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Status Report on the Adoption of MOOCs in Higher Education in Latin America and Europe

Version 1.0

(Spanish)

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SECTION 1. INTRODUCTION

MOOCs – *Massive Open Online Courses* – are a global phenomenon that is transforming teaching and leading researchers to consider new ways of learning in institutions of higher education (HE) worldwide. Since Dave Cormier coined the term MOOC in 2008, these courses have become an important catalyst for changing the traditional teaching and learning model at universities. Since then, universities have entered into a fast-paced race to produce these types of online courses that are open to the public. In July 2015, there were more than 2,400 MOOCs in existence around the world in which millions of students participated, according to Class Central [6].

According to data published in Open Education Europa (2016) [1] in February 2016, more than 1,705 MOOCs have been produced in Europe – with Spain and the United Kingdom at the forefront of production in this new educational format [5]. In the United States, on the other hand, MOOC production is concentrated within universities that are associated with the platforms Coursera and edX.

In addition to a huge increase in MOOC production in the US and Europe, there has also been a proliferation of platforms that host them. In the United States, Coursera and edX are the leading platforms. In Europe, several countries have their own alternatives available in addition to Coursera and EdX: In the United Kingdom, there is the FutureLearn platform; in France, the Government platform FUN; and in Spain, a wide range of options are available, such as MiríadaX and UniX, among others. In addition to all these proprietary platforms, there is also the open source platform Open edX that has made it possible for many universities and institutions to start their own initiatives.

In Latin America, MOOCs really started to take off in 2015. The increase in the number of courses is largely the result of two factors: (1) the association of Latin American universities with platforms such as Coursera and edX; and (2) the dissemination and development of MOOC platforms from Latin America such as Telescopio (Guatemala) and Veduca (Brazil). Well known universities in the region such as the Universidades de Sao Paulo, Universidad Nacional Autónoma de México, and Pontificia Universidad Católica de Chile have recently joined the MOOC movement and are beginning to explore and experiment with new educational models based on these types of courses. That growth is expected to accelerate in the coming years.

In order to better understand the current situation of MOOCs in Latin America, this study presents the status of MOOCs in the region and shows how they compare to the ones in Europe. The study is divided into five sections. The first section describes the objectives of the report and how it builds on existing reports. The second section describes the methodology followed for collecting the analysed data. The third and fourth sections present the analysis of the data obtained on MOOCs in Latin America and Europe; the number of MOOC courses produced by universities in these regions is analysed, as well as which countries produce the most courses. In the fourth section, both regions are compared. Finally, the fifth section presents the main conclusions of the study.

SECTION 2. Objectives and highlights of the study

The overall objective of this report is to offer different players within the system of institutions of higher education (HE) – administrators, academics, researchers, regulators, etc. – a general and also detailed perspective on the development of MOOCs in two regions: Europe, a very established region when it comes to MOOC initiatives; and Latin America, a region that is emerging in this area. The focus of the report is descriptive and provides information on the status of MOOC initiatives in both regions. In addition, this report conducts a comparison on Europe and Latin America that sheds light on and helps us better understand the specific situation of each region over the last 5 years. This report aims to help foster advancement in this area, as well as offer a broad overview and a better understanding of the current state of MOOC initiatives around the world.

In the context of this objective, this report raises a series of research questions, focusing on the regions of Latin America and Europe. These research questions (RQ) have guided the development of this report toward attaining the main objective.

- RQ1. How many MOOCs have been developed in the regions of Latin America and Europe?
- RQ2. Which universities/institutions produce the most MOOCs, and which have managed to become leaders and set regional precedents?
- RQ3. What are the main characteristics of MOOCs from Latin America and Europe (subject, duration and time commitment required by the student)?
- RQ4. Which technological platforms are most used for MOOC deployment?
- RQ5. What is the current status of MOOCs in Latin America in relation to Europe?
- RQ6. What are the main keys of MOOC initiatives in Latin America and Europe, and what is the development trend?

Currently, there is no other report that offers both a general and specific overview of the status of MOOCs in Latin America. However, there are similar initiatives that motivated and inspired this study. One of the reports used as a reference was published by the Telefónica Chair on MOOCs in Spain [2]. The report performs a systematic analysis of the current situation of MOOCs in that country. Another report is an edition of EduTrends [3] about MOOCs that was recently published by the Tecnológico de Monterrey (Mexico). This report collects the main data on this university's MOOC initiatives.

These studies provide a partial vision of the current situation of MOOCs in Spanish speaking countries and initiatives in the Latin American region. However, there is a lack of information regarding the state of the current situation of MOOC initiatives across Latin America and how these initiatives stand in relation to those of Europe, a region that produces among the highest number of MOOCs.

This report is, therefore, the first practical guide on the status of MOOC initiatives in the Latin American region. Moreover, this report represents a first step in creating a resource with benchmarks that will support decision-making and the design of effective strategies surrounding MOOC initiatives in this region. In the framework of creating this resource, the aim is to regularly update the data published in this report, which will be disseminated through the website of the project (<http://www.mooc-maker.org/>) and on other related websites.

SECTION 3. METHODOLOGY

For this report, a methodology of systematic search using various sources was developed. The proposed methodology is an adaptation of the research strategy presented in the study on MOOCs in Spain by the Telefónica Chair [2]. The strategy proposed by the authors of that study sought data from the following: (1) MOOC platforms; (2) Spanish universities; and (3) Google. In this report, we took these same sources combined with others that we considered relevant to the interests of the study.

The research methodology is structured in 3 phases (Figure 1): (1) selection of information sources and definition of research strategies to be carried out on them; (2) collection, recording and review of the gathered data; and (3) evaluation of results and conclusions. Below is a detailed description of each phase.

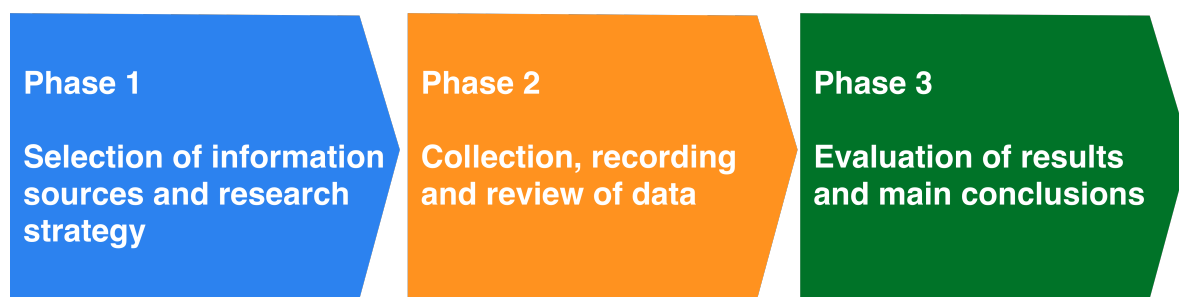


Figure 1. Phases of methodology applied for systematic research.

3.1. Phase 1: Selection of information sources and research strategy

The MOOC phenomenon is relatively recent, especially in the region of Latin America. As a result, there are few sources of reliable and verified information on these types of courses. In this study we have used different sources of existing information from each region.

Given the lack of sources of information on MOOCs in Latin America, we used different references. First of all, and in order to delimit the field of research, lists of countries and universities in the region of Latin America were created, as well as a selected list of the most significant MOOC platforms for this study. Secondly, we selected information sources and searches for collecting data on MOOCs and Latin America.

Lists of countries, universities and MOOC platforms

- The list of countries is made up of 21 sovereign and independent Latin American countries. Specifically, we worked with the following countries: (1) Argentina; (2) Bolivia; (3) Brazil; (4) Chile; (5) Colombia; (6) Costa Rica; (7) Cuba; (8) Ecuador; (9) El Salvador; (10) Guatemala; (11) Haiti; (12) Honduras; (13) Mexico; (14) Nicaragua; (15) Panama; (16) Paraguay; (17) Peru; (18) Puerto Rico; (19) Dominican Republic; (20) Uruguay; and (21) Venezuela.

- The list of universities analysed was extracted from the universities guide from the student portal Altillo.com (<http://www.altillo.com/universidades/index.asp>). This site maintains a complete and updated list of the universities in Latin America, including both *online* and traditional universities.
- The list of MOOC platforms consists of 5 different platforms. Coursera and edX, leading US-based MOOC platforms in use worldwide; and MiriadaX, which was included on the list as the platform that has the highest number of courses in the Spanish language. Also added to the list were MOOC platforms developed in Latin America such as Veduca and Telescopio (created by the Universidad de Galileo, in Guatemala).

Sources for collecting data and research strategies

- **University portals.** A comprehensive search was conducted on the portals of each of the selected universities. This search was performed using each university's own search engine.
- **MOOC platforms.** Many current MOOC platforms have search engines that allow users to filter courses by university name or by author. The search in different platforms was carried out in two ways: by country and by university name (from the list of selected universities).
- **MOOC-List.** *MOOC-List* (<https://www.mooc-list.com/>) is a website that maintains a list of the MOOCs available online. This search engine allows users to filter searches by country. In *MOOC-List*, this filter was used to find MOOCs in different countries.
- **Google.** This search engine was included to avoid leaving out information related to MOOCs in Latin America that could have been mentioned in various online media. To systematise the search, we defined a set of keywords that were intersected with the name of the countries and selected universities. The keywords used are as follows: MOOC, MOOCs, *Massive Open Online Course*, *Massively Open Online Course*, *Curso Masivo*, *Curso gratuito online*, *Curso/s gratuito en línea*, *Curso/s abierto*.

In Europe, one of the best-known current sources is the initiative *Open Education Europa* (<http://openeducationeuropa.eu/>). This initiative maintains an updated list of MOOC courses offered in Europe by every country in the region. Therefore, in the case of Europe, the previously defined search strategy was not used, and the information was extracted directly from the *Open Education Europa* website. For statistical calculations, we used the list of 28 countries in line with the latest data from the European Union¹(EU): (1) Germany, (2) Austria, (3) Belgium, (4) Bulgaria, (5) Cyprus, (6) Croatia, (7) Denmark, (8) Slovakia, (9) Slovenia, (10) Spain, (11) Estonia, (12) Finland, (13) France, (14) Greece, (15) Hungary, (16) Ireland, (17) Italy, (18) Latvia, (19) Lithuania,

¹List of countries in the European Union (EU): http://europa.eu/about-eu/countries/index_es.htm

(20) Luxembourg, (21) Malta, (22) Netherlands, (23) Poland, (24) Portugal, (25) United Kingdom, (26) Czech Republic, (27) Romania and (28) Sweden. Given that data on platforms where MOOCs are deployed in Europe does not appear in the information provided by *Open Education Europa*, this part was omitted from the analysis for this region.

3.2. Phase 2: Collection, recording and review of data

Collection and recording of data

The research questions posed in section 2 (RQ1, RQ2, RQ3, and RQ4) served as guide to organise the collection and recording of data. For each research question, a list of categories was defined to facilitate the systematic collection of data. Table 1 shows the list of questions and categories defined for each one. The collection of data on Latin America was conducted by 11 researchers: 5 from the Universidad de Cuenca (Ecuador) and 6 from the Pontificia Universidad Católica de Chile. They followed the research process described in the section: "Sources of information and searches" in Phase 1 (Section 3.1). In order to homogenise the searches, each of the researchers involved provided a manual with instructions² on how to perform searches and a shared document in a Google Spreadsheet for data logging. The worksheet provided included an analysis table with a column for each of the categories defined in Table 1.

European data collection was carried out by 2 researchers. In this case, only the information provided by the *Open Education Europa* page was considered, without following the same strategy defined in the section: "Sources of information and searches" in Phase 1 (Section 3.1).

Table 1 Research questions derived from the defined research questions.

Research question (RQ)	Categories (C)
RQ1. How many MOOCs have been developed?	(C1) Countries. Classification of identified initiatives by country according to the list of countries defined in "Selection of Sources and Searches" in Section 3.1. A total of 21 countries in Latin America and 28 in Europe, corresponding to the countries of the European Union, were considered.
RQ2. Which universities/institutions produce the most MOOCs, and which have managed to become leaders and set regional precedents?	(C2.1) Universities. Classification of identified initiatives by universities according to the list extracted from Altilla.com. (C2.2) Type of institution. Classification of the type of MOOC producing institution: University; Non-university government institutions; Foundations; Others.
P3. What are the main characteristics of MOOCs?	(C3.1) Field. Classification based on the fields of study taxonomy proposed by Wu et al. (2012). It is made up of the following fields: Humanities, which includes history, language, linguistics, literature, and the arts; Social Sciences, which includes areas related to economic sociology; Natural sciences, which includes chemistry, physics, and biology; Formal sciences, which includes mathematics,

²Instruction manual provided to researchers for the systematic search:
<https://www.dropbox.com/s/2nok8jox14c2lc7/Manual-Investigadores-BusquedaSisetmatica.pdf?dl=0>

statistics, computer science and other related sciences; Professional skills and applied sciences, which includes areas such as engineering, law, and health, among others; Cross-disciplinary courses, which are for working on skills such as teamwork, time management, productivity, among others.

(C3.2) **Title.** Title of MOOCs.

(C3.3) **Time Commitment.** Approximate amount of time that students should commit to the MOOC, expressed in hours per week. Many MOOCs did not have information on the average time commitment expected. These cases are classified with the label "No info".

(C3.4) **Duration.** Duration expressed in number of weeks, considering that a module is typically equivalent to one week.

(C3.5) **Language.** Language of the MOOC content.

P4. Which technological platforms are the most used for MOOC deployment?

(C4) **Platforms.** Identification of the platforms used for the different initiatives: Coursera, edX, Miríadax, Veduca, Telescopio, Other. In the case of marking "other", the name of the platform and the web link were indicated.

The phase of data collection and recording began on 16 November 2015 and ended on 29 February 2016. Information on MOOCs created on 1 March, 2016 or later was not included in this analysis.

Review of the collected data

In this phase, the completeness and integrity of the information collected and recorded was reviewed in the resulting worksheet of Phase 1 of data collection. In particular, repeated fields were deleted, and it was made sure that no entry in the table had incomplete fields or duplicate information.

A total of 418 MOOCs in Latin America and 1,705 in Europe were recorded, which will be the group of courses discussed in this report. Note that in this report, we use as a reference the definition of MOOCs proposed by the HOME & OpenupEd project: "*MOOCs are courses designed for large numbers of participants, that can be accessed by anyone anywhere as long as they have an internet connection, are open to everyone without entry qualifications, and offer a full/complete course experience online for free.*"³ In line with this definition, all content offered on the Classroom TV platform in Latin America was discarded. In addition, in this same region, 11 out of the 418 MOOCs are the result of MOOCs generated by international institutions within the region, whose range of action is not limited to one country in particular, but encompasses several countries in the region. This is the case of MOOCs generated by the Inter-American Development Bank⁴. These are the MOOCs listed in our data record as "International".

³ Definition of MOOCs proposed by the European Project *HOME & OpenupEd in March 2015* (<http://home.eadtu.eu/>): "*MOOCs are courses designed for large numbers of participants, that can be accessed by anyone anywhere as long as they have an internet connection, are open to everyone without entry qualifications, and offer a full/complete course experience online for free.*"

⁴ Ibero-American Development Bank MOOCs: <http://www.iadb.org/es/indes/cursos-masivos-abiertos-en-linea-moocs,19091.html>

The final documents of the data considered in the study are in the APPENDIX of this document.

3.3. Phase 3: Evaluation of results and main conclusions

Data analysis on the 418 MOOCs selected in the validation phase was conducted using Excel. Below are the calculations that were carried out to analyse the recorded data and answer the various research questions. All calculations were performed separately for Latin America and Europe.

(RQ1) Several analyses were conducted to determine the number of MOOCs that have been developed. For the analysis of this point, data classified in category "C1. Country" and "C2.1. Universities" was used. First of all, the number of MOOCs generated in total and by country was counted. In addition, to identify the region with the greatest production of MOOCs, the percentage of MOOC production by country in relation to the total number of MOOCs identified in the region was calculated. These values are represented using diagrams made up of bars and spheres. Finally, and in order to better understand the actual situation of MOOC production in each country, the following ratios were calculated: (1) Ratio of MOOCs per million inhabitants, which relates the number of MOOCs produced in a country to each million inhabitants of this country; and (2) Ratio of MOOCs per university, which relates the number of MOOCs produced in a country to the number of universities that this country has. Finally, the proportion of universities with MOOCs in each country was also calculated.

(RQ2) To determine which universities are the largest producers of MOOCs and which ones are leaders in this area, different calculations were carried out using the categories "C2.1. Universities", "C2.2. Type of institution", and intersected with the category "C1. Countries". First, the number of MOOCs produced in each country was recorded, organising them depending on type of institution (university, non-university government institution, foundation or other). Second, a ranking of the 10 universities with the highest production of MOOCs was carried out, to have a benchmark of the leading universities of the region.

(RQ3) To determine the main characteristics of MOOCs, different calculations were carried out using the categories "C3.1.Field", "C3.2.Title", "C3.3.Time Commitment", "C3.4.Duration" and "C3.5.Language", which were intersected with the category "C1. Countries". First, the number of MOOCs per field in each country was recorded. Then, the percentage of MOOCs in each field was calculated, in order to get a perspective on which field is the most common. Second, the average time commitment of the MOOCs identified was calculated, and, based on this value, the MOOCs were classified into several groups: low (between 1-3 hours), medium (between 4-6 hours) and high (more than 6 hours). Thirdly, the average duration of the MOOCs in weeks was calculated and, according to this value, the MOOCs were classified into several groups according to duration: short (between 1-3 weeks), medium (between 4-6 weeks), and long (more than 6 weeks). Finally, this data was intersected with the category "C1. Countries", and both the time commitment and the average duration of the MOOCs in different countries was plotted.

(RQ4) To understand what is the most commonly used technological platform, the analysis category "C4. Platform" was used, crossed with the category "C1. Countries". In this case the number of MOOCs in the platforms Coursera, edX, Open edX, and Miríadax for each country was recorded. In addition, an overall percentage of the use of each platform according to the total number of platforms is provided.

(RQ5) To understand the current status of MOOCs in Latin America in relation to Europe, comparisons between the results obtained in both regions were carried out. Specifically, the following was analysed: the difference between the 5 countries (1) with the greatest production of MOOCs and (2) the highest rate of MOOCs per million inhabitants; (3) the comparison of the number of MOOCs generated according to the type of institution producing them; (4) the comparison of the number of MOOCs generated by the top 5 universities with the highest production in each region; and (5) comparison of the number of MOOCs by field of study.

(RQ6) To understand the main keys of the MOOC initiatives in Latin America and Europe, as well as what are the development trends, a qualitative analysis was performed on the data obtained from the particular analysis of each region and the comparison between them.

4. MOOC Initiatives in Latin America

This section presents the main results of the collection of data on MOOCs in Latin America.

4.1 MOOCs in Latin America: Overview

Overview of the MOOCs produced in Latin America

- R1. Up to 1st March, 2016, 418 MOOCs have been produced in Latin America. 62% of the countries in the region are producers of MOOCs. The countries with the highest production of MOOCs are Colombia (24.16%; N=101), Mexico (22.25%; N=93) and Brazil (15.79%; N=66).
- R2. The highest ratio of MOOCs per million inhabitants is held by Costa Rica (7.04 MOOCs per million inhabitants), followed by countries such as Colombia (2.08), Ecuador (1.58) and Chile (1.26), with more than one MOOC per million inhabitants.
- R3. Less than 10.6% of the universities in Latin American countries with MOOCs have produced MOOCs. Costa Rica has the largest ratio of MOOCs per university, followed by Guatemala and Ecuador. Guatemala, Chile and Peru are the Latin American countries with the highest proportion of universities with MOOCs, with more than 10% in Guatemala, more than 6% in Chile and more than 5% in Peru.
- R4. Universities with the highest production of MOOCs are the Tecnológico de Monterrey (Mexico) (N=33), Universidade Estadual Paulista, UNESP (Brazil) (N=29) and the Universidad Autónoma de México, UNAM (Mexico) (N=25).
- R5. Of the 418 MOOCs of Latin America, most have been produced by universities (N=295) or government institutions (N=89).

Result 1 (R1). We have identified a total of 418 MOOCs in Latin America. As shown in Figure 2 and Figure 3, 62% of countries in the region (13 of 21) produce MOOCs. In addition, Colombia (24.16%; N=101), Mexico (22.25%; N=93) and Brazil (15.79%; N=66) together produce more than half of the MOOCs of the region. The remaining 37.8% is split between Costa Rica, Peru, Ecuador, Chile, Venezuela and Guatemala, with a production of between 9 and 34 MOOCs or higher. The rest of the region has a production of 3 or fewer MOOCs.

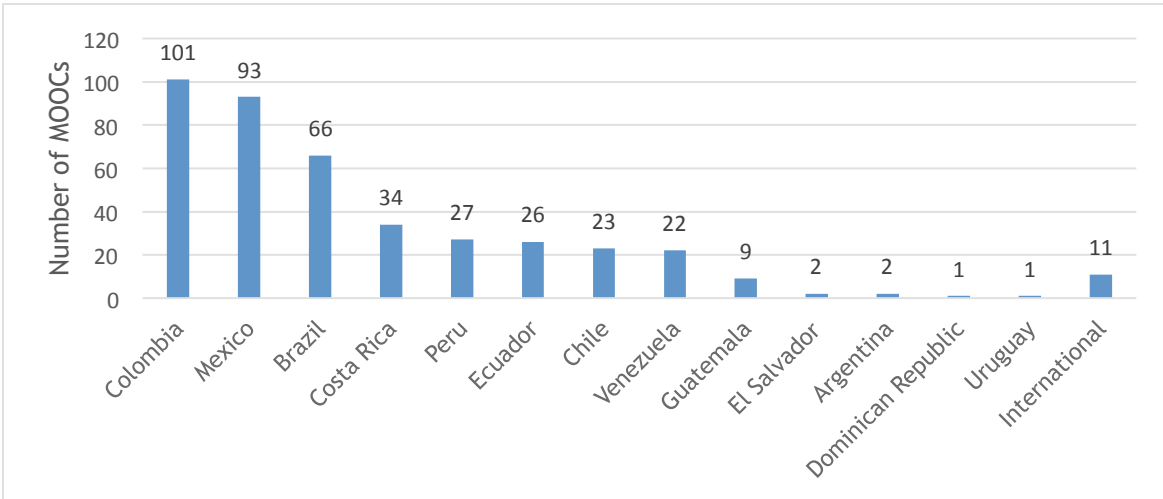


Figure 2. Number of MOOCs (X axis) (N=418) by Latin American country with MOOCs (N=21) (Y axis). NOTE: “International” refers to MOOCs produced by international institutions within the region, whose range of activity is not limited to one country in particular, but encompasses several countries in the region.

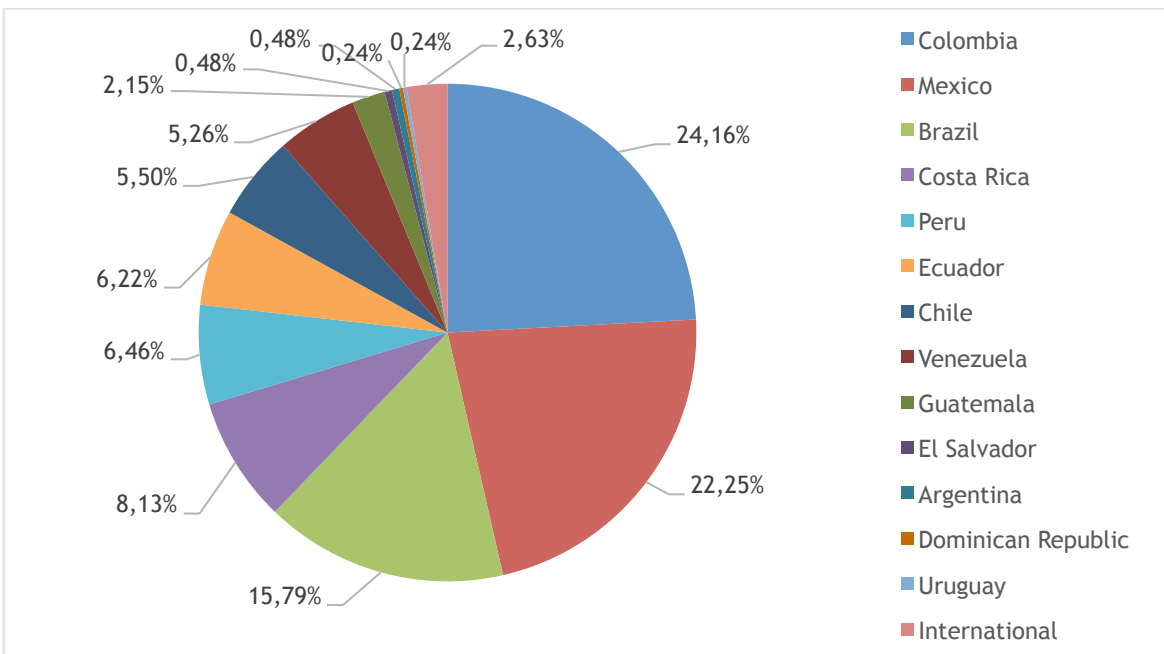


Figure 3. Distribution of MOOCs in Latin America (N=418) by country in Latin America with MOOCs. NOTE: “International” refers to MOOCs produced by international institutions within the region, whose range of activity is not limited to one country in particular, but encompasses several countries in the region.

Result 2 (R2). By calculating the *Ratio of MOOCs per million inhabitants* (Figure 4) it shows that countries with few inhabitants such as Costa Rica, Colombia, Ecuador and Chile are in the lead, with a ratio of more than one MOOC per million inhabitants. Noteworthy is the case of Costa Rica, with a much greater proportion than other

countries. This high proportion is due to the initiative of the Omar Dengo Foundation, which currently offers 31 courses dedicated to teacher development through the UPE platform⁵.

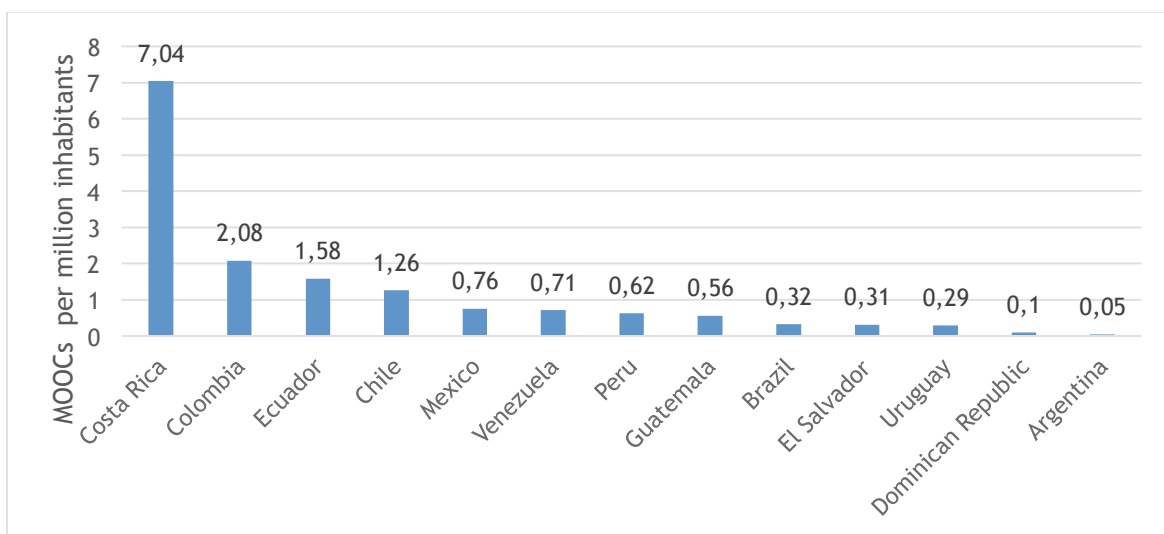


Figure 4. Ratio of MOOCs per million inhabitants. Number of MOOCs (X axis) per million inhabitants in the countries of the region of Latin America with MOOCs (Y axis).

Result 3 (R3). Figure 5 shows that less than 10.6% of Latin American countries with MOOCs have produced MOOCs. This is especially significant in countries like Mexico and Brazil. By calculating *the ratio of MOOCs per university* (Figure 6) it shows that small countries, with a small number of universities, such as Costa Rica, Guatemala and Ecuador, have ratios greater than 0.4 MOOCs by university. The following countries such as Colombia, Venezuela, Chile and Peru, have ratios between 0.34 and 0.29. Finally, countries with the greatest production of MOOCs, but also with the largest number of universities, such as Mexico and Brazil, have a ratio of less than 0.01 MOOCs per university.

⁵The UPE platform of the Fundación Omar Dengo (Costa Rica): <http://www.upe.ac.cr/?ofertaCursos=1&AT=&PM=&filtroCurso=>

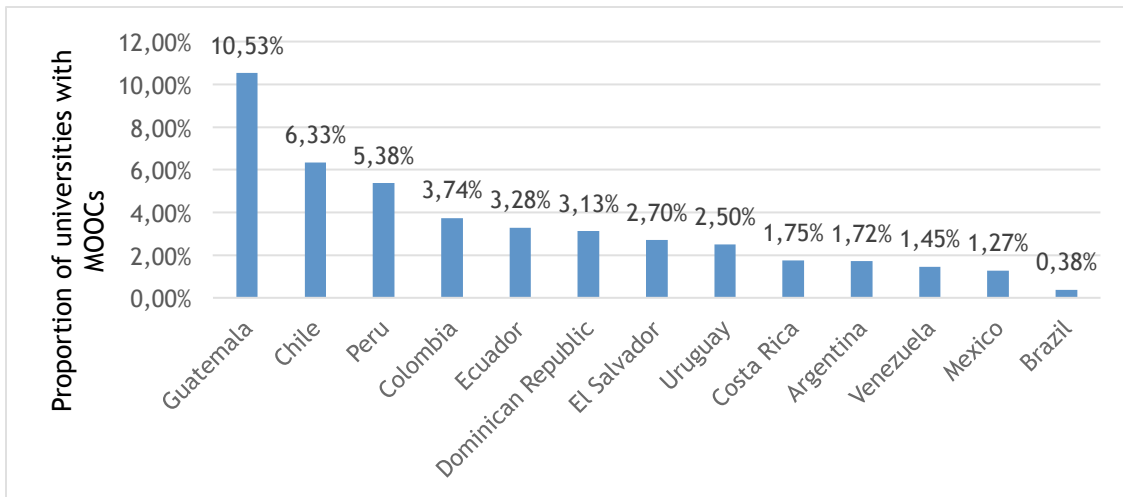


Figure 5. Proportion of universities with MOOCs. The X axis shows the percentage and the Y axis shows countries with MOOCs in the region of Latin America.

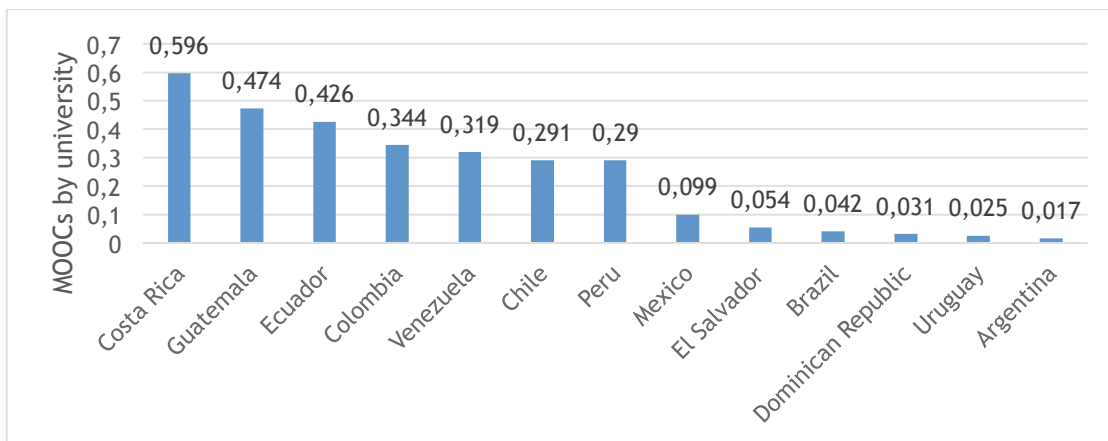


Figure 6. Ratio of MOOCs by university. Number of MOOCs (X axis) per university in countries of the region of Latin America with MOOCs (Y axis).

Result 4 (R4). Figure 7 shows the ranking of the 10 universities that produce the most MOOCs in Latin America. Non-university institutions were not considered in this ranking. The data shows that MOOC production is concentrated in very few universities and that it typically involves leading universities in each country. For example, of the 98 MOOCs produced in Mexico, 58 come from just 2 universities. The same can be seen in Brazil, where the top 2 universities produce 44 of the 66 courses in the country. Colombian universities, however, are more evenly distributed. The 2 top universities produced only 27 MOOCs out of the 101 in this country.

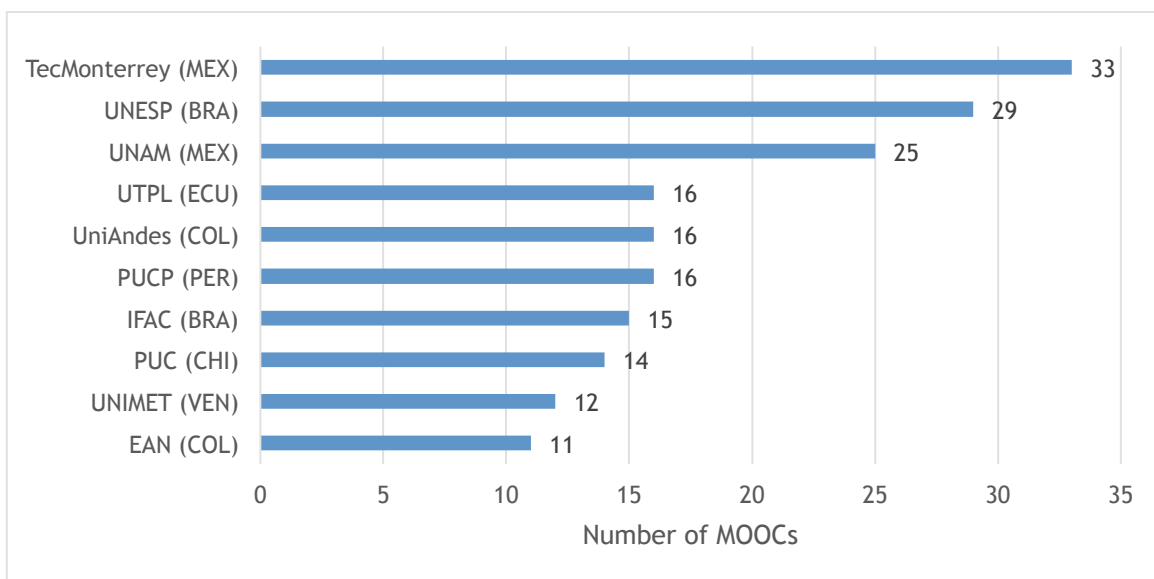


Figure 7. Ranking of the 10 leading universities in the production of MOOCs in Latin America. The following acronyms refer to: TecMonterrey, Tecnológico de Monterrey; UNESP, Universidade Estadual Paulista; UNAM, Universidad Autónoma de México; UTPL, Universidad Técnica Particular de Loja; UniAndes, Universidad de los Andes; PUCP, Pontificia Universidad Católica de Perú; IFAC, Instituto Federal de Acre; UC, Pontificia Universidad Católica de Chile; UNIMET, Universidad Metropolitana; EAN, Escuela de Administración y Mercadería del Quindío.

Table 2 Number of MOOCs produced in each country organised by type of institution producing them.

	Colombia	Mexico	Brazil	Costa Rica	Peru	Ecuador	Chile	Venezuela	Guatemala	El Salvador	Argentina	Dominican Republic	Uruguay	International	Total
University	56	78	66	0	27	18	23	11	9	2	2	1	1	0	294
Government Institution	45	14	0	12	0	8	0	11	0	0	0	0	0	0	90
Foundation	0	0	0	22	0	0	0	0	0	0	0	0	0	0	22
Other	0	1	0	0	0	0	0	0	0	0	0	0	0	11	12
Country Total	101	93	66	34	27	26	23	22	9	2	2	1	1	11	418

Result 5 (R5). Table 2 shows the MOOCs produced in each country according to type of institution that offers them. Of the 418 MOOCs in Latin America, most have been produced by universities (N=295) or government institutions (N=89). We noticed that in

some countries such as Colombia, Mexico and Venezuela, government initiatives play an important role in offering courses, while in Costa Rica, there is an important initiative offered by an NGO.

4.2. MOOCs in Latin America: Characteristics

Summary of MOOC Characteristics in Latin America

- R1. Currently, MOOCs tend to cover fields related to professional skills and applied sciences (48.09%, N=201) and the formal sciences (18.66%, N=78). The area of natural sciences is the least covered by the current MOOCs on offer.
- R2. The average time commitment required by a student in Latin American MOOCs is 6 hours per week.
- R3. The average duration of MOOCs in Latin America is 6 weeks.

Result 1 (R1). Figure 8 shows the distribution of the fields of study covered by MOOCs in Latin America. 48.09% of the MOOCs fall into the professional skills and applied sciences field (i.e. business management, management of information...), followed by 18.66% in the formal sciences field (i.e., computer science, mathematics and statistics). The data shows that there is very little on offer within fields such as natural sciences.

Table 3 shows how the MOOCs in different fields of study are distributed by country. In this case, countries like Brazil stand out, where the majority of MOOCs are produced in fields of formal sciences and humanities, as well as Costa Rica, where the large number of MOOCs in formal sciences reflects the effort to reinforce subjects such as math.

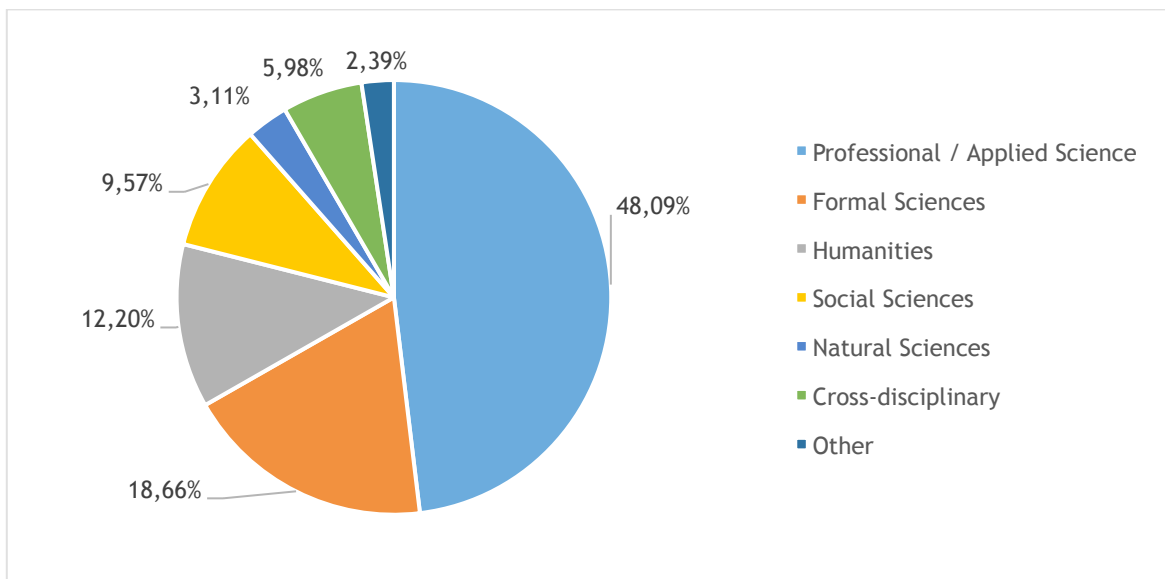


Figure 9. Distribution of MOOC fields of study in Latin America (N=418).

Table 3 Number of MOOCs in each country according to field of study.

	Colombia	Mexico	Brazil	Costa Rica	Perú	Ecuador	Chile	Venezuela	Guatemala	El Salvador	Argentina	Dominican Republic	Uruguay	International	Total
Professional skills and/or applied sciences	87	32	10	11	12	14	10	11	5	1	1	1	1	5	201
Formal Sciences	1	19	21	14	6	8	7	0	1	0	0	0	0	1	78
Humanities	7	10	19	0	4	2	4	4	1	0	0	0	0	0	51
Social Sciences	3	7	8	3	5	1	2	3	2	1	0	0	0	5	40
Natural Sciences	1	9	2	0	0	1	0	0	0	0	0	0	0	0	13
Cross-disciplinary	1	13	5	6	0	0	0	0	0	0	0	0	0	0	25
Other	1	3	1	0	0	0	0	4	0	0	1	0	0	0	10

Result 2 (R2). Among all MOOCs (N=418), 154 (N=154) explicitly indicated the weekly time commitment required by students in number of hours. Figure 10 shows the distribution of weekly time commitment (in hours per week) of the 154 MOOCs that were analysed. The results indicate that the average time commitment is 6 hours per week. 83 of the MOOCs require an average time commitment of between 4 and 6 hours per week; 50 require more than 6 hours; and 21 require between 1 and 3 hours. When analysing the average time commitment in hours per week among MOOCs in different countries (Figure 11), Ecuador is shown to offer the MOOCs that require the greatest time commitment, with an average of approximately 8 hours per week.

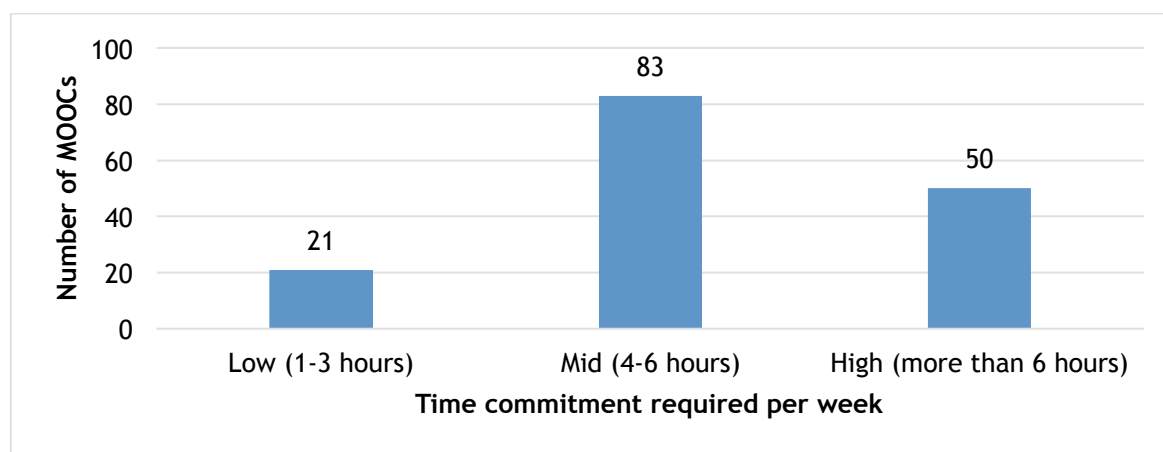


Figure 10. Time commitment required by students of Latin American MOOCs (N=154) in hours per week. The average time commitment is 6 hours per week.

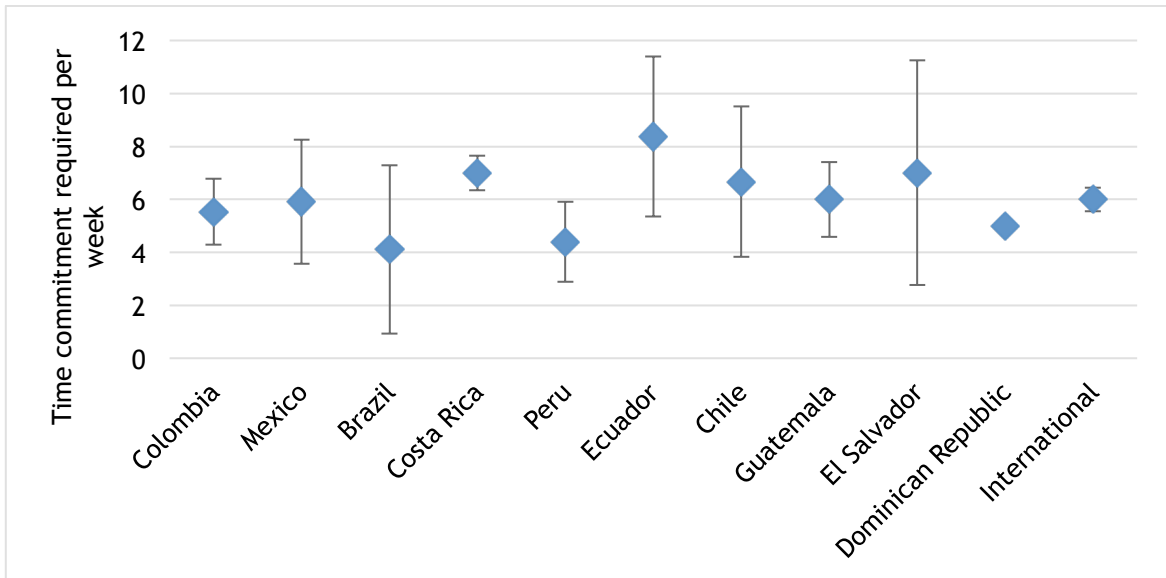


Figure 11. Average time commitment required by of Latin American MOOCs (N=154). The average time commitment is 6 hours per week. NOTE: “International” refers to MOOCs produced by international institutions within the region, whose range of activity is not limited to one country in particular, but encompasses several countries in the region.

Result 3 (R3). Out of the total number of MOOCs (N=418), we have been able to extract the information regarding the number of weeks or modules of the course from the description in 239 (N=239) of them. Figure 12 shows the distribution of weekly time commitment (in hours per week) of the 239 analysed MOOCs. The results indicate that the average duration of the MOOCs is 6 weeks. 166 of the MOOCs have a duration of between 4 and 6 weeks; 68 more than 6 weeks; and 5 between 1 and 3 weeks. Analysing the average duration in weekly hours of the MOOCs of different countries (Figure 13), Brazil is shown to offer the MOOCs of the longest duration.

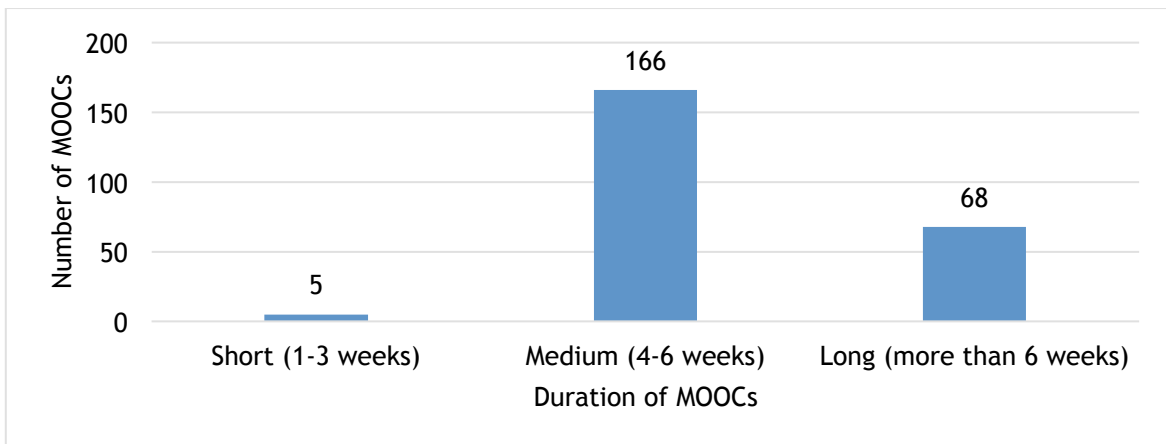


Figure 12. Duration of Latin American MOOCs (N=239) in number of weeks. The average time commitment is 6 weeks.

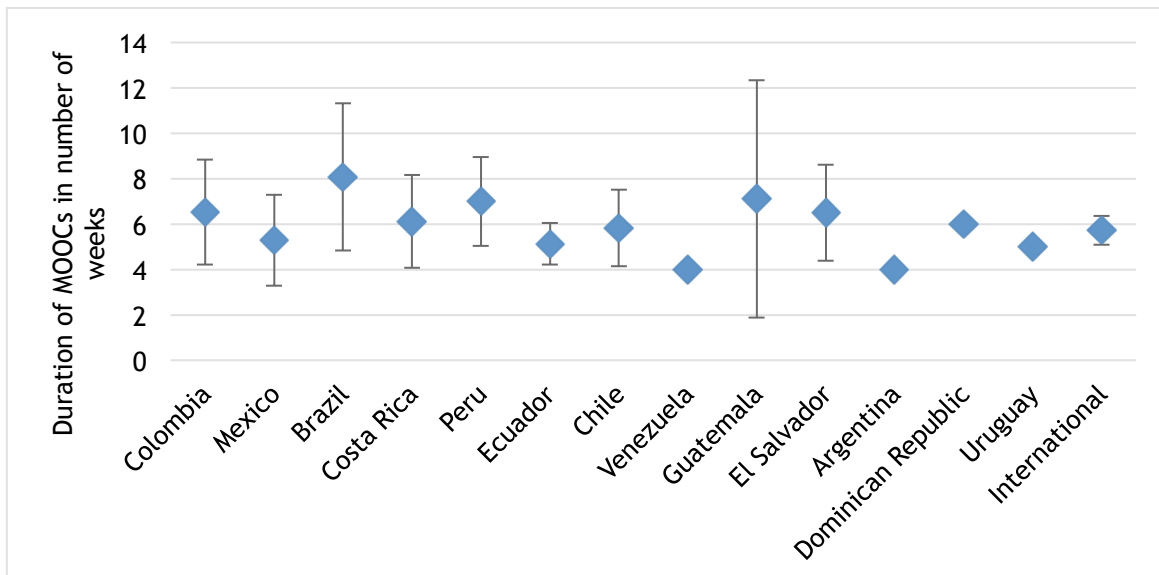


Figure 13 Average duration of Latin American MOOCs (N=239) in number of weeks by country. NOTE: “International” refers to MOOCs produced by international institutions within the region, whose range of activity is not limited to one country in particular, but encompasses several countries in the region.

4.1 MOOCs in Latin America: Platforms

Overview of MOOC platforms in Latin America

- R1. The dominant platforms in the region are Coursera (20.3%, N=85), edX (11.5% N=48), Open edX (10%, N=42) and MiríadaX (6%, N=25). 52.2% of the MOOCs are deployed via regional platforms such as Telescopio or Veduca, or via platforms specific to the institution that produces the courses.
- R2. The use of leading platforms Coursera and edX is concentrated in only 6 of the 21 countries in the region: Colombia, Mexico, Brazil, Chile, Ecuador and Guatemala.

Result 1 (R1). Figure 14 and Figure 15 show the distribution of platforms that deploy MOOCs in Latin America. The dominant platforms in the region are Coursera (20.3%, N=85), edX (11.5% N=48), Open edX (10%, N=42) and MiríadaX (6%, N=25). The remaining 52.2% of MOOCs are hosted on international MOOC platforms, but with little representation in Latin America, such as FutureLearn or Open Education from Blackboard, as well as on platforms developed in the region such as Veduca, or university-specific platforms such as Telescope.

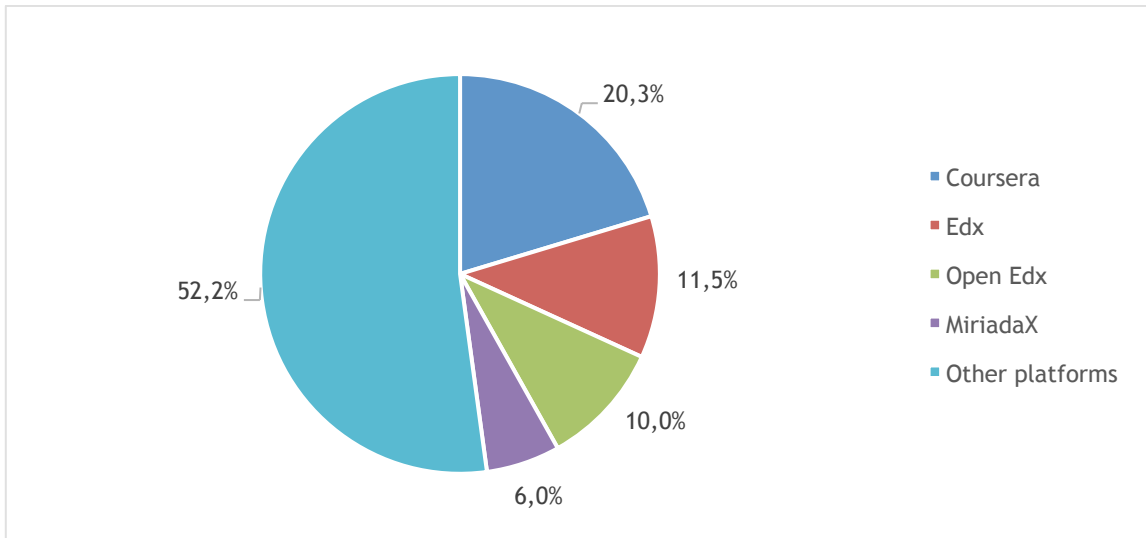


Figure 14. Proportion of platforms where MOOCs are published in Latin America. Other platforms include international platforms that are little represented in the region, platforms developed in the region or university platforms.

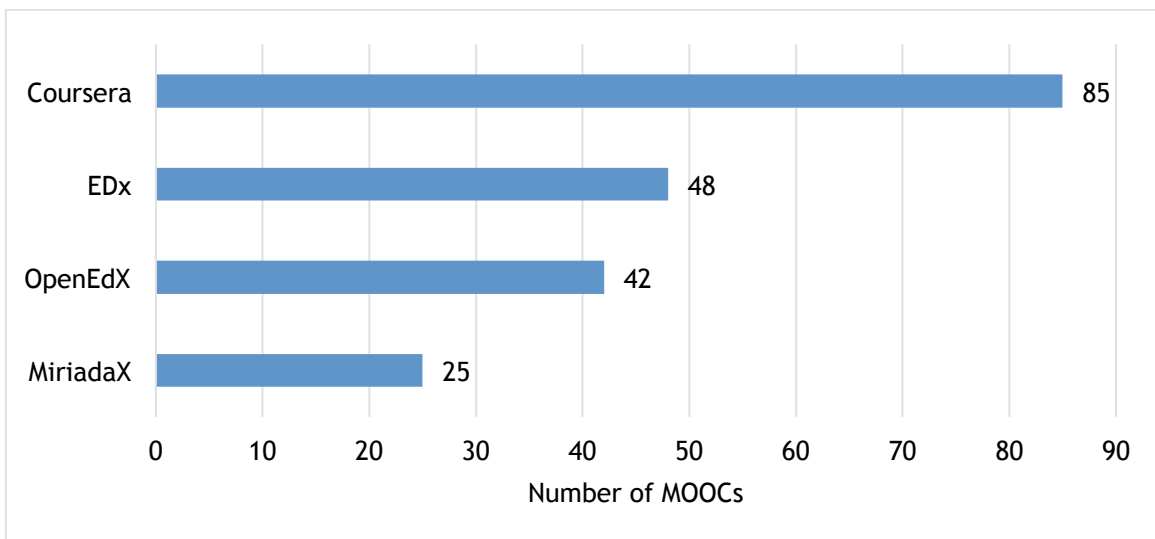


Figure 15: Number of platforms with a high number of MOOCs.

Result 2 (R2). Table 4 shows the number of MOOCs hosted on different platforms for each country. We note that for Coursera and edX, even though they are the most widely used platforms, their use is concentrated in countries such as Colombia, Mexico, Brazil and Chile in the case of Coursera; and Mexico, Ecuador and Guatemala in the case of edX.

Table 4. Number of MOOCs hosted on different platforms by country.

	Colombia	Mexico	Brazil	Costa Rica	Perú	Ecuador	Chile	Venezuela	Guatemala	El Salvador	Argentina	Dominican Republic	Uruguay	International	Total
Coursera	15	53	8	0	0	0	8	0	0	0	0	0	1	0	85
edX	5	13	0	0	0	16	0	0	3	0	0	0	0	11	48
Open edX	0	21	0	12	0	0	9	0	0	0	0	0	0	0	42
MiríadaX	6	5	4	0	4	0	1	0	0	2	2	1	0	0	25
Other platforms	75	1	54	22	23	10	5	22	6	0	0	0	0	0	13

Finally, Figure 15 shows the platforms with the most MOOCs in the region. 85 of the 418 MOOCs included in the study are published on Coursera, and 48 on edX. Then come Open edX and MiríadaX as platforms with the next highest number of courses, with 42 and 25 respectively.

5. MOOC Initiatives in Europe

This section presents the main data on European MOOCs, extracted from the database of Open Education Europa.⁶

5.1 MOOCs in Europe: Overview

Summary of MOOCs produced in Europe

- R1.** Until 1st March 2016, 1,705 MOOCs have been produced in Europe. 64% (N=18) of the countries in the region are producers of European MOOCs. Countries with the greatest production of MOOCs are Spain with 28% (N=481) of the MOOCs, followed by the United Kingdom with 25% (N=425) and France with 15% (N=250).
- R2.** The highest ratio of MOOC/million inhabitants is held by Spain (10.4 MOOCs/million inhabitants), followed by countries such as the United Kingdom (6.6), Denmark (6.1) and the Netherlands (5.6).
- R3.** Less than 22% of the universities in European countries with MOOCs have produced MOOCs. The highest ratio of MOOCs by university is held by Spain, the United Kingdom, the Netherlands and Belgium. Spain, the United Kingdom and France are the countries of the European Union with the greatest proportion of universities with MOOCs, with more than 22% in Spain, more than 16% in the United Kingdom and more than 12% in France.
- R4.** European universities with the greatest production of MOOCs are the Universidad Politécnica de Valencia, UPV (Spain) (N=94), Universidad Nacional de Educación a Distancia, UNED (Spain) (N=50) and the Open University in the United Kingdom, OU (UK) (N=50).
- R5.** Of the 1,705 MOOCs in Europe, the majority have been produced by universities (N=1358), while government institutions (N=34) and foundations (N=14) have produced the fewest.

Result 1 (R1). Up to 1 March 2016, we recorded 1,705 MOOCs produced in Europe. As shown in Figure 16 and Figure 17, 64% (18 of 28) of the countries in the European Union are producing MOOCs. Spain (28%, N=481), the United Kingdom (25%, N=435), France (15%, N=250) and Germany (12%, N=204) alone produce 80% of the MOOCs of Europe. The Netherlands, Italy, Belgium and Denmark each produce between 35 and 95 MOOCs. Finally, the rest of the EU countries produce between 1 and 19 MOOCs.

⁶Open Education Europa website: http://www.openeducationeuropa.eu/es/european_scoreboard_moocs

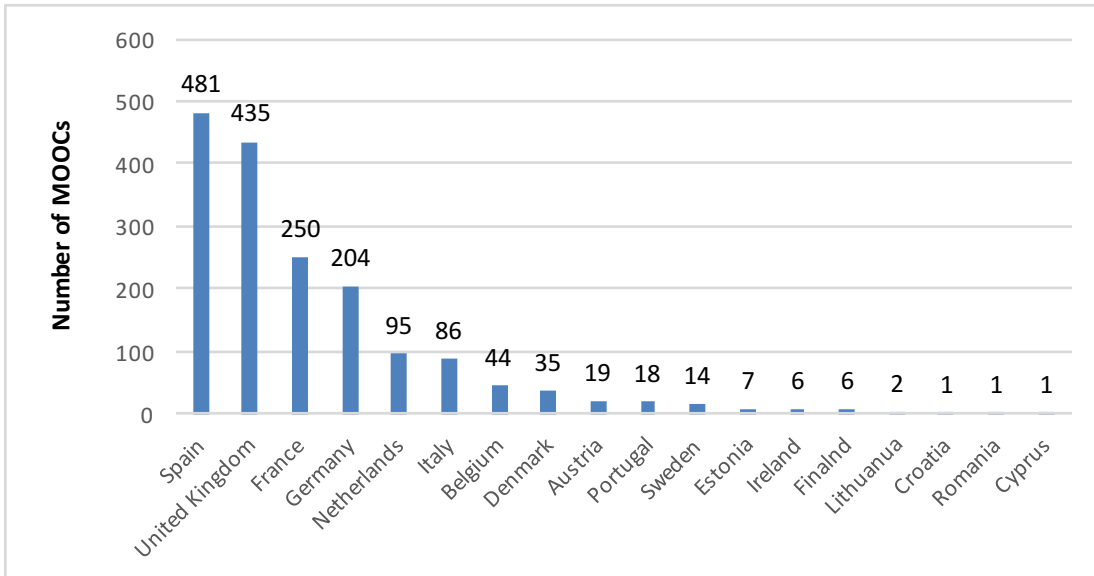


Figure 16. Number of MOOCs (N=1705) by country in the EU with MOOCs.

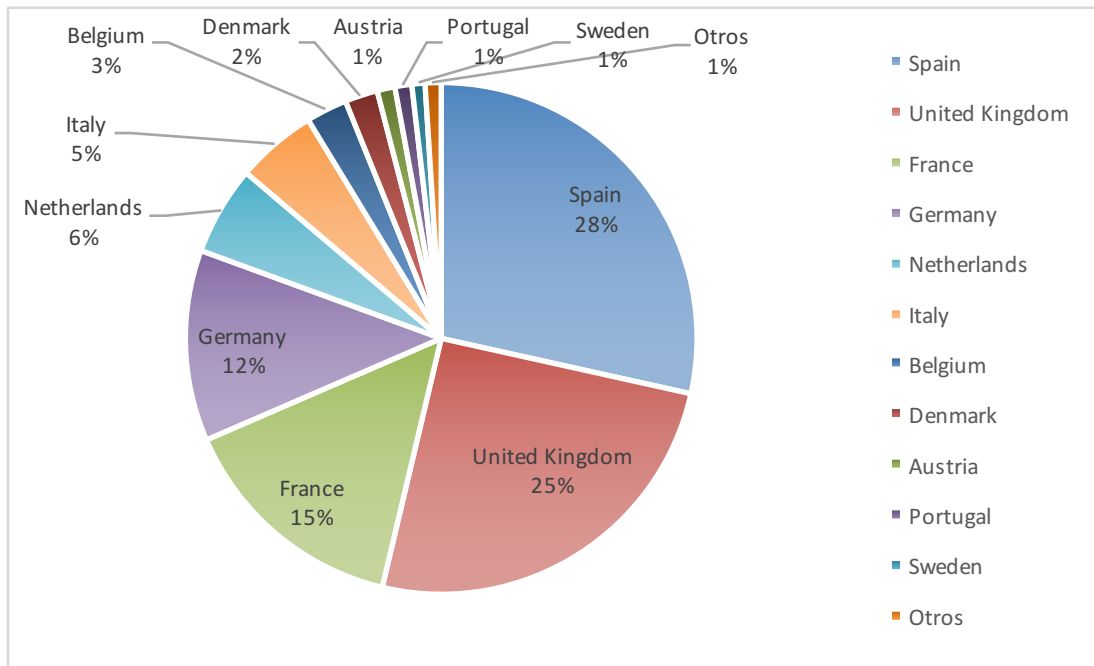


Figure 17. Distribution of MOOCs in Europe (N=1705) by the EU country with MOOCs. Others: Estonia, Ireland, Finland, Lithuania, Croatia, Romania and Cyprus, with a total number of 27 MOOCs.

Result 2 (R2). By calculating the *Ratio of MOOCs per million inhabitants* (Figure 18), Spain is shown to be the country with the highest rate (10.4 MOOCs for each million inhabitants). Spain is followed by the United Kingdom, Denmark and the Netherlands with a ratio of between 6.6 and 6.1 MOOCs per million inhabitants and Belgium with a ratio of 3.9. The rest of the countries have a ratio of less than 2.2 MOOCs per million inhabitants.

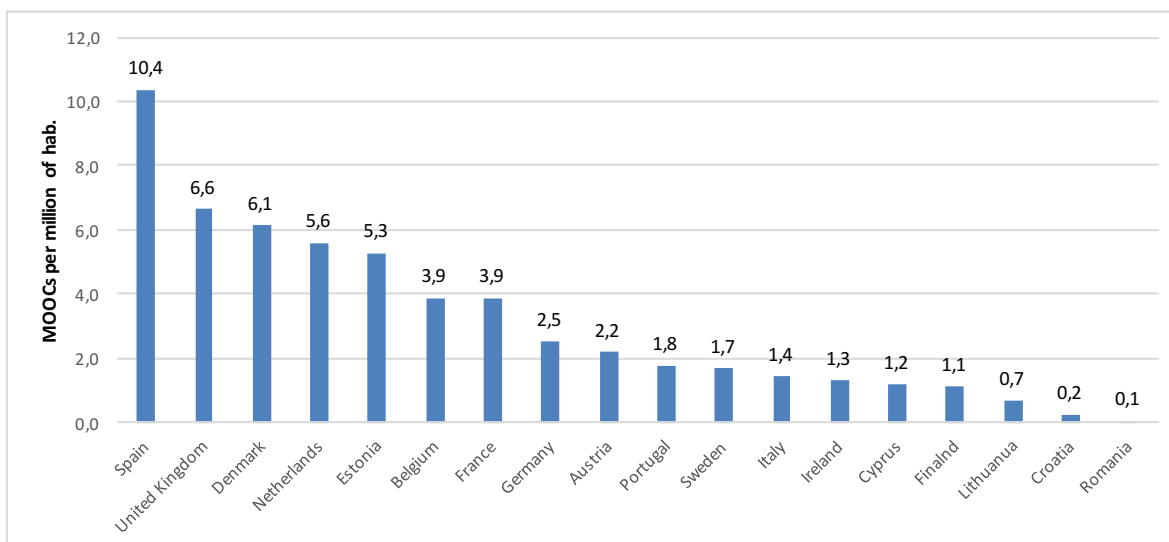


Figure 18. *MOOCs ratio per million inhabitants*. Number of MOOCs per million inhabitants in EU countries with MOOCs.

Result 3 (R3). Figure 19 shows that less than 22% of the universities from European countries with MOOCs have produced MOOCs. Figure 20 shows the ratio of MOOCs per university in each country. The country with the highest Ratio of MOOCs per University is Spain with a ratio of 2.03. It is followed by the United Kingdom, the Netherlands and Belgium with ratios between 1.5 and 0.5. Those with the lowest Ratio of MOOCs per University are Cyprus, Lithuania, Croatia and Romania with ratios below 0.1.

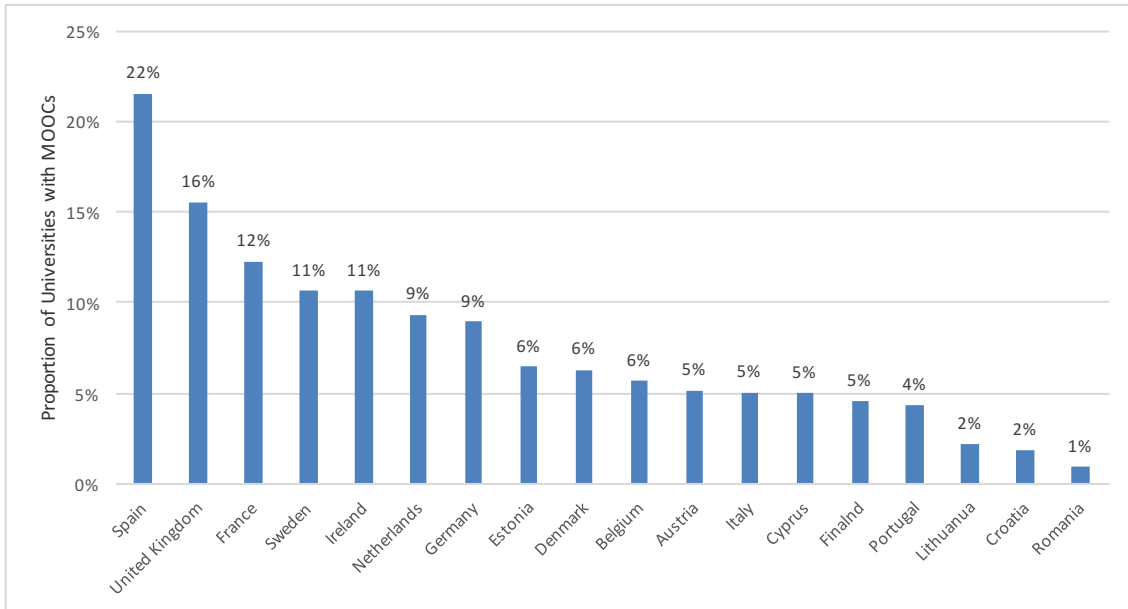


Figure 19. Proportion of EU universities with MOOCs.

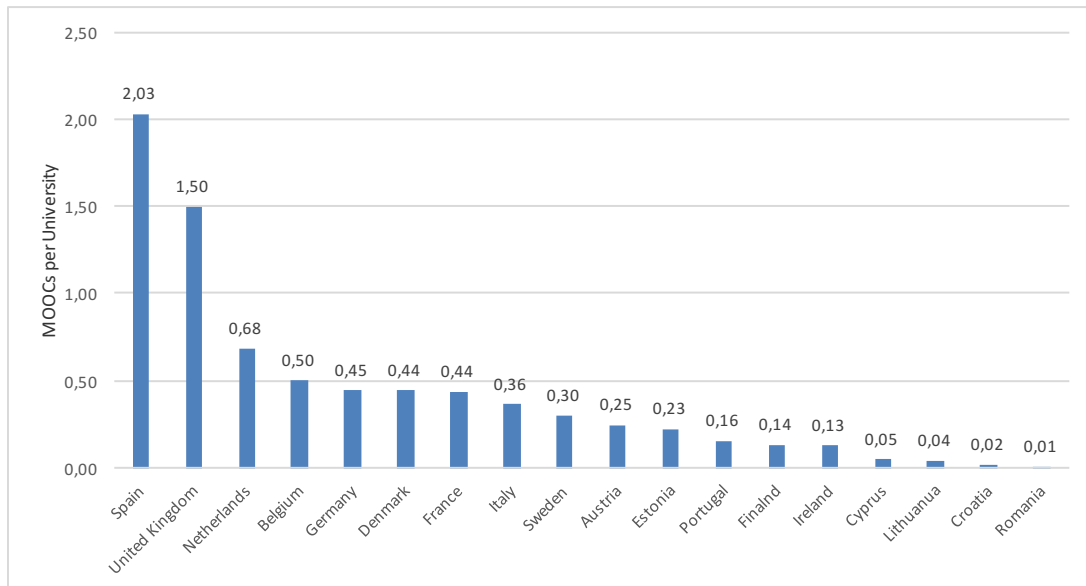


Figure 20. Ratio of MOOCs per university.

Result 4 (R4). Figure 21 shows the ranking of the 10 universities that produce the highest number of MOOCs in the EU. Non-university institutions were not considered in this ranking. The top 10 positions in the ranking are led by universities from European countries with the highest production of MOOCs. In Spain, 4 universities appear, offering 225 MOOCs, of a total of 481. In the case of the United Kingdom, the production is also distributed among 4 universities, which produce 159 MOOCs of the 435 produced in the country.

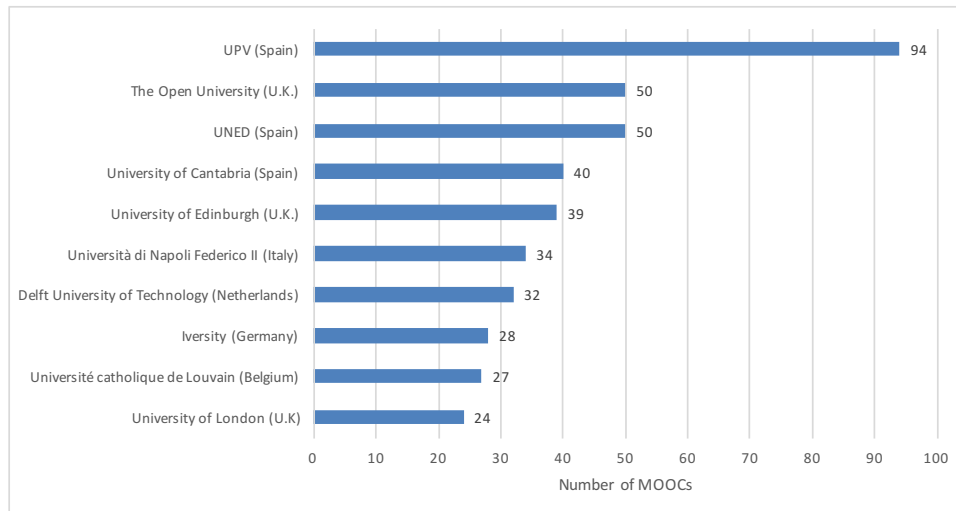


Figure 21. Ranking of the 10 leading universities in the production of MOOCs in the EU.

Result 5 (R5). Table 5 shows the MOOCs produced in each country according to the type of institution that offers them. Of the 1,705 MOOCs from the European Union, most have been produced by universities (N=1358). Only 34 MOOCs produced by non-university government institutions and 14 by foundations have been recorded. 299 MOOCs have been produced by institutions other than those already mentioned, such as companies or associations. We noticed that the latter group of MOOCs contribute significantly to the total production in countries such as Spain and the United Kingdom.

Table 5. Number of MOOCs produced in each EU country organised by type of institution producing them.

	Spain	United Kingdom	France	Germany	Netherlands	Italy	Belgium	Denmark	Austria	Portugal	Sweden	Estonia	Ireland	Finland	Lithuania	Croatia	Romania	Cyprus	Total
University	408	342	179	140	93	77	31	35	12	8	14	7	4	5	2	0	0	1	1358
Government Institution	1	1	27	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	34
Foundation	5	3	0	0	0		0	0	0	6	0	0	0	0	0	0	0	0	14
Other	67	89	44	64	2	6	13	0	7	2	0	0	2	1	0	1	1	0	299
Country Total	481	435	250	204	95	86	44	35	19	18	14	7	6	6	2	1	1	1	1705

5.2 MOOCs in the EU: Characteristics

Summary of MOOC Characteristics in Europe

R1. Currently, MOOCs tend to cover fields related to professional skills and applied sciences (34%, N=578) as well as formal sciences (18%, N=306). The area of natural sciences is the least covered by the current MOOCs on offer.

R2. The average duration of MOOCs in European countries is 9 weeks.

Result 1 (R1). Figure 22 shows the distribution of fields of study. Of the 1,705 MOOCs produced by European institutions, 34% are MOOC courses that cover a subject that falls under the fields of study of professional skills and/or applied sciences, followed by 18% that correspond to social sciences; 16% to other subjects (art and business); 15% to humanities; 9% to natural sciences; and 8% to formal sciences. These results are shown in Figure 22.

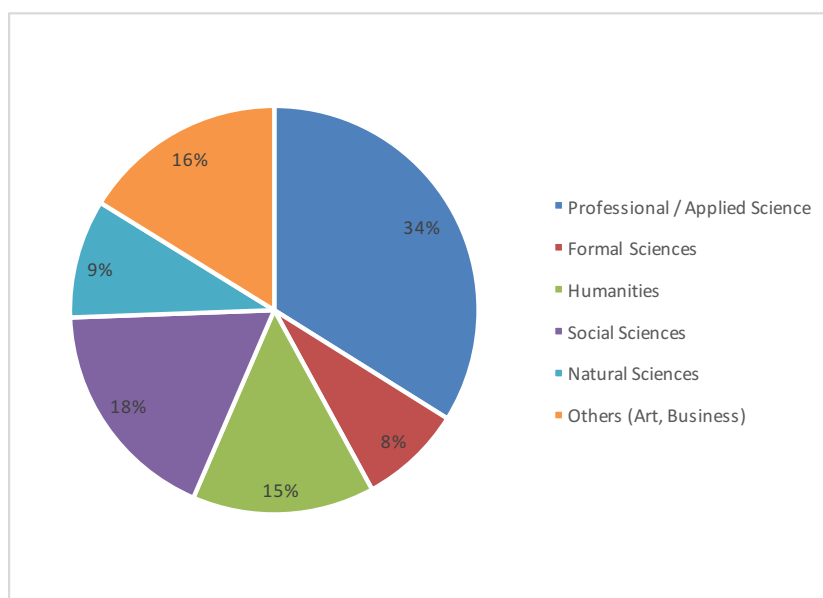


Figure 22. Fields of study of MOOCs in Europe.

Table 6 shows the distribution by country of each one of the MOOCs produced for the different fields of study. The most common subjects covered by MOOCs are associated with professional skills and/or applied sciences and social sciences fields of study. There are also a higher number in humanities than formal sciences. Table 6 summarises this data.

Table 6. MOOCs in each country according to field of study.

	Spain	United Kingdom	France	Germany	Netherlands	Italy	Belgium	Denmark	Austria	Portugal	Sweden	Estonia	Ireland	Finland	Lithuania	Croatia	Romania	Cyprus	Total
Professional/Applied Sciences	17 3	11 8	10 4	11 0	22	8	10	4	5	7	6	2	2	5	2	0	0	0	578
Formal Sciences	80	12	24	7	6	5	1	0	1	0	1	1	0	1	0	0	0	0	139
Humanities	65	97	16	16	21	3	4	2	2	3	1	2	3	0	0	0	1	0	246
Social Sciences	53	99	62	23	12	24	18	4	4	4	1	1	1	0	0	0	0	0	306
Natural Sciences	29	46	19	18	18	15	1	5	4	2	2	1	0	0	0	0	0	0	160
Other (Art, Business)	81	63	25	30	16	31	10	1	3	2	3	0	0	0	0	1	0	1	276
Country Total	48 1	43 5	25 0	20 4	95	86	44	3 5	19	18	14	7	6	6	2	1	1	1	1705

The largest number of MOOCs come from Spain, the United Kingdom, France and Germany, and are related to the field of professional skills and/or applied sciences. This suggests that there is a growing interest in offering training in these areas and that they are immediately applicable in the labour context.

Result 2 (R2). With regard to the duration of MOOCs, Figure 23 shows the duration of MOOCs offered by European institutions. Most courses are longer than 6 weeks of duration.

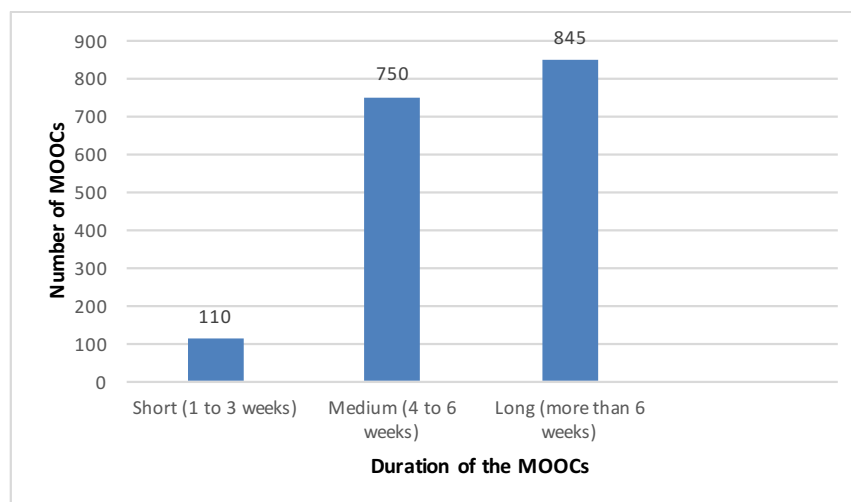


Figure 23: Number of weeks of MOOCs in European countries

6. COMPARISON OF MOOC INITIATIVES IN LATIN AMERICA AND EUROPE

Summary of the comparison of MOOC initiatives in Latin America and Europe

R1. For every MOOC produced in Latin America, between 4 or 5 times more MOOCs are produced in Europe.

R2. The number of MOOCs per million inhabitants in Europe is two times greater than in the context of Latin America.

R3. The biggest contribution to the production of MOOCs in Europe comes from universities, which produce 4.5 times more MOOCs than the universities in Latin America; in Latin America the government is the greatest source of contribution to the production of MOOCs, generating 3 times more MOOCs in Europe.

R4. The 5 universities producing the most MOOCs in Europe generate between 1.7 to 2.5 more MOOCs than the universities in Latin America. If looking only at the number 1 university in each region, the difference is 2.8 MOOCs.

R5. In Europe and Latin America, the predominant fields for the production of MOOCs are professional skills and applied sciences; in second place are social sciences in Europe and formal sciences in Latin America. The fields of study with the lowest number of MOOCs are formal sciences in Europe and natural sciences in Latin America.

From the information collected, a comparison was conducted using the data on MOOC courses obtained from Latin American and EU countries.

Result 1 (R1). Figure 24 shows the comparison between the 5 European countries and 5 Latin American countries that have generated the greatest number of MOOCs, each in their region. In the case of Europe, Spain is the leader in MOOC production, while in Latin America, it is Colombia. Figure 24 also demonstrates an interesting relationship: for each MOOC produced in Latin America, between 4 or 5 times more MOOCs tend to be produced in Europe.

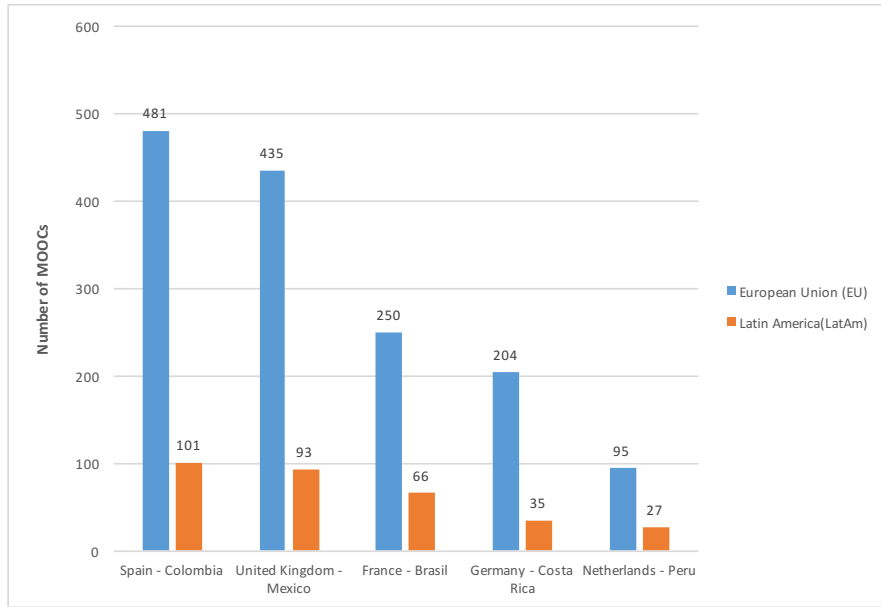


Figure 24. The Top 5 greatest MOOC producing countries in Europe and Latin America

Result 2 (R2). Figure 25 shows the number of MOOCs in each European and Latin American country per million inhabitants. Spain, the United Kingdom and the Netherlands have the highest indexes of MOOC production in Europe, while Costa Rica, Colombia and Ecuador have the highest indexes in Latin America. From the comparison of the ratio *Number of MOOCs per million inhabitants*, the number of MOOCs per million inhabitants in Europe is shown to be twice as high as in the context of Latin America.

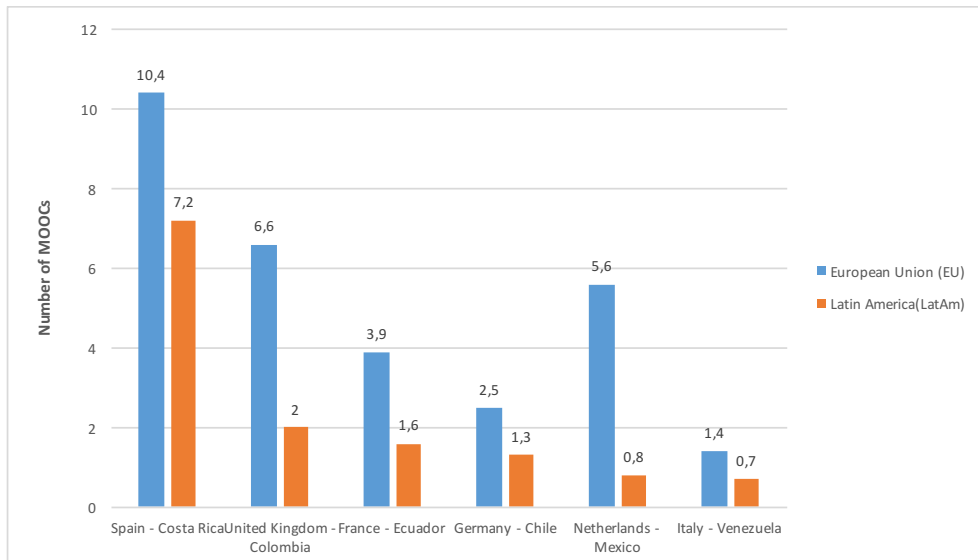


Figure 25. Comparison of the *Number of MOOCs per Million Inhabitants Ratio* in Europe and Latin America.

Result 3 (R3). Figure 24 demonstrates that in both Europe and Latin America, universities are the greatest generators of MOOCs. However, in Latin America there is a significant production of MOOCs produced by government institutions. Foundations contribute very little production of MOOCs in both regions.

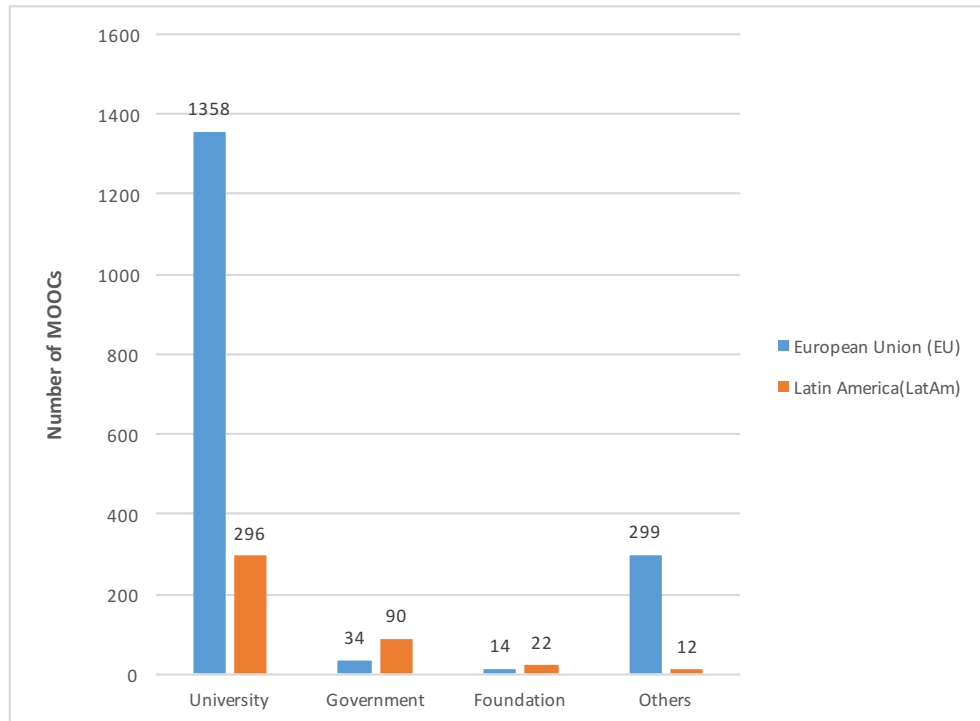


Figure 26. Comparison of the Number of MOOCs according to institution producing them in the EU and Latin America

Result 4 (R4). Figure 27 shows the 5 universities with the greatest production of MOOCs in Europe and Latin America. UPV in Spain is the leader in MOOC production in Europe, while in Latin America, the Tecnológico de Monterrey is the institution that produces the highest number. The Open University and UNED are pioneering universities in offering undergraduate and postgraduate courses online, however, and despite their long history in online teaching, they are not the institutions producing the highest number of MOOCs.

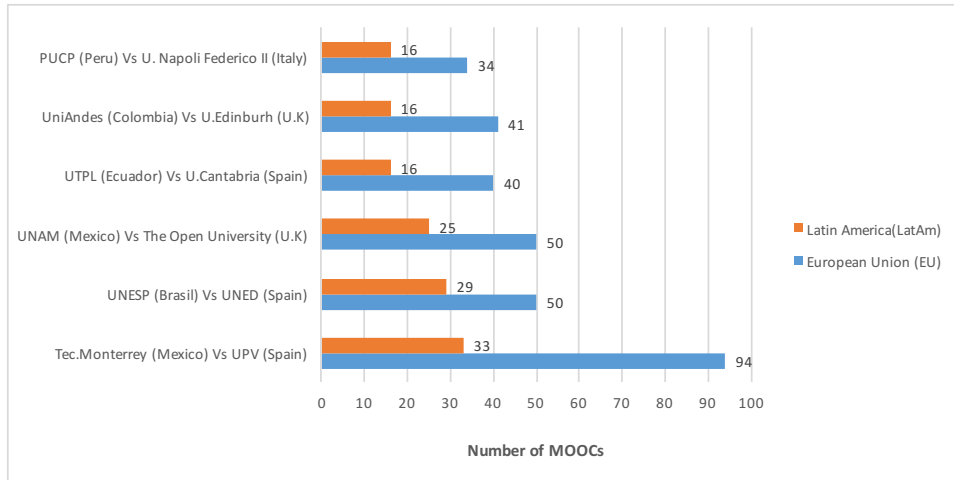


Figure 27. Comparison of the Number of MOOCs produced by the Top 5 Universities in the EU and Latin America.

Result 5 (R5). Regarding fields of study, Figure 28 shows how in Europe, the highest number of MOOCs produced are related to professional learning and applied sciences. It is also interesting to see that social sciences is the second most common field of study that accounts for a significant number of MOOCs, leaving formal sciences with the least number of MOOCs in Europe.

In the case of Latin America, MOOCs that fall under the professional skills and applied sciences field repeat the same pattern as the European region. However, this doesn't occur with courses in areas of formal sciences, which account for a higher number of MOOCs than social sciences in the Latin American region.

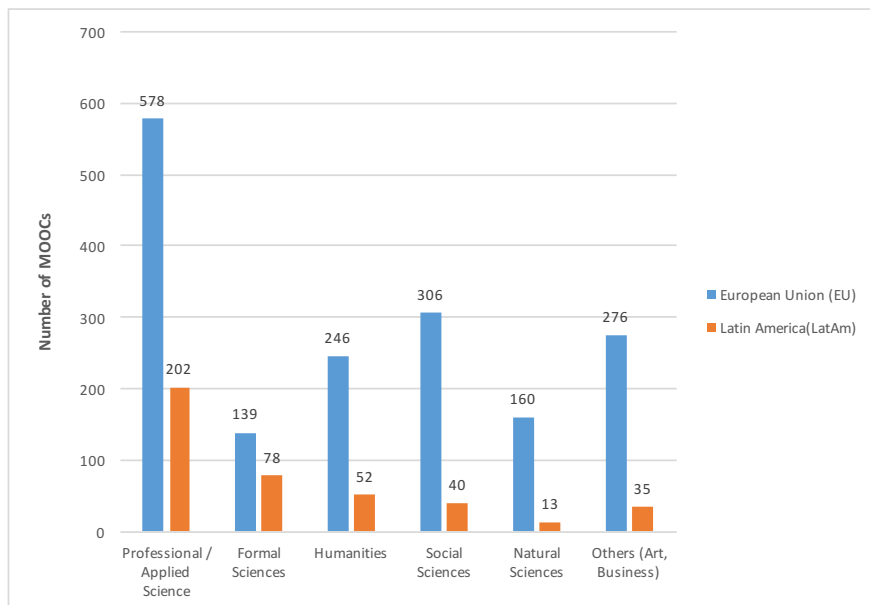


Figure 28. Comparison between fields of study in MOOCs in Europe and Latin America.

6. CONCLUSIONS

Latin America has very recently joined the MOOC movement, greatly increasing its production of courses during 2015. Given how new the phenomenon in this region is, there are very few sources of information on MOOCs. In this context, the core value of this report is to offer a general and systematic overview of the MOOC initiatives in Latin America. Moreover, this study is the first to offer an analysis comparing the development of MOOCs in another region where the phenomenon of massive courses is more evolved: Europe. Therefore, this report not only allows us to understand the current situation of MOOCs in Latin America in detail, but through the European comparison, it also allows us to establish criteria for analysis and reference to understand the situation in this region from a more general point of view.

Certain limitations of scope are highlighted in the report. On the one hand, the data used was collected up until 1st March 2016, which is why the information on MOOC production in some of the countries mentioned may not be up to date. On the other hand, the categorisation of MOOCs in different fields of study was performed based on a taxonomy that does not exactly match those currently used by some of the leading MOOC platforms, such as Coursera and edX. Another categorisation system could cause some of the results presented to vary.

Considering these limitations, the results obtained in our analysis offer a comprehensive overview on the situation of MOOCs in Latin America and its trends. Firstly, from the results, the current situation of MOOC production in this region can be deduced. Secondly, a perspective on this situation is offered in light of the development of the phenomenon in Europe, in order to better understand the direction it is going in the region. The major trends observed in the study are highlighted below.

- **The entrance of Latin America into the MOOC movement took place over a very short period of time, and with greater intensity than Europe saw in its early days. As such, the pace of production is expected to gain speed in the coming years and strongly contribute to the development of courses worldwide.** The following data support this conclusion. Up to 1st March 2016, 418 MOOCs were recorded in Latin America and 1,705 in Europe. Although the total number of MOOCs in Latin America is practically 4 times less than that of Europe, the growth in terms of production in the region has been much faster. If we consider the data from *Open Education Europa* as a benchmark, during one of the early years of MOOC production in Europe (03/09/2012 until 31/12/2013), 266 MOOCs were recorded, which accounts for a third of the current production of Latin America. This is a clear indication of the enormous intensity with which the phenomenon has developed in Latin America.
- **The production of MOOCs is concentrated in a few Latin American universities, leaving the great majority of the region's university system out of the MOOC phenomenon. This can produce a gap between universities with greater economic resources and those with less budget, which could be avoided with the support of government institutions in those countries.** In this vein, Latin America seems to respond to the same pattern observed in Europe,

where few universities account for the greatest production of MOOCs. In the case of Latin America, universities such as Tecnológico de Monterrey, Universidade Estadual Paulista de Brasil and Universidad Autónoma de México are the leading institutions in production; corresponding to two large countries, Mexico and Brazil. This has also been seen in Europe, although with a unique feature. Spain – where Universidad Nacional de Educación a Distancia (UNED), Universidad Politécnica de Valencia and Universidad de Cantabria have produced almost half of the MOOCs in the country and a large part of that of Europe – is the country that stands out the most in terms of course production [2]. However, unlike in Europe, non-university government institutions have made an effort to launch support initiatives for the production of MOOCs in Latin America, such as the Education Ministry in Mexico. This could help incorporate universities with fewer resources into MOOC initiatives.

- **The subject areas with the highest representation in MOOCs in Latin America are those that teach professional skills and applied sciences, a trend that could heighten in the immediate future in line with the societal needs of the region.** The same phenomenon exists in Europe: regarding course topics, those most represented fall under the field of professional skills and applied sciences in both regions. However, compared to Latin America, there has been an effort in Europe to produce MOOCs in the areas of social science. This result is to be expected, since, as a global phenomenon, disciplines more related to the technological and applied field are the first to adhere to this type of initiative. An expected trend is that, in the near future, once MOOC production capabilities are more set in Latin America, the phenomenon will continue developing in a similar direction. Despite this, and taking into account that one of the main challenges of Latin America is to enhance the skills of its workers, it is quite likely that the MOOCs in areas of professional skills and applied sciences will remain the ones with the highest development and impact on the region.
- **Coursera, edX and MiriadaX are the platforms that host the greatest number of MOOCs.** However, more than 50% of MOOC courses are deployed via platforms specific to institutions (developed or maintained by the institution itself), a trend that could grow given the exclusivity policies of these proprietary platforms. Platforms with the greatest use in Latin America are Coursera, edX and MiriadaX. However, the high number of institution-owned initiatives developed in this region is surprising, as approximately 50% of MOOCs have been delivered via institution-specific platforms. Given that platforms such as Coursera and edX are very selective in regards to members who can join in the consortia (only universities positioned in the top university rankings are admitted), the trend in the use of private and open courses, such as Open edX, is expected to continue growing in the region.

ACKNOWLEDGEMENTS

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6. Online Courses Raise Their Game: A Review of MOOC Stats and Trends in 2014. Accessed February 28, 2014, from: <https://www.class-central.com/report/moocwatch-feb-2016/>

APPENDIX

- Latin American data: <https://www.dropbox.com/s/t481g60sq4k4w93/DB-MOOC-LATAM.xlsx?dl=0>
- European data (extracted from Open Education Europa):
<https://www.dropbox.com/s/exu1bvwsyypjrsf/DB-Europe.xls?dl=0>
- Source of reference used to extract the list of Latin American universities:
<http://www.altillo.com/universidades/index.asp>
- List of links to MOOC platforms considered in the analysis:
 - o Coursera: <https://www.coursera.org/>
 - o EdX: <https://www.edx.org/course>
 - o MiriadaX: <https://miriadax.net/cursos>
 - o Veduca: <http://www.veduca.com.br/>
 - o Telescopio: <http://telescopio.galileo.edu/>
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