"DeMOOCratization of Education?: Massive Open Online Courses (MOOCs) and the opportunities and challenges for developing countries"

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Summary and Overview

Higher education continues to play a central role in countries' overall development (economy, productivity, general educational levels). Developing countries have demonstrated great concern about access to higher education, and about achieving Millennium Development Goals (MDGs) and UNESCO's Education For All (EFA) goals by 2015. Massive Open Online Courses (MOOCs) – a relatively recent initiative to provide free University-level courses to millions of users via Internet, through several online platforms' partnerships with Universities from around the world – were seen as an alternative path for offering access to higher education and learning, deviating from the one in traditional classrooms.

The present report offers an up-to-date view on MOOCs in the context of developing countries' perspectives, specifically Mexico and Thailand, from various players' point of view. There are different types of insights provided by key stakeholders presented in this report. The main perspectives covered in this report are:

1) *MOOC providers' perspective*: we conducted interviews with two partners from the departments that deal with the provision of MOOCs in two Universities: the Monterrey Institute of Technology and Higher Education (ITESM) in Mexico, and the Polytechnic Federal School of Lausanne (EPFL) in Switzerland. These individuals are in close contact with the creators of MOOC platforms – specifically one like Coursera. The objective was to gain their insights about how MOOCs can create new options to provide higher education to those in developing countries who currently do not have access to it.

2) *Instructors' perspective*: interviews were conducted, as well, with four partners from Monterrey Institute of Technology (ITESM), National Autonomous University of Mexico (UNAM), University of Geneva (UNIGE) and Sripatum University in Thailand, who are instructors of MOOCs that have finished recently, or that were still ongoing at the time that the interview took place.

3) *Participants' perspective*: a survey was conducted among 391 students who recently took or were completing MOOCs at the time, or who started but did not finish MOOCs – most of them from developing countries (and more heavily from Latin America). Several multiple-choice and open-ended questions were presented to them via an online survey, in order to gain access to their own insights about the impact (or lack thereof) that MOOCs may have in their own home countries, and what kinds of opportunities can they themselves gain from the access to MOOCs.

As some views from a developed country such as Switzerland were also included, this helped us to briefly compare and contrast perspectives from both developed and developing countries.

Although most of the views and perspectives surrounding MOOCs, both from instructors and students, have been largely positive and enthusiastic, we could also confirm some of the suspicions that have been voiced by other scholars and specialists, whose articles or reports we analyzed as well. Namely, that even though key players in Universities see many promising possibilities for further exploiting the opportunity of MOOCs in the future, to make them better

serve the needs of developing countries (for example, creating partnerships with educational institutions in developed countries, to provide MOOCs that specifically address needs of developing regions, such as public health or agricultural technology), other motivations are at play as well. Prestigious universities have also jumped onto the MOOC bandwagon in an attempt to publicize their name and "brand", to gain potential access to more – formally enrolled – students, and in general for the publicity gains to be had by putting their name "*out there*". Also, with MOOCs being a recent phenomenon, key players in Universities fear that they might stand to "lose out" on a great deal of opportunity costs if they miss the chance to join the "MOOC revolution", and if in some years it *does* turn out to decisively change the environment of higher education. Concerns were voiced also about MOOCs' pedagogical approaches, which may not always turn out to be "revolutionary" or even different from traditional instructor-led teaching at all.

However, both interview partners and survey respondents do not seem to always keep in mind the barriers that still put MOOCs out of the reach of large sectors of the population in developing countries. Reports from the World Bank, International Telecommunications Union and other organizations remind us that in countries like Mexico and Thailand, only around 25% of the population today (in 2013) have access to broadband internet – a technological barrier. Most MOOCs are provided in English, which not everybody in emerging economies such as Mexico or Thailand speaks; and also, many of the courses may present a significant barrier in terms of previous knowledge that the student must possess in order to grasp the concepts, and which may not be easily accessible to someone who could not complete basic levels of education. It is telling that, from our survey respondents, more than half have *at least* an undergraduate degree (52%), and less than 1% claim to have had no formal education at all. It is curious also to see how our interviewees and respondents seem to hold ambivalent ideas about MOOCs: there is a heavily prevalent feeling (among 87% of survey respondents) that MOOCs really *do* give access to higher education to people who otherwise could not have it; but at the same time recognizing that important barriers are in place, which in reality mean that MOOCs are largely benefiting the people who have already had advanced educational opportunities.

Introduction
Massive Open Online Courses: an Alternative Experience of Learning?

Over the last few years, Massive Open Online Courses or MOOCs, as a relatively new phenomenon, have been one of the most stimulating and debatable topics in the field of online education. The creation of MOOCs was meant to provide large-scale and free participation in higher education, available to a broad range of audiences from different corners of the world. This alternative type of learning, which deviates from the one in traditional classrooms, is seen as a 'hope' for some developing countries (for instance in Sub-Saharan Africa, Southeast Asia, or South America) to expand access and improve the quality of their higher education[1]. Thus, educational stakeholders in developing countries have expressed interest in further exploring and implementing MOOCs. This can be seen on MOOC platforms such as Coursera and EdX, where

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[1] Trucano, 2013. "*Missing Perspectives on MOOCs -- Views from Developing Countries.*"

MOOCs are now being offered by teachers from a number of universities from emerging economies, such as National Taiwan University, Peking University, IIT Bombay in India, Tecnológico de Monterrey and the National Autonomous University in Mexico, or Thammasat University and Rajamangala University (RMUTI) in Thailand. This illustrates the interest of institutions from developing countries in joining the MOOC novelty. Coursera also states in its own Website that their objective is "*connecting people to a great education so that anyone around the world can learn without limits*"[2]; however, it remains to be seen what will these limits truly be for developing countries and if "limitless" access to higher education can be a reality for them.

In the context of developing countries, there is a need for huge improvement and advancement in terms of both higher education and access to new technology. In this report, we aim to examine the opportunities and challenges surrounding the introduction of MOOCs in emerging economies. For this purpose, we draw on issues of quality, efficiency/inefficiency of MOOCs, their objectives and rationales, advantages and shortcomings; and we explore the question of *who* has access to *what* kind of education provided via MOOCs, and what impact might MOOCs have on teaching and learning.

Subsequently, this report will evaluate different types of data and the perspectives from various sectors, to see whether the implementation of 'effective' MOOCs as a valuable expansion of, or alternative to higher education is possible for developing countries. Moreover, we will also look into the long-term educational impacts that MOOCs might have in emerging economies, particularly in representative ones such as Mexico and Thailand.

MOOCs, however, have not been without questioning: as will be explored later, some scholars fear that MOOCs will always remain only as a "subprime" type of education, which cannot be "legitimized" with a degree. Others fear that MOOCs will become a new form of educational colonialism, since only a few elite universities (mostly western, and mostly from developed countries) are today participating as the self-proclaimed "teachers of the masses". Others, meanwhile, simply believe that due to the ongoing technological barriers, and to the fact that most MOOC students today are already holders of higher education degrees, the current hype about "massive access" is a huge overstatement – John Daniel mentions all of these concerns, concluding that "*MOOCs will **not** address the challenge of expanding education in the developing world*"[3]. Some other concerns are expressed by Trucano in EduTech, a World Bank Blog[4], admitting that there is a need for more perspectives from developing countries.

About the Research

Research Objectives

In this project, we aim at investigating whether, in the context of MOOCs' implementation in developing countries, MOOCs are providing – or are adequately equipped to potentially provide

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[2] Coursera, visited November 2013. "*Coursera: About Coursera.*"
[3] Daniel, 2012, p. 13.
[4] Trucano, 2013. "*Missing Perspectives on MOOCs -- Views from Developing Countries.*"

– 'expanded' and free access to higher education for a large proportion of the population: what are the good practices, challenges, and the ways to further improve the quality of higher education and application of MOOCs in the educational frameworks of those countries? How can MOOCs help developing countries to expand access to education? Do MOOCs give access to good quality education to people from developing countries?

In doing so, we will examine the development of the MOOC phenomenon, its primary goals, and analyze its features: advantages and disadvantages, as well as possible ways forward, from three different perspectives: 1) from MOOCs participants (both students who have completed online courses and those who did not complete them), 2) from MOOC instructors, particularly those coming from developing countries, and 3) from actors who are involved in the provision of MOOCs in Universities (department coordinators and people who are in close contact with creators of MOOC-providing Websites).

The report will begin with the discussion on the background of MOOCs and turn into detail concerning the issues of objectives, pedagogy, accessibility and quality of MOOCs under our Literature Review section. Subsequently, in the Findings Analysis section, the different perspectives about MOOCs that we gathered will be presented; on their possible impact (or lack thereof), as well as advantages and disadvantages for developing countries, from the perspectives of students, instructors, and providers. Each section is introduced with an overview.

Research Methodology

The report is based on a mixed-methods approach which combines a literature review, a survey, and several interviews with key stakeholders. This approach was chosen because of how it fits with the data and its capacity to highlight within and across responses. As primary sources for our literary review, we used policy reports and statistical information from OECD, UNESCO, the Dakar Framework for Action on Education for All, the World Declaration on Education for All, and the International Telecommunications Union. As secondary sources we used other kinds of existing literature: scholarly articles, reports, research blogs, and findings from MOOC providers' Websites. Interviewed instructors were MOOC teachers who have between 10 and 20 years of experience in teaching online courses. Interviewers used neutral probes such as "Please tell me more, what do you mean by that, can you please elaborate further" and encouraged instructors to speak while they were thinking. The interviews took place under conditions of privacy, and had no specific time limits.

Survey Sample Design

This report also presents our findings from two sets of online surveys about the MOOC experiences of users in developing countries. The first survey is an English version that was designed for English-speaking MOOC users in Thailand and a number of other developing countries, many of them in or near Southeast Asia. The second survey is in Spanish and was designed for the Spanish-speaking students of MOOC courses (mostly from fields related to Mathematics and Applied Science); distributed mostly to Latin American MOOC students from Mexico, Central America and South America.

In order to gather these samples, we relied on assistance from the interviewed MOOC instructors; from Mexican Universities such as National Autonomous University of Mexico and Monterrey Institute of Technology, as well as Sripatum University in Thailand. The survey was distributed widely to the students and this significantly contributed to a large number of responses. Additionally, due to the limited access to MOOC students' e-mail addresses, we conducted searches through providers' social media platforms, particularly Facebook groups from specific MOOCs. We contacted administrators of those groups and requested permission to post our invitation to participate in the survey. Spanish-speaking MOOC instructors proved more open to the idea of distributing our survey to their MOOC audience; and thus for the Spanish version several instructors, coordinators, and directors of MOOC programs invited students to participate in our survey. Therefore both versions of the short surveys were distributed to students – mostly from developing countries – who have registered and enrolled in MOOCs, to gain more insights on their experiences. This considers students who both did and didn't finish MOOCs. In total, there were 391 respondents to the surveys; 49 from the English version and 342 from the Spanish version. The general analysis shows participation from almost all continents of the world, with a heavier focus on Latin America. The following graph depicts the nationalities of respondents by regions. It is important, however, to keep in mind that the sample for this survey was largely self-selected, and this could imply that we are looking at answers by people who are willing to answer a survey about MOOCs in the first place, and whether this might mean that those students feel more enthusiastic about their own experiences to begin with.

Nationality

- Southeastern Asia 7%
- Southern Asia 3%
- North America 3%
- Latin America 24%
- Eastern Asia 1%
- Northern Eurasia 2%
- Africa 1%
- Caribbean 5%
- Central Asia 1%
- Central America 53%
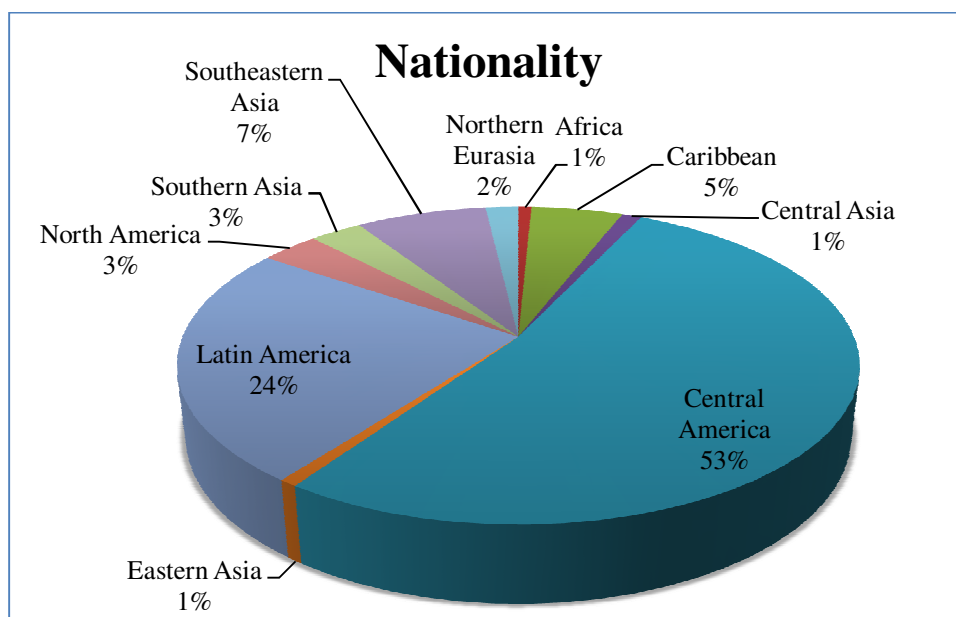
Reference: see footnote[5].

[5] Franco, Nigmonova, and Panichpathom, 2013. *Online Survey conducted by Clara Franco, Dilnoza Nigmonova and Wipada Panichpathom.*

Not every participant responded to every question in the survey, especially the open questions which were optional.

Participants of Primary Research Interviews

Instructors from Thailand and Mexico teaching MOOCs or having experiences with MOOCs' platforms and implementation were eligible for interviews. One MOOC instructor from the University of Geneva and one person experienced in MOOC provision from the Lausanne Polytechnic Federal School were interviewed as well, for the purposes of comparing their perspectives to those stemming directly from instructors and providers in developing countries. The interviews with these key actors were conducted in a semi-structured manner. Most of these interviews were conducted via Skype (VoIP calls), with video interaction, which gave us the possibility of easily recording the conversations (with the interviewees' consent). The methodology that we employed here was targeted sampling (purposefully choosing key people to interview) and each member of the research team interviewed around 1-2 persons. The research team managed to conduct six out of the expected number of ten interviews. Additionally, an indirect written interview was conducted with staff from the Coursera Team, through e-mail communications facilitated by our partner organization.

A comprehensive pre-designed questionnaire guide covering issues of MOOCs' accessibility, objectives, pedagogy, quality, and impact was used. It should be noted that the pre-designed sets of interview questions still allow the speakers to tell their own stories, and to not necessarily adhere to a strict order of questioning. The questions also cover the individuals' background, their experiences with MOOCs and with teaching in general, numbers of MOOC students, envisaged benefits and shortcomings for themselves as well, and preferred pedagogical methods. For the current report, the questions concerning access to higher education, pedagogy, quality, MOOCs' objectives, and MOOCs' impact were our primary research interests.

Why the need for further research?

There is a gap in research about developing countries, and how they may be profiting (or not) from MOOCs today and in the future. Most of the literature that we have found focuses on perspectives from developed countries, and they tend to have a commercial viewpoint, focusing mostly on the positive aspects of MOOCs and not really going into a critique of what might be their limitations and what is the real quality of MOOC courses. We will focus on perspectives about MOOCs, and their possible future and limitations, from developing countries, specifically Mexico and Thailand, which are representative emerging economies from Latin America and Southeast Asia. We have interviewed **MOOC professors from developing countries**, in order to draw pedagogical messages from them, too. Do they perceive a bias towards developed countries, catering to the needs of their own populations? How do they think MOOCs may help students in developing countries? What pedagogical approach are they using to design a course? Do MOOCs meet requirements of quality higher education?

Our approach is also cross-cutting across different groups of stakeholders; we surveyed **MOOC students in developing countries**, to gain insight into their own perceptions of how

MOOCs might or might not help them; and we interviewed also the **key players of MOOC-providing partnerships** such as those between Coursera and the Universities, to hear about their own perspectives and expectations from making MOOCs a reality in their institutions.

Case Study Selection

The countries that are considered as a particular focus for case study selection are Mexico and Thailand, both are strong emerging economies that currently host regional offices of major international organizations; such as the World Bank, which has a regional office in Mexico, or the UN's Economic and Social Commission for Asia and the Pacific, which currently has its seat in Thailand. Today Asian and Latin American states – among which Mexico and Thailand can be examples, as emerging economies –, are experiencing a lack of skilled managers and specialists in different areas. It is thought that investment in Higher Education (HE) could help them to achieve sustainable impact/develop their economies[6] [7]. *"Now more than ever before, higher education in developing nations is being expected to take on the mantle of responsibility for growth and development, where often governments fail… Developing nations will therefore need to find additional ways and means of achieving the MDGs, and one of the most viable ways of doing this is through higher education"*[8]. Therefore, these countries have been paying significant attention to higher education; both as a source of graduates with specific skills and creative thinking to drive the economy forward, and also as a means to achieve the Millennium Development Goals. However, low rates of access to higher education are still a significant challenge faced by many Southeast Asian and Latin American states in general; and by Mexico and Thailand in particular. Although general literacy and enrolment rates for Thailand and Mexico have grown in recent years, the access rate for higher education remains still generally low in Latin America and Asia, compared to developed regions of Europe and North America (Figure 1).

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[6] Asian Development Bank, 2012. *Higher Education in Dynamic Asia: Improving Transitions From School to University to Workplace*.
[7] MacGregor, 2010. "*GLOBAL: Higher Education a Driver of the MDGs*."
[8] Ibid., 2010.

Figure 1   Gross Enrollment Ratios in Higher Education by Region, 2000 and 2009
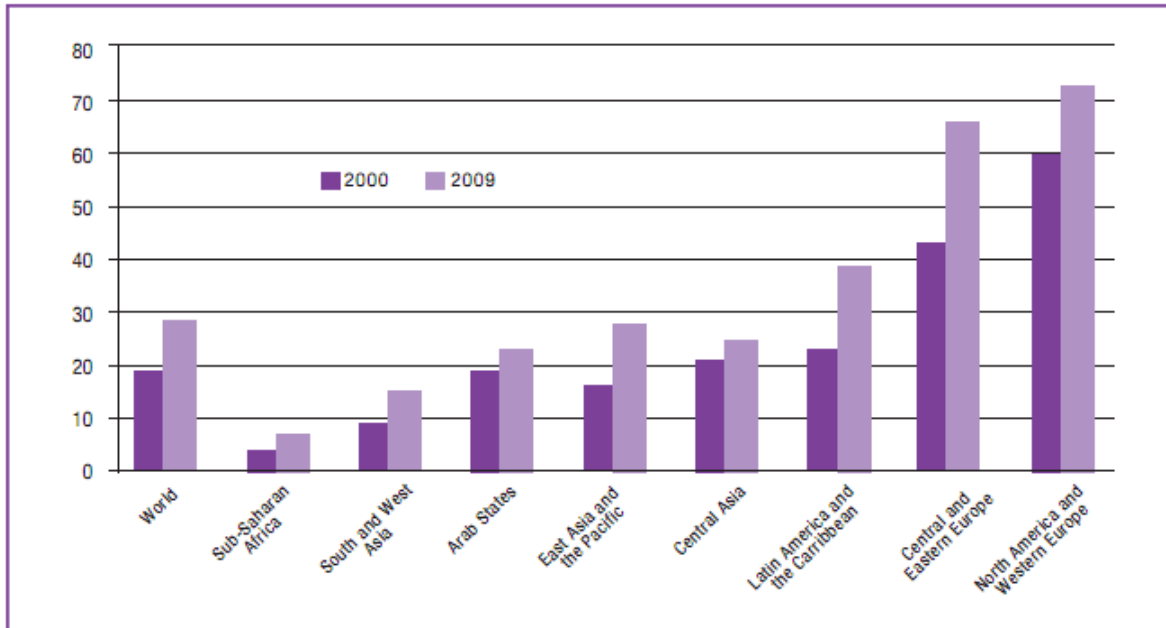
Source: Asian Development Bank[9]

The World Bank classifies both Mexico and Thailand as having "upper middle income"[10]. And even though they both have very high rates of basic literacy (World Bank data for 2011: 94% in Thailand, 93% in Mexico) and net secondary school enrolment rates of around 70%; gross enrolment to tertiary education (University level and above) remains below 50% in both countries (47% for Thailand and 28% for Mexico). In both countries, therefore, the need exists to substantially expand access to, and raise quality of higher education. MOOCs could potentially help in this endeavor. In this regard, for the present report we have found it interesting to investigate whether MOOCs could assist these countries, or other countries in their regions, to expand access to quality higher education within an ambitious time frame. But one must also consider that, according to World Bank data, in both countries the rate of personal access to broadband Internet was around 10% of the population for 2011-2012 (6.2% in Thailand and 10.9% in Mexico). This is undoubtedly an insight into one of the major possible shortcomings or limitations of MOOC impact[11].

The 2013 report from the International Telecommunications Union, "*Measuring the Information Society*"[12] – which includes more updated data for 2012 – informs that the

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[9] Asian Development Bank, 2012. *Higher Education in Dynamic Asia: Improving Transitions From School to University to Workplace*., p. 2

[10] The World Bank, 2013. "*Data By Country: Countries and Economies.*"

[11] Ibid. 2013. (Data for 2011 and 2012).

[12] International Telecommunications Union, 2013, *Measuring the Information Society*.

percentage of households with internet access is 26% in Mexico and 18.4% for Thailand (but this is not always broadband access). This shows an increase in access from the previous year; however, in both countries, personal Internet access remains a possibility only for well below half of the population, around one quarter of the total population. The differences in data sets often show definitional differences; for example, whether it's all Internet or only broadband access, and whether it's also through mobile telephones or only personal computers.
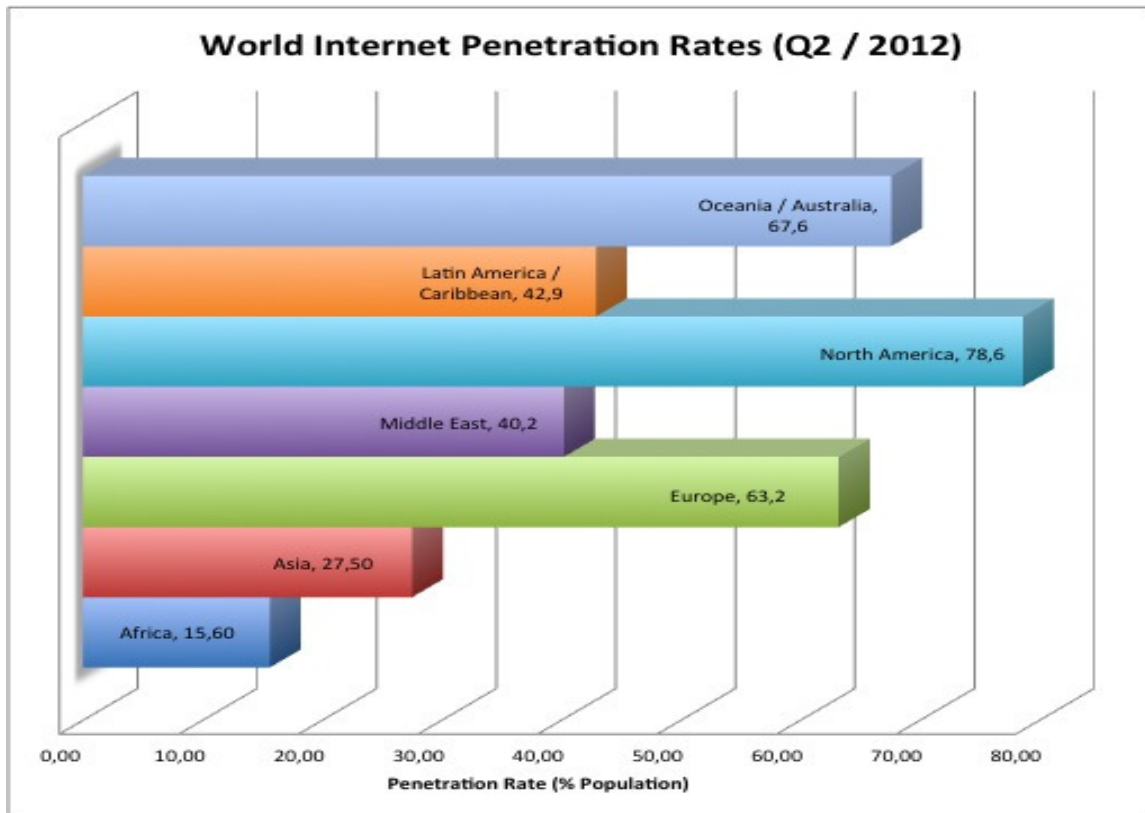
Source: Shop Marketing Consultants[13]

Literature review

MOOCs have elicited great attention from universities, professionals, education researchers, and students. They represent a new learning phenomenon in the world of higher education and digital technology that stimulated heated debates around online learning in a short period of time. This section focuses on articles, reports, scholarly blogs, and educational studies devoted to MOOCs. Due to the fact that MOOCs are still in their early stages of development, several aspects need to fully be explored. This part investigates some of the issues that developing countries need to consider when supporting and implementing MOOCs. The literature review

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[13] Shop Marketing Consultants, 2013. "Internet Growth Rate and Search Engine Market Share."

aims to address four main thematic issues: MOOCs' objectives, pedagogy, accessibility, and quality.

I. Objective(s) of MOOCs: *Whose* Objectives?

It is important to mention that the implementation of MOOCs in developing countries can be dependent on the learning purposes attached to them; which, in their turn, can affect the motivation and decision of institutes from these countries to implement online courses. Depending on the objectives, different outcomes can be reached, with diverse implications for MOOCs' implementation in the developing world.

For the purpose of this report, the literature contributions on MOOCs can conventionally be divided into several clusters:

1. MOOCs' goals from the perspective of providers (online education platforms and initiatives' objectives/missions);
2. MOOCs in the context of the Millennium Development Goals and the Education For All framework, and in the larger context of national educational systems;
3. MOOC's goals from the perspective of institutions, focused on investigating the motivations of universities and instructors who participate in MOOC provision;
4. The literary and online debates between the optimistic viewpoints vs. the critical viewpoints.

Having analyzed recent literature on MOOCs, we discovered that there is an ambiguity in the concept of learning purposes, which is seen in the use of a single-sided approach when it comes to defining purposes. Therefore, our primary objective here is to provide a better understanding of the goals of different initiatives and institutions, meaning to analyze both the profit-oriented and non-profit-oriented character of MOOCs, and consequently to better examine the implications of MOOCs for developing countries.

In fact, it is difficult to find commonalities between different initiatives and leading institutional goals, which pursue contingent approaches and models. It is also remarkable to notice that even initiatives' mission statements, which at first sight might look similar, are to a certain extent different, depending on the purposes that they serve. For instance, leading platforms Coursera[14] and UdaCity[15] clearly state their commercial approach and interest. Initiatives such as edX and FutureLearn, however, are known as non-profit enterprises that focus, according to their mission statement, on delivering mass education[16].

In addition to that, there is, on the one hand, a group of people who are more positively oriented and consider MOOCs to be an innovative phenomenon that could even replace traditional education in the future[17] [18]. On the other hand, there are critical literature

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[14] Coursera, 2013. "*Coursera: About Coursera.*"
[15] Udacity, 2013. "*Udacity: About Us.*"
[16] Brown, 2013. *"Back to the Future with MOOCs?"*
[17] Ibid., 2013.
[18] Comeau and Cheng, 2013. "*Digital 'Tsunami' in Higher Education: Democratisation Movement towards Open and Free Education.*"

contributions made by scholars and practitioners who hardly believe in the revolutionary role and impact of MOOCs on higher education, referring their arguments to the business nature of MOOCs, the established reputation of Universities, and to quality issues[19] [20] [21] [22] [23] [24].

a. MOOC's goals from the perspective of providers (Coursera, UdaCity, EdX, and FutureLearn)

As it is stated on the webpage of **Coursera,** the goal of this enterprise is derived from this idea: "*to empower people with education, (…) to connect people to a great education so that anyone around the world can learn without limits*". They further share their hope to one day be able to give access to "a world-class education"[25].

Another for-profit platform is **UdaCity,** which aims to "*bring accessible, affordable, engaging, and highly effective higher education to the world*". It also mentions the higher costs of education and shows its concerns regarding the ways of teaching in traditional Academia. In their view, what must be encouraged in education is "*less passive listening, but more active doing*"[26].

As part of their non-profit mission, **edX' goal –** which appears basically similar to Coursera's and UdaCity's – is to bring education to students around the world through ICT. However, in addition to expansion of access, they also address the issue of pedagogy; meaning to "*enhance teaching and learning on campus and online; advance teaching and learning through research*"[27].

FutureLearn pursues similar goals as Coursera and UdaCity. "*We want to inspire learning for life. We offer a diverse selection of free, high quality online courses from some of the world's leading universities and other outstanding institutions. Our aim is to connect learners from all over the globe with high quality educators, and with each other. We believe learning should be an enjoyable, social experience, with plenty of opportunities to discuss what you've studied, in order to make fresh discoveries and form new ideas*"[28].

Rhetoric-like as it may sound, what is remarkable about these platforms' mission statements is that all of them highlight the issue of scalability; all of them want to reach millions of users, while only one provider – FutureLearn – mentions the importance of high quality of courses and educators in its mission statement. With regard to scalability, it is important to put it in the context of developing countries' educational systems, which can be radically different and have other cultural determinants than systems in developed countries. For example, in the case of

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[19] Bates, 2012. "*What's Right and What's Wrong about Coursera-Style MOOCs.*"
[20] Cusumano, 2013. "*Are the Costs of 'Free' Too High in Online Education?*".
[21] Rowbotham, 2013. "*Massive Challenge Beckons with MOOCs.*"
[22] Daniel, 2012. "*Making Sense of MOOCs.*"
[23] Chao-chen Chen, 2013. *Opportunities And Challenges of MOOCS: Perspectives From Asia.*
[24] Kich, 2013. "*MOOCs: Are They about Access or Money?*".
[25] Coursera, 2013. "*Coursera: About Coursera.*"
[26] Udacity, 2013. "*Udacity: About Us.*"
[27] EdX, 2013. "*EdX: About Us.*"
[28] FutureLearn, 2013. "*FutureLearn: About.*"

Thailand, to have 80 students attend one course is already noticed as a large class (normal college classes can have around 20 students). Therefore, the added value of "massive access" proposed in MOOCs can be very much debatable in other social and cultural contexts.

Why are providers taking such a keen interest in spreading MOOCs worldwide? Is the goal really to deliver massive education through MOOCs? To what kind of education do they provide access? Or maybe there is another reason behind that initiative, which drives them to expand their courses beyond the developed world? Cusumano, former MIT professor, raises the question of quality and accessibility, and puts under doubt the philanthropic missions of the above-mentioned MOOC providers and offers[29]. He suggests the use of the "*free, but not free*" phrase referring to the case of Netscape: "*their products are really* 'free, but not free'. *They subsidize one side of the market to gain users and make money from other parts*"[30]. Compared to the Campaign for the Future of Higher Education's (CFHE) report[31], Cusumano understands that, in order to survive, it is crucial for MOOC initiatives to find "*indirect ways of covering their costs and generating a surplus*"[32].

Other reports on MOOCs' implications for higher education state that MOOCs were created in order to provide free access to courses, which in turn could lead to reducing or cutting down the cost of university-level education[33] [34]. However, in a later paragraph Yuan and Powell further claim that the commercial interest of providers, which enables them to "*enter the higher education market using a MOOC approach*"[35], can also be an explanation for the interest in offering MOOCs.

b. MOOCs in the context of the Millennium Development Goals and national educational systems

In a strict sense, MOOCs are not the first initiative intending to provide education for all. The idea that education must be expanded and provided to all is not new: the United Nations' International Covenant on Economic, Social and Cultural Rights of 1966, not only mentions access to primary education as a human right, but indeed it also mentions in its Article 13, paragraph 2(c) that: "*Higher education shall be made equally accessible to all, on the basis of capacity, by every appropriate means, and in particular by the progressive introduction of free education*"[36]. Millennium Development Goals (MDG's) and UNESCO's Education For All (EFA) goals attempt to design an efficient strategy to give education to all, namely "underserved" people, and have pursued this goal since 2000. Some researchers and bloggers share the belief that MOOCs could be a useful tool to achieve MDGs' education agenda: "*There*

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[29] Cusumano, 2013. "*Are the Costs of 'Free' Too High in Online Education?*".
[30] Ibid, 2013, p. 28-29.
[31] Campaign for the Future of Higher Education, "*The 'Promises' of Online Higher Education: Access,*" 2012.
[32] Cusumano, 2013. "*Are the Costs of 'Free' Too High in Online Education?*", p. 29.
[33] Yuan and Powell, 2013. *MOOCs and Open Education: Implications for Higher Education, p. 5.*
[34] Brown, 2013. *Back to the Future with MOOCs?.*
[35] Yuan and Powell, 2013. *MOOCs and Open Education: Implications for Higher Education, p. 5.*
[36] United Nations General Assembly, 1966. "*ICESCR.*"

will be MOOCs designed to support the successor to the Millennium Development Goals (MDGs)"[37].

However, it is necessary to mention that the MDGs and MOOC providers pursue obviously different directions and goals. MDGs and EFA target primary schooling, while MOOCs rather have to do with higher education. Even though "Education for all" is highlighted in most MOOC providers' missions, the knowledge they provide is mostly limited to people who already have a degree or some level of education (see also the Analysis section of this report). As our data suggests, overall, **375 out of 391 survey participants (95.9%)** reported having some level of education beyond primary schooling (high school, undergraduate, graduate, or post-graduate degrees), and only 2 respondents mentioned that they did not attend school at all. Underserved people, thus, still remain behind a barrier. The answer to the question *"how can MOOCs help the less privileged people to learn/get an education?"* has not been found yet.
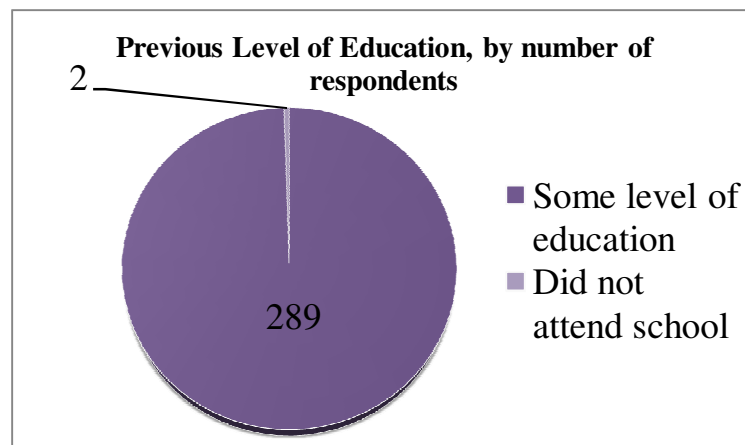
Source: see footnote[38].

Some researchers have carefully followed the rise of MOOCs and see it as a phenomenon that can be used to achieve MDGs; but, as one of our interviewees noticed, *"MOOCs will not be a universal solution to education; they are a very useful complementation. We should not see MOOCs as a panacea to our educational problems*"[39]. It could be further researched as a way to achieve MDGs; if MOOC providers would expand their goals by targeting primary, middle and high school courses, as well as gender mainstreaming (to keep in mind MDG and EFA's target of gender parity in access to education); or if MDGs would include elementary school alongside with higher education.

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[37] Sengupta, 2013. "*The Reports of the Death of the MOOC Are Highly Exaggerated.*"

[38] Franco, Nigmonova, and Panichpathom, 2013. *Online Survey conducted by Clara Franco, Dilnoza Nigmonova and Wipada Panichpathom.*

[39] Enríquez, Personal Interview with Larisa Enríquez, UNAM, 2013.

Who has access and to *what* kind of education is a very significant question to raise while talking about higher education in developing countries, because *"quality education is essential for creating a sustainable human resource base upon which to build a country's development"*[40].

Yet, within MOOCs there is no such thing yet as a tool for ensuring the academic quality of courses; although in the case of Thailand the educational systems try to control it by sending government officials to universities with a checklist. According to our interviewed Thai instructor, *"the government will try to come up with a checklist for evaluation, which would guarantee the quality of the institution and people involved: lectures and administrative staff"*[41]. But it is noteworthy that in Thailand MOOCs are still not as open in terms of access as in other places: even though anyone in Thailand can access Thai MOOCs online just as in any other part of the world, today they are primarily used by universities' instructors as a supplementary tool for traditional classes, which makes it possible for them to be evaluated by officials. Of course, MOOCs are available for any Thai user through platforms such as Coursera or Udacity; but what is implied here is that, due to the technological and language barriers that were mentioned before (and that will be further explained in the analysis of our findings), it is much more likely that an individual in Thailand will learn about MOOCs because he or she is already enrolled in higher education, knows English, and was encouraged to sign up to MOOCs by University personnel.

c. MOOCs' goals from the perspective of institutions: what does the University gain?

"The clear benefit for the University providing the MOOC is the positioning of the institution's name in the world."
Carlos Villanueva, ITESM

The questions also remain as to *what* exactly are the initial purposes of top elite/prestigious institutions and universities in providing MOOCs through digitalized platforms. Why are education leaders interested in MOOCs? What motivates elite universities and institutes to offer online courses?

Looking closely at current trends can thus lead us to question the true intention of MOOC instructors and partner universities with regard to the much-touted slogan of "education for all". In his article *"The Professors who make the MOOCs"* for The Chronicle of Higher Education, Kolowich quotes University professors who have participated in MOOCs as saying that *"soon every person's education will have a significant online component"*[42] (but never really breaching the issue of **who** will have access to higher education in the first place, or if such access will significantly change), and that professors have wanted to join the MOOC phenomenon because they *"did not want to be left behind"*, *"to increase their visibility"*, or because *"I wouldn't want anybody else's Algorithms course to be out there"*[43]. Why would a professor be interested in being involved in MOOCs?

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[40] Asian Development Bank, 2012. *Higher Education in Dynamic Asia: Improving Transitions From School to University to Workplace*.
[41] Duangchinda, 2013. Personal Interview with Vorasuang Duangchinda, Sripatum University.
[42] Kolowich, 2013. *"The Professors Who Make the MOOCs."*
[43] Ibid., 2013

Although MOOCs have been initially launched with the purpose of giving free access to higher education to a large proportion of users around the globe, elite universities and institutions are driven by the market-oriented idea of expanding their brand through MOOC platforms[44]. According to Cusumano, it is an excellent opportunity for universities to "*gain some benefits to their reputations and attract more students and employees or create more scholars by giving away some knowledge for free*"[45]. Edinburgh University, an international partner of Coursera, noted that in addition to exploring new educational techniques through MOOCs, it also provided them with "*a better opportunity for greater reach for their courses… and gained access to an expanding peer community of institutions which were developing these new courses.*"[46].

This viewpoint is also evident in Rowbotham's report: "*In terms of MOOCs, signing up with high quality US and international universities would raise the profile of an institution globally. It might also lead to increased enrolments and applications from students who want to 'try before they buy'*"[47]. The most critical and skeptic conclusion is made by the report "MOOCs: Are They About Access or Money?" – based on a report by Moody's Investor Services[48] – which declares that "*MOOCs are about money; and the biggest winners in MOOCs are not students, but elite universities*"[49].

It was mentioned by many of our interviewed instructors that implementing MOOCs made them improve their knowledge, employability, and widen their research interests. Moreover, MOOCs are a platform where they can experiment with new methods of teaching, to use later in traditional classes. An interview partner from Monterrey Institute of Technology also mentioned that, whenever a particular book or text is recommended as part of a MOOC's study curricula, the sales of the book tend to increase. Therefore, even if the possible business model of MOOCs is still in a very premature stage of development; some signs are already out there as to how partner Universities and professors can potentially be in for the business or marketing opportunities.

d. Optimistic viewpoint in literature vs. critical viewpoint

Considering MOOCs as either a threat or a beneficial and innovative phenomenon has divided MOOC researchers along different lines. The optimistic viewpoint is led by the idea that MOOCs, as a revolutionary phenomenon, might not only change the way that education is given today, but perhaps even *replace* traditional education. Some authors share the belief that there is a possibility for MOOCs to replace traditional classes and give expanded access to education in the future. "*They are rapidly changing the game for higher education, executive education and employee development generally. MOOCs open a world of opportunity for people in remote areas and developing countries, as well as people with aspirations to achieve more with their*

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[44] Yuan and Powell, 2013. *MOOCs and Open Education: Implications for Higher Education, p. 8.*

[45] Cusumano, "*Are the Costs of 'Free' Too High in Online Education?*", p. 4.

[46] University of Edinburgh, 2013. *MOOCs @ Edinburgh 2013 - Report #1, p. 5.*

[47] Rowbotham, 2013. "*Massive Challenge Beckons with MOOCs.*"

[48] Kedem and Puchalla, 2012. *Shifting Ground: Technology Begins to Alter Centuries-Old Business Model for Universities.*

[49] Kich, 2013. "*MOOCs: Are They about Access or Money?*".

lives. MOOCs are changing the traditional nature of education, mainly from being for the affluent and elite, to being free and accessible to virtually everybody"[50].

Our interviewed instructor from Sripatum University in Thailand, however, does not deem that the replacement will occur, but he believes that MOOCs will act as a supplementary and complementary means (that is already happening now in Thailand) to change the way of teaching in universities[51]. In fact, today in Thai universities MOOCs are mostly used by professors as a supplementary instrument for classes.

Following the critical line of thinking that argues that MOOCs are really about money and marketing instead of massive access, the Working Paper by CFHE shares the opinion that online higher education's goal is not likely access, but rather to seek profits. Access is not the primary goal of those promoting online higher education. "*Increasingly, online higher education is a big business with huge profits being made by many private companies. We are told repeatedly that students will benefit from the rush toward more online learning, but we must ask who's benefiting more: students or investors and corporations*"[52] [53].

However, whether or not MOOCs are about money; they are also about pedagogy, improving teaching methods by piloting and testing them in a MOOC environment:

> "*Massive Open Online Courses enable colleges to experiment and refine electronic delivery methods, evaluate scalability, identify best suited faculty, gauge the quality of student learning outcomes, and assess demand. MOOCs diverge from traditional online courses which sought to duplicate the classroom experience, including approximate class size. In addition, the availability of open platforms enables a university to post content without incurring the cost of developing and maintaining the platform. Online learning technologies will play an increasing role in creating new efficiencies and lowering the cost per student. Successful adoption enables educators to expand and diversify their student bodies and increase faculty scheduling flexibility and productivity*"[54].

Does this mean that the basic purpose of providing MOOCs is actually not to educate students who have limited access to education, but rather to increase profits? It would be biased to link this statement to all MOOC initiatives and institutions, since it roughly depends on their models and principles (business model vs. institution model). Currently, however, a business model approach of both companies and institutes is prevailing. In this case it makes sense to ask, *do MOOCs match the needs of developing countries?* The question of implementing MOOCs in developing countries can be problematic because such countries face many difficulties in various

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[50] Ryan, 2013. "*MOOCs Are on the Move: A Snapshot of the Rapid Growth of MOOCs.*"

[51] Duangchinda, 2013. Personal Interview with Vorasuang Duangchinda, Sripatum University.

[52] Campaign for the Future of Higher Education, "The 'Promises' of Online Higher Education: Profits," 2012.

[53] Campaign for the Future of Higher Education, "The 'Promises' of Online Higher Education: Reducing Costs," 2012.

[54] Kedem and Puchalla, 2012. *Shifting Ground: Technology Begins to Alter Centuries-Old Business Model for Universities, p. 3.*

spheres, including infrastructure, structural or governmental problems, and access to digital devices, Internet connectivity, or electricity. Hence, many questions remain: to what extent will MOOCs meet the educational needs of developing countries, namely to expand access to education? What will be the role of MOOCs in higher education in developing countries? Does expanding MOOCs mean raising/expanding access for "underserved people" to higher education? Is higher education a priority for developing countries?

If MOOCs are to be a part of schemes of access to and governance of higher education, developing countries should organize monitoring and evaluation processes; as well as analyze the quality, efficiency and costs of implementing MOOCs as part of a local educational strategy. Taking into consideration potential shortages of education in the developing world, the impact of MOOCs might be not significant. Additionally, the main concerns of developing countries, namely, limited access to higher education and the quality of education, might remain unsolved even with the implementation of free MOOCs. Based on our observations and semi-structured interviews, we found interesting data and answers to the above-mentioned questions, from the perspectives of Mexican and Thai instructors, senior faculty of EPFL, and the Center for Digital Education at the University of Geneva, which will be discussed in depth in the next sections.

II. Pedagogy of MOOCs: Background on the Methods of MOOCs

MOOCs are said to be the "revised version" of the distance education phenomenon that made it feasible for a larger number of users/students around the world to access 'online education.' In order to have a better understanding of MOOCs, we should first be familiar with the distance online education. *Distance education/learning* refers to a program of study where learners and instructors are separated by distance as well as time difference (teaching and learning process do not have to be simultaneous). The two main features of online distance learning are: 1) *e-learning:* the use of technologies of multimedia; and 2) *online learning*: the use of Internet to reach the learners[55]. This section aims to provide a brief background on MOOCs and in-depth analysis of different views on the pedagogical approaches that MOOCs employ, from both types of MOOCs: the *cMOOCs* and *xMOOCs*. Nonetheless, before analyzing the advantages and disadvantages as well as "hypes" and debates of MOOCs' teaching approach, we shall take a look at the basic tools and pedagogical methods that are employed in MOOCs.

The first feature of MOOCs is their massive and diverse student body, which was claimed by the first platform creators as what distinguishes MOOCs from the other types of online distance learning (ODL) courses. They claim that MOOCs can support a larger number of learners from anywhere in the world and at any given time. This signifies 'massive participation' that would enhance the experience of online learning[56]. The second feature of MOOCs is their 'openness', for access to anyone who is willing to participate in them. Other features are the use of video

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[55] Moore, Dickson-Deane, and Galyen, 2011. "*E-Learning, Online Learning, Distance Learning Environments: Are They the Same?*".

[56] Glance, Forsey, and Riley, 2013. "*The Pedagogical Foundations of Massive Open Online Courses.*"

lectures, online readings, online assignments, online interactive discussion forums, as well as peer- and self-assessment respectively[57].

Currently, there are three main types of MOOCs: xMOOCs, cMOOCs and Open Boundary Courses[58]. **xMOOCs** are used as a business and learning model by platforms such as Coursera, EdX and Futurelearn. This model of MOOC is designed to be an '*instructional model of learning*' or '*instructive learning*', where instructors are at the center of knowledge generation and have control over the learning structure[59]. The methods used by this model include interactive discussion on the online forums, as well as the exchange and distribution of ideas among the participants of the class.

The second type of MOOCs, **cMOOCs** (C stands for "Connectivism"), are based on the premise of *connectivism* which is the learning model that was developed by one of the founders of MOOCs, George Siemens. We may also refer to this type of MOOC as an "*evaluative model of learning*"[60] and "*connected learning*"[61] where the learners are free to 'tailor' the pattern of their learning; conducting 'self-learning'[62] that can be explored with others without being limited or controlled under the supervision of an instructor like in the xMOOCs model. It is essentially the idea of learning that takes place within a *network,* where the participants make use of *digital platforms:* blogs, Wikipedia, social media platforms, etc. And the aims are to have the learners connected to the content in the provided exchange-learning environment and to other participants, in order to construct their knowledge[63] [64].

The third type of MOOCs, '*Open Boundary Courses*', is basically another term for '*open classroom*', where the instructors in the traditional classes make use of different models of teaching that differ from the two types earlier mentioned. This is rather a mix of the 'traditional behaviorist' learning model and the new 'online connectivist and peer-assessing' learning model. This applies to the students who enroll in the traditional schools and universities. As a result, they have an alternative way of learning with the access to online courses (MOOCs) with "wider collaboration and access to a huge variety of resources"[65].

Nevertheless, most of the literature on MOOCs does not acknowledge this third type of *open boundary courses* and still largely focuses on the first two types of MOOCs: xMOOCs and cMOOCs. So, in order to have a good comprehension of the pedagogy used in different MOOCs, we should examine different goals and features of these two types of MOOCs. The 1.1 Table below can well summarize the pedagogical methods used by the xMOOCs and cMOOCs:

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[57] Calter, 2013. *MOOCs and the Library: Engaging with Evolving Pedagogy.*
[58] Kernohan, 2013. *Making Sense of MOOCs.*
[59] University of California, Davis, 2014. "*Evaluative vs. Instructive Learning.*"
[60] Ibid., 2014.
[61] Armstrong, *et. al.*, "*The Rise of MOOCs.*"
[62] University of California, Davis, 2014. "*Evaluative vs. Instructive Learning.*"
[63] Kernohan, 2013. *Making Sense of MOOCs.*
[64] Armstrong *et. al.*, "*The Rise of MOOCs.*", p. 37
[65] Kernohan, 2013. *Making Sense of MOOCs.*

Table 1.1: The two types of MOOCs and their pedagogical approaches:[66]

	xMOOCs	cMOOCs
Pedagogical Objective	To deliver content to a massive number of users with a framework that is different, yet similar to the traditional model classroom, with the creation of an environment where learners can freely participate; work at their own pace and 'regenerate' the knowledge they have learned from the well known instructors that are from famous universities.	To encourage a connectivism among the users/learners with the framework that is designed to be different from the traditional behaviorist method of learning where participants can *collaborate, connect, interact and exchange* their knowledge for the creation of 'new knowledge'.
Pedagogical framework	Instructive or Instructional learning approach (instructor-centered).	Evaluative or Connected learning approach (learners' connections and collaboration).
Role of Instructors	The instructors have to create and review the content; distributed to the learners; create activities; set the objectives and goals of the class and evaluate the students.	As "co-learners," the participants have to create the content; distribute it to the others learners; create activities; set the objectives and goals of the class and generate among themselves the new knowledge.
Role of learners	Learners are expected to 'receive' knowledge through the lecture videos; participate in group works; online assignments and quizzes.	Learners are expected to 'generate,' 'pass on,' and 'exchange' their knowledge to/with others in the learning community that communicates through the use of social media platforms.
The creation of new knowledge	No knowledge creation, but the learners can learn from the content and knowledge developed by the instructors, however, they might also be able to learn from their peers in the online discussion forums.	Learners create 'new' knowledge when they share the ideas and content that they have developed by themselves to others; with the use of peer assessment, interaction, and support.
Assessment of learning	Learners will be assessed by their peers ('peer-assessment/review'), however, the overall assessment in terms of comprehension will be evaluated by the instructors.	Learners will share their ideas and opinions with others; which, in turn, creates an environment for 'knowledge-building processes'; also they have to employ the method of 'self-assessment'.
Content creation	Instructors	Learners/Users
Interaction	Online discussion forums (from learner to learner), however, the interaction with the instructors was not designed to be the most convenient, personalized or simple; (top-down and one-way communication).	Social media platforms and online discussion forums: horizontal-way of communication; networking communication.
Learning Flexibility	The course's activities, content, materials and assessment are pre-designed by the instructors: 'fixed and inflexible'.	The course's activities, content, materials and assessments are constantly and continually shaped by the co-learners: 'open with the feature of weekly basis review' and relatively flexible.

Most literature dealing with the issue of MOOCs' pedagogy varies on their views due to different approaches by the authors. Nonetheless, a number of sources aim to assess the impact of MOOCs' pedagogy on the learning of users/students. In order to examine the arguments put forward by these authors thoroughly and effectively, we reckon that it would be best to categorize these differing views into three main groups for a clearer understanding of the topic: the authors who have positive views, balanced views and critical views on MOOCs' pedagogy.

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[66] Sources: Armstrong *et al* (2013); Calter (2013); Glance *et* al (2013) and Kernohan (2013).

Positive Strand:

Many authors, bloggers and scholars deem MOOCs as a new phenomenon of higher education, somehow different from previous tendencies in online distance education/learning in particular; and as a new hope to cut the cost of higher education. They are seen as well as an innovative tool to improve the existing learning framework that is pertinent in the face-to-face traditional classrooms. Some vouch for MOOCs as being 'agents of necessary change' that will transform the landscape of higher education[67]. Despite the high dropout rate, many scholars who have the "hypes" for MOOCs' pedagogy hold a strong position that with the use of online features and methods, the experience of MOOC users will improve. This argument rests on the employment of the technological tools, which are believed by many to help enhance the learning experience and process over time. Educase[68] in its article on MOOCs suggests that in the attribution of MOOCs, its massive scale would yield the reduction of instructor contact with the students while increasing the access to enormous quantities of data, which makes it easier than (or at least as convenient as) what students have in traditional face-to-face classes. On the openness quality of MOOCs, they also point out that this would increase the flexibility of access to course materials for the learners… all of which would improve and enhance the learning experiences of students.

Glance et al.[69] have come to the conclusion that MOOCs and online learning in general are effective with the use of available Internet technologies such as formative quizzes, short video formats with the quizzes interspersed, peer and self-assessment and online discussion forums, all of which would yield a number of benefits to the learners as shown in the Table 1.2 below:

Table 1.2: Characteristics of MOOCs and their related pedagogical benefits:[70]

MOOC pedagogical methods	Benefits
Massive scale of student body: "Web-based Instruction".	Reduction of instructor contact with individual students; increase in massive and accessible quantities of data for the learners (Educase, 2012).
Openness of access	Flexibility to access course materials from anywhere at any time.
Online mode of delivery (Video lectures)	Efficacy of online learning: tailored experience.
Online readings and quizzes	Mastery and Retrieval learning.
Online forums of discussion	Assistance from peers and 'out-of-band' learning.

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[67] Shirky, 2012. "*Napster, Udacity, and the Academy.*"
[68] Educase, 2012. "*What Campus Leaders Need to Know about MOOCs.*"
[69] Glance, Forsey, and Riley, 2013. "*The Pedagogical Foundations of Massive Open Online Courses.*"
[70] This is a modified version, based on the table from Glance, D. G., Forsey, M., & Riley, M. (2013) *in The Pedagogical Foundations of Massive Open Online Courses*: adding more information on the benefits from Educase, (2012): see the original table: http://journals.uic.edu/ojs/index.php/fm/article/view/4350/3673

Peer and self-assessment	Enhanced self-critical assessment and learning through the mastery of assessing peers' and one's own work.

In order to have a better insight of this topic, we shall take a look at the descriptions and definitions of the concepts of 'retrieval' and 'mastery' learning. According to Glance and his colleagues, retrieval practice is "*the act of enhancing long-term memory of facts through recalling information from short-term memory*"[71]. They also point out that retrieval learning is believed to help enhance one's learning experience because "*learning occurs through the act of retrieval*" and that when the learners retrieve knowledge, the knowledge is changed and there emerges the process of "reconstruction of knowledge". The final product is the 'strengthened knowledge'[72].

In addition, the concept of "mastery learning" was explained by Glance et al. with the notion borrowed by Bloom[73], that mastery learning occurs when the students have an in-depth comprehension of the topic, subject or concept before moving on to the next. In other words, in order to master their learning, students need to understand and be able to construct, generate and synthesize the elements of the subject that they are studying. Glance et al. argue that MOOCs' provision of online video lectures that are relatively short allow the students to 'master' their learning; they can pause, rewind and forward the lectures according to their pace and need. In addition, according to Daphne Koller (co-creator of Coursera, as quoted by Glance *et. al.*), MOOCs enable the students to grasp all the important materials of the subject, in a way that the traditional face-to-face classroom environment does not allow, and "*provides an opportunity for students to engage in mastery learning*"[74].

On the peer and self-assessment qualities of MOOCs, *Glance et al.* argue that these prominent features would give an opportunity for students to enhance their learning outcome and performance through the "*exposure to other students' approaches… that enables them to develop their ability of 'self-learning', to identify their the strengths and weaknesses that would contribute to the development of professional skills*"[75]. A similar argument was put forward by Nelson and Schunn[76], where they mention that the advantages of peer assessment can be seen when the students practice summarizing skills, identifying problems and solutions and localizing the knowledge they have gained through other people in their own work.

For the issues related to self-assessment, Boud and Falchikov[77] argue that self-assessment is a great tool in learning and a crucial step for the development of self-learning skills that are central to the online learning experience. A similar argument was laid out by Gordon[78], who

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[71] Glance, Forsey, and Riley, 2013. "*The Pedagogical Foundations of Massive Open Online Courses.*", p. 4

[72] Ibid., 2013, p. 4

[73] Bloom, 1968. "*Learning For Mastery.*"

[74] Glance, Forsey, and Riley, "*The Pedagogical Foundations of Massive Open Online Courses.*"

[75] Ibid., 2013, p. 5

[76] Nelson and Schunn, 2009. "*The Nature of Feedback: How Different Types of Peer Feedback Affect Writing Performance.*"

[77] Falchikov and Boud, 1989. "*Student Self-Assessment in Higher Education.*"

[78] Gordon, 1992. "*Self-Assessment Programs and Their Implications for Health Professions Training.*"

suggests that the foreseen benefits of self-assessment are the improvement in level of comprehension, performance in class and ability to analyze one's own work and thinking.

On the provision of online discussion forums, Glance et al. contend that online forums "*create a space for exploring the subject matter, forming relationships and collaborating for project work and other assignments*"[79]. And they perceive the use of online interactive forums as being an effective tool to facilitate also the peer assessment practices, and that this would assist the students in generating their knowledge and sharing it with others in the course. Cartwright in his article (2000, quoted by Glance *et. al.*) argues along the same line as Glance, observing that the use of online forums promotes "*excellent content discussion*" as well as "*reflection of knowledge on the subject matter*" between the participants of the course that he was monitoring (a nursing course). Some other writers have gone far beyond the mere benefits of MOOCs' online forums, suggesting that this feature of online learning could even replace the concept of face-to-face discussion, and that it illustrates more "student initiations" and "higher quality of discussion" compared to traditional models of personal interaction. This includes Jeong[80] who argues that online discussion shows that students are developing and practicing the critical thinking skills necessary for the generation of new knowledge that would enhance their higher education experience, and Han and Hill[81], who contend that when the online forums are designed in a proper manner, they can crucially facilitate "collaborative discourse" that yield a higher level and quality of learning for the learners.

Balanced Strand:

A number of authors take instead a more neutral approach on MOOCs' pedagogy. They perceive the pedagogical approach of MOOCs as being innovative but somehow problematic in certain areas of its usage. Many bloggers and authors are aware of the fact that MOOCs' pedagogy is not perfect. For example, Li Yuan and Powell in their journal article for JISC-CETIS[82] conduct research on MOOCs' implication for higher education, and find a number of flaws in MOOCs' pedagogical approach, especially in xMOOCs. They are aware of the fact that xMOOCs are receiving criticism from many for their 'instructional' and 'traditional knowledge transmission model', in that they are using the pedagogical model that centers the teaching framework on the 'instructors', and deem that it is not the optimal method that should be solely adopted in online learning. Yet they still show optimism to the pedagogical model that is provided by cMOOCs. They argue that Connectivist MOOCs or cMOOCs would provide revolutionary opportunities for online learning, in that they employ the teaching approaches of 'learner-centered' models of pedagogy that allow students to also learn from one another – not centering the knowledge creation and generation on the instructors – through the use of peer support and assessment strategies.

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[79] Glance, Forsey, and Riley, 2013. "The Pedagogical Foundations of Massive Open Online Courses.", p. 6

[80] Jeong, 2003. "*The Sequential Analysis of Group Interaction and Critical Thinking in Online Threaded Discussions.*"

[81] Han and Hill, 2007. "*Collaborate to Learn, Learn to Collaborate.*"

[82] Yuan and Powell, 2013. *MOOCs and Open Education: Implications for Higher Education.*

Comparably, the reports commissioned by research centers of governments, Education Ministries and other organizations also demonstrate a similar view on MOOCs' pedagogy. The Report from the *Gallup Survey of US College Presidents* (2013, quoted by Haggard[83] in his report to the British Government) also reiterates the corresponding message: "*MOOCs might help to improve pedagogy and reputation but not much else*", after having done a thorough research and distributed its surveys among 889 participants. The report by Sloan Consortium suggests that the "*institutional opinions on MOOCs are mixed, with positive views on the ability to learn about online pedagogy and to attract new students, but with concerns about whether they represent a sustainable method for offering courses*"[84]. This demonstrates a balanced view in the way that opinions on MOOCs are positive with benefits and lessons that can be learned from the online pedagogical methodologies, but also aware of the sustainability of course offerings, which seem to be on a shaking ground.

The report by the Canada's Social Sciences and Humanities Research Council or SSHRC on *the MOOC Model* seems to be positive about the pedagogical issues, but still remains skeptical in some areas of the actual implementation of MOOCs[85]. Under the consideration of MOOCs' relationship with learning sector, the SSHRC suggests that MOOCs are the phenomenon that introduces the process of knowledge-making that departs from the model of traditional universities. Moreover, they also highlight the crucial role of MOOCs as being the "*first generation of testing ground for knowledge growth*" in a new interconnected digital world. MOOCs, in their perception, also establish a common responsibility among the student body for 'direction setting.'

However, when it comes to the learners' goals and their achievements from MOOCs, Haggard's British report appears to take a more skeptical standpoint. It indicates that despite the benefits generated by the fundamental ground of MOOCs, which rests on the shared responsibility among the students that determines the direction of the course, a group of students still finds this particular experience to be confusing. Also, this model of teaching also removes the 'scaffolding' effect (that the traditional courses would have provided) from MOOCs' learning experience, in that it sets a prerequisite for the learners to have basic computer and Internet literacy, as well as limits the selection of courses to be within the 'comfort zone' of the MOOC takers. Other than that, the pedagogical approaches employed by MOOCs may also impede those who do not possess the particular literacy or knowledge from engaging in and sustaining the network (of Internet skills and professional skills); blocking them from enjoying the same experience and benefits as those who possess the previous knowledge.

Critical Strand:

There are also a handful of those who take a skeptical standpoint regarding the issue of MOOCs' pedagogy. The main authors that are often quoted for their critical perspectives toward

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[83] Haggard, 2013. *The Maturing of the MOOC, p. 41*.
[84] Ibid., 2013, p. 42
[85] Ibid., 2013, p. 45

MOOCs are Baggaley[86], Bates and Sangra[87] and Daniel[88]. Baggaley, in "*Harmonizing Global Education: From Genghis Khan to Facebook*", expresses his argument that the quality and pedagogical models of many online teaching platforms are poor, that they are repeating the same mistakes as other Online Distance Learning (ODL) initiatives did, and that there is no improvement seen in the newer forms of online education.

Bates and Sangra argue in "*Managing Technology in Higher Education: Strategies for Transforming Teaching and Learning"* that the pedagogical model used by MOOCs, xMOOCs in particular, is largely ineffective. They call this the 'Lone Ranger' approach, in which the instructors/professors (from the traditional universities) have to create, set up and monitor their online courses without assistance from the partnering platform. They further contend that this is not likely to produce "courses with quality." A year later, Bates produced another article on MOOCs, *What's Right and What's Wrong About Coursera-Style MOOCs*[89], which addresses mainly the problems of teaching methods adopted by the xMOOCs and specifically the Coursera platform. He contends that the pedagogy used by xMOOCs is based on an old model of traditional (outdated) behaviorist approach that relies primarily on "*information transmission, computer/automated-mark assignments, as well as the use of peer assessment*." And what MOOCs have introduced to the educational world is not a new thing but rather the same techniques that have been used in ODL since several decades ago. Bates also points out that it is a false belief that computers would help a learner personalize their learning. Computers and technology in general enable students to seek the alternatives for their courses' materials and provide them with automated feedback, which does not give much added value (only based on the criteria and requirements of the course), as they would not allow room for creativity nor provide a meaningful feedback. Moreover, he added that with the computer and Model 2.0 platform, students are not being treated an individuals. He suggests a possible solution to this problem by having interventions from instructors that could facilitate discussions and provide encouragement that eventually leads to a better understanding of students' needs. Furthermore, he also elaborates on Coursera's style of teaching, where he argues that Coursera is using the model of "trial and error" as the basis for their pedagogy. He goes on to contend that this particular approach does not work well because students will be accustomed to the habit of trying "anything" until "something" works – they do not learn the correct way in the beginning. Instead, the students are making errors and the instructor would just "spot" the errors they made. He maintains that it is more effective for learners to learn the correct way beforehand, rather than being corrected afterwards.

Daniel's article "*Making Sense of MOOCs: Musing in a Maze of Myth, Paradox and Possibility*"[90], has shown a number of elements that many have been held throughout the "MOOC hype" and that other authors were so enthusiastic about, to be just 'myths.' He also

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[86] Baggaley, 2011. *Harmonising Global Education: From Genghis Khan to Facebook.*
[87] Bates and Sangra, 2011. *Managing Technology in Higher Education: Strategies for Transforming Teaching and Learning.*
[88] Daniel, 2012. "*Making Sense of MOOCs.*"
[89] Bates, 2012. "*What's Right and What's Wrong about Coursera-Style MOOCs.*"
[90] Daniel, 2012. "*Making Sense of MOOCs.*"

based much of his arguments on the critical bloggers like Baggaley and Bates. He basically reiterates the arguments of both of them (but more heavily Bates'), and demonstrates that MOOCs need to have a new model of pedagogy before they fade away like the previous forms of ODL.

Authors like Kerka[91], Sadler and Good[92], Kanuka and Anderson[93], Gustafson and Gibbs[94], and Dysthe[95] have in the past argued against the use of certain pedagogical methods that are now seen in the xMOOCs. Kerka, in the article named "*Distance Learning, the Internet, and the World Wide Web*", argues that online courses, in general, often experience a higher rate of attrition when compared to the traditional classroom setting in which the students would feel more pressure and their performance would drop. Also, she points out the fact that the students could be experiencing social isolation. For the issue of peer-assessment, Sadler and Good in "*The Impact of Self– and Peer–Grading on Student Learning*" argue that there is no evidence that improvement in learning is a result of being 'peer assessor' or have done peer assessment. They rather contend that the students improve largely on the individual level when they assess their own work. On the issue of online interactive discussion, Kanuka and Anderson, in their article "*Online Social Interchange, Discord, and Knowledge Construction*", contend that most of the online discussions they have observed are proven to have no additional learning value, as the interactions on the forums are only based on the information that is compatible with the learners' previous knowledge. Gibbs, on the same issue, similarly argues that when students' posts are of high quality and already reflect their active engagement and critical thinking about the topic, there is no additional value of learning from the online forums and students then fail to maintain active interaction and engage with one another's ideas. And Dysthe, in "*The Learning Potential of a Web–Mediated Discussion in a University Course*", contends that the online forums should not be left alone without an intervention from the instructor. Instructors have a vital role in motivating and keeping the discussion on track. Yang *et al.*[96] also brought up an argument that is similar to the one typically used against the use of 'traditional behaviorist' methods of pedagogy. They argue that one of the factors that prevents MOOCs from "reaching their transformative potential" is their failure to deliver "the social environment that is conducive to sustained engagement and learning" as well as the lack of vision to take into account the imperative dimension of 'social interaction' among the learners in MOOCs environment[97].

[91] Kerka, 1997. "*Distance Learning, the Internet, and the World Wide Web. ERIC Digest.*"
[92] Sadler and Good, 2006. "*The Impact of Self– and Peer–grading on Student Learning*,".
[93] Kanuka and Anderson, 2007. "*Online Social Interchange, Discord, and Knowledge Construction.*"
[94] Gustafson and Gibbs, 2000, "*Guiding or Hiding?*".
[95] Dysthe, 2002. "*The Learning Potential of a Web-Mediated Discussion in a University Course.*"
[96] Yang et al., 2013. *"Turn On, Tune In, Drop Out": Anticipating Student Dropouts in Massive Open Online Courses.*
[97] Ibid., 2013, p. 1-2

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Remaining Issues in the Pedagogical Context:

I. Assessment and certification.

Most MOOCs make use of the online quizzes during and after the video lectures, to assess students' performance. The "short answers" questions do not have 'timely' feedback, while the multiple choice questions do have the automated feedback for the users. The limitation of assessment of the MOOCs would be the inability to evaluate and give feedback to a large student body in a timely manner. The solution for many xMOOCs, including Coursera, is the use of peer-assessment. However, the peer-assessment is still a debated topic regarding its efficacy. Another issue that emerges with such a model of assessment is the unwanted behavior of students in academic settings, such as cheating and plagiarism. The large number of students also actually "magnifies" the issue[98].

In terms of certifications of completion, some MOOCs offer the participants the opportunity to obtain certifications once they have completed the courses and fulfilled all the requirements of the courses. In a very few cases, MOOCs are can be validated for academic credits for certain schools. However, very few individuals so far have done so, and the fact that many MOOC students already have obtained university degrees reinforces this statement. So, it still largely remains to be seen whether certifications of completion will become more available and relevant in the future; and if participants might then commonly use these certifications as evidence for potential employers that they have developed their personal and professional skills (Yuan *et al*, 2013)[99].

Moreover, Coursera, last September (2013), has taken a step forward in improving its certification process by teaming up with its partner universities to issue the "verified certificate" that could create a better chance for students to use their MOOC knowledge for future employment. They also launched experiments with their partner institutions and potential employers for the use of a 'signature track' system, where students' profile and 'detailed course performance' will be traceable and shared to their partners who might be interested in hiring the students with high performance ratings[100].

II. The issue of drop-out rates.

The issue of drop-out rates and their significance is still a controversial topic among the scholars in the educational sector. Meyer (2012, quoted by Yuan and Powell) illustrates that "*the drop-out rate of MOOCs offered by Stanford, MIT and UC Berkley are as high as 80 to 95 percent and only 7 percent of 50,000 managed to complete the course*"[101]. However, as argued by the report "Maturing of MOOC", the dropout rate is not a significant figure that we should be paying attention to[102]. The rationale behind this concerns the initial objectives of MOOCs

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[98] Yuan and Powell, 2013. *MOOCs and Open Education: Implications for Higher Education,* p. 12.

[99] Ibid., 2013, p. 12

[100] Fain, 2013. "*Free Courses for a Big Problem.*"

[101] Yuan and Powell, *MOOCs and Open Education: Implications for Higher Education,* p. 11.

[102] Haggard, 2013. *The Maturing of the MOOC,* p. 8.

themselves. MOOCs, according to Gee, aim to grant free access to the high-quality courses from universities to anyone, and that dropout rate would not be a 'dependent variable' in this case[103].

All in all, MOOCs' pedagogies receive varying reviews from different authors. However, the common theme that can be drawn from all the literature would be the fact that MOOCs (both types) are mostly using one single pedagogical approach and leaving others out. The cMOOCs emphasize the connectivist model of teaching that falls out of the 'traditional behaviorist approach' of the 'instructional model' of the xMOOCs that people often are familiar with. The xMOOCs, on the other hand, focus on the use of the traditional behaviorist approach, which is instruction-centered, while also leaving out the 'connectivist' concept of teaching. One initial recommendation on this issue would be for the MOOCs to employ a 'mixed' and 'blended' approach: both instructor and learner-centered approaches. However, in one of the interviews of this research study, with an instructor from Thailand, a different reality with the use of an '*open boundary course*' pedagogical method is mentioned. According him, in his courses (at Sripatum University), he made use of both traditional methods of teaching and MOOCs (online content) to enhance the learning experience of his students[104]. However, the notion of blended learning has not come into play in this case: there is a constraint on the 'creation' of new knowledge, the communication is still very much 'one-sided", and this is still an 'instructional' model of learning.

In our view, MOOCs merely improve the quality and variety of Higher Education for a specific demographic who already has the formal educational experience with well-developed learning skills, while leaving other parts of demographics like college students (undergraduate students) – usually "*freshmen*" students who still do not possess as well-developed learning skills, and others who do not have a university degree. In our interviews, MOOCs instructors and developers often argue along the same lines. In addition to that, MOOCs only *partly* improved the quality of higher education; there are some technical as well as pedagogical problems that impede the progress of their improvement, such as the 'scalability,' 'dropout,' 'student motivation,' and 'monetisation' problems, as well as 'support for online lesson preparation to individual instructors' (in the case of xMOOCs). Lastly, MOOCs have failed to be inclusive of a diversity of educational institutions until now, due to the fact that they can be implemented mostly in the wealthiest and best-positioned universities who have the capability to take the set-up costs and risks, while the less wealthy institutions seem to be reluctant and waiting for the support services from MOOCs. These are the unsolved and remaining issues that the providers should take into consideration. So far MOOCs have also been unable to reduce the cost of higher education, due mostly to two reasons: there is still a great social premium (and social capital) attached to having a degree from a prestigious university; but especially due to the fact that MOOCs are largely reaching people who already have higher education, as will be further analyzed in our Findings section.

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[103] Gee, 2012. "*MITx - The Fallout Rate*."
[104] Duangchinda, 2013. Personal Interview with Vorasuang Duangchinda.

III. Accessibility of MOOCs: Who can access education provided by MOOCs?

"Did you know? In Benin, the cost of a generic PC is equivalent to a teacher's salary for eight months"…

The above quote is found on the World Bank's Blog Website, under Michael Trucano's Blog entry called "*MOOCs in Africa*"[105]. Even though in the case of Mexico and Thailand, the cost of a PC perhaps does not constitute such a hefty portion of a teacher's yearly salary, this fact can provide some first insights about the question of whether or not MOOCs, for all their potentials and advantages, can address the issue of providing truly "massive and open" access to higher education. Enthusiastic online journal entries such as "*Instruction for Masses Knocks Down Campus Walls*", where New York Times contributor Tamar Lewin states that "*hundreds of thousands of motivated students around the world who lack access to elite universities have been embracing them (MOOCs) as a path toward sophisticated skills and high-paying jobs, without paying tuition or collecting a college degree*"[106], but many people who write in this overly optimistic tone are perhaps not seeing the bigger, more realistic picture.

A likely benefit for those who need it the least

Despite the great enthusiasm about MOOCs that many scholars, researchers, bloggers and journalists who write about higher education have shown; the general idea behind MOOCs does not fundamentally address the problem of access to higher education in the developing world. People who do not have access to higher – or even basic – education are very likely to also not have access to MOOCs, because of issues such as a lack of access to broadband Internet or even to a stable internet connection (needed to watch the videos, which are a substantial part of most xMOOCs, and for many forms of course interaction such as constant e-mails, participation in online forums, etc). As had been stated before, with data from the International Telecommunications Union, Mexico and Thailand are developing countries where, in recent years, access to broadband Internet has grown, yet it still remains available to one quarter of the population at most[107]. When it comes to either general access to higher education or access to education through MOOCs, it is very possible that the people most likely to benefit from MOOCs are those who already have higher education (at least some University-level education); or, if anything, they have had access to an environment where learning about, signing up to, following, and actually completing MOOCs is feasible.

In the case of very specialized or technical MOOCs that provide the kind of "lifelong learning" which is likely to have a practical workplace application, the people most likely to benefit from such MOOCs are people who probably have an employment already (and thus are also likely to have a specialized degree), and a particular set of skills associated to it. Through the participant interviews we have conducted; MOOC instructors and also people involved with the MOOC-providing platforms have provided insights on these tendencies (namely, that the

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[105] Trucano, 2013. "*MOOCs in Africa.*"

[106] Lewin, 2012. "*Instruction for Masses Knocks Down Campus Walls.*"

[107] International Telecommunications Union, 2013. *Measuring the Information Society.*

people who are most likely to sign up to and complete MOOCs are people who already have had access to at least some higher, University-level education). Trucano mentions that Daphne Koller, co-founder of Coursera, "*noted that 80% of students taking courses offered through Coursera already have university college degrees, half of them at the master's level. While she expects that this mix will change as more lower level, introductory courses are offered through the Coursera platform, this suggests how MOOCs can enable lifelong learning*"[108]. But unfortunately, this could also be suggesting that MOOCs, at least until now, do not particularly address problems of access to higher education in developing countries where infrastructural problems, barriers of language, issues with "computer literacy", and the technological barriers may still be leaving MOOCs out of reach for the majority of the population. According to OECD Data, tertiary education (a University Degree or higher) in Mexico is attained by only 17.4% of the population[109], while in Thailand, according to the World Bank, around 46% of the population enrolls in tertiary education[110]. In both countries, this leaves more than half of the population without access to higher education, and the barriers that keep that half out of the possibilities of attaining higher education might be barriers very similar to those that can potentially keep them away from MOOCs (income barriers translated into technological barriers, language barriers, computer illiteracy, the need for previous knowledge, etc).

When it comes to potential MOOC students in developing countries, there might be similarities throughout most countries in the reasons for not being able to profit from MOOCs – lack of specific knowledge needed to understand the topic, lack of income to get access to a computer and/or broadband internet, or a low level of understanding of the language in which the MOOC is given. In countries where not many speak English, for instance, this automatically becomes a barrier for access to a MOOC given in that language.

Cellphone or smartphone technology: perhaps a wider reach?

Trucano mentions, as do some people who leave comments on his Blog entry, that in the specific case of some African countries, access to mobile phones is much more widespread than access to the Internet through computers[111]. It is possible that Africa could bypass the tendency to use Internet through a PC, and instead begin to capitalize on a more widespread use of smartphones and mobile-related technology. In their 2013 study across three U.S. universities, Gikas and Grant analyzed the role of "mobile computing devices in higher education", such as smartphones, cellphones and social media, arguing that "*with mobile learning, content can be more context aware, authentic, and situated in the surroundings where the learning is meaningful to the learner*"[112] and that "*learning happens regardless of location*"[113]. It can be helpful to wonder if for some people in countries like Mexico and Thailand, where mobile phone use is also more common than household access to broadband Internet, educational tools that

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[108] Trucano, 2013. "*MOOCs in Africa.*"
[109] Organization for Economic Cooperation and Development, 2013. *Country statistical profile: Mexico.*
[110] The World Bank, 2013. "*Data By Country: Countries and Economies.*"
[111] Trucano, 2013. "*MOOCs in Africa.*"
[112] Gikas and Grant, 2013. "*Mobile Computing Devices in Higher Education: Student Perspectives on Learning with Cellphones, Smartphones and Social Media.*", p. 19
[113] Ibid., 2013, p. 25

cater in some way to mobile phone users can reach a wider audience. According to the International Telecommunications Union's report; while in Mexico only around 26% of households had internet access in 2012, there were 86.8 mobile phone subscriptions per 100 inhabitants; and in Thailand, while 18.4% of households have Internet access, there are 120.3 mobile phone subscriptions per 100 inhabitants[114]. Perhaps if, in the future, certain aspects of the MOOC phenomenon could be delivered or incorporated via mobile phones, it could be a further step in MOOCs' participation in widening the access to higher education. EdX's Website says that "*At this time, edX does not fully support access with mobile devices. While many components of your courses will function, some may not*"[115].

Barriers of previous knowledge: depending on the particular topic of study

Some of our interviewed partners have also stressed the enormous variety to be found in the topics that MOOCs offer, and how this variety means that from one MOOC to the other, there will be vast differences concerning required previous knowledge, languages in which they are given, or the possible practical and professional uses for the knowledge and skills acquired through MOOCs. In its Website, Coursera lists available courses in 25 different fields of knowledge, from Law and Chemistry to Statistics, Social Sciences and Artificial Intelligence[116]. As our interview partners have stressed, a course of "General Introduction to Physics" would be much more "open" than a course on "Bioinformatics Algorithm", solely on the basis of the previous knowledge that is required in order to grasp and progress throughout the course.

Language barriers

Language is also one of the most frequently cited potential barriers of access to MOOCs. As this is being written, in late November 2013, one can find in Coursera 538 different MOOCs, offered in twelve different languages, but of which 475 are in English (88.28% of them). Only 28 are offered in Mandarin (5.20%); and the courses in French, Spanish and Russian *combined* make up only 8.17% of MOOCs. The platform EdX offers most of its courses only in English, stating that "*Some courses are offered in Mandarin with English subtitles. A few are offered solely in Mandarin*"[117]. It should be readily apparent, therefore, that for people in developing countries where the native language is not English, potential students would need to be fluent in English (and perhaps also fluent in the particular technical or scientific language that the course may delve into, in English) in order to fully grasp the concepts and participate equally in the assignments, online conversations and other forms of interaction. Of course, this tendency might be altered in the future, if more and more Universities from developing countries join the MOOC platforms and offer courses in languages other than English. For people with limited access to higher education and also limited access to learning a second or third language, this represents another major barrier of access to MOOC-given education. *Update from April 2014:* since early 2014, Coursera seems to be implementing an attempt to tackle the language barriers through a

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[114] International Telecommunications Union, 2013. *Measuring the Information Society*.

[115] EdX, 2013. "*EdX: About Us*."

[116] Coursera, 2013. "*Coursera: About Coursera*."

[117] EdX, 2013. "*EdX: About Us*."

"Global Translator Community" (GTC). From its Newsletter communications: "*The GTC is a community of dedicated individuals and partner organizations working together to provide subtitle translations for Coursera-hosted courses. The GTC offers participants an opportunity to become members of a tight-knit community, earn recognition for their contributions, and — most importantly — help millions of learners across the globe. And for learners, the GTC promises to make more content more available in more languages*"[118].

Stephen Brown mentions another possible "cultural barrier" (while also sharing the opinion that MOOCs will work mostly for an already well educated population): "*Cultural issues may be a further barrier to serious application in countries where respect for teacher authority is traditionally high*" (Stephen Brown, 2013: 242)[119].

In this context, why are Universities offering MOOCs?

Universities are not necessarily participating in the MOOC phenomenon with the intention of providing access to higher education to people who *do not have it*. Even though they recognize that, in some rather exceptional cases, people with no educational opportunities but with a strong discipline of self-learning (as well as access to Internet and an adequate study environment) could acquire higher education skills via MOOCs, these are likely to be exceptional stories rather than the norm. Depending on each particular MOOC, the requirements of previous knowledge, or of a language other than the mother tongue, or simply the same economic and financial hardships that may leave a potential student on the other side of the technology gap (not being able to have regular access to broadband Internet); could mean in the end that the same people who are unlikely to find traditional higher education within their reach, may also find MOOCs to be out of their realistic possibilities. Karen MacGregor writes in *University World News* that "*MOOCs, with their high demands for connectivity, online literacy and English language skills, may be excluding developing world students and privileging learners from the most highly developed educational environments*"[120]. Liyanagunawardena *et. al.* further detail the extent to which technology and infrastructure may pose a barrier to MOOCs, reminding us that in some countries 97% of people live without electricity; in some others, people have to travel to a nearby town to visit an Internet access center, or in others, low Internet speed may not allow for downloading a video[121].

As was also mentioned, the motivations for a particular University and a particular professor to offer MOOCs can have much to do with the desire to position the institution and the professor's reputation in the online education arena. This was mentioned by several of our interview partners: a University or a professor that decides *not* to engage in the provision of MOOCs, could be suffering the reputational cost of not having a name "out there". It is a benefit similar to that of marketing: being able to "position" the University's name worldwide; and

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[118] Coursera, 2014. "*Coursera: Global Translator Community.*"
[119] Brown, 2013. *Back to the Future with MOOCs?, p. 242.*
[120] MacGregor, 2013. "*MOOCs Make Waves in Higher Education Worldwide.*"
[121] Liyanagunawardena, Williams, and Adams, 2013. "*The Impact and Reach of MOOCs.*"

potentially also the professor's name, by giving him or her greater curricular value in his or her career.

Towards a mixed approach in education

Perhaps, in the future, instead of MOOCs either replacing traditional Universities or becoming a mere pastime for some privileged learners; the tendency could be towards a *mixed* or *hybrid* education, with some courses and lessons happening inside a traditional classroom with a physically present instructor, and other courses being imparted online via MOOCs or similar strategies. Another idea that our interview partners have mentioned, is the possibility to create partnerships with educational institutions or technical centers in those areas of developing countries which might need them the most, such as rural areas, and use MOOCs' possibilities to address issues that could be more specifically focused on developing countries' needs, such as public health, or techniques for agricultural efficiency, for example. Also in the Website of the World Bank, we can find a short enthusiastic piece announcing a presentation on how MOOCs could be useful to "*Accelerate Youth Employment in Africa (…) The World Bank's New Economy Skills for Africa Program (NESAP-ICT) and the Tanzanian STHEP Project implemented by the Commission for Science and Technology (COSTECH) of Tanzania are partnering with Coursera to pilot the Youth Employment Accelerator Program Initiative (YEAPI)*"[122]. This kind of partnerships could perhaps have the potential of improving access to MOOCs and to education, however, it is likely that a significant investment would have to be done through the World Bank itself; and the piece does not explain if the potential students who would be targeted are those who already have access to higher education and the social capital associated with being enrolled in a higher education institution (contacts, recruitment events taking place at the institution, etc.). Joyce Chao-chen Chen seems to propose a similar solution in "Opportunities and Challenges of MOOCs: Perspectives from Asia", when suggesting that MOOCs may provide a solution to the problem of an ever-growing demand for higher education, but this could only happen with government involvement, because "*one may say that it is a matter of personal choice, whether learners are motivated to use MOOCs. It seems to leave the problem to the learners, but instead it should be the government addressing basic issues like Internet access with adequate infrastructure, language, and computer literacy, etc*"[123].

What impact on the costs of traditional University enrolment?

Another important question to ask is whether the existence of MOOCs will eventually lower the cost of traditional University. Kolowich mentions in *The Chronicle of Higher Education* a survey to MOOC professors, in which "*two-thirds believe MOOCs will drive down the cost of earning a degree from their home institutions, and an overwhelming majority believes that the free online courses will make college less expensive in general*"[124]. However, despite the professors' enthusiasm, it is still unclear whether this cost reduction will happen, and if so, *when*

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[122] Garcia and Koller, 2013. "*Free Massive Open Online Courses (MOOC) to Accelerate Youth Employment in Africa: A Pilot in Tanzania Using Coursera Platform.*"
[123] Chao-chen Chen, 2013. *Opportunities And Challenges of MOOCS: Perspectives From Asia,* p. 6.
[124] Kolowich, 2013. "*The Professors Who Make the MOOCs.*"

and *how*. Those same professors, in the same survey conducted by Kolowich, overwhelmingly responded "No" to the question of whether or not they believe a student who succeeds in their MOOC should deserve credit from their home institution (72% of them responded "No"). From our own interview partners, three of them (one from *Universidad Nacional Autónoma de México*, one from *Tecnológico de Monterrey*, and one from *École Polytechnique Fédérale de Lausanne*) agreed in their opinion that MOOCs are very unlikely to affect the tuition cost of prestigious universities (such as, precisely, those partnering with the MOOC provider platforms), for reasons related to the longstanding academic quality of the institution, the social capital that students perceive they will acquire by attending those institutions through traditional enrollment, and perhaps also due to the increased visibility that institutions acquire through the provision of MOOCs. Their opinion, however, is that the tuition costs of other educational institutions, of less perceived quality or prestige, might indeed suffer. If such lower-prestige institutions were to reduce their tuition fees, then perhaps some higher education degrees would be more available to people who wouldn't have access to higher education anywhere else, whether traditional or online; but the long-term impact of MOOCs on the cost of higher education still remains to be seen - and also, quite importantly, if this will mean a compromise on educational quality.

IV. Issues of Quality of MOOCs
The Problematic Issue of Definition

Even in the general context of education, the definition of *quality* is a debated topic among scholars and organizations that advocate for education. Alexander, in his critical report *Education for All: the Quality Imperative and the Problem of Pedagogy,* highlights the notion that the use of the word 'quality' carries along with it a confusing notion. Other than that, he reiterates the shift in educational understanding on the international level after the Jomtien World Declaration on Education (Education For All), that it is a myth that one can define quality with just a number of indicators, and rather the attention needs to be drawn upon the core of the 'education endeavor,' which is pedagogy[125]. He also emphasizes that the definitions provided by UNESCO, OECD and a number of other international organizations have failed to provide "descriptive attributes of education", which led to an inability (of the involved actors) to "*pursue quality in the normative sense that we should particularly aspire*"[126]. This, Alexander claims, resulted in "*allowing those who frame indicators of quality to continue to operate in a highly arbitrary way, without reference either to a reasoned pedagogical framework or to evidence about which aspects of pedagogy are most critical to the pursuit of learning*"[127].

This is relevant to the case of MOOCs, where MOOC platforms did not lay out neither the criteria they use to 'define' quality, 'set' out indicators, nor 'oversee' the pedagogy of their courses. One of very rare sources that talks about the definition of quality in MOOCs is done by one partner university of Coursera, the University of London International Academy, in which a brief definition of quality is given. 'Quality' in this article, *Quality Assurance in Coursera Courses*, refers to the "*coherency of the curriculum, teaching, learning and assessment activities*

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[125] Alexander, 2008. *Education for All, the Quality Imperative and the Problem of Pedagogy.*, p. 1
[126] Ibid., 2008, p. 39
[127] Ibid., 2008, p. 39

of each MOOC" (Price, 2013)[128]. Importantly, the quality also extends to "the learning outcomes and experience of the MOOC users" (2013)[129]. It can be observed that in this context, the quality is used in a more descriptive sense. However, this does not explicitly address the sources that these indicators come from. Also, as previously stated, the main issue remains largely in that the MOOC platforms do not even have explicit and visible definitions or indicators to guide the policies of their quality assurance processes. In our perspective, we reckon that before MOOCs could develop an effective quality assurance program, they first would have to 'identify' the definitions and indicators of what they refer to as 'quality.'

Quality Imperative for MOOCs

Despite of the lack of clarification on the criteria used to define 'quality,' the issue is well perceived and is relatively a critical concern for many authors and bloggers who assess the impact of MOOCs on higher education. In their Report, Li Yuan and Powell[130] suggested a number of arguments regarding the quality of MOOCs. They argued that MOOCs are not well structured, and it is insufficient to assure the central role of the instructors. The self-directed type of learning also gives a very diverse experience to the formal education in the traditional universities, while the open character of MOOCs filters the user population. This means that the MOOC users have to be passionate and interested in the topics in order to follow a course, they add. Moreover, MOOCs adds another level of filtering by setting the prerequisites for the learners to possess a certain level of "digital literacy" in order to be inclusive and active in the MOOC courses. In addition, others highlight an uncertainty of whether attention has been paid on the quality assurance of MOOCs among many educational institutions and even the users themselves. In addition, our findings suggest that there has been a concern regarding the issue of quality assurance from the instructors. However, we deem that it is important for the MOOCs platforms such as Coursera to take the issue of quality assurance more seriously, if they would like to follow their goals of providing *an effective learning experience* for the MOOC users, and not just relying on the reputation of the world top universities to 'create' the expectedly 'high' quality courses.

Quality Assurance Strategies of MOOCs Providers

Coursera's quality assurance depends entirely on its partner universities and instructors. This is apparent in many articles reviewing the platform. One of the online articles mentioned: "*there is no 'content curation'[131] provided by Coursera as it relies on prestigious university partners for its courses and does not seem to be exercising quality control on the courses*"[132]. The author also went on to add that "*the pedagogy and the production value of the content can all vary greatly*" from one course to another[133]. Nonetheless, Coursera still manages to maintain a minimum level

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[128] Price, 2013. *Quality Assurance for Massive Open Online Courses*.
[129] Ibid., 2013.
[130] Yuan and Powell, 2013. *MOOCs and Open Education: Implications for Higher Education*.
[131] Gaasterland, 2011. "*What Is Content Curation? And How It's Useful to You and Your Network*."
[132] Watters, 2013. "*The Good MOOC*."
[133] Ibid., 2013.

of their quality assurance of the courses before they are launched. This is done through the use of *Course Development Agreement* (CDA) in which the instructors (course creators) have to fill up the CDA forms informing Coursera the detailed descriptions of their class content, assessment, grading policies, sources of class materials and external software/services they use[134]. On the other hand, Udacity, 'another Stanford MOOC platform' has a similar course arrangement as Coursera, however, it differs in the subjects offered and has a 'less flexible schedule.' In terms of quality assurance, Udacity (whose creators design all the courses themselves) is able to essentially "*follow their unique pedagogy style with strict quality control*"[135]. "Accredible" Blog also describes that "*Udacity organizes the courses and divided into three different levels: beginner, intermediate and advanced*"[136]. Coupling with the follow-up courses and specific requirements, Udacity is able to 'assure its courses' and to structure them more like other university curriculums. EdX, on the other hand, organizes its courses like the traditional university setting when compared to the other MOOC platforms. So, it is feasible for EdX to strictly control the quality of each of their courses[137]. For Futurelearn, its approach is similar to Coursera. FutureLearn also relies on its partner universities in creating and developing the courses. Yet, it does not provide support merely for the review of course description like Coursera, but also assists the partner universities in their course creation processes. This was mentioned explicitly in the LinkedIn page of the 'FutureLearn Course Provider' job search on LinkedIn: "*to liaise with FutureLearn content partners to help manage collaborations on course creation and delivery*"[138]. Other than that, it also carefully oversees the courses by developing a set of standards and guidelines to filter the courses in order to ensure that the courses are made according to these criteria. As per the LinkedIn announcement on behalf of Futurelearn, the purpose of its 'content provider' is "*to assure the adherence of the course content to FutureLearn's standards and guidelines and to iterate and improve processes and guidelines.*" The table 2 below summarizes the strategies of each platform to assure the quality of their courses:

Table 2: Comparison between MOOC platforms on its involvement in the making and reviewing of their courses

MOOC Platforms	Courses Creation	Content Review	Quality Control
Coursera	✗	✗	✗ ✓
EdX	✓	✓	✓
Udacity	✓	✓	✓
FutureLearn	✗	✓	✓

Based on information from: see footnotes[139] [140]

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[134] University of Maryland, 2013. "*Quality Assurance in Coursera Courses.*"

[135] Accredible, 2013. "*Beginner's Guide to MOOCs.*"

[136] Ibid., 2013.

[137] Ibid., 2013.

[138] FutureLearn LinkedIn, 2013. "*LinkedIn: Content Producer, FutureLearn LTD.*"

[139] Young, 2012. "*Udacity Cancels Free Online Math Course, Citing Low Quality.*"

[140] Accredible, 2013. "*Beginner's Guide to MOOCs.*"

From the table, we can see that the platforms that create their own courses are mostly the same who conduct content review and thus have better chances of assuring the quality of their courses, while on the other hand, the platform that does not create courses nor review the content of the courses is Coursera. Even with the implementation of *Course Development Agreement* (CDA), Coursera cannot fully assure their courses' quality. This does, however, make Coursera a more flexible and open platform for Universities and educational institutions. And for those platforms that do not create courses but have strict standards and procedures to assure the quality of its courses like FutureLearn, they are also somewhat able to assure the quality of their courses. Nonetheless, we are well aware that MOOCs are a relatively young phenomenon that is still evolving, and take into account the fact that there might be a room for many changes.

We also have to take into account the emergence of new MOOC platforms, such as one that will be created by a joint cooperation of EdX and Google. The new form of MOOCs, the "Open EdX" is an open source platform that was said to be available on *mooc.org* in the first half of 2014[141]. This new Open EdX will bring changes to the platform, due to the fact that this new MOOC will "*enable anyone ranging from universities, corporations and individuals to create online courses*"[142]. In response to the open-source approach, the co-founder of Courseara, Daphne Koller, mentioned that the company refused to open its code to developers because it wants to ensure the quality of the courses for its users. She commented that "*rather than building Coursera as open-source, which could lead to fragmentation of development efforts, we are committed to building and maintaining a single, robust platform that supports a rich ecosystem of applicants via a set of well-defined APIs*"[143] [144]. So, based on Coursera's view, this approach might be problematic and could affect the quality assurance. So, it might be interesting to see whether EdX will set up a policy to tackle the issue of quality assurance of its new MOOC initiative. Otherwise, this might lessen EdX's capacity to assure its courses' quality.

Findings and Analysis

This section aims to present the findings from our six interviews as well as the total number of 391 responses to the surveys that were distributed mainly to students of MOOCs provided by Mexican and Thai Universities. The surveys, as was mentioned before, were distributed in two versions: English and Spanish, they consisted of the same sets of questions. The survey questions were divided into three main sections. The first section focuses on the participants' information and their familiarity with MOOCs, while the second attempts to learn more about their motivations to sign up for MOOCs, and attained level of completion. And the third section provides several open-ended questions regarding personal opinions of the participants on the best and worst features, as well as advantages and disadvantages of MOOCs, especially for their own home countries and their own personal circumstances.

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[141] Straumsheim, 2013. "*EdX and Google to Develop Open-Source MOOC Platform.*"

[142] Ibid., 2013.

[143] API stands for "Application Programming Interface"

[144] Straumsheim, 2013. "*EdX and Google to Develop Open-Source MOOC Platform.*"

Survey: General Respondent Data[145]

Age: According to our general findings, the highest percentage of respondents (27%) are between ages 21 and 29, 22% are between ages 40-49, 19% are under age 30 and 39, and 17% are over age 50. The lowest percentage of participants is older than 60, at 6%. The average age of respondents is 35.

Age range

Age	15-20	21-29	30-39	40-49	50-59	More than 60
Count	36	105	74	87	66	23
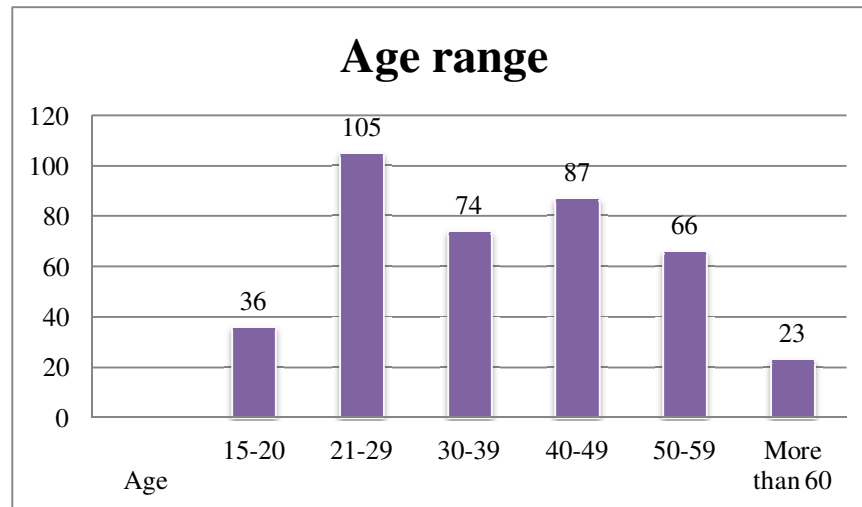
Gender: Overall, the majority of respondents to our survey were male (71%) and 29% are female. The dominant male presence could partially be explained by the fact that the survey was more heavily distributed among the participants of a particular course in Mathematics and physics. Such courses usually tend to involve lower numbers of female students[146].

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[145] Franco, Nigmonova, and Panichpathom, 2013. *Online Survey conducted by Clara Franco, Dilnoza Nigmonova and Wipada Panichpathom.*

[146] New, 2013. "*Gender Gap.*"

Gender

Male — 71%
Female — 29%
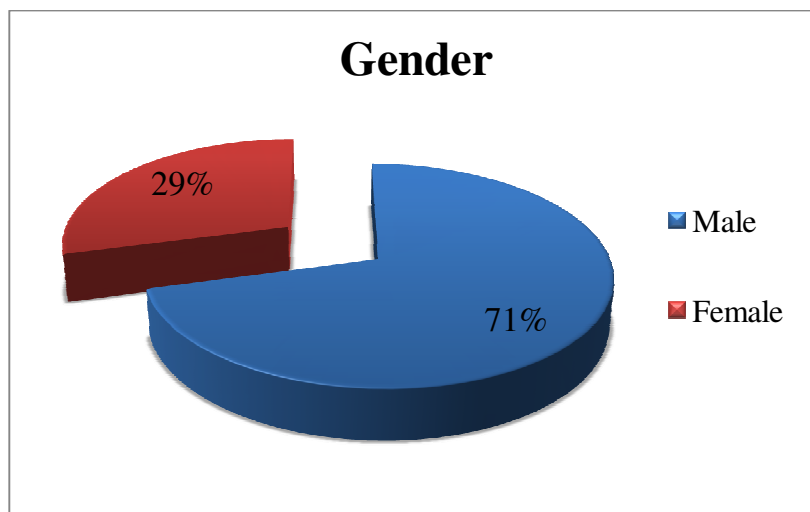
Level of Previous Education. Overall, 289 out of 391 survey participants reported having completed some level of education (primary, primary and high school, undergraduate, graduate, or post-graduate degrees). Only 2 respondents mentioned that they did not attend school at all.

The highest percentage of respondents (54%) have at least a bachelor degree, 26% reported having a graduate degree and 6% have post-graduate degrees, 10% reported having a high school degree, and 4% had only primary school education. The lowest percentage of participants (0,5%) are the ones that did not attend school. See table below for more details.

Level of Education	Number of people	Percentage
Did not attend school	2	1%
Primary school	14	4%
High school	39	10%
Undergraduate	211	54%
Graduate	103	26%
Post-graduate	22	6%

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Level of Education

2

289

■ Some level of education
■ Did not attend school
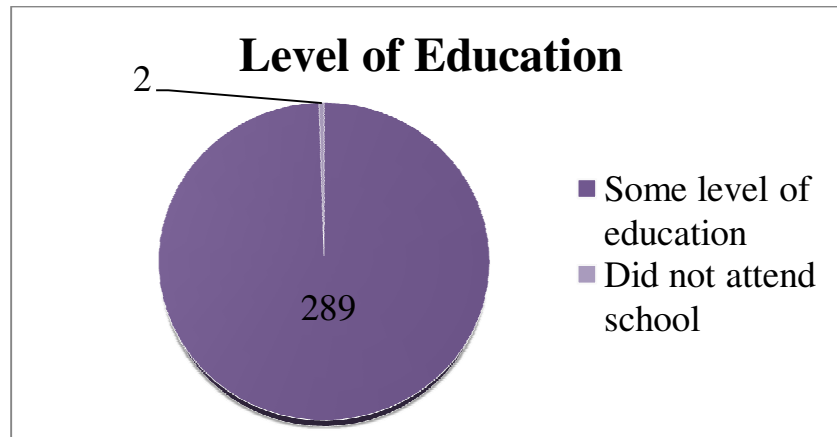
Respondents' Occupation. The data shows that the highest percentage of respondents are employed (34%): 18% reported being professors, while 14% of respondents are business owners. 23% of respondents reported that they are studying. Only 8% are unemployed; 2% retired, and 1% are researchers (PhD holders working in Universities).

Current occupation

Reseacher 1%
Business owner 14%
Professor 18%
Retired 2%
Unemployed 8%
Employed 34%
Student 23%
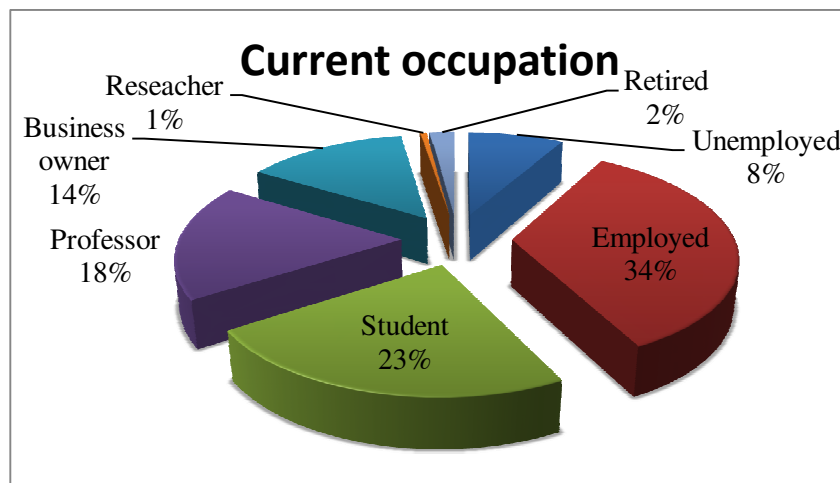
Nationality: The Survey has a worldwide appeal. There are at least 2 participants from each continent, except Australia. The majority of survey respondents (53%) are from countries of Hispanic North and Central America (with 121 participants from Mexico), and 24% of them are of Latin American nationalities. Within Latin America, the highest number of participants (61) is of Colombian nationality. Southeastern Asia, including Thailand and Myanmar, contains 7% of respondents, in which the majority of participants (18) are from Thailand. Overall, there are 42 different countries and 44 nationalities (See Table in the Appendix section for more details).

Nationalities of survey respondents

Southern Asia 3%
Southeastern Asia 7%
North America 3%
Northern Eurasia 2%
Africa 1%
Caribbean 5%
Central Asia 1%
Latin America 24%
Central America 53%
Eastern Asia 1%
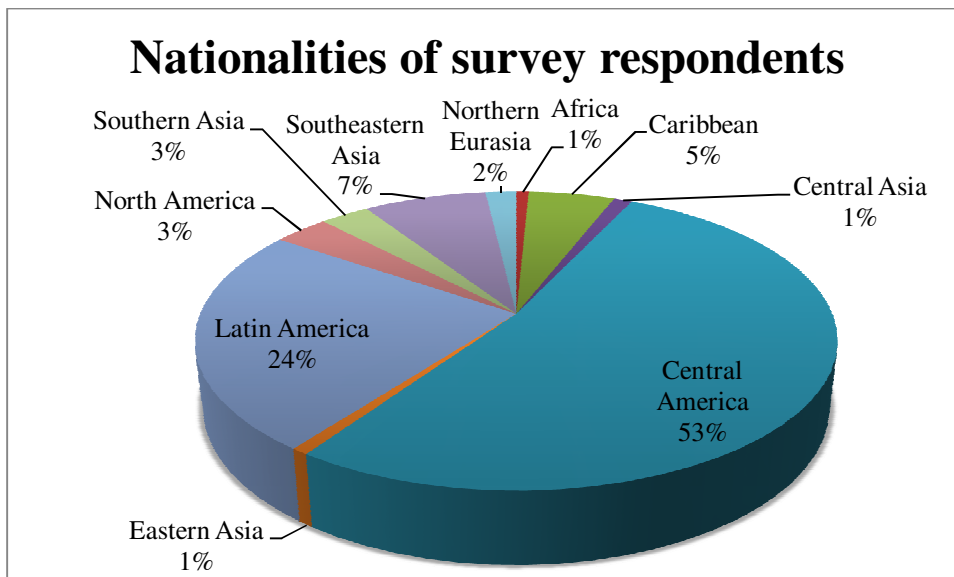
Findings regarding access: who is mainly having access to MOOCs?

What our findings have shown about access to MOOCs, and about what impact MOOCs might have (or fail to have) on developing countries, resonate with many of the previous ideas that have been presented about MOOCs. For information about access to higher education and MOOCs, we analyzed the information given by two main sources. Firstly, our six interview partners: Samantha Battams from the University of Geneva[147], Carlos Villanueva who is the coordinator of MOOCs for *Instituto Tecnológico y de Estudios Superiores de Monterrey* (ITESM)[148], Patricia Salinas who is a the instructor of a MOOC offered by ITESM[149], Larisa Enríquez, the instructor of a MOOC offered by Universidad Nacional Autónoma de México (UNAM)[150], Vorasuang Duangchinda, the Director of Online Education at Sripatum University in Thailand[151], and Dimitrious Noukakis, who manages the MOOCs at the Lausanne Federal Polytechnic School (EPFL)[152]. The second source was the survey we conducted among 391 MOOC students, mostly from developing countries[153]. MOOC instructors, MOOC providers and MOOC students were asked about their own perception on how MOOCs can change the "larger picture" of access to higher education in developing countries, *who* has access to MOOCs, and *what* impact might there be for developing countries. Another indirect interview with Coursera

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[147] Coursera, 2014. "*Samantha Battams.*"

[148] Tecnológico de Monterrey, 2013. "*Profesores: Dr. Carlos Alberto Villanueva Sánchez.*"

[149] Coursera, 2013. "*Dra. Patricia Salinas Martínez.*"

[150] Coursera, 2013. "*Larisa Enríquez.*"

[151] Duangchinda, 2013. "*LinkedIn: Vorasuang Duangchinda.*"

[152] École Polytechnique Fédérale de Lausanne, 2013. "*People @ EPFL: Dimitrios Noukakis.*"

[153] Franco, Nigmonova, and Panichpathom, 2013. *Online Survey conducted by Clara Franco, Dilnoza Nigmonova and Wipada Panichpathom.*

staff (questions answered through the help of our research partner organization)[154], revealed that the staff at Coursera believes MOOCs to be "*a great equalizer of education"*, by leveraging Internet infrastructure, pedagogical tools and educational content. This same line of thinking is shared by many of our interview partners, who view MOOCs as great opportunities for giving access to higher education to more people in their countries; however, further along the detailed questions about access, some of them seem to realize that some very strong limitations still exist, which could potentially make the slogan-like purported goal of "higher education for the masses" still a very distant idealization. Or conversely, from other interview partners it can be inferred (through analyzing their words and ideas regarding MOOCs), that they may be failing to realize that not everybody in every social class in their country can have access to the kind of academic and technological environment they live immersed in.

Who has access?

Most MOOC instructors and providers believe that MOOCs are a good way to give access to courses by prestigious universities, to people who might not be able to attend those courses otherwise. In Mexico, for instance, a semester at Tecnológico de Monterrey (ITESM), a very prestigious private university, costs around $6,500 dollars per semester (data for late 2013). But there is, of course, something to be gained by the school as well, through MOOCs, in terms of publicity and "positioning" of their name in the educational market: as had been said, Villanueva mentioned that "*more than 85% of people taking our MOOC did not know us (our school) before they signed up for the MOOC. It implies a good positioning for the school*". Salinas also mentions that MOOCs might prove to be a good way for more students, from different locations, to not only know ITESM but also want to study there.

Villanueva also believes that most of the students taking the MOOCs given by Tecnológico de Monterrey have not previously had access to higher education; however, the results from our survey seem to show otherwise. Even if many of our interview partners seem to agree with the statement that MOOCs will help provide "higher education for the masses", at the same time they also hold the idea (or the awareness) that MOOCs will not be a viable option for someone who lacked access to a lower, basic level of education (primary or middle-school level education). D. Noukakis mentions that "*you are not going to take MOOCs, if you've never been to school nor had any formal education*". Most of them are more enthusiastic about the new possibilities that massive online education may be offering, rather than worried that a large amount of people from developing countries would not have access to MOOCs due to the technological barrier, language barrier, or "previous knowledge barrier". Duangchinda, from Thailand, mentions the language barrier (the fact that most MOOCs are in English and not all the population in Thailand speak English), as the obstacle that would potentially keep most of the Thai population away from MOOCs. Since his perspective is mainly from a MOOC that is promoted to students in his institution, he is of the opinion that MOOCs "*should be promoted as part of the University curriculum*". Some of the Mexican instructors share his view: in a similar way, the "Mathematics and Movement" MOOC taught by Salinas is freely available at Coursera, but also promoted among the regular, enrolled students at ITESM, and they feel this can be a

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[154] Coursera Team, 2013. Indirect written interview with Coursera Team.

good idea for enhancing or complementing the curricula in Universities… but this, of course, does not solve the original problem of expanding access to higher education to people who do not have it through a traditional University.

Interestingly enough, even if most of these interview partners claim to believe that MOOCs might change the future of education, at the same time they affirm that they do not feel like the presence of MOOCs will greatly affect the cost of the "traditional" University, where students enroll and physically attend most (or a great part) of their courses. Both Villanueva and Enriquez, from ITESM and UNAM which are highly respected institutions in Mexico (one private, the other public), feel confident that their respective institutions' presence in the educational market in Mexico is too solid for MOOCs to affect their levels of attendance or costs – for reasons related to the advantages that the institutions offer to those who are enrolled: the creation of networks of contacts through day-to-day experiences, the research departments associated with the Universities which cannot be replicated by a virtual community, and the importance of getting a traditional degree from a highly reputed institution. Salinas also believes that face-to-face contact in education is very important and will hardly be replaced by MOOCs. They all believe, though, that private Universities whose reputation is not well established, or whose educational quality is lower, might indeed suffer a reduction in costs and fees due to the existence of MOOCs, which may in the future compete with the courses and degrees that these lower-rank institutions offer… but they perceive this risk to be almost non-existent for their own solid, reputable and long-standing institutions.

Villanueva and the other Mexican instructors, however, are aware that MOOCs will not be "a panacea to solve educational needs, or problems of access to higher education". He, as well as Salinas and Enriquez all think that MOOCs may prove to be a very useful complementation for people's higher education, but it could hardly ever replace institutions like the ones they themselves work for. In Salinas' words: "*MOOCs, as they are right now, are definitely not a solution for making education truly open for everyone*". During the interviews, there could appear to be some ambivalence or cognitive dissonance to their claims – they seem to hold coexisting ideas that other people could perceive as antagonistic, such as when they mention both that MOOCs definitely *do* provide access to higher education for people who wouldn't have it otherwise, while at the same time identifying clear barriers of access for significant sectors of the Mexican population (in most cases, but not all of them readily do identify said barriers). They also seem to think both that MOOCs *will* alter the current state of higher education in Mexico, but also that they definitely *will not* affect the levels of attendance or tuition fees of the institutions that they themselves belong to. Duangchinda states that "*MOOCs will come to Thailand like a storm… it will change the complexity of teaching and learning in Thailand*". However, at the same time he does not seem to see clear and concrete impacts for people outside the formal university system, which significant sectors of the population, as said before, do not have access to. And he also doesn't see it happening soon. Though, surprisingly, not every interview partner mentioned the technological barrier in accessing MOOCs (hence the previous comment that perhaps some of these instructors and providers are so immersed in their own academic and technological environment, that the idea of a *technological barrier* is no longer readily apparent to them); most of them *do* identify the problem that the lack of Internet access

presents to much more than half the people in developing countries like Mexico and Thailand. There is also awareness of the language barrier (but again, not all partners mentioned it), or the need for previous knowledge to be able to grasp the particular course's content. But according to Larisa Enriquez and several other partners, the need for previous education to be able to grasp a MOOC's content, of course greatly varies from course to course.

Impact on the country, and *how*

According to our indirect interview with Coursera staff, the MOOC experience should "*provide easy access, relevant content, and value of the learning experience*", so that MOOC students can turn their knowledge into action that can transform their communities and their lives. Dialogue is needed with stakeholders in the educational sphere of each country, in order to understand local students' particular needs. P. Salinas (from ITESM) believes that, in the future, some students might indeed complete full degrees via online massive courses, though it is still too early to say. She states that "*Even if MOOCs were not having an impact, we should search for one! It is an amazing tool for educational access. If more courses in the style of MOOCs could be given, but for elementary school or middle-school levels, we could exploit that to give more people access to education*". Villanueva (also from ITESM), as well as the staff from Coursera, both mention that further ideas on particular partnerships could be explored: for example, partnerships between universities who are currently providing MOOCs, and local Universities in developing countries, or local Ministries of Education, to provide courses that could be adapted to the local population's needs: from general courses in basic or primary education, on-the-job trainings for workers in industries relevant to the country, or courses on topics such as basic health and sanitation, techniques for better agriculture or more efficient keeping of livestock, development of local tourism… Universities might be putting "out there" the MOOCs that they are interested in offering, or that a particular teacher is interested in offering, but those are not necessarily the same kinds of MOOCs that would better suit developing countries' needs. Partnerships between schools that could provide technological equipment for the creation of a MOOC and schools that might be more familiar with developing countries' particular needs; could be a very interesting tool to explore, in order to make MOOCs better serve developing countries' needs. Villanueva mentions the possibility of integrating these potential partnerships between MOOC providers and developing countries' educational players in regional plans for development, in order to truly give more people access to education. "*There is still a large gap in what could be done, and time will tell what other opportunities might exist*". Salinas thinks, as well, that not all MOOCs are necessarily adapted to the needs of developing countries. The Coursera staff was also aware that other channels, such as mobile phones, might be more adequate for some markets that have a larger coverage of mobile telephone communications than they do for Internet access. D. Noukakis from EPFL mentions that the MOOCs created in his institution (located in Lausanne, Switzerland) are being watched by many French and English speakers in Africa, and the aim of several of EPFL's MOOCs is to "*have an impact in terms of leveraging MOOCs in Africa (which comprises the largest French-speaking community in the world) and French speaking (as well as emerging) countries*".

Most of our interview partners appear very enthusiastic about the new possibilities that MOOCs might give developing countries for increasing their populations' access to higher education and the access to new content of high quality; about the MOOCs themselves' usefulness for those who have completed them, and ultimately, about MOOCs' impact in developing countries' further development. Villanueva makes an interesting point: rather than wondering about what are the costs of implementing, or developing, or adopting MOOCs as new educational opportunities, he rather asks: "*what are the costs of* **not** *doing this?*"; thus implying that if MOOCs *do* turn out to be part of a greater solution for educational access, the cost for an University like ITESM of missing out on the opportunity to become a big player may be an "opportunity cost" much higher than any implementation costs. Also, he says that the cost of having unskilled people in Mexico is ultimately a very considerable "cost" (meant as a toll on the country's potential for development).

Larisa Enriquez sees her MOOC in Spanish about technology in education as a good alternative, **not** to substitute formal, traditional higher education, but rather to provide **lifelong learning** and on-the-job trainings for teachers and other workers in the educational field. According to her, "*people who do not have a certain degree would have a hard time being admitted into a course like this, in a formal institution… But through Coursera, everybody can access: we have teachers, homemakers, unemployed people… Or simply because many people wouldn't have the money to attend a course in an institution from abroad, or the time to be constantly attending on-the-job training*".

None of our partners seem concerned about the fact that it is mostly a few elite Universities (mostly from the developed world) that are offering MOOCs, nor that this could mean a certain form of "cultural imperialism" where only a few instructors from a few Universities are setting a standard for online education. Some, because they think that a lot of the knowledge that could potentially be advanced via MOOCs is universal (such as mathematics), and some because they are much more enthusiastic about new possibilities which could include collaboration with developing countries and their local schools, rather than there being a "replacement" of local traditional schooling or local knowledge. Enriquez holds the opinion that developing countries can simply "*take the good things*" from these initiatives most often created in advanced countries, and sees it as natural that such initiatives will originate in the countries that have the financial and technological resources to put MOOCs in place.

Impacts in the employment market:

All of our interview partners are aware that the issue of MOOCs and the employment markets is one where only time can tell what impacts and changes may be brought by the massive courses' presence. Coursera staff mentions the need to create a "*clear track to employability*" through MOOCs. With MOOCs being so recent, and many employers still not aware of their existence, it remains to be seen what changes may happen (if any), in different employment markets. Villanueva mentions that perhaps in the future more employers will look for specific sets of skills in their employees rather than full degrees, but it will be seen over time. Noukakis mentions that 51% of the students who enrolled in his MOOCs want to get a certificate, and in many other MOOCs as well (as demonstrated by our survey), students express

an interest in the possibility of being given a certain legitimacy in their new knowledge, that could be applied to the job market. According to Enriquez, "*Sometimes employers in certain areas don't even know these courses exist. The main added value is learning, even life-long learning and a constant updating of skills. I feel they are indeed adapted to the needs of Mexico's professionals*". They all generally feel that, given MOOC's very recent apparition, the issues of legitimacy and certification need to be further explored, and it is early to say what the impacts might be in the future.
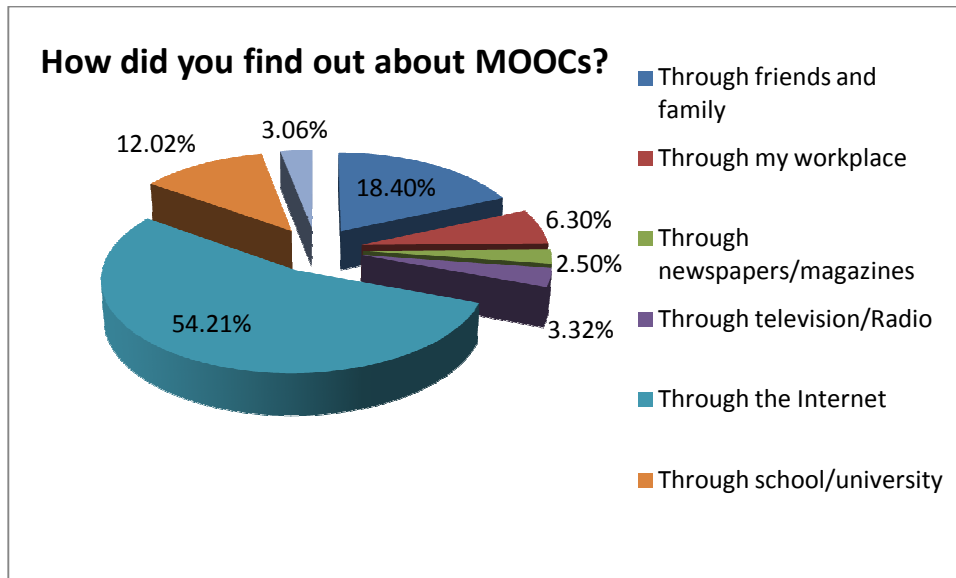
Survey results about access: who is mainly having access to MOOCs? What are the perceived impacts on developing countries?

In the survey that we conducted, mainly with respondents from developing countries, we asked the respondents about their perceptions on *who* is having access to MOOCs, important barriers of access, as well as the main advantages and disadvantages that they perceive MOOCs have for their countries.

As was mentioned before, one of the most telling facts that we gathered from this survey was that the vast majority of the respondents not only have had some previous education, but in fact most of them have attained at least an undergraduate degree or more (**85.9%** of them). Only less than **1%** claim to not have had any formal education at all. And only **13.5%** had access to only primary, middle or high-school education (meaning, the educational levels that come before an undergraduate degree, and the only ones that many developing countries' governments strive to make universally accessible). These figures already tell a powerful story about who is being able to benefit from the MOOCs – mostly people who, in some way or another, *already have had the benefits of formal, traditional higher education*. According to Mexico's National Population Census of the National Institute of Statistics, Geography and Informatics, in year 2010 only 17.8% of Mexicans over 24 years of age completed a higher education degree[155]. Of the 391 respondents, 164 (or 41.94%) are currently students, researchers or University Professors, and are therefore already directly part of higher education institutions.

Also quite telling is the fact that, if we analyze their responses about how they learned about the existence of MOOCs, most people learned about MOOCs either from their school, of from the Internet itself:

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[155] Instituto Nacional de Estadística y Geografía, 2013. "*Instituto Nacional de Estadística Y Geografía (INEGI) - National Institute of Statistics and Geography, Mexico.*"

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How did you find out about MOOCs?

- Through friends and family
- Through my workplace
- Through newspapers/magazines
- Through television/Radio
- Through the Internet
- Through school/university

18.40%
6.30%
2.50%
3.32%
54.21%
12.02%
3.06%

These results can lead us to realize that most people (66% in total) knew about the existence of MOOCs through either the Internet or their own school institutions, which puts these respondents past the technological barrier (they have regular access to Internet) and the barrier of previous education (most of them already have education to begin with). Only 9.62% of the respondents found out about MOOCs through either magazines, newspapers, television or radio, which are mass forms of communication that have been available to people in both developed and developing countries before there was a wider penetration of the Internet. It is also telling that in the case of Thailand, it is mainly students who are already enrolled in universities that have access to MOOCs, because Universities sometimes include MOOCs as options within their curricula and this encourages Thai students to take them; while other people in Thailand, due to the language barrier, would be less likely to discover MOOCs and follow them.

Just as was implied by our interview partners, one of the curious parts of these responses starts when we ask the respondents to rate their agreement with the phrase: "*MOOCs are a good way to get access to higher education where access is limited or unavailable*", with a total of **87.7%** of respondents either "agreeing" or "strongly agreeing". If we break down this percentage among the respondents' previous educational levels:

Rate your agreement with the statement: MOOCs are a good way to get access to higher education where access is limited or unavailable							
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	No opinion	TOTAL
Previous educational level attained:							
No previous education (2)	-	**50%**	-	-	**50%**	-	100%
Primary education (14)	**78.57%**	21.42%	-	-	-	-	100%
High School (39)	**58.97%**	28.20%	5.12%	5.12%	-	2.56%	100%
Undergraduate degree (211)	**62.55%**	23.22%	5.68%	2.36%	2.84%	3.31%	100%
Graduate program (Master's Degree) (103)	**67.96%**	22.33%	7.76%	1.94%	-	-	100%
Postgraduate program (doctoral/PhD) (22)	**68.18%**	22.72%	9.09%	-	-	-	100%

The degree of agreement with the idea that MOOCs are a good way for people to get higher education, who would otherwise have no access, is very highly prevalent – however, when further ahead these respondents are asked about identifying access barriers, many of them can point to important barriers; therefore, this opinion could seem ambivalent and at odds with other ideas held by the respondents themselves. It is also worth mentioning that the further up that respondents go in their educational level, disagreement with this idea seems to be less and less present – there is barely any "Disagreement" or "Strong Disagreement" after the Undergraduate level. However, since the amount of respondents who have less than an undergraduate degree is very low, relative to the total amount of respondents, it would not be too accurate to state that there is much more disagreement with the statement amongst the people who did not have access to higher education. In general, respondents from all educational levels seem convinced that MOOCs are indeed a way to give massive access to higher education.

Concerning the particular advantages and disadvantages that participants perceive in MOOCs, some of the most prevalent answers were (from a total of 253 people who responded this question):

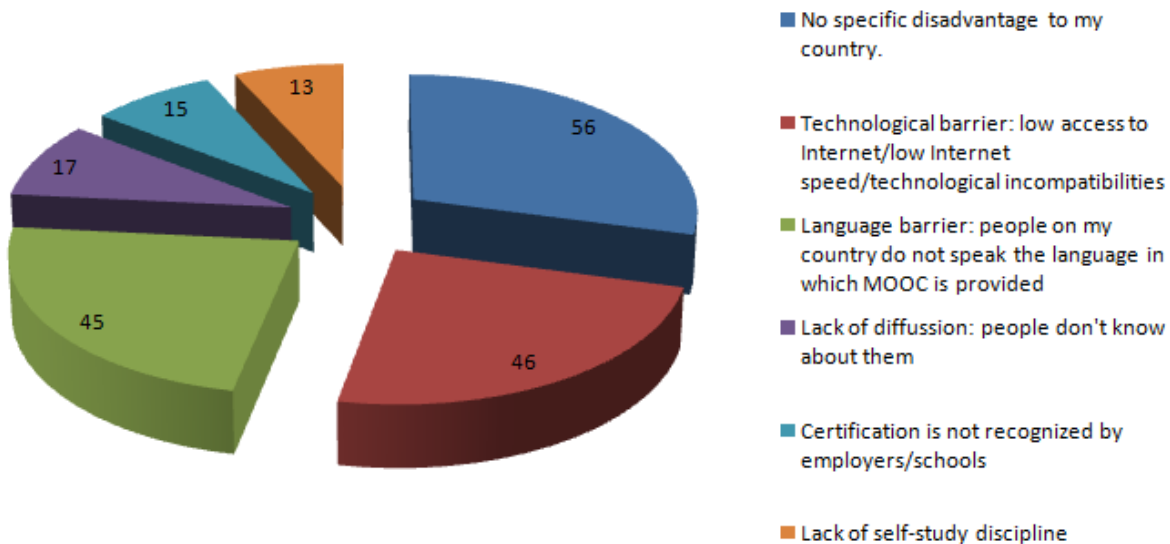What specific advantages of MOOCs do you perceive for your country?
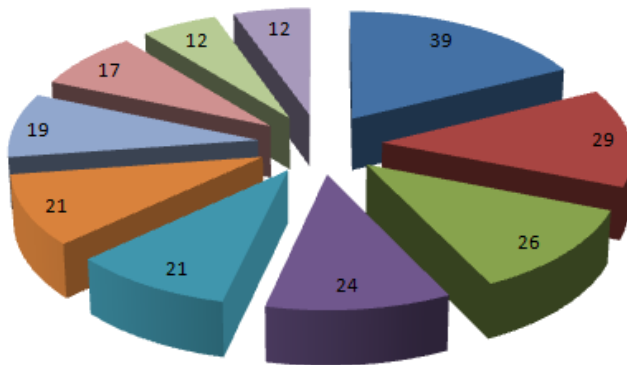
- Access to a wider range of topics and updated knowledge
- Access to education of higher quality/improves the quality of formal education
- Gives educational access to people who otherwise would have no access to education
- Access to Universities and instructors in foreign countries/international standardization
- Flexibilities of time and place for learning
- The absence of fees (they are free)
- It improves a country's overall development (education, economy, knowledge)
- Massive and unrestricted access
- Gives better employment opportunities
- Helps prepare teachers in the formal education system/shows new teaching techniques

Other mentioned answers (which appear less than ten times each, throughout the survey) are, for example: that MOOCs improve people's interest in learning and in life-long learning, that they *complement* formal education, that they *are an alternative* to formal education, that they help practice another language, the interactiveness/communication between peoples of the world, that they will reduce the costs in formal education (only one respondent mentions it). Other few respondents see no specific advantages for a country in general, and rather only personal/individual advantages.

When it comes to specific disadvantages or barriers to access, these are the most frequently mentioned possibilities (from a total of 238 respondents who answered the question):

What specific disadvantages of MOOCs do you perceive for your country?

- No specific disadvantage to my country.
- Technological barrier: low access to Internet/low Internet speed/technological incompatibilities
- Language barrier: people on my country do not speak the language in which MOOC is provided
- Lack of diffussion: people don't know about them
- Certification is not recognized by employers/schools
- Lack of self-study discipline

It is curious to note that, even though previously most respondents of the survey (from the total of respondents) seemed to agree that MOOCs would provide educational access to people who would otherwise not have access, when further asked about barriers to access, many seem to readily identify at least the most important ones. These were the most prevalent answers, along with others that appear less than ten times each, such as a lack of academic standards for quality and credibility of the information, lack of interest from people in the country, that the material is not good/not adapted to their particular country/the topic in general is not applicable to their country, the lack of personal contact with instructors and peers, lack of time to take MOOCs from most people in their country; and only three respondents, in total, provided answers touching upon the barrier of previous knowledge or education: the fact that MOOCs are much more accessible to someone who is either already enrolled in higher education, or has a degree, or has familiarity with topics normally studied in higher education.

It would be interesting, thus, to analyze how these responses associate to the previous question of agreement with the idea that MOOCs truly give access to higher education to people who cannot have it:

Main identified barriers of access to MOOCs (or specific disadvantages of MOOCs for their country), by people who answered "strongly agree" or "agree" to whether MOOCs gave educational access to people who do not have it: (343 respondents)	
Technological barrier: low access to Internet/low Internet speed/technological incompatibilities	11.95%
Language barrier: people on my country do not speak the language in which MOOC is provided	11.95%
Lack of diffusion: people don't know about them	4.66%
Certification is not recognized by employers/schools	4.08%
Lack of self-study discipline	3.20%
There is no specific disadvantage for my country)	14.57%
No opinion/I don't know	35.86%
Total	100%

This cross-examination helps us realize that perhaps it is possible that, just as some of our interview partners (teachers and MOOC providers) do not always recognize the potential barriers of access for people who have had less access to an educational environment than they have; also many of the MOOC students do not seem to realize that the opportunities they have had in being able to attend at least an undergraduate education (since most of our respondents did) are not available to all in their country. Even though a combined 23.90% of the people who agreed that MOOCs will give better and more massive access to opportunities of higher education can at least recognize the two most significant barriers (technology and language); a combined 50.43% think their country has no particular disadvantage regarding accessing MOOCs like they did, or don't know, or hold no opinion about particular barriers to access. However, it is important to keep in mind that a significant amount of participants did not even answer the question, which was optional to begin with, or answered that they had "No Opinon", and this could be due to the lack of desire to answer open-ended questions throughout the survey.

Concerning the impacts that MOOCs might have in developing countries, a significant percentage of respondents also shows agreement with the idea that MOOCs will help them gain better employment opportunities. We can detail the information by occupation (excluding those who are retired):

Taking this MOOC would give me a better employment opportunity					
	Strongly Agree or Agree	Neutral	Disagree or Strongly Disagree	No opinion	TOTAL
Occupation:					
Business Owner or Self-Employed (52)	37%	**42.30%**	13.46%	7.69%	100%
Employed (135)	**47.40%**	28.14%	19.25%	5.18%	100%
Researcher (2)	**50.00%**	-	**50.00%**	-	100%
Student (92)	**50.00%**	27.17%	14.13%	8.60%	100%
Unemployed (32)	34.37%	**40.62%**	21.87%	3.12%	100%
University Professor (70)	**45.71%**	38.57%	7.14%	8.57%	100%

Once again, here we can find a high level of agreement with the statement – but, curiously enough, this level of agreement is apparently lower among unemployed people, those who would in fact most benefit from a "career boost" provided by MOOCs since currently they have no employment at all. Among those who perceive a clear career benefit from taking MOOCs, many of them mention the courses as a possibility for on-the-job learning and updating of their skills.

Findings concerning Universities' motivations

At least three of our interview partners mentioned that the Universities who are involved in providing MOOCs have searched to join the trend in order to position themselves as a "brand", and to increase their visibility: "*More than 85% of people taking our MOOCs did not know us (our school) before they signed up for the MOOCs. It implies a good positioning for the school*" (Villanueva).

Findings on the issue of pedagogy

The findings from both sources (interviews and survey data) highlight the framework that was presented in the literature review part, and resonate with the arguments made in that section. (However, please note that some of the issues have not been addressed or discussed during the interviews).

As was mentioned, most of the instructors, providers and users share the positive viewpoint about MOOCs. They seem to take the positive strand of MOOCs, seeing MOOCs as a way to improve educational systems and the existing learning framework that has long been employed in the traditional classrooms. They also have positive reactions toward the use of online tools that appear to have enhanced the learning experience of both MOOC students and professors. However, they appear to disregard a number of arguments from the scholars and bloggers of the critical viewpoint on MOOCs. Almost all of them did not mention anything about the issue concerning 'social interactions' among the learners; this includes even the learners themselves. Those who did mention social interactions hold the idea that they have mainly been satisfactory for most students. A number of them see the pedagogy of MOOCs as a new way to help

'improve' the traditional classrooms. Even though many scholarly works suggest that many of these xMOOCs platforms (including Coursera, EdX and Udacity) still employ the 'instructional method of teaching' instead of 'connectivism', as claimed in the early time when MOOCs were first open to public. The research findings in the next paragraphs will illustrate about the perceptions of 'instructors, providers and users' of how they view MOOCs, the 'new exciting phenomenon' that could bring about changes in the landscape of education, especially the higher education. Nevertheless, some of them also pointed out certain limitations caused by MOOCs, yet remain largely enthusiastic about this new form of online learning. As has been said before, however; it is important to keep in mind that the sample for this survey was largely self-selected, and this could imply that we are looking at answers by people who are willing to answer a survey about MOOCs in the first place, and whether this might mean that those students feel more enthusiastic about their own experiences to begin with.

From Interviews

Out of the findings from our primary research interviews with four MOOCs instructors, two MOOCs providers and one indirect interview (in written form) with the Coursera staff; the issue of pedagogy is among the main concerns of all, especially MOOCs instructors. Our data suggest that our interviewing partners share the common view that MOOCs are an educational tool that can help to enhance the experience of the users. Many of them also express their positive views toward MOOCs, but are also aware of certain limitations that MOOCs have during its present 'infancy stage.'

Positive View of MOOCs

In many of the answers to our questions, as mentioned before, instructors and providers demonstrate a very positive view of MOOCs. They believe that the use of their technology and online platforms can help deliver the content and knowledge to people. Duangchinda, in his interview, mentioned "*anyone has an access to MOOCs.*" Some of them such as Villanueva, Salinas and Duangchinda reckon that "MOOC will give people *an opportunity of life-long learning*". They also reiterate the arguments from the positive strand that by using the online features and methods, *the experience of MOOCs learners will improve*. Even though they are certain that MOOCs will most probably *not* replace the traditional university classrooms, they suggest that MOOCs will definitely be used as 'complementary' tools within the traditional classrooms (Enriquez; Duangchinda).

Pedagogical Model of MOOCs: success or failure?

In spite of MOOCs' potential limitations such as the high drop-out rate, possibility of plagiarism, and others that have been witnessed and seen by many of our interviewees; they still think that MOOC's pedagogy will 'grow' and help improve the quality of education. One of our MOOCs providers, Villanueva, shared his thoughts that "*the low rate of completion (and high rates of drop-out) are due to the fact that there is no penalty in leaving the course or in signing up to a course without finishing*". However, he also mentioned that this depends largely on the interest and level of determination of students: "*when people do have the intention of finishing, they most often do*". He also touched upon other dimensions of the unsolved problems of

MOOC's pedagogy, such as the issue of plagiarism. He elaborated on the issue by saying that "*concerning students' undesired activities, such as plagiarism, nowadays some technological programs make it even easier to detect plagiarism than before.*" This also seems to be no issue for the MOOCs' content providers such as Coursera, who has just implemented a 'proctoring examination' method and joined up with Pearson, a well-known examination center.

Enriquez's answers to our interview questions also reflect a similar view as Villanueva's, she told us that "*the low rates of completion are due to the great ease of signing up; people do forget that they even signed up; as well as the issue that they do not have enough time to complete their MOOCs*". She also pointed out the fact that the rate of completion of MOOCs (in sheer numbers) when compared to the rate of completion in the traditional universities, "*this is already an impressive number, to have around 1,700 people completing a course of any kind*".

Duangchinda, who affirmed that MOOCs would come to Thailand like a storm and change the complexity of teaching and learning in Thailand, expressed a totally positive and enthusiastic view of MOOCs and does not worry about the pedagogical issue, but was rather concerned about the fact that MOOCs in Thailand now are all in English, and language is the main problem for Thai students to access MOOCs at the moment. He mentioned that next year (2014) with the joint cooperation of Thai Ministry of Education, Chulalongkorn University and other 44 universities, including the very Sripatum University that he works for, MOOCs in Thai will be created and implemented under the name of "Thailand Cyber University Project." Regarding the issue of drop-outs, he does not see this as a problem, this might stem from the fact that he does not use MOOCs as the only method and tool of teaching his traditional class, but as a 'side' tool to help improve the learning experience of the students in his class. About the issue of 'plagiarism,' he believed that the check and balance system will be put in place by the student body, who are ethically-oriented, and that they will keep an eye on one another like 'policemen' in order to make sure that no one will attempt to cheat.

Salinas also shares the common positive view about advantages of MOOCs with other of our interview partners. She mentions how MOOCs "*enable us to use more and better educational tools*" and how MOOCs "*provide us an opportunity for life-long learning*".

Noukakis, also a key player in MOOC provision from EPFL, also remains largely positive about the use of MOOC courses. He mentioned the advantages of MOOCs and online distance learning (ODL) in general, that they allow more 'accessibility' and better quality of educational tools. Other than that, he disregarded the argument that students need 'face-to-face' interaction to fulfill their learning experience. He mentioned that courses do not have to be taught only in the face-to-face environment, and even some high-tech classes such as 'surgical studies' for Medicine students, for instance, are proven to 'train' better remotely. These positive accounts were given, despite the fact that he is among one of the interviewees that had given us critical insights on MOOCs. He mentioned as well that MOOCs will change and improve, and will eventually be able to address the needs of higher education in the developing world, especially in Africa, an area which is one of the core interests of EPFL, as a heavily French-speaking region. In terms of 'shortcomings' or 'critical aspects' of MOOCs, he told us that MOOCs still largely employ the one-sided approach of the traditional behaviorist pedagogy, which somehow does not support its statements and objectives of being open and didactic. He also suggested that it would

be better if they can make use of the 'flipped classroom' or 'blended learning', where students can experience teaching in a new way that would not restrict their ideas and creativity. Other than that, he was the only one who could provide more detailed information about students who enrolled in EPFL's MOOC classes. He mentioned that "most students are in average above the age of 27" and "most of them already have a degree before participating with MOOCs." This significantly reiterates our argument and finding that MOOCs only are open to those who have certain characteristics and have the prerequisites of having a certain degree of knowledge. And this privilege does not extend to the demographic that has no computer literacy or no experience with classes before. To sum up, many of our partners are attentive to the constraints and restrictions of MOOCs, however, they still believe that MOOCs could help address the needs of students, improve their learning quality and change the landscape of the educational world.

Actual Implementation of MOOCs in Developing World

According to the data from our interviews, we found out that the implementation of MOOCs in developing countries like Mexico and Thailand is very much addressed as a 'complementation' to the existing traditional classroom learning. Duangchinda and other Mexican instructors told us that most of the MOOCs they teach are used complementarily and as a supplement to their traditional university classes. So, the difference in the usage and implementation of MOOCs is a crucial element to consider. This might tell us about the specificities of developing countries in their national pedagogical framework, and that we should be attentive to the changing nature of MOOCs when entering into the developing world.

Survey findings
Positive View and Responses on MOOCs

The surveys contained several aspects about pedagogy; the view of the students toward the pedagogical approaches of MOOCs; their satisfaction and impression of what they have gained while participating with or observing MOOCs. In terms of their satisfaction on the use of online tools and features, most of them illustrated that they are 'satisfied' with the courses. Some features such as peer-assessment or the use of online discussion forums seem to be 'neutral.' This might be a result from the fact that they did not make much use of these features in some MOOCs. The table below summarizes the data obtained from our 391 respondents regarding the issue of MOOCs online tools.

Level of satisfaction of the learners	Very Unsatisfied	Unsatisfied	Neutral	Satisfied	Very Satisfied	No Opinion
With the Video Lectures	6.138%	0.767%	3.83%	27.109%	**58.056%**	4.1%
With the tests and assignments	4.35%	2.56%	11.25%	**38.87%**	36.06%	6.91%
With the discussion forums	3.32%	6.14%	**34.52%**	23.53%	17.39%	15.1%
With the quality of learning materials	5.11%	2.56%	5.37%	31.46%	**50.13%**	5.37
With the instructor's feedback	4.35%	4.09%	16.87%	27.9%	**35.8%**	10.99%
With peer-assessment	2.56%	5.37%	**29.156%**	26.34%	12.79%	23.785
With the experience in general	4.1%	1.28%	4.6%	29.92%	**52.43%**	7.67%

Other than the methods and tools employed in the MOOC courses, we also asked the students whether they see any value of enrolling with MOOCs. The question asked them to rate their agreement with the statement of "*MOOCs help improve my knowledge*"
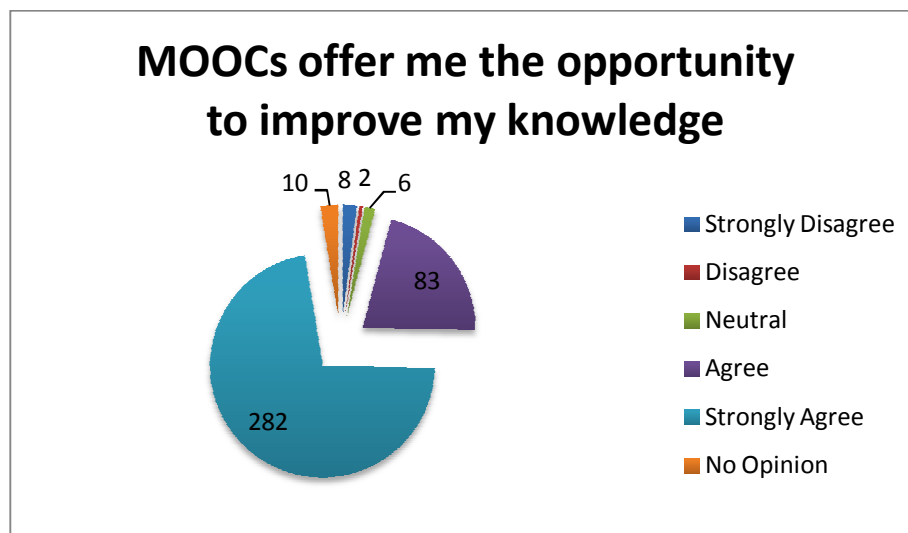

From all the participants, as many as 72% of the total number of responses 'strongly agree' with the statement that MOOCs have given the opportunity for them to improve their knowledge. On the other hand, we also seek to look at responses from the various groups of people who have different educational backgrounds, whether they reckon that MOOCs gave them the opportunity to improve their knowledge. In the table below, the crosscutting data shows that the group that most thinks of MOOCs as helping them improve their knowledge is "undergraduate students"

that as many as 91.94% of them answered 'agree' (both "agree" and "strongly agree" are here considered to be in 'agree' category) to the statement. Next group of people, the Master students, also see MOOCs as an important source of opportunity to enhance their knowledge: as many as 95.15% of the Master students agreed with this statement. But interestingly, of the only 14 participants who attended up until 'high school' and the 39 who attended only 'primary school,' as many as 100% and 95% of them, agree with the statement.
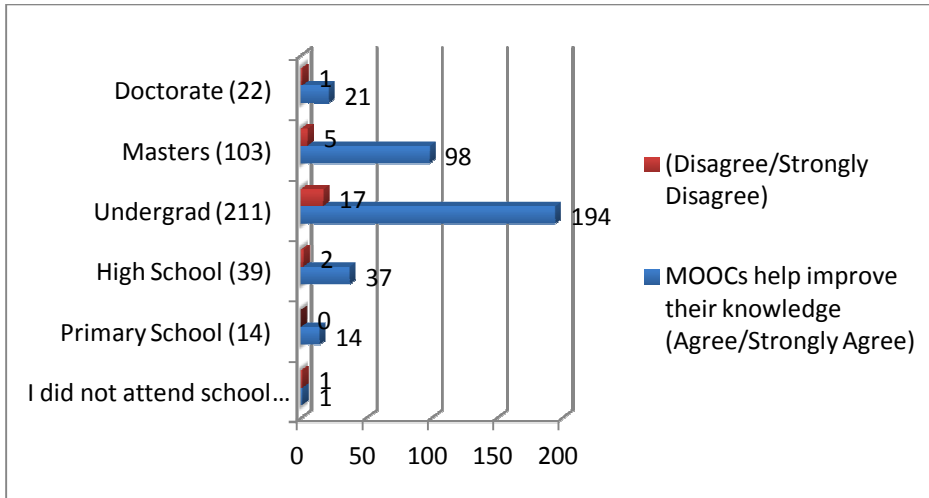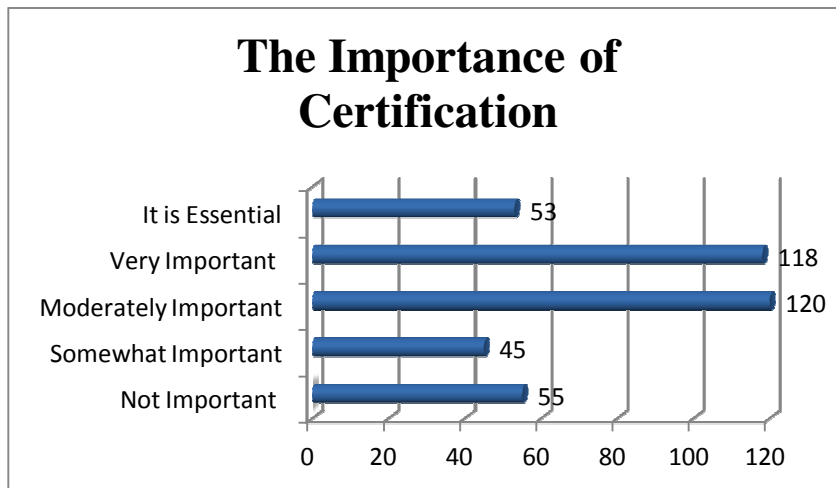

This other graph also shows the correlation between the occupation of the participants and the percentage of them that agreed MOOCs had helped them improved their knowledge (including those that answered either "agree" or "strongly agree"):
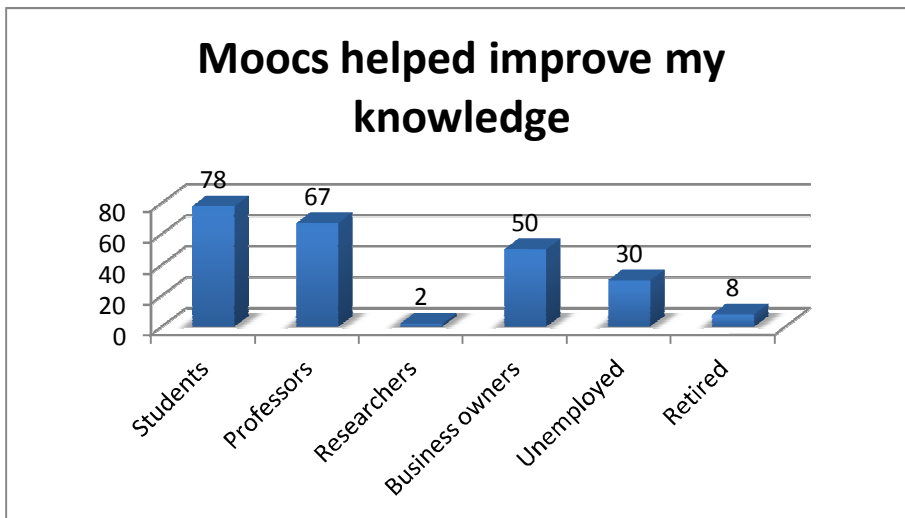
Students and professors are the two groups that mostly agree with the statement that MOOCs helped advance their knowledge, while the others such as business owners and unemployed people see somewhat less relevance in the statement. And all researchers who have participated in the surveys (2 of them) totally agree with the statement.

The Issue of Certification

The Importance of Certification

Category	Value
It is Essential	53
Very Important	118
Moderately Important	120
Somewhat Important	45
Not Important	55

The issue of certification is another crucial topic that we aim to examine. Our findings on the importance of obtaining a certificate of completion from MOOCs attract a lot of 'positive' views. As many as 31% of the participants think that it is moderately important for them to get the certificate, while 30.2% of them deem that it is very important to get the certificate. While those who think that it is 'essential' are 13.55%, and those who think it is 'not important' (meaning, the views on both extremes) are 14.06%. This illustrates an interesting dimension of the certification issue, and leads us to the realization that our respondents tend to neither think that it is extremely important, nor totally unimportant. Most of them do think that the obtention of a certificate is important, but not something that they expect from MOOCs as a priority. In addition, 5 of our respondents, under the question of 'what characteristic of MOOCs attracted your attention,' also mentioned the issue of certification as their reasons of attraction for MOOCs. Again, the fact that the five of them came from all developing countries – Colombia, Honduras, India, Mexico and Thailand, also leads us to another dimension of our analysis. We may draw an early conclusion that most students (MOOCs users) from developing/emerging countries do see an advantage from obtaining a certificate of completion. This can be supported by our data on the question of the importance of MOOCs certification, where those who see that it is moderately and very important are as many as 238 (60.87% of the total respondents) and within that group (of 238), as many as 98.74% come from developing countries (with the few exceptions of France, Italy and Latvia, which accounted for only 1.26%).

Nevertheless, due to the fact that the survey was not designed to obtain specific and detailed information on this issue, our data is not sufficient to be used as an empirical and first-account evidence to prove to our previous arguments in the literature review section. However, it gives us

an important understanding that MOOCs are a 'positive' tool that can help improve people's knowledge and ways of learning, despite the many criticisms from some educational sectors.

Findings on the Issue of Quality

Due to the fact that there is a very limited amount of data and information from both sources of our primary research, the findings will focus briefly on the common trend of thoughts that were expressed by our interview partners and surveys, regarding MOOC quality. In the interviews, few of our partners gave clear answers about the issue of quality assurance in MOOCs. However, they claimed that MOOCs platforms like "*Coursera does not review course content*" (Villanueva) and "*it relies largely on the reputation of their top partner universities*" (Enriquez). Also some of them, such as Duangchinda and Noukakis, mentioned the fact that the assurance of course quality is done by the 'government' (in the case of Thailand) and partner institutions (in the case of EPFL). However, many of these platforms did not make their 'indicators' of the quality very explicit. Almost none of the platforms (Coursera, EdX, Udacity) have posted statements relating to this issue on their official websites. The indirect interview from Coursera, with the assistance of our partner organization, also did not mention anything in regard to the issue of quality assurance. Thus, the information on the issue from the interviews, despite being scarce, has led us to realize that the argument earlier mentioned seems relevant, especially in the case of Coursera where there is a need to further consider the issue, define the scope, as well as the indicators of quality before being able to assure it.

Findings From the Surveys

Surprisingly, the results obtained from the survey participants do not address the issue of quality as a potential 'shortcoming' of MOOCs. In the responses to the question of satisfaction of the participants with the quality of materials, the number of those who are very satisfied easily surpasses that of the 'unsatisfied' and 'very unsatisfied.' This essentially suggests that the MOOC users, at least from our sample groups and among those who answered these questions in detail, are content with the quality of learning materials used in their MOOCs. Those who are very satisfied are as many as 50%, and those who are satisfied are 31.46%. In total, those who fall in the category of 'satisfied with the quality of the materials' are as many as 81.5%. While the others 'neutral' (5.37%), 'unsatisfied' (2.55%), 'very unsatified' (5.11%) and 'no opinion' (5.37%).

Satisfaction with the quality of materials

■	Very Unsatisfied
■	Unsatisfied
■	Neutral
■	Satisfied
■	Very Satisfied
■	No Opinion
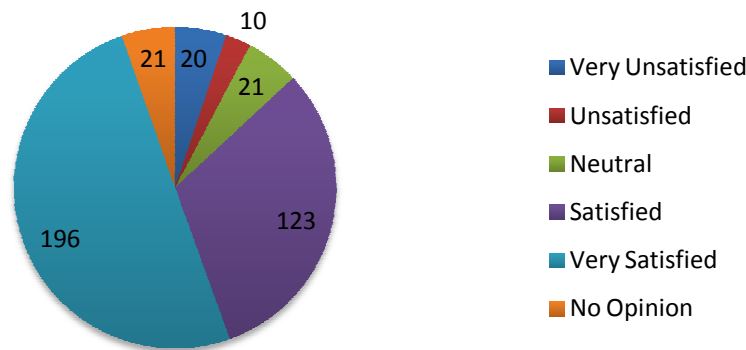
When asked whether they will recommend others to take MOOCs, more than 50% (65.73%) of them say that they 'strongly agree' with the statement. 23.78% 'agree' with the statement, while the rest are neutral (4.86%), disagree (1.28%), strongly disagree (1.53%) and no opinion (2.81%).

Conclusions

In terms of pedagogy, the findings of both the literature review and primary research suggest a few key elements. Firstly, the pedagogical issue of MOOCs still remains largely underdeveloped. In order to improve the model of MOOCs' pedagogy, our literature and interviews highlight the need to adapt the model to be more of a mix of both instructional and connectivist models of learning. This, in other terms, can be referred to as '*flipped classroom*' or '*blended learning.*' With the blended approach of learning, the students will make use of both face-to-face and online content systems. As a result, students will have more control of the time, place, path and pace. This would increase the flexibility in the organization of the learning process, and it could help lessen the issues such as dropout rate, plagiarism, and certification with the systems of traditional classroom. The quality assurance can also be easily implemented and controlled because the content will be 'reviewed' by the staffs of educational institutions, and the experience of learning will be more than just either "online or offline", but rather both. The second key element found in both literature review and primary research is the imperative of certification. Obtention of a certificate of completion, even though it does not yet guarantee clear advantages concerning employment, is a relatively critical concern among MOOCs users. In addition to that, Coursera, as mentioned before, had taken a step forward in experimenting with the Verified Certificate initiative, and joined with its partner organizations and with companies that would be interested in taking and hiring students with a high-standard performance. If this issue is also taken into consideration in other MOOCs platforms, this will provide an opportunity

for MOOCs to truly be employed as a tool for access to higher education, and perhaps ultimately better employment opportunities. The last key element that needs to be looked at, is a possibility of collaboration between universities and MOOCs platforms, to ensure that MOOCs are implemented with the consideration on the specificities of culture, tradition and pedagogy of that country or region. Despite the fact that MOOCs are open and accessible to everyone, if the contents are not adjusted to reflect the 'regional' and 'cultural' values of the country, perhaps it would not be as successful as we would desire them to be. For instance, to have MOOCs in local languages would be one of the ways to adapt to the specificities of that educational system. Regarding quality issues, as mentioned in the literature review, the question of quality cannot be properly addressed without looking at its 'definition' and 'characteristics', of what exactly do we mean by 'quality.' In turn, not just the partner universities but also MOOCs content providers and governments could play a bigger role in assuring the quality of its education. Quality, also, cannot be assured without first ensuring the 'appropriate' pedagogical methods. Similarly to the Education For All policy, we also need to make sure that the quality reform is done with a correct understanding of *what* needs to be assured, and in which way the assurance can benefit the students and, in a larger context, the educational system that could affect the development of a country. Other than that, the MOOCs platforms should ensure that their policies or business models, while making profits, also help to leverage the level of education of its users by adhering to the pedagogical model and criteria of quality control that would maximize and enhance the learning experience of the learners. This would not only attract more students, but also will essential make the business grow faster.

Finally, although most of the views and perspectives surrounding MOOCs, both from instructors and students, have been largely positive and enthusiastic, we could also confirm some of the suspicions that have been voiced by other scholars and specialists whose articles or reports we analyzed as well: that even though key players in Universities see many promising possibilities for further exploiting the opportunity of MOOCs in the future, to make them better serve the needs of developing countries (for example, through the creation of partnerships with educational institutions in developed countries, to create MOOCs that specifically address needs of developing regions, such as public health or agricultural technology), other motivations are at play as well. Namely, prestigious Universities have also jumped onto the MOOC bandwagon in an attempt to publicize their name and "brand", to gain potential access to more (formally enrolled) students, and in general for the publicity gains to be had by putting their name "out there". Also, being MOOCs a recent phenomenon, key players in Universities fear that they might stand to "lose out" on a great deal of opportunity costs if they miss the chance to join the MOOC "revolution", and if in some years it *does* turn out to decisively change the higher education environment.

However, to address MOOC platforms' purported goals of making higher education "accessible to all", we need to keep in mind the barriers that still keep MOOCs out of the reach of large sectors of the population in developing countries. Reports from the World Bank, International Telecommunications Union and other organizations remind us that in countries like Mexico and Thailand, only around 25% of the people today (in 2013) have access to broadband internet (a technological barrier). Also, most MOOCs are provided in English, which not

everybody in emerging economies like Mexico or Thailand speaks; and also, for many courses there may be a significant barrier in terms of previous knowledge that the student must possess in order to grasp the concepts, and which may not be easily accessible to someone who could not complete basic levels of education. It is telling that, from our survey respondents, more than half have at least an undergraduate degree (52%), and less than 1% claim to have had no formal education at all. It is curious to see how our interviewees and respondents seem to hold ambivalent ideas about MOOCs: there is a heavily prevalent feeling (among 87% of survey respondents) that MOOCs really do give access to higher education to people who otherwise could not have it; but at the same time recognizing that important barriers are in place, which in reality mean that MOOCs are largely benefiting the people who have already had advanced educational opportunities. There will be, in the near future, the need to keep updating MOOCs' pedagogy; to find ways to define, measure and assure pedagogical quality; and to explore further ideas that could help MOOCs address the particular needs of developing countries and emerging economies.

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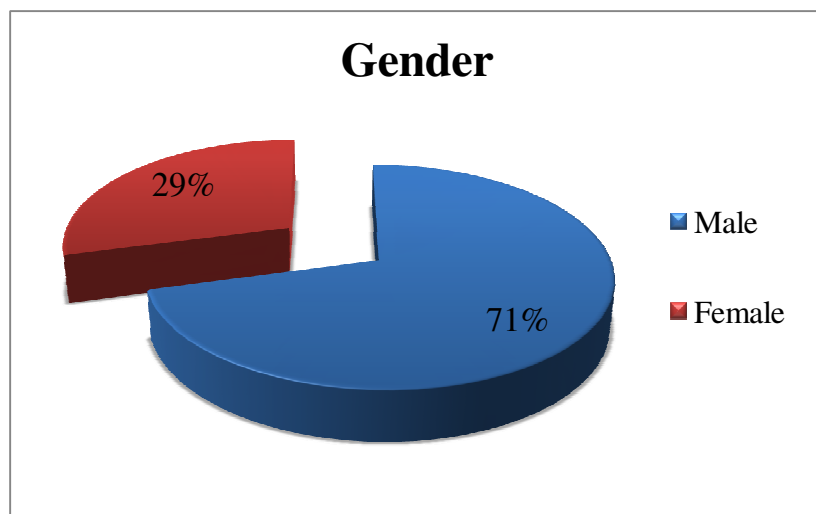
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APPENDIX

Annex 1: Survey Respondents by Gender

Gender

29%

71%

- Male
- Female

Annex 2: Survey Respondents by Age

Age range	Numbers	Percentage
15-20	36	9%
21-29	105	27%
30-39	74	19%
40-49	87	22%
50-59	66	17%
More than 60	23	6%
Total	391	

Annex 3: Survey Respondents by attained level of education

Level of Education	Number	Percentage
Did not attend school	2	0,5%
Primary school	14	4%
High school	39	10%
Undergraduate	211	54%
Graduate	103	26%
Post-graduate	22	6%

Annex 4: Survey respondents by Employment/occupation
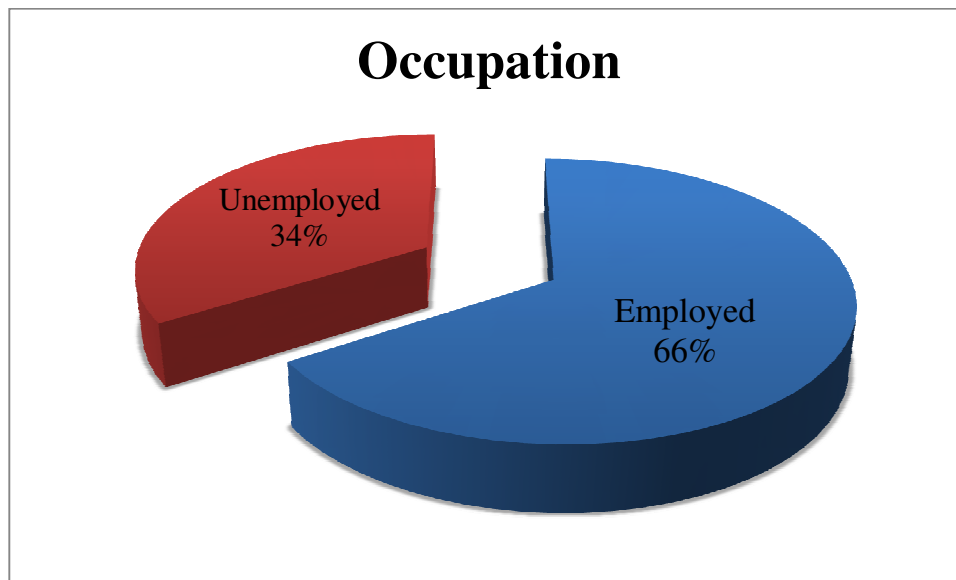
Annex 5: Survey respondents by Nationality

#	Country	Count
1.	Angola	1
2.	Argentina	9
3.	Bolivia	2
4.	Brazil	11
5.	Bulgaria	1
6.	Canada	2
7.	Chile	6
8.	Colombia	61
9.	Colombian American	1
10.	Costa Rica	3
11.	Dominican Republic	9
12.	Ecuador	19
13.	El Salvador	6
14.	France	3
15.	Germany	1
16.	Guatemala	6
17.	Honduras	5
18.	Hungary	1
19.	India	6
20.	Indonesia	1
21.	Italy	3
22.	Korea	2
23.	Kyrgyzstan	2
24.	Latvia	1
25.	Mexican American	1
26.	Mexico	121
27.	Myanmar	1
28.	Nepal	1
29.	Nicaragua	3
30.	Panama	1
31.	Paraguay	3
32.	Peru	12
33.	Portugal	1
34.	Puerto Rico	2
35.	Russia	3
36.	Spain	38
37.	Tajikistan	1
38.	Thailand	18

39. Turkey	1
40. Uganda	1
41. Ukraine	1
42. USA	7
43. Uruguay	7
44. Venezuela	6
TOTAL	391

Annex 6: Survey respondents by Monthly income

Average of monthly income

- Less than $125 — 17%
- $125-$380 — 15%
- $381-$550 — 16%
- $551-$850 — 17%
- $851-$1,200 — 14%
- $1,200-$1,800 — 11%
- Higher than $1,800 — 10%
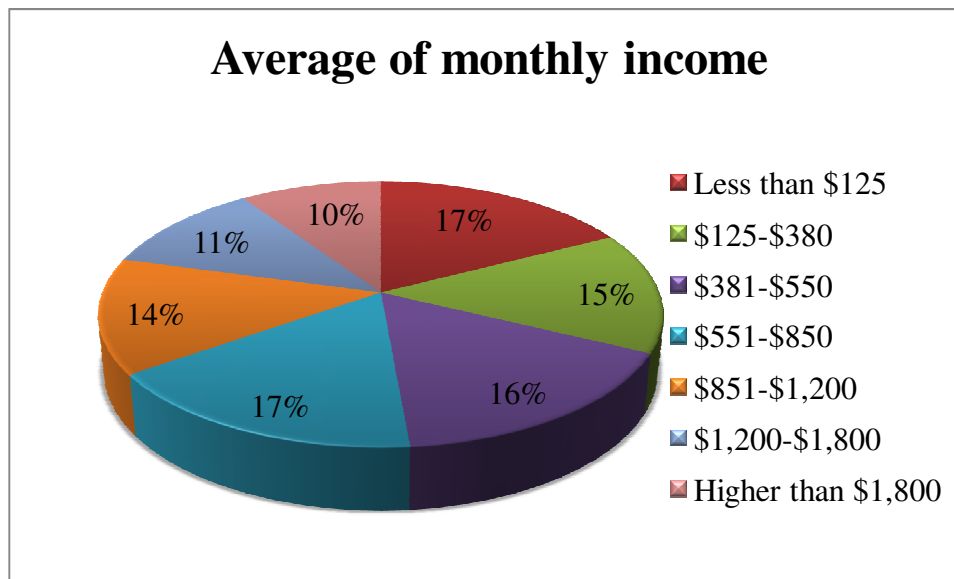
Annex 7: INTERVIEW QUESTIONS USED FOR MOOC PROFESSORS:

General questions
- What course do you teach?
- How many times have you taught the same course in a "traditional" university environment?
- When was this MOOC taught and in which platform? (Years)
- What is/was the number of enrolled students? How many students from developing countries were enrolled/are in your MOOCs?
- How many of them completed the entire course?

II. Impacts on country, participants, on education
- What has your experience with MOOC teaching been so far?
- What is your level of satisfaction with the course, as compared to satisfaction of teaching a usual university course?
- What kind of feedback do you receive from MOOC students?
- What impact do you perceive that MOOCs may have in your particular country?
- Are the MOOCs you are teaching responding to the particular needs of students in your own country?
- What do you think students expect from MOOCs? Does this have any impact for them in the employment market or for further schooling?
- Can MOOCs affect the cost of the traditional University?

III. Pedagogy
- What are the motivations for University professors to participate as MOOC instructors?
- Does teaching the MOOCs change the way the professor approaches his/her regular university courses?
- How can the pedagogical quality of contents be assured?
- How can MOOC providers avoid unwanted academic behavior? (Cheating, copying, plagiarizing, etc).
- How are assignments graded? (peer/auto-graded)
- What kind of pedagogical tasks do you usually use in your MOOC?
- How does teaching MOOC help/effect your research agenda/project?
- How is MOOCs going to fill the gap in the social aspect of learning which is missing?
- How does MOOCs replace in-class discussion Q&A of traditional education (face-to-face, class-based)?
- What kind of other areas of science can be taught via MOOCs? (humanities, social sciences, hard science)

IV. Access
- Who has access to MOOCs and who are participants of MOOCs?
- Can MOOCs, in your opinion, replace the traditional University?
- Do you think MOOCs may impact educational access in developing countries, and if so, how?

- What are potential barriers to accessing MOOC-provided education for people in this country?

V. Conclusion questions
- What are MOOCs' potential disadvantages?
- What is your opinion about the fact that MOOCs are predominantly being taught by people and universities in developed countries?

Annex 8: INTERVIEW QUESTIONS FOR MOOC PROVIDERS.

I. General questions
- What is this company's main goal?
- What are MOOCs' goals, broadly speaking?
- How many countries are represented among MOOC users?
- How many of enrolled students have already a university degree/are enrolled in a university?

II. Impacts on country, participants, on education, on a globe
- What were the initial expectations of this company's creator when it was started?
- Do you think that currently available MOOCs are adequate for the needs of students in developing countries?
- How does the MOOC phenomenon fit into the picture of education and technology in developing countries?
- What are technological costs of MOOCs for developing world? How much time and money should be spent in order to get MOOCs off the ground?
- What kind of impact do you think MOOCs may have for developing countries?
- What can MOOCs do for someone in a developing country?
- What kind of feedback do you receive from MOOC instructors and students?
- What do you think students expect from MOOCs? Does this have any impact for them in the employment market or for further schooling?
- How/to what extent is the content of MOOCs relevant to people from developing countries?
- What are potential barriers to accessing MOOC-provided education for people in these countries?
- How does/will MOOCs help the less advanced students to learn, or get an education?
- Can MOOCs affect the cost of the traditional University?
- Do you think MOOCs may impact educational access in developing countries?
- How can the quality of contents be assured?
- What are MOOCs' potential disadvantages?
- In your opinion, what is the most valuable outcome of MOOCs?

III. Pedagogy
- How can this company help improve the quality of MOOC contents?
- What are the motivations for University professors to participate as MOOC instructors?
- How can the pedagogical quality of contents be assured?
- How can MOOC providers avoid unwanted academic behavior? (Cheating, copying, plagiarizing, etc).

IV. Access
- Do you think MOOCs expand or reduce the access of instructors from developing countries into the education of their own countries' populations? If yes, how?
- Can MOOCs, in your opinion, replace the traditional University?
- How do you think MOOCs may impact educational access in developing countries?
- What are potential barriers to accessing MOOC-provided education for people in this country?

V. Credits and certification
- How does this company address the issue for the certification?
- What proposition has there been for obtaining credit?

VI. Business Model
- How does this company make revenue if the courses are for free?

VII. Conclusion questions
- What are MOOCs' potential disadvantages?
- What is your opinion about the fact that MOOCs are predominantly being taught by people and universities in developed countries?

Annex 9: ONLINE SURVEY QUESTIONS

9.1: English Version
(*Obligatory Questions)

1* Which category below includes your age?

14 or younger
15 - 20
21 - 29
30 - 39
40 - 49

50 - 59
Over 60

2*What is your nationality?

3*What is your gender?

Male
Female
Other (Please Specify)

4*What is your attained level of education?

5*Which of the following best describes your current occupation?

Unemployed
Employed
Student
Professor
Business Owner
Other (Please Specify)

6*What is your approximate average monthly income?

Less than $125
$125 - $250
$260 - $420
$425 - $625
$630 - $750
$760 - $830
Above $830

7* What is your familiarity with Massive Open Online Courses or MOOCs?

-This is my first experience/course with online education
-I have taken MOOC before, but didn't complete
-I have taken MOOC and completed
-Other (Please Specify):

8 How did you happen to know about MOOCs?

School / University
Friends and family
Workplace
Internet
Television / Radio
Newspaper / Magazine

9 Please specify the names of Massive Open Online Courses (MOOCs) that you have signed up for:

10 From the MOOC(s) that you have signed up, how many did you complete?

0
1
2
3
4
More than 4
Other (Please Specify):

11 What other MOOCs courses would you like to sign up for?

12* What is your attraction for MOOCs?

It is free (no tuition fee)
Ability to interact with massive number of other students
Ability to study anywhere, anytime at your own pace
Professional development
Opportunity for advancing personal skills
Certificate
All of the above
Other (Please Specify):

13* How important is it for you to get the certificate of completion from MOOCs?

Not important
Somewhat important
Moderately important
Very Important
Essential

14 Please rate your satisfaction with MOOCs experience:
Very Unsatisfied   Unsatisfied   NeutralSatisfied   Very Satisfied No Opinion

With lecture videos
With quizzes and homework assignments
With discussion forums
With the quality of materials
With instructor's feedback
With peer assessment
With overall experience

15 Please rate your agreement with these statements:
Strongly Disagree   Disagree   NeutralAgree Strongly Agree   No Opinion

MOOCs is a good way to get access to higher education where access is limited or unavailable
MOOCs offered me opportunity to improve my knowledge
MOOCs offered me opportunity to improve my skills
Taking this course would give me better employment opportunity
I recommend others to take MOOCs
I am given good guidance to perform my course

16 What are the best or most exciting features/qualities that you have encountered during the course(s)? (Brief Optional Comment)

17 In your opinion, what do you reckon to be the area(s) that need(s) the most improvement in your MOOC? (Brief Optional Comment)

18 Please rate your agreement with these statements regarding the difficulties faced during the course(s):
Strongly Disagree   Disagree   NeutralAgree Strongly Agree   No Opinion
I have had the difficulty with internet connection
I have had the difficulty with language

I have had the difficulty with self-learning discipline

I have had the difficulty in interacting with instructors

I have had the difficulty in participating in online forum discussions

I have had the difficulty with peer-to-peer interactions

I have had the difficulty in getting timely feedbacks

19 What do you see as advantages of MOOCs in your country? (Brief Optional Comment)

20 What do you see as disadvantages of MOOCs in your country? (Brief Optional Comment)

9.2: Spanish Version
(*Obligatory Questions)

1*Señala tu edad:

14 años o menos
15 - 20
21 - 29
30 - 39
40 - 49
50 - 59
Más de 60

2*¿Cuál es tu nacionalidad?

3*Sexo:

Masculino
Femenino
Otro (favor de especificar)

4*¿Cuál es tu nivel de educación?

5*¿Cuál de las siguientes describe mejor tu ocupación actual?

Desempleado
Empleado
Estudiante
Profesor Universitario

Dueño de negocio propio o actividad independiente
Otro (favor de especificar)

6*¿Cuál es tu ingreso mensual aproximado? (indicado en dólares americanos / pesos mexicanos)

Menos de $125 dólares/$1,700 pesos
Entre $125 dólares/$1,700 pesos y $380 dólares/$5,000 pesos
Entre $390 dólares/$5,100 pesos y $760 dólares/$10,000 pesos
Entre $770 dólares/$10,100 pesos y $1,150 dólares / $15,000 pesos
Entre $1,160 dólares / $15,100 pesos y $1,500 dólares / $20,000 pesos
Entre $1,510 dólares / $20,100 pesos y $2,300 dólares / $30,000 pesos
Más de $2,300 dólares / $30,000 pesos

7*¿Qué tanta familiaridad tienes con los MOOCs?

Es mi primera experiencia / mi primer curso en línea
He tomado MOOCs antes, pero no los completé
He tomado MOOCs antes y los completé
Otra (favor de especificar)

8 ¿Cómo te enteraste acerca de los MOOCs?

Por mi escuela / Universidad
Por amigos y familia
Por mi trabajo
En Internet
Por medio de la televisión / radio
Por periódicos o revistas
Otra

9 Por favor especifica el nombre o nombres de los Cursos Masivos Abiertos en Línea a los que te has inscrito:

10 De los MOOCs a los que te has inscrito, ¿cuántos completaste?

0
1
2
3
4
Más de 4
Otro (favor de especificar)

11 ¿A qué otros MOOCs te gustaría inscribirte?

12* ¿Qué tan importante es para tí el contar con un certificado al completar un MOOC?

No es importante
Es un poco importante
Es moderadamente importante
Es muy importante
Es esencial

13* ¿Qué característica te atrajo de los MOOCs?

Son gratuitos
La capacidad de interactuar con miles de otros estudiantes
La facilidad de estudiar donde sea, a la hora que sea, a mi propio ritmo
El desarrollo profesional
La oportunidad para aprender nuevas cosas
Obtener un certificado
Todas las anteriores
Otras (favor de especificar)

14 Por favor califica tu satisfacción con la experiencia de los MOOCs:

Muy insatisfecho	Insatisfecho	Neutral	Satisfecho	Muy satisfecho	Sin opinión

Con los videos
Con los exámenes y tareas
Con los foros de discusión
Con la calidad de los materiales
Con la retroalimentación del instructor
Con las evaluaciones hechas por mis compañeros
Con la experiencia en general

15 Por favor califica qué tan de acuerdo estás con las siguientes afirmaciones:

Muy en desacuerdo	En desacuerdo	Neutral	De acuerdo	Muy de acuerdo	Sin opinión

Los MOOCs son una buena manera de acceder a la educación superior en lugares donde no hay acceso
Los MOOCs me ofrecieron la oportunidad de aumentar mi conocimiento
Los MOOCs me ofrecieron la oportunidad de adquirir nuevas habilidades
El tomar este curso me daría la oportunidad de tener un mejor empleo
Recomiendo a otras personas tomar MOOCs

Se me han dado las herramientas necesarias para completar los MOOCs

16 ¿Cuáles son las características más emocionantes que has encontrado en los cursos masivos en línea? (Breve Comentario Opcional)

17 En tu opinión, ¿cuáles son las áreas o características de los MOOCs que más necesitan mejorar? (Breve Comentario Opcional)

18 Por favor califica qué tan de acuerdo estás con las siguientes afirmaciones acerca de dificultades para tomar MOOCs:

Muy en desacuerdo   En desacuerdo NeutralDe acuerdo   Muy de acuerdo   Sin Opinión

He tenido dificultades con la conexión a Internet
He tenido dificultades con el idioma
He tenido dificultades con la disciplina de auto-estudio
He tenido dificultades al interactuar con los instructores
He tenido dificultades con la participación en foros de opinión en el curso
He tenido dificultades con la interacción entre compañeros
He tenido dificultades para obtener retroalimentación oportuna

19 ¿Qué ventajas percibes que tienen los MOOCs específicamente para tu país? (Breve Comentario Opcional)

20 ¿Qué desventajas percibes que tienen los MOOCs específicamente para tu país? (Breve Comentario Opcional)