MOOCS IN ECUADOR: AN OVERVIEW OF COURSES FROM A LATIN AMERICAN PERSPECTIVE

Juan Carlos Lazo[1]
Ruth S. Contreras Espinosa[2]
Melita Vanessa Vega Auquilla[3]

ABSTRACT: This paper presents the status of the massive open online courses at universities and other Ecuadorian institutions. Our aim is to explore the panorama to a new educational arena, which leads us to define this type of course offering in Ecuador and to analyze its evolution. We have compiled data through an exhaustive search process on the website of each Ecuadorian university on MOOC platforms. The search was conducted using Google and related keywords and we requested additional information from the decision-makers responsible for the Ecuadorian MOOC platforms. The study shows the impact that the MOOCs have had in universities and in state institutions and the support of the Ecuadorian government for the development of this form of online education through modifications made to the Academic Regulation. While the offering has not increased, there is evidence of a rapid growth in the creation of this type of courses over the last few years.

Keywords: online courses; open education; higher education.

MOOCS EN ECUADOR: UNA VISION GENERAL DE LOS CURSOS DESDE UNA PERSPECTIVA LATINO AMERICANA

RESUMEN: Este documento presenta el estado de los cursos masivos abiertos en línea en universidades y otras instituciones ecuatorianas. Nuestro objetivo es explorar el panorama hacia un nuevo escenario educativo, lo que nos lleva a definir este tipo de cursos que se ofrecen en Ecuador y analizar su evolución. Hemos recopilado datos a través de un exhaustivo proceso de búsqueda en el sitio *web* de cada universidad ecuatoriana en las plataformas MOOC. La búsqueda se realizó utilizando Google y las palabras clave relacionadas y solicitamos información adicional a los responsables de las plataformas MOOC ecuatorianas. El estudio muestra el impacto que los MOOC han tenido en las universidades y en las instituciones estatales y el apoyo del gobierno ecuatoriano para el desarrollo de esta forma de educación en línea a través de modificaciones al Reglamento Académico. Si bien la oferta no ha aumentado, hay evidencia de un rápido crecimiento en la creación de este tipo de cursos en los últimos años.

Palabras-clave: cursos en línea; educación abierta; educación superior.

[1] Master's Degree in Virtual Environments at University of Panama. Director of the Master's Degree program in Multimedia Design at the University of Azuay, Ecuador. Main research interests: new technologies applied to learning.
[2] Professor at Universitat de Vic-Central University of Catalonia. PhD in Multimedia Engineering at Polytechnic University of Catalonia, Spain. Main research interests: new technologies applied to learning.
[3] University of Azuay.

Introduction

When MIT launched its Open Course Ware program in 2001, many universities also joined the movement of making educational content freely available online. Many regional and local programs were created along with discussions about the democratization of teaching and a paradigm shift in distance education. Since their appearance in platforms like edX, Coursera, and Udacity, MOOCs have continued to grow to a point where they have become part of a phenomenon that has joined more than 1.2 million students in a single course.

When MIT launched its Open Course Ware program in 2001, many universities also joined the movement of making educational content freely available online. Many regional and local programs were created along with discussions about the democratization of teaching and a paradigm shift in distance education. Since their appearance in platforms like edX, Coursera, and Udacity, MOOCs have continued to grow to a point where they have become part of a phenomenon that has joined more than 1.2 million students in a single course.

With academics reflecting on the usage of MOOCs, governments lending their support and a large part of the world creating courses and platforms as part of their education policies, it was only a matter of time before Ecuador became part of this movement. The open philosophy and absence of restrictions to access these courses, aside from the obvious need for necessary communications and devices, can help democratize access to certain knowledge and deliver it to places where education is a scarce resource (Barber, Katelyn, & Rizvi, 2014).

Since 2013, 37 MOOCs have been created in Ecuador. However, three problems can be observed: 1) The number of courses is lower than in other countries, 2) There are few universities that offer this type of education, and 3) MOOCs are not part of a formal educational offering, which makes it difficult to create a common database of the types of courses available. In this study, we present the state of existing MOOCs in Ecuador. Since this is a relatively unchartered area, there is little diversity in the information sources available. Therefore, we intend to contribute with information that offers an analysis of the situation.

State of affairs

The first MOOC was created by Stephen Downes and George Siemens at Athabasca University in 2008 (Mackness, Mak, & Williams, 2010). This entry into the world of education started a movement that gradually expanded to other universities, ultimately arriving at Stanford University in 2011. At this time, Sebastian Thrun and Peter Novig received more than 160,000 registrants (Pedreño, Moreno, Ramón & Pernías (2013). The creation of the Coursera, Udacity and edX platforms in 2012 provided a world-level visibility for these types of courses, to a point where, during that same year, platforms began to appear in most regions around the world. This phenomenon has not slowed down; in recent years, specialized platforms have also begun to appear. An example of this is Kadenze.com, a platform specializing in Art and Creativity that was created in 2015. In 2015 it was estimated that the number of registered students had surpassed 35 million, despite estimates that the number wouldn't reach 17 million. At the end of 2016, the number of registered users reached 58 million with more than 700 universities and around 6,850 courses offered (Shah, 2016). In fact, on the MiriadaX platform, the most well-known in Latin America, 3% of registered users are Ecuadorian, which places the country in sixth place in terms of users (Albó, Hernández-Leo, & Oliver, 2016).

Ecuadorian universities, in general, are facing a series of reforms to guarantee their sustainability and, at the same time, the possibility of adequate growth while maintaining the quality of education. Within this context, the movement has gained momentum. In 2013, the

first MOOCs were planned in the country, such as the case of the University of Azuay with a proposal presented in October of that same year (Lazo Galán & Contreras Espinosa, 2013).

In the Academic Regulations of the Ecuadorian Council of Higher Education in November 2013, it is stipulated that: All higher education institutions are under the obligation to place on their institutional portals all created materials related to subjects, courses or equivalents offered as part of their academic programs. […] To this purpose, they will develop a massive online platform under an open licensing agreement where easily viewable and portable text, video and/or audio files will be placed with the goal of contributing to the democratic dissemination of information as a public resource (Consejo de Educación Superior, 2013, p. 25). This means that Higher Education Institutions are under the obligation to create MOOC platforms (Ramírez, 2016, p. 17). Documented information in academic publications is limited. For example, in 2013 the University of Cuenca offered a MOOC in Algebra and Geometry for professors (Jácome Guzmán, 2015). In 2014, the University of Azuay offered a course centered on Design in Ecuador (Ochoa Ruilova, 2015), the Private Technical University of Loja (UTPL, for its acronym in Spanish) offered a course in Innovation within Organizations (Rodríguez Hidalgo, 2014), and at the University of Cuenca, resources were put toward courses in Algorithms, Data, and Structures (Peralta Bravo & Piedra Orellana, 2014). It's worth noting that not all these cases use the same definition or a correct definition to refer to a massive open online course.

In more recent years, there have been articles that discuss the development of some of the MOOCs created in Ecuador. Among them are "Design and implementation of MOOCs at UTPL" (Carrión Martínez, Sarango-Lapo, Jara-Roa, & Agila-Palacios, 2016), "Free massive virtual education for the prevention of traffic accidents in Ambato" (Jordán Cordone, Ramos Morocho, & Vega Villacis, 2016), "State of the art in adoption of MOOCs en Higher Education in Latin America and Europe" (Pérez-Sanagustín, Maldonado, & Morales, 2016), and "Methodological proposal for massive training of Ecuador's civil servants in the educational field through MOOC courses in virtual learning environments" (Ruiz-Rojas & García-Peñalvo, 2016).

Due to the number of definitions that have surfaced to describe MOOCS, sometimes in direct contrast with each other, we believe it is necessary to clarify the concepts used in this article:

MOOCs are online courses designed for a large number of participants that can be accessed by anyone in any place with an Internet connection. They are open to all with no entry requirements and offer a free, complete course (HOME, OpenupEd, & ECO, 2015, p. 1). While various types of MOOCs can be distinguished (Cabero Almenara, Llorente Cejudo, & Vázquez Martínez, 2014), we will focus on the two most well-known types: cMOOCs and xMOOCs. In an xMOOC, the primary means of instruction is the viewing of short videos; in a cMOOC, videos can be created (Smith & Eng, 2013). Another classification includes, among other types, tMOOCs (Cabero Almenara, Llorente Cejudo, & Vázquez Martínez, 2014). These are considered a hybrid between an xMOOC and a cMOOC that focus on the creation and generation of knowledge as well as student tasks.

Objectives and methodology

Our objective is to showcase the panorama to a new educational arena, which calls on us to define the market of the Ecuadorian system and analyze its evolution as a consequence of the changes brought on by the new Academic Regulations. We have focused on compiling data to identify early tendencies. Data collection was finalized on December 31, 2016, and it presents a still photo of what Ecuador has been experiencing. Since this phenomenon is fairly recent and dynamic, the information centers mainly on the presentation of data relative to MOOCs offered

in the country with the goal of obtaining a general view. The newness of the phenomenon implies a certain lack of contrasting information; therefore, we intend to contribute by offering data that enables an analysis of this type of education in Ecuador. MOOCs are not part of a formal educational offering, which makes it difficult to create a common database of the types of courses available. This has forced us to rely on different sources to be able to locate and verify results:

a) Exhaustive search by university/institution: An exhaustive search has been conducted of each website in an attempt to find evidence of MOOCs that have been created, the dates they were conducted, the number of registered students, the topics delivered and the type of MOOC (cMOOC, xMOOC, tMOOC, or others). Attempts were also made to determine to which extent the MOOCs offered could be considered as such.

b) Search on MOOC platforms: An analysis of the course offerings in Ecuador through leading world platforms such as Coursera, edX, and MiriadaX.

c) Generic Google search: Searches have been conducted via Google using word combinations that identify MOOCs (MOOC/MOOCs/Massive Open Online Course/Massively Open Online course), cross-referencing them with the name of each of the 55 universities currently in operation in Ecuador.

Throughout the search, we included all the offerings that Ecuadorian universities have publicized under the MOOC concept. We also requested additional information from those responsible for the MOOC platforms in Ecuador that offer courses under this denomination.

Ecuadorian universities and other national institutions

The Ecuadorian university system is comprised of 59 universities and polytechnic schools – 33 public and 26 private – which have a diverse academic offering. The university system is regulated by the Council of Higher Education (CES, for its acronym in Spanish) and the Council of Evaluation, Accreditation and Quality Assurance of Higher Education (CEAACES, for its acronym in Spanish), while all research activity is regulated and managed by the National Secretary of Higher Education, Science, Technology and Innovation (SENESCYT, for its acronym in Spanish). In the following section, we will briefly describe some of the most relevant information for the analysis.

By the year 2015, the number of university students grew to 736,000 (Ramírez, 2016, p. 20), spread out among 1,643 undergraduate programs and 264 postgraduate programs (Bustamante, 2016, p. 179). Ecuadorian universities, in general, are facing a series of reforms to guarantee their sustainability and, at the same time, the possibility of adequate growth while maintaining the quality of education in all its aspects. It is within this context where open education movements and online education have started to explore other horizons in that last few years. Other national institutions have realized the importance of training within the education system, not only due to the high volume of students but also because of the social impact on the country. The Ministry of Economic and Social Inclusion (MIES, for its acronym in Spanish), the Ministry of Education and the National Secretary of Public Administration (SNAP, for its acronym in Spanish) currently conduct online training through the formax.edu.ec platform of the National Higher Studies Institute (IAEN, for its acronym in Spanish). The Ecuadorian State expects this platform to train more than 470,000 public servants in 6,119 public institutions.

Both Ecuadorian universities and national institutions are nurtured mainly by Ecuadorians who are accessing a university education for the first time. From a pedagogical point of view, the reach of the MOOC phenomenon for online teaching is acting as a wake-up call questioning, on one hand, the structure of the institutions as well as their pedagogical, management and business models. On the other hand, it also has important implications for teaching and, particularly, online teaching (Sangrà, González-Sanmamed, & Anderson, 2015).

Thanks to the previously mentioned Academic Regulations dictating that universities must conduct MOOCs (Ramírez, 2016, p. 17), these institutions must also allocate resources within their budgets to guarantee an adequate roll out of activities associated with these types of courses. Even though the cost models are different, global figures for the creation of MOOCs tend to be similar to those of an e-learning course. The main difference is that reaching a larger volume of participants may result in significant cost reductions if individual user metrics per student are used. However, a comparison among cost models is no easy feat and it depends on the number of participants in each course (SCOPEO, 2013, p. 99).

Aside from the interest that MOOCs have generated among university students and faculty, it is the response from public universities and institutions that has proven interesting. Even though most have yet to define a clear training strategy, they are sensitive to the responses of users with respect to this type of offering and the promotional possibilities for universities and institutions. In this sense, the centers have been incorporating development strategies for these courses and support units to ensure the necessary learning resources. The use of MOOCs in a university and their degree of controversy ranges from a less controversial position when they are intended for commercial purposes (recruitment of students, publicity, etc.), to a more disputed position if it represents a disruption in the pedagogical field (Feldstein, 2014).

MOOCs in Ecuador, by numbers

Ecuador is an Andean country with 24 provinces located in four regions: coast, highlands, Amazon and Galapagos. Four of the 24 provinces have universities that have employed MOOCs. These universities are located in the highlands region. Pichincha, where the capital city of Quito is located, is the province with the largest number - 20 in total (see Figure 1). That the capital offers the largest number of courses is due in part to the generation of resources by State institutions, but also because it is home to 20 of the 59 universities across the country.

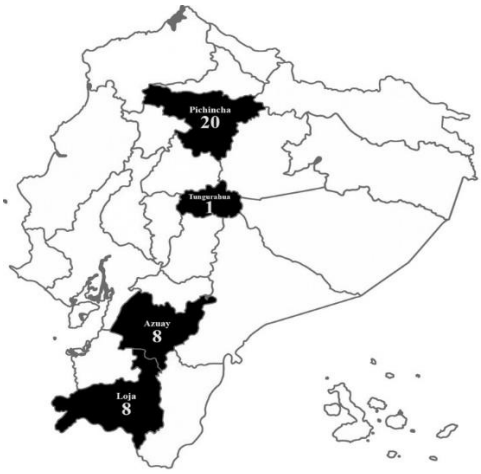

Figure 1. MOOCs generated by province

Of the 59 active universities in Ecuador, eight have at least one MOOC, which represents 13.6% of all universities. Of them, three offer MOOCs with more than one edition, which represents 5% of all universities (see Figure 2).

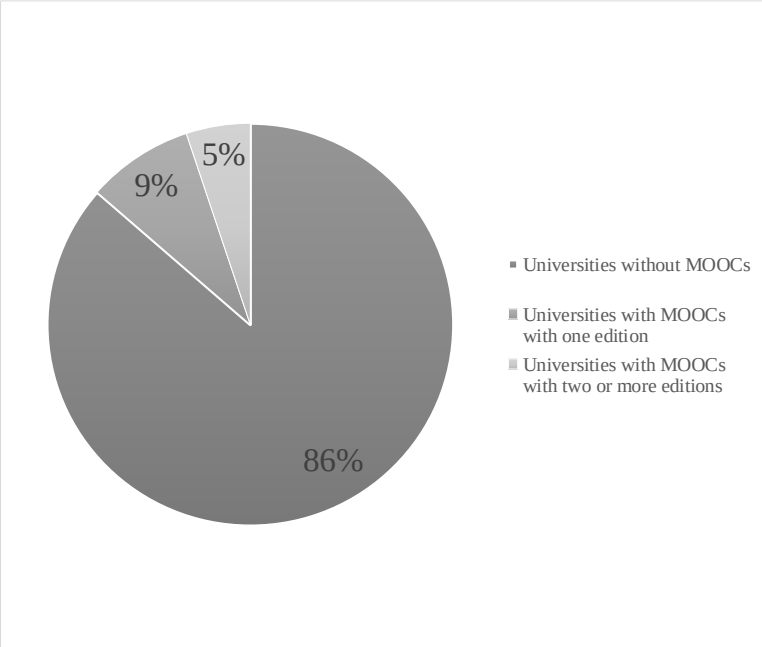

Figure 2. Universities in Ecuador and their commitment to MOOCs

In analyzing the 59 public and private universities, we can see that of the 30 public universities, three have some type of offering. Meanwhile, of the 25 private universities, five of them offer some sort of course. The total of courses offered is 28, nine of them offered in a single edition and, in the case of the National Polytechnic School (EPN, for its acronym in Spanish), five courses with nine editions each.

On the other hand, Ecuadorian State secretaries and ministries have an agreement to publish MOOCs on the formax.edu.ec platform of the IAEN. Of the 42 secretaries and ministries, five of them have created a MOOC, which adds to nine MOOCs in this group. One of them has five past editions.

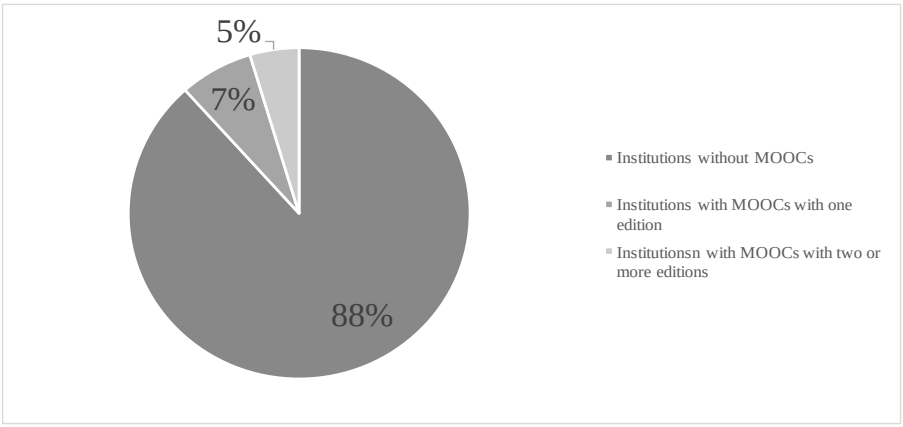

Figure 3. Ecuadorian National Secretaries and ministries and their commitment to MOOCs

Figure 4 allows one to objectively observe the progressive growth of institutions and universities that offer MOOCs in Ecuador starting from 2013 until December 31, 2016. The following universities have MOOCs: the University of Azuay, San Francisco de Quito

University (USFQ, for its acronym in Spanish), the National Higher Studies Institute (IAEN), the Autonomous Regional University of the Andes (UNIANDES, for its acronym in Spanish), the University of Cuenca, the Private Technical University of Loja (UTPL), the Salesian Polytechnic University with is campus in Cuenca (UPS, for its acronym in Spanish), and the National Polytechnic School (EPN). State secretaries and ministries that have MOOCs include the Ministry of Economic and Social Inclusion (MIES), the National Secretary of Public Administration (SNAP), the National Secretary of Higher Education, Science, Technology and Innovation (SENESCYT), the National Electoral Council (CNE, for its acronym in Spanish), and the Ministry of Education. The "State" category includes ministries and secretaries of the Ecuadorian government that have some type of MOOC. The figure also includes the different editions of these courses.

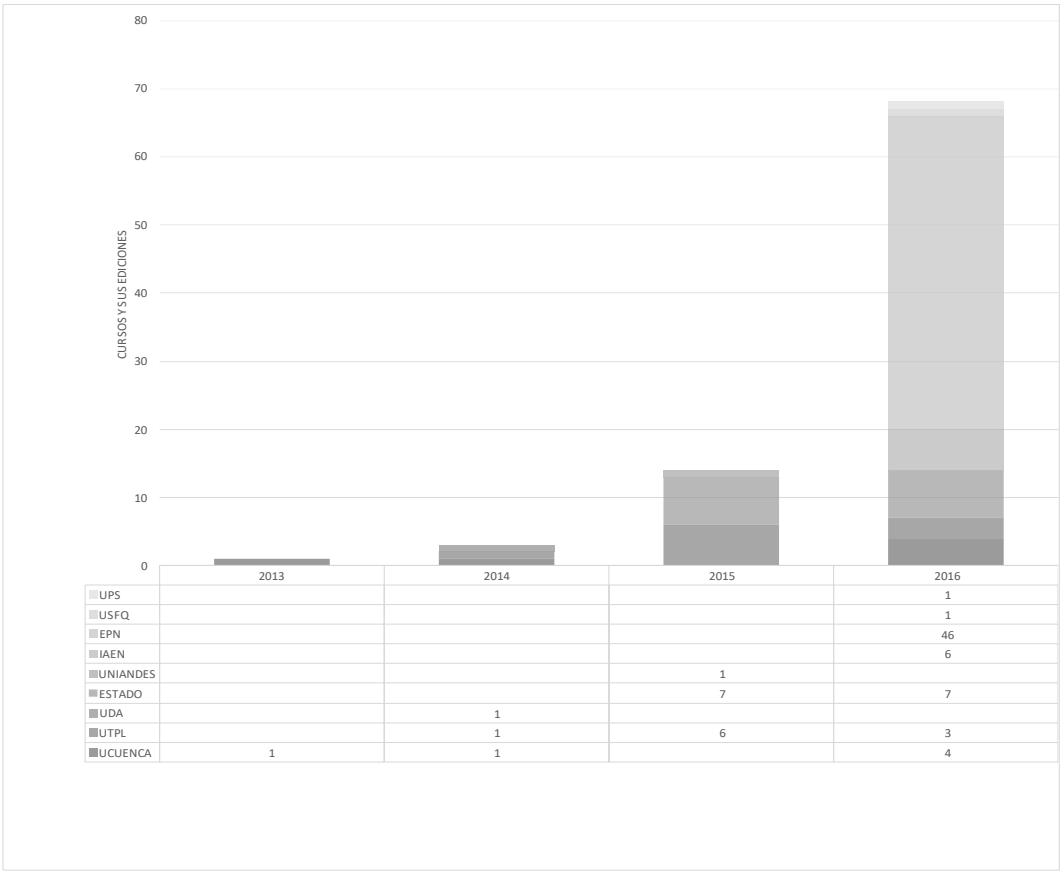

Figure 4. MOOCs in Ecuador. Source: Authors

The date compiled shows that only eight universities have implemented this format and that the MOOCs published by Ecuadorian State universities and institutions, as of December 31, 2016, add up to a total of 37 courses, or 86 courses in total if all editions are taken into account. Based on this data, we can conclude that the number is well below that of countries like the United Kingdom, which had 65 courses in 2013, Germany with 59, and Spain with 111 courses in total (Oliver, Hernández-Leo, Daza, Martín, & Albó, 2014, p. 12). Despite the fact that the number of courses compared to other countries is low, it nevertheless places Ecuador in the third position in the region in relation to the number of inhabitants – 1.6 courses per one million habitants (Pérez-Sanagustín et al., 2016). The following table summarizes the panorama of the courses and the universities and institutes that offer them in Ecuador, the name of each course, edition, type of MOOC under the classification of xMOOC, tMOOC or

cMOOC, and the number of participants.

Table 1: MOOCs in Ecuador. Based on Lazo Galán and Contreras Espinosa (2016).

Year	Univ. / Inst.	Platform	Name of course	Ed.	Type	Participants
2013	University of Cuenca UCUENCA	evirtual.ucuenca.edu.ec	Faculty Competencies in Algebra and Geometry for Professors in Training	1a	xMOOC	25
2014	University of Azuay UDA	canvas.instructure.com/courses/849157	Design in Ecuador: We Will Make History	1a	tMOOC	2.152
2014	Private Technical University of Loja UTPL	prendho-campus.appspot.com	Innovation Principles of the Person and the Organization	1a	xMOOC	
2014	University of Cuenca UCUENCA	programacion-ucuenca.appspot.com	Algorithms, Data and Structures	1a	xMOOC	59
2015	Private Technical University of Loja UTPL	utpl-mooc.appspot.com	General Accounting	2a	xMOOC	298
2015	Autonomous Regional University of the Andes UNIANDES	educacionvirtual.cedia.org.ec	Prevention of Traffic Accidents in the Professional Drivers Union of Tungurahua	1a	xMOOC	
2015	National Institute of Popular and Solidarity Economy INEP	www.formax.edu.ec	National Public Procurement System	1a	xMOOC	89
2015	National Secretary of Public Administration SNAP	www.formax.edu.ec	Information Security Management – Phase II	1a	xMOOC	403
2015	National Secretary of Public Administration SNAP	www.formax.edu.ec	Organizational Tools for the Roll Out of Information Security	1a	xMOOC	372
2015	National Secretary of Public Administration SNAP	www.formax.edu.ec	Security Standards Implementation SGSI	1a	xMOOC	403
2015	Ministry of Education and Culture MINEDUC	www.formax.edu.ec	What All Teachers of Natural Sciences Need to Know	1a	xMOOC	3.777
2015	Ministry of Education and Culture MINEDUC	www.formax.edu.ec	The Magic of Numbers - Mathematics	1a	xMOOC	10.171
2015	Ministry of Education and Culture MINEDUC	www.formax.edu.ec	Introduction to the UPEx Platform	1a	xMOOC	10.325
2015	Private Technical University of Loja UTPL	moocs.utpl.edu.ec	Introduction to Accounting	2a	xMOOC	500
2015	Private Technical University of Loja UTPL	moocs.utpl.edu.ec	Accounting Cycle	1a	xMOOC	
2015	Private Technical University of Loja UTPL	moocs.utpl.edu.ec	Gamification	1a	xMOOC	
2016	National Electoral Council CNE	www.formax.edu.ec	Continuing Education Program in Democracy and Electoral Regulations	2a	xMOOC	600
2016	National Secretary of Higher Education, Science, Technology and Innovation SENESCYT	www.formax.edu.ec	Building Equality in Higher Education	5a	xMOOC	
2016	National Higher Studies Institute IAEN	cec-iaen.formax.edu.ec	Descentralization of the National System of Competencies	2a	xMOOC	

Year	Univ. / Inst.	Platform	Name of course	Ed.	Type	Participants
2016	National Higher Studies Institute IAEN	cec-iaen.formax.edu.ec	Organizational Tools for the Roll Out of Information Security	2a	xMOOC	
2016	National Higher Studies Institute IAEN	cec-iaen.formax.edu.ec	Security Standards Implementation SGSI	1a	xMOOC	
2016	National Higher Studies Institute IAEN	cec-iaen.formax.edu.ec	Office Automation with Free Software: LibreOffice	1a	xMOOC	
2016	Private Technical University of Loja UTPL	moocs.utpl.edu.ec	Study Methodology	1a	xMOOC	5.836
2016	Private Technical University of Loja UTPL	moocs.utpl.edu.ec	Oral and Written Expression	1a	xMOOC	5.059
2016	Private Technical University of Loja UTPL	moocs.utpl.edu.ec	National Reality	1a	xMOOC	3.280
2016	University of Cuenca UCUENCA	educacionvirtual.cedia.org.ec	Design, Creation and Evaluation of Learning Objects	1a	xMOOC	25
2016	University of Cuenca UCUENCA	educacionvirtual.cedia.org.ec	Programming Fundamentals I	1a	xMOOC	
2016	University of Cuenca UCUENCA	educacionvirtual.cedia.org.ec	Programming Fundamentals II	1a	xMOOC	
2016	University of Cuenca UCUENCA	educacionvirtual.cedia.org.ec	Early Intervention and Prevention of Trauma in Children and Adolescents	1a	xMOOC	
2016	Salesian Polytechnic University UPS	educacionvirtual.cedia.org.ec	E-Training in First Aid and CPR	1a	xMOOC	
2016	National Polytechnic School EPN	www.virtualepn.edu.ec	Content Marketing	9a	xMOOC	
2016	National Polytechnic School EPN	www.virtualepn.edu.ec	Interactive Presentations with Prezi	9a	xMOOC	
2016	National Polytechnic School EPN	www.virtualepn.edu.ec	Basic Office Automation	9a	xMOOC	
2016	National Polytechnic School EPN	www.virtualepn.edu.ec	Google Drive	9a	xMOOC	
2016	National Polytechnic School EPN	www.virtualepn.edu.ec	From the Idea to a Business Model with Startup	1a	xMOOC	
2016	National Polytechnic School EPN	www.virtualepn.edu.ec	Moodle Basic Management	9a	xMOOC	
2016	San Francisco de Quito University USFQ	app.alumnelms.com	Virtual Learning Environments	1a	xMOOC	323

As shown in Figure 4, the areas where MOOCs are offered by Ecuadorian universities and institutions are varied. The area where the largest part of the offerings concentrates is science and technology with 15 courses, representing 41% of the offering. Next are the areas of humanities, business, applied sciences, and social and legal sciences, with 9 courses each. The themes with the fewest offerings are natural and health sciences with three courses. In the

areas of arts, only one course can be found. Seven of the offered courses focus on the local environment, which is a point of interest since the learning contents would not appear in MOOCs generated in other countries (SCOPEO, 2013, p. 160). The length of the courses tends to be homogenous around four or five weeks, which is similar to what is generally offered by platforms such as Coursera or MiriadaX. As well, the estimated hours of dedication are about four per week, similar to the average of other countries. The most utilized platform by Ecuadorian universities is Moodle. Its use can be observed at EPN, UTPL, UNIANDES, and UCUENCA. Another platform is OpenEdX, which is used by IAEN, Canvas Instructure by UDA and alumnels.com at USFQ. The Google Course Builder platform is used by the CEDIA network, which houses the University of the Andes course in 2015 and those of the University of Cuenca and the Salesian Polytechnic University in 2016. The formax.edu.ec platform, based on OpenEdX, belongs to IAEN and is used by various Ecuadorian State entities such as the National Secretary of Public Administration, the National Institute of Popular and Solidarity Economy – which belongs to the Ministry of Economic and Social Inclusion, the National Council of Competencies, the Ministry of Education, the National Electoral Council, and the National Secretary of Higher Education, Science, Technology and Innovation.

The platforms represent a central figure in the articulation of any strategy and, in some cases, a fundamental instrument to make judgments on business models that lend certain sustainability to the project. The platforms at the Private Technical University of Loja, the National Polytechnic School and San Francisco de Quito University issue paid certificates that range in price between 30 and 70 dollars. This is not the case of the University of Azuay, the National Higher Studies Institute, the Autonomous Regional University of the Andes, the Salesian Polytechnic University, and the University of Cuenca. With respect to the latter two points, it is possible that the business model follows a tendency to issue certificates as a form of income. To finalize, we'd like to point out that, at an international level, it is possible to detect a certain tendency among universities to opt for mixed training models where MOOCs are not necessarily a marketing tool, but rather, serve as an approximation that can have a certain impact on conventional training. In Ecuador, this strategy of semi-presence learning, which hinges on the precepts of time and space, has been used only at the University of Cuenca where some of the MOOCs were offered to students who were already taking other subjects.

Considerations about the use of the term and classification of MOOC

One of the results that have captured our attention is that in Ecuador there is no consensus on the definition of a MOOC. The term is used in some cases because of its novelty appeal.

As of December 31, 2016, in Ecuador, there were six universities and one public institution that offered MOOCs. There is a consideration that a MOOC is massive because it can have an unlimited number of participants, but the cost of providing the service itself does not significantly increase in direct proportion to the higher number of students (Patru & Balaji, 2016, p. 17). However, for Downes (2013), a course of this nature should not surpass 150 active students. Furthermore, the massive concept is not used in terms of the number of participating students, but rather for the design of the course elements that make it possible to educate so many people by any means possible – with the understanding that "educate" is more than simply sending contents. At first, the term "open" had four definitions: 1) open for anyone who could subscribe, 2) no cost, 3) use of open source tools and 4) the content could be reused freely. However, with the entry of private businesses and universities, the term "open" appears to have changed. While it's true that the courses do not have admission requirements, they are not necessarily available on open platforms or have free distribution content. This can be seen in

platforms such as Coursera, where specializations have been implemented that can only be accessed through paid registration. The concept of "online" means the content is distributed over the Internet and, finally, the term "course" is applied if it offers a complete learning experience. This means that the course is built on learning objectives of a defined area of study and includes content, evaluation tools and a certificate of completion (Patru & Balaji, 2016, p. 17).

In the case of the Private Technical University of Loja, the University of Azuay, the San Francisco de Quito University, the Salesian Polytechnic University and the National Polytechnic School, the courses offered are MOOC in the strictest sense of the term because they have the capacity to be massive and are open to whoever wishes to take them. UTPL has offered to the highest number of courses that fall under the classification of xMOOC, which means they focus on reproducing knowledge. In some cases, the courses are implemented using gamification techniques as a learning methodology (Saraguro-Bravo, Jara-Roa, & Agila-Palacios, 2016), which brings the added quality of being permanently open. In other words, they don't have a start or end date.

The courses offered at IAEN on its platform and in State institutions cannot be considered strictly MOOCs because they are destined for public servants and are not open to those who don't have these functions. The courses are considered massive because they sometimes surpass 1,000 registered students. However, with the exception of the course titled "Building Equality in Higher Education," these courses may only be taken by those who receive a direct invitation from the organizing institution. In the case of the course titled "Innovation Principles of the Person and the Organization" at UTPL, the MOOC consists in the implementation of a course by the Innova Foundation in Spain. It is classified as an xMOOC because it delivers content through videos and is focused on reproducing knowledge. For its part, the two courses offered by the University of Cuenca from 2013 and 2014 act as virtual courses closed within the virtual classroom environment of the university. The courses were made available to students already physically taking those subjects, so the MOOCs, therefore, constituted a complement to their learning. There is no evidence that other students outside the group have been accepted into the online course (Jácome Guzmán, 2015; Peralta Bravo & Piedra Orellana, 2014). As mentioned previously, this inclination toward semi-presence studying has been seen internationally in other countries. The three courses offered by the University of Cuenca and the Salesian Polytechnic University in 2016, which are on the CEDIA platform, share the characteristic of lacking forums, so there is no interaction between professors and students. Therefore, they act more as learning objects.

The only course that does not have the xMOOC format is the one offered by the University of Azuay in June of 2014, titled "Design in Ecuador: We Will Make History." This course was a hybrid between an xMOOC and a cMOOC called tMOOC in which the focus was on the creation and generation of knowledge, and on the activities of students. In this course, the students provided data that helped shape knowledge (Lazo Galán & Contreras Espinosa, 2013; Ochoa Ruilova, 2015).

Final considerations

Unlike what is occurring in most countries where the MOOC phenomenon has continued to grow consistently over the last few years, the offering is limited in Ecuador. It can be observed that only eight universities and five institutions have shown interest in implementing this format. Objectively speaking, the growth has been progressive for institutions and universities that offer MOOCs in Ecuador from 2013 until December 31, 2016. An exponential increase in 2016 can be seen with 17 courses that, in many cases, have reached

the ninth edition. The Private Technical University of Loja (UTPL) stands out due to its majority offering with eight courses in total, two of which have more than one edition. In fact, in the MOOC Maker report, UTPL is ranked in fourth place in the creation of MOOCs by Latin American universities (Pérez-Sanagustín et al., 2016). The areas where MOOCs have been implemented by universities and institutions in Ecuador are varied. The areas of science and technology hold the largest offering with 15 courses, followed by humanities and social sciences with nine courses each, natural sciences with three, and design with one course. The length of the courses tends to be homogeneous around four or five weeks and the estimated number of hours of dedication is around four per week. We can say that there is no established business model for MOOCs in Ecuador, although the tendency seems to incline towards the issuance of certificates as a means of income. In this sense, the price of certificates ranges between 30 and 70 dollars. In Ecuador, there is an impression that there is no consensus regarding the definition of a MOOC. The term appears to be misused in many courses, not because the MOOC format is misunderstood but because the term seems to be used purely for novelty's sake. Only a handful of courses offered by The Private Technical University of Loja, the University of Cuenca, the University of Azuay, San Francisco de Quito University, the Salesian Polytechnic University, and the National Polytechnic University are MOOCs in the strictest sense of the term. These courses can be considered massive and are open to any user. To finalize, it can be concluded that, with the exception of a course classified as a tMOOC, the courses offered in Ecuador are of the xMOOC type with the following characteristics: 1) didactic transmission of knowledge is similar to face-to-face teaching and where learning and knowledge transfer objectives have been defined, and 2) learning materials are offered in small units designed for easy understanding. Generally, videos are preferred over readings, questionnaires and exercises are used for evaluation purposes and forums are used to foster social learning experiences (Patru & Balaji, 2016). This first study presents the state of massive open online courses at Ecuadorian universities and institutions. However, future lines of research can be proposed to enable the deepening of knowledge of more notable topics. For example, topics related to technological platforms, the quality of training offered by the courses, or the study of best practices in MOOCs.

References

ALBÓ, L., HERNÁNDEZ-LEO, D. & OLIVER, M. Are higher education students registering and participating in MOOCs ? The case of MiríadaX Methodology. In: *Proceedings of the European MOOC Stakeholder Summit 2016*, 2016, pp.1-12.

BARBER, M., DONNELLY, K., & RIZVI, S. An Avalanche is Coming. *International Journal of Pedagogy, Innovation and New Technologies*, vol. 1, num. 1, 2014, pp. 77-80. http://doi.org/10.5604/23920092.1134803 .

BUSTAMANTE, F. Universidades particulares autofinanciadas en Ecuador. In: R. Ramírez (ed.), *Universidad Urgente para una sociedad emancipada*, 2016, pp. 163–193. Quito, Ecuador: SENESCYT-IESALC.

CABERO ALMENARA, J., LLORENTE CEJUDO, M. & VÁZQUEZ MARTÍNEZ, A. I. Las tipologías de MOOC: Su diseño e implicaciones educativas. *Profesorado*, vol. 18, num. 1, 2014, pp. 13-26. Retrieved from http://www.ugr.es/~recfpro/rev181ART1.pdf .

CARRIÓN MARTÍNEZ, M., SARANGO-LAPO, C. P., JARA-ROA, D. I., & AGILA-PALACIOS, M. Diseño e Implementación de MOOCs en la Universidad Técnica Particular de Loja (UTPL). In *Libro de Comunicaciones del V Congreso CREAD Andes y V Encuentro Virtual Educa Ecuador Calidad y accesibilidad de la educación superior a distancia: América, África, Europa y Asia*, 2016, pp. 94–110.

CONSEJO DE EDUCACIÓN SUPERIOR. REGLAMENTO DE RÉGIMEN ACADÉMICO. Ecuador: República del Ecuador. 2013.

DOWNES, S. *Half an Hour: What Makes a MOOC Massive?*, 2013 Retrieved from http://halfanhour.blogspot.co.uk/2013/01/what-makes-mooc-massive.html .

FELDSTEIN, M. *Keynote: The Year After the Year of the MOOC -e-Literate*, 2014. Retrieved from http://mfeldstein.com/keynote-year-year-mooc/ .

HOME, OPENUPED, & ECO. *Definition Massive Open Online Courses (MOOCs)*, 2015. Retrieved from http://www.openuped.eu/images/docs/Definition_Massive_Open_Online_Courses.pdf .

JÁCOME GUZMÁN, M. Diseño e implementación de un MOOC de Álgebra y Geometría para profesores en Formación. In *17JAEM Cartagena 2015. Jornadas sobre el aprendizaje y la enseñanza de las matemáticas*, 2015, pp. 2-13. Retrieved from http://17jaem.semrm.com/aportaciones/n136.pdf .

JORDÁN CORDONE, F., RAMOS MOROCHO, R. & VEGA VILLACIS, G. Educación virtual masiva gratuita para la prevención de accidentes de tránsito en Ambato. *Journal of Science and Research*, vol. 1, num. extra 0, 2016, pp. 28-32. Retrieved from https://dialnet.unirioja.es/servlet/articulo?codigo=6118775 .

LAZO GALÁN, J. C. & CONTRERAS ESPINOSA, R. El Diseño en Ecuador : Comunidad de aprendizaje en un entorno cMOOC. In *LACLO 2013 - Octava Conferencia Latinoamericana de Objetos y Tecnologías de Aprendizaje*, 2013. Retrieved from http://laclo.org/papers/index.php/laclo/article/view/145/134 .

LAZO GALÁN, J. C. & CONTRERAS ESPINOSA, R. Panorama actual de los MOOCs en instituciones y universidades del Ecuador. En *TIC actualizadas para una nueva docencia universitaria*, 2016, pp. 385-398. Madrid: McGraw-Hill Interamericana.

MACKNESS, J., MAK, S., & WILLIAMS, R. The ideals and reality of participating in a MOOC. In *Proceedings of the 7th Int. Conference on Networked Learning*, 2010, pp. 266–275. http://doi.org/10.1108/PMM-10-2014-0036 .

OCHOA RUILOVA, V. *Efecto educomunicacional del curso MOOC Diseño en Ecuador - Haremos Historia y su contribución al posicionamiento de la Universidad del Azuay*. Tesis de grado. 2015. Universidad del Azuay. Retrieved from http://dspace.uazuay.edu.ec/bitstream/datos/4324/1/10881.pdf .

OLIVER, M., HERNÁNDEZ-LEO, D., DAZA, V., MARTÍN, C., & ALBÓ, L. *MOOCs en España. Panorama actual de los Cursos Masivos Abiertos en línea en las universidades españolas*. Universitat Pompeu Fabra, 2014 Retrieved from http://repositori.upf.edu/bitstream/handle/10230/25398/MOOCs_2014.pdf .

PATRU, M., & BALAJI, V. (Eds.). *Making Sense of MOOCs A Guide for Policy-Makers in Developing Countries*. UNESCO and Commonwealth, 2016. Retrieved from http://unesdoc.unesco.org/images/0024/002451/245122E.pdf .

PEDREÑO, A., MORENO, L., RAMÓN, A. & PERNÍAS, P. UniMOOC: Trabajo colaborativo e innovación educativa. *Revista Científica Iberoamericana de Tecnología Educativa*, vol. 2, num 1, 2013, pp. 10-18. Retrieved from http://www.uajournals.com/campusvirtuales/journal/2/1.pdf .

PERALTA BRAVO, A. & PIEDRA ORELLANA, C. *Evaluación del rendimiento académico de los estudiantes de la asignatura de Algoritmos, Datos y Estructuras de la Facultad de Ingeniería a partir de la construcción de un modelo conceptual de datos aplicado a un MOOC*. Universidad de Cuenca, 2014. Retrieved from http://dspace.ucuenca.edu.ec/handle/123456789/20931 .

PÉREZ-SANAGUSTÍN, M., MALDONADO, J. J., & MORALES, N. Estado del arte de adopción de MOOCs en la Educación Superior en América Latina y Europa, 2016. Retrieved from http://www.mooc-maker.org/wp-content/files/D1.1-InformeMOOCLatam-vFINALDEFINITIVO_Spanish.pdf .

RAMÍREZ, R. Universidad Urgente para una sociedad emancipada. In R. Ramírez (ed.), *Universidad Urgente para una sociedad emancipada*, 2016, pp. 11-60. Quito, Ecuador: SENESCYT-IESALC.

RODRÍGUEZ HIDALGO, C. *UTPL, innovando en el aprendizaje*, 2014. Retrieved from http://www.utpl.edu.ec/comunicacion/utpl-innovando-en-el-aprendizaje/ .

RUIZ-ROJAS, L. I. & GARCÍA-PEÑALVO, J. F. Methodological proposal for massive training of Ecuador's civil servants, in the educational field, through MOOC courses on virtual learning environments. *In*: *TEEM'16 Proceedings of the Fourth International Conference on Technological Ecosystems for Enhancing Multiculturality*, 2016, (pp. 705-713). http://doi.org/https://doi.org/10.1145/3012430.3012596 .

SANGRÀ, A., GONZÁLEZ-SANMAMED, M., & ANDERSON, T. Metaanálisis de la investigación sobre mooc en el período 2013-2014. *Education XX1*, vol. 18, num 2, 2015, pp. 21-49. http://doi.org/10.5944/educXX1.13463 .

SARAGURO-BRAVO, R. A., JARA-ROA, D. I. & AGILA-PALACIOS, M. Techno-instructional application in a MOOC designed with gamification techniques. *In: 2016 Third International Conference on eDemocracy & eGovernment (ICEDEG)*, 2016, pp. 176-179. http://doi.org/10.1109/ICEDEG.2016.7461717 .

SCOPEO. *SCOPEO Informe No 2: MOOC: Estado de la situación actual, posibilidades, retos y futuro*. España: Universidad de Salamanca, 2013. Retrieved from http://scopeo.usal.es/wp-content/uploads/2013/06/scopeoi002.pdf .

SHAH, D. *By The Numbers: MOOCS in 2016*. 2016. Retrieved from https://www.class-central.com/report/mooc-stats-2016/ .

SMITH B., ENG M. MOOCs: A Learning Journey. In: Cheung S.K.S., Fong J., Fong W., Wang F. L., Kwok L. F. (eds) *Hybrid Learning and Continuing Education. ICHL 2013. Lecture Notes in Computer Science*. Berlin, Heidelberg: Springer 2013.

_____

Recebido em: 05/10/2018
Aceito em: 20/11/2018