can have access to education through the Internet. Undoubtedly, the benefits for the participants of these courses are varied, since they can have an easy and free access to them, simultaneously integrating the connectivity of the network, the advice of an expert and the free access to the online resources.

According to Salinas (2012), these virtual learning environments are presented more and more in a flexible and innovative way. More and more frequently they include spaces to incorporate teaching methodologies centered on the student with the support of information and communication technologies (ICT). From this perspective, the MOOC current opens the possibility for the high demands of access to training processes to be covered through mass and online learning experiences.



A challenge of these courses, and at the same time perhaps the greatest difficulty, is the educational validity they can offer. At the time of facing a MOOC course, we usually ask ourselves the question about whether we are taking a course with true formative value or if we are attending the delivery of a certificate; We rarely put on the table if there has been true learning. There are serious doubts about the validity of MOOCs and their pedagogical value, questions that move between positions that run from destructive positions to positions that consider this type of training as creative and renovating positions (Vázquez-Cano y López-Meneses, 2014).

In this sense, Alemany (2014) conducted an analysis of the current status of the offer of MOOC courses by Spanish universities. For this author, these courses can be useful tools for the formation of digital competences, both for students and for teachers; He stated that the implementation of MOOCs requires a strategic plan that defines objectives and means. As for Ibero-America, this kind of training has been pointed out as a real opportunity to satisfy the demand for knowledge of the hundreds of millions of Hispanics and Portuguese speakers of the world who do not speak English and, therefore, can not be attached to the courses of the Anglo-Saxon universities (Capdevila and Aranzadi, 2014).

Coupled with the high participation rate of many of these courses, we can also find a high dropout rate. It is a question before which a solution must be proposed to achieve higher exploitation rates. Dropout rates are between 75% and 90% on average (Poy and Gonzales, 2014). In the study by Jordan (2013) and after examining 24 MOOC courses, it is concluded that the highest completion rate reached was 19.2%; in most MOOCs the rates were less than 10%. For García et al. (2017), the number of students who complete a MOOC corresponds to between 5% and 10% of the total number of students enrolled.

In Aranzadi and Capdevila (2011) the need to promote the willingness to learn was already commented: a large part of the students who enroll in this type of courses do not complete them and do not obtain the certificates that accredit their knowledge. Paradoxically, these dropout rates can be attributed to the causes that lead students to enroll in a MOOC (Guerrero, 2014). Curiosity, lack of interest because of the gratuity and even the fact that the

expectations of the participants are not completed due to a deficient methodology in the development of the course (Observatorio Scopeo, 2013). Although it is also true that students who have completed a MOOC have a high probability of returning to a new course (Gallego and Arroyo, 2018).

MOOCs can be an advertising resource for educational institutions, although with the counterpart that if a MOOC does not work, bad publicity can become indelible for that institution. In this sense, one can think of a perspective that can be called business or profit in the realization of these courses. In fact, the institutions that pay for MOOCs normally expect a return on their investment. Sponsorships, the use of certain commercial platforms, the payment of certifications or the promotion of texts can be solutions to generate a sustainable business model (Marzal, 2014). Entrepreneurially, MOOCs can be a great opportunity for companies and their human resources departments, where the Training Department is normally located (Lujan, 2013).

On the other hand, the really innovative application that MOOCs make of social tools and their consequent increase in content is very interesting (García, 2013). In this line, however, there is a risk that those participants less active in social networks will not achieve full use of the content generated in them and will feel less integrated in the course. Even so, it can be considered an additional advantage of MOOCs to allow access to knowledge to people who can not or do not want to follow a traditional curriculum, allowing them to delve into specific aspects of content, even if only for personal interest in the subject (Méndez , 2013).

To conclude this section, we can not fail to affirm a worrying aspect. This is none other than the lack of research on MOOCs. Although there is a beginning in these activities, the investigations carried out so far have not yielded very significant results that allow us to adopt decisions that allow us to bet in a clear way by this training. (Cabero, Llorente y Vázquez, 2014).



## Results

For Kop (2011), MOOCs break with several paradigms of traditional education with the mere fact that the student has access to the Network. Its foundations are established in the facilitation of learning through information and available resources, which makes possible the exchange of knowledge in web environments. Under this aspect, it is important to highlight the open character of MOOCs; Thanks to this, the teaching process could be redefined. As in eLearning (Fernández-Rodríguez, Rainer and Miralles, 2014, Fernández-Rodríguez and Rainer, 2014), ICTs play a fundamental role, since they are the fundamental support of MOOCs.

The proposal to be able to deploy the learning outside of the classic classrooms is based on the incorporation of a social learning model, which in turn is based on the connections that are made through the interaction mediated by the collaborative work. This open character does not annul the role of the teacher, but, as happens in other forms of online learning, it becomes a facilitator of contents and tools so that the necessary interaction between the participants takes place (Fernández-Rodríguez, Rainer and Miralles, 2012, Fernández-Rodríguez, 2013a, Fernández-Rodríguez, Miralles and Rainer, 2014).

As in the eLearning modality, which we can now call traditional, the student's commitment to learning is fundamental (Fernández-Rodríguez, 2013b). In MOOCs, the student in the learning process will perform a search for quality content by marking their own pace of learning. In this way, in a MOOC, the participants are the creators of content. The evaluation is linked to the activity that takes place during the course and the users are both apprentices and teachers within what is constituted as the learning community (Alemany, 2014). It is not, then, a course more at a distance; it is a connectivist approach where participants assume their own leadership, a commitment to the deadlines and the dedication required by each course (Castañeda and Adel, 2013). There must be an active participation of the students, since they generate and share knowledge among themselves.

The question about evaluation has a logical relation to the accreditation of students who take the course. Any student wants to use the accreditation derived from the course. Following Vázquez et al. (2013), the quantitative evaluation traditionally carried out in MOOCs today lacks

the necessary quality (understanding here quality as the process that verifies if the obtained results are adequate to the formulated objectives). In spite of this low level, the student wants his participation to be recognized as soon as possible and to be granted such accreditation. In many occasions, for the student, the value is not learning, as pursued in the philosophy of the MOOC, but the end user puts the assessment in the accreditation, and not any, preferably prefers an academic accreditation. In our current society, we see how certain formative values tend to the mercantilist side of educational processes, equally from the users themselves or students.

Still following Vázquez et al. (2013), the current accrediting model of the MOOC courses does not have a great academic value and justification in terms of competences. Due to this fact, some higher institutions have decided on an intermediate model. If a MOOC is conceived from the qualitative evaluation, adapted to what the subject must know, and academic accreditation is achieved, how much does this institution economically mean? In general, the MOOCs with the best valuation are those that are endorsed by higher level institutions, those that are tutored, those that have the evaluation centered and carried out in a teacher (either a tutor or facilitator) and where, in the last term, users of these courses can acquire a certificate with academic and business validity of the materials and areas studied.

In another order, following McAuley, Stewart, Siemens and Cormier (2010), MOOCs are based on the active cooperation of a massive group of participants who self-organize their interventions according to the particular learning objectives, with their prior knowledge and with the skills they possess.

For García (2014), in the MOOC courses the transfer of knowledge is useful if the design of the course activates the motivation of the student. This is feasible thanks to the connectivism, the inclusion of attractive topics and the appropriate assessments that encourage self-motivation of the student. A factor to add is the autonomy that this form of learning offers the student, due to the structure, resources and activities carried out in the design of the course. We can include, following Garcia (2014), that MOOC encourages the self-regulation of students, since they have to set their own goals to achieve their goals. All this without prejudice to the possible uncertainty

that some participants may experience, mainly in those more used to a traditional model (Observatorio Scopeo, 2013).

Through the research carried out to this day, we can consider that this new type of format actively promotes self-organization, connectivity and diversity, as well as the decentralized control of teaching-learning processes (Vázquez, Méndez, Román and López, 2013).

Evaluation is a complicated issue. It is a clear question the difficulty existing when evaluating the learning of a course in which they can be enrolled, for example, 25 000 students. Undoubtedly the method most used has been the performance of automatic correction tests. Due to the rigidity of this methodology, and the absence of the figure of the online tutor, it is difficult to establish a follow-up or note, as has been done so far. One of the possible solutions provided has been peer evaluation, participation and formative evaluation (Cormier and Siemens, 2010). These practices allow to accredit the knowledge that has been acquired: since they are unconventional, it requires each participant to provide the evidences that demonstrate the acquisition of the competences achieved (Guerrero, 2014).

Roig, Mengual and Suárez (2014), conducted a study based on 129 pedagogical evaluations on 52 MOOC courses offered by 10 different platforms. In this study, it is concluded that the MOOC courses have a correct pedagogical quality, not verifying that said quality is related to the learning platform used, which does not make a noticeable difference. For the authors, the existence of a didactic guide, specific objectives and a plan of reinforcement activities positively skew the results on the pedagogical quality of MOOCs.

In another study, Glance, Forsey and Riley (2013) also state that, in the pedagogical assessment made to various MOOCs, these courses have a solid pedagogical base in their formats. These studies, at least, make us think positively about the pedagogical validity of MOOCs.

In the review by Meléndez et al. (2017), it is confirmed that the experience of universities in the field of planning, design and implementation of virtual projects has been displaced to the creation of MOOC, taking into account the pedagogical, didactic and academic criteria that they have developed.

Duart, Roig, Mengual and Maseda (2018), meanwhile, in their review of MOOC courses from 2013 to 2015, conclude, in terms of quality, that this is correct except for the variables contained, resources and activities and the evaluation.

Regarding the MOOC support platforms, one of the conditions to which more attention must be paid is also the pedagogical design of these platforms. Within this design, it is perhaps the strategy of active involvement of the subject that is the main characteristic to be considered, constituting one of the priority tasks currently to be taken into account within these web environments (Norvig, 2012).

However, there are numerous studies that maintain that MOOCs lack pedagogical rigor (Vardi, 2012, Zapata-Ros, 2014), and that current discourses on MOOCs reflect strategic, institutional, economic, social and technological concerns, but that there is no deep pedagogical discourse in these courses (Guàrdia, Maina and Sangrà, 2013).

In the study conducted by Castaño, Maiz and Garay (2015), it is demonstrated, despite a high dropout rate, that the level of satisfaction over the pedagogical design of the course is the main variable that influences the academic performance of students. . For the authors, it would be interesting to complete the results obtained in their study with the analysis of the perspective of the students about the learning experiences with MOOC.

Regarding the management of the quality of these courses, that is, the realization of courses according to parameters or established quality standards, UNE 66181: 2012 has been used, the standard on the management of the quality of virtual training, and the instrument called didactic analysis of model and teaching strategies for university courses in the Network (ADECUR). Even a model based on both perspectives has been proposed (Baldomero, Salmerón and López, 2015). Perhaps the quality of the training process is one of the main challenges of the MOOC courses since it is evident the danger that exists in this type of training in terms of its transformation into a pure business model (Daniel, Vázquez Cano y Gisbert, 2015).

## Discussion and Conclusions

The MOOC courses are already a reality in the offer of educational institutions. These courses may involve a renewal of the training offer within the framework of new technologies.

Regarding its pedagogical validity and its quality, the studies carried out seem to point to the same results as in the formation of classical eLearning. The pedagogical approaches and their quality are the truly decisive and important factors in the success of the training, and not so much the model or the technological tools used. Likewise, there are experiences in terms of good academic results and motivation in students with the use of cooperative MOOCs in university environments.

The issue of evaluation is an issue to be solved in this learning mode. The evaluation does not usually pass the tests on the knowledge of the course; tests that do not value the real participation of the user and, rather, favor the abandonment of the student and the lack of motivation. Therefore, it becomes necessary to change the evaluation model, starting from an important cut in the first phases of the course and encouraging the participation of students in forums, media and other tools within the reach of this learning modality.

An important point to resolve is the high dropout rate of MOOCs. It will be relevant to try to solve the serious problems related to the high dropout rates, even though we still do not have the strict figures on the dropout rate of this type of training. However, it is true, of course, that more and more students are repeating the completion of a MOOC course.

We can not affirm clearly that MOOC courses are currently a valid resource to extend education globally to all social sectors. We agree with what has been pointed out by some researches in that the studies carried out on this phenomenon point to the fact that mass access is being unequal depending on the profiles of its different users. Again, the digital divide arises in this type of training: it provides greater benefits to the users of advanced countries and to the components in the academic and professional communities.

The effectiveness of MOOCs is closely related to the effectiveness of online training in general. In fact, for some authors, MOOCs are still an evolution of the effectiveness of

eLearning. Effectiveness in eLearning has been well established in research studies that have used meta-analysis.

Similarly, there is evidence that the bases used in the MOOC courses may be correct in the different formats that have been used, however, the influence of the different types of MOOC courses on learning outcomes has not been an issue that has been studied. According to several researches, the only courses studied in depth are the constructivist courses. However, constructivist courses focus more on the transformative effects of conventional knowledge generation structures than on the measurement of a rigorous form of learning outcomes.

MOOCs, likewise, have to respond to a business model so that they can be sustainable both in the present and in the future. They can become a low cost measure to solve various training deficiencies and, therefore, can become an educational business model. In any case, they must never become a model of content trivialization without the mediation of specialists such as services, a phenomenon of devaluation that has been called napsterization. For universities, MOOCs can also be an incentive, by increasing the visibility of the institution and generating different entries for new students. The economic orientation that makes this kind of courses subsist must be aimed at student satisfaction and learning, not at fostering what we can call today in Spain and in many other countries around us as a university bubble.

Finally, research on MOOCs has only just begun, we find a form of teaching with enormous possibilities, but with some difficulties and challenges that have to be dealt with as quickly as possible to adapt them to the needs of our society.



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