Working Paper #8

NORRAG

DeMOOCratization of education?

Massive Open Online Courses, opportunities and challenges: views from Mexico, Thailand and Senegal

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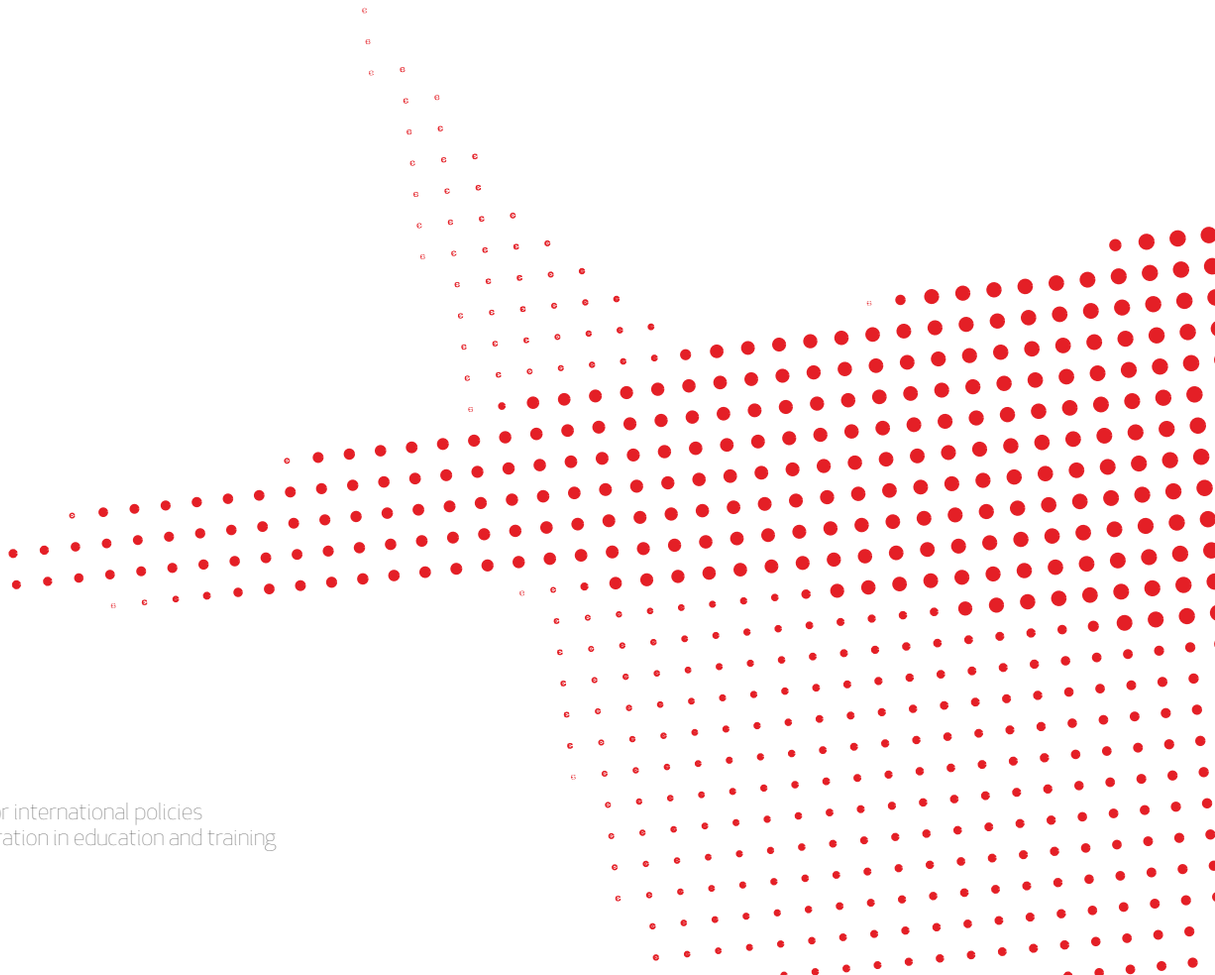
DECEMBER 2014

norrag.org



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Acknowledgments

This project is based on, and aims to expand, the collaborative work that was carried out within the framework of the Applied Research Seminar (ARS) of Autumn 2013, at the Graduate Institute of International and Development Studies (IHEID) in Geneva, Switzerland. Dilnoza Nigmonova (Tajikistan) and Wipada Panichpathom (Thailand), who also hold Master Degrees in International Affairs by IHEID, were co-authors to the initial research project. The present expansion has been carried out under the supervision of NORRAG, the Network for international policies and cooperation in education and training. It would not have been possible without the guidance of Prof. Michel Carton and Dr. Joost Monks; as well as the support from Houraye M. Anne, in accessing educational stakeholders from Senegal. The expansion of this project, under NORRAG, was carried out with the collaboration of Clemens Tuor, from the Lausanne Federal Polytechnic School (EPFL), Switzerland[1].

The complete original study[2] – on which this article is based – can be found at:

http://repository.graduateinstitute.ch/record/286962/files/MOOCs_Full_Final.pdf

About the Working Paper

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What is NORRAG?

NORRAG is an independent network whose Secretariat is located at the Graduate Institute of International and Development Studies (IHEID) in Geneva, Switzerland.

Since its launch in 1985, NORRAG has established itself as a multi-stakeholder network of researchers, policymakers, members of NGOs, foundations and the private sector seeking to inform, challenge and influence international education and training policies and cooperation. Through networking and other forms of cooperation and institutional partnernships, it aims in particular to stimulate and disseminate timely, innnovative and critical analysis and to serve as a knowledge broker at the interface between research, policy and practice. As of November 2014 NORRAG has more than 4,300 registered members in more than 170 countries, 45% from the global South.

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NORRAG Secretariat

Michel Carton is a retired professor of the Graduate Institute of International and Development Studies – Geneva, and the Executive Director of the Network. His current research interests cover the Global Governance of Education and Training and Technical and Vocational Skills development.

Dr. Joost Monks is the Managing Director of NORRAG. He is in charge of the strategic development and management of the Network. He has a particular research interest in Global Governance of Education and Training, in particular the BRICS as new emerging actor, and the NORRAG programme of work on Conflict, Violence, Education and Training

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Abstract: Massive Open Online Courses (MOOCs) have been portrayed as an alternative path to access higher education. However, perspectives from developing countries on how MOOCs might impact educational landscapes in those regions are still scarce. This study offers views on MOOCs, through the perspectives of various actors (mainly from developing regions – Mexico, Thailand and Senegal): MOOC instructors, through personal interviews; MOOC students, through a survey distributed to 391 individuals; MOOC providers (University coordinators, in close contact with developers of MOOC platforms), and other educational stakeholders with experience in online education. We analyze opportunities and challenges surrounding MOOCs in emerging economies; drawing on the issues of MOOCs' accessibility, their objectives and rationales, advantages and shortcomings. We explore the question of who has access to what kind of education through MOOCs. What's in it for Higher Education in developing and emerging economies? Views surrounding MOOCs are largely positive, yet we encountered echoes to some concerns voiced by other specialists: significant barriers keep MOOCs out of the reach of underprivileged populations; prestigious Universities have implemented MOOCs motivated partly by marketing reasons; and the pedagogical methods may not always turn out to be "revolutionary" or even different from traditional instructor-led teaching at all. Interviewees and respondents often hold ambivalent opinions: the feeling that MOOCs do give access to higher education to people who otherwise could not have it; while recognizing that they are largely benefiting people who have already had advanced educational opportunities.

Keywords: MOOCs, online education, higher education, learning, developing countries, Mexico, Thailand, Senegal.

Introduction

Higher education plays a central role in economic and human development. Developing countries have demonstrated great concern about access to higher education and achieving the Millennium Development Goals (MDGs) and UNESCO's Education For All (EFA) goals by 2015. *Massive Open Online Courses*, or "*MOOCs*", are 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. As such, some see MOOCs as an alternative path for offering access to higher education and learning. 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 Latin America) to expand access and improve the quality of higher education[3]. Thus, educational stakeholders in developing countries have expressed interest in further exploring and implementing MOOCs.

The present study offers a critical view on MOOCs in the context of three developing countries: Mexico, Thailand and Senegal. It focuses on the issues of MOOCs' accessibility, their objectives and rationales, advantages and shortcomings – such as the barriers to access – from four different perspectives: 1) Creators of MOOC platforms, as well as department coordinators from Universities, who are in close contact with MOOC providers (those responsible for the partnerships between Universities and MOOCs platforms such as Coursera), 2) MOOC instructors from developing countries, 3) MOOC participants from developing regions (both students who have completed online courses, and those who did not complete them), and 4) Other educational stakeholders working on higher education institutions in developing areas, such as Ministries of Higher Education, or Universities who offer distance-learning degrees *(for detailed information on interviewed individuals, see "Acknowledgements" section)*. This study analyzes whether MOOCs are providing 'expanded' access that could potentially reach a large proportion of the population – especially underprivileged sectors –, and promoting free access to higher education. What are the good practices, challenges, and shortcomings? How can MOOCs help developing countries to expand access to education? Do MOOCs actually give access to good quality education to the people from emerging economies that need it the most?

To answer these questions, it is important to understand that the results of implementing MOOCs in developing countries are dependent on the learning purposes attached to them; which, in their turn, can affect the motivations and decisions of educational institutions to implement their own MOOCs. Depending on the objectives, different outcomes can be reached, with diverse implications for MOOCs' implementation in the developing world. The data findings were collected on the basis of a survey distributed online to nearly 400 MOOC participants; and personal interviews with ten key stakeholders involved in online higher education and in the creation and implementation of MOOCs. Our interview partners were from the University of Geneva, *Instituto Tecnológico y de Estudios Superiores de Monterrey* (ITESM) in Mexico, *Universidad Nacional Autónoma de México* (UNAM), Sripatum University in Thailand, the Lausanne Federal Polytechnic School (EPFL) in Switzerland, the Ministry of Higher Education and Research in Senegal, the African Virtual University in Kenya, the Cheikh Anta Diop University in Dakar, Senegal, and ITECOM, the Technical Institute of Commerce, a private institution of higher education in Senegal which specializes in trade and finance and offers online programmes.

Views surrounding MOOCs are largely positive and enthusiastic; with the exception of some stakeholders that hold critical views and question MOOCs' supposed "democratizing" effect on higher education, as well as their potential usefulness for those who have never had access to higher education, employment or vocational training. Even though key players in Universities see in MOOCs many promising possibilities to better address the needs of developing countries, other motivations seem to be at play as well – be it prestigious Universities' (or professors') attempts to publicize their name and "brand"; or to avoid the losses of being "left out of the game" if in the future MOOCs *do* happen to change higher education irreversibly. Concerns were voiced about MOOCs' pedagogical approaches, which may not always turn out to be "revolutionary" or even different from traditional instructor-led teaching at all. Interview partners and survey respondents did not always seem to keep in mind the barriers that still put MOOCs out of the reach of most people in developing coun-

tries. Most of the surveyed MOOC participants had at least an undergraduate degree or higher (85.9%), and less than 1% claimed to have had no formal education at all. Interviewees and respondents often seemed to hold ambivalent opinions: the general feeling that MOOCs do give access to higher education to people who otherwise could not have it; while recognizing that MOOCs are largely benefiting people who have already had advanced educational and employment opportunities.

Study Objectives

This study investigates whether, in the context of MOOCs' implementation in developing countries, MOOCs are providing – or are adequately equipped to potentially provide – "expanded" and free access to higher education for a large proportion of the population. How can MOOCs help developing countries to expand access to education, if they can? Do MOOCs give access to good quality education to people in developing regions, especially to those individuals currently deprived from access to *any* sort of higher education?

In doing so, we will briefly examine the development of the MOOC phenomenon, its primary goals, and analyze its features: advantages and disadvantages, as well as possible ways forward, from the four different perspectives earlier mentioned. The different perspectives about MOOCs that were gathered will be presented; MOOCs' possible impact (or lack thereof), as well as advantages and disadvantages for developing countries, from the perspectives of students, instructors, providers, and other educational stakeholders with experience in online learning, will be discussed.

Study Methodology

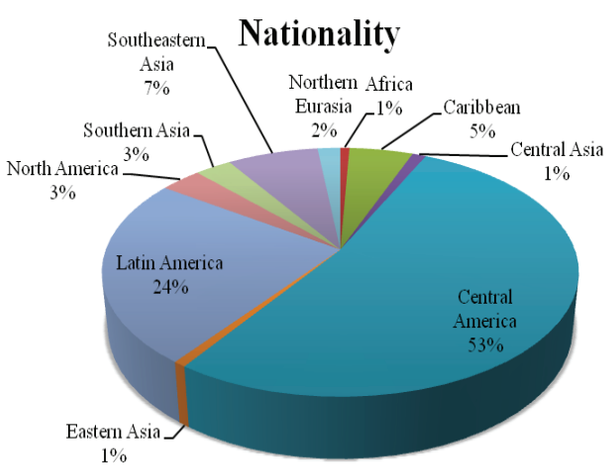
The initial report was based on a mixed-methods approach; combining a literature review, an online survey, and several interviews with key stakeholders. For the present expanded study, which aims to include views stemming from sub-Saharan Africa; additional literature with a focus on Africa was considered, as well as four new interviews with educational stakeholders from sub-Saharan Africa (three from Senegal and one from Kenya). This approach was chosen because of how it fits with the data and its capacity to highlight the qualitative dimension of the use of MOOCs, within and across responses. As primary sources for the literary review, policy reports and statistical information were used 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, other kinds of existing literature such as scholarly articles, reports, research blogs, and findings from MOOC providers' Websites were used. Interviewed partners all have experience in online education and distance learning: MOOC instructors were teachers who have between 10 and 20 years of experience in teaching online courses, and the interviewed educational stakeholders all have several years of experience with online teaching or online degrees and programmes.

Survey Sample Design

The initial report presented our findings from two sets of online surveys about the MOOC experiences of users in developing countries[4]. 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 regions 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 have more positive feelings about their own experiences to begin with, or are among the most engaged with their MOOC experience.



Ref. See endnote[5]

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 (EPFL) were interviewed as well, for the purposes of comparing their perspectives to those stemming directly from instructors and providers in developing countries. Additionally, the EPFL has recently started to implement MOOCs designed for francophone developing regions in Africa, in the context of their "RESCIF" network of francophone Universities[6]. As such, they provided us with an additional perspective on the implementation of MOOCs in francophone African regions, highlighting North-South cooperation. In this expanded study, which provides further insights from sub-Saharan Africa, four additional stakeholders were interviewed, three from Senegal and one from Kenya; who have ample experience in online learning and in the general educational context of Senegal in particular, and sub-Saharan Africa in general. The interviews, with a total of ten 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 (when interviewees consented). The methodology employed was a targeted sampling (purposefully choosing key people to interview). Additionally, an indirect written interview was conducted with staff from the Coursera Team, through e-mail communications facilitated by our partner organization, the World Economic Forum.

A comprehensive pre-designed questionnaire guide covering issues of MOOCs' accessibility, objectives, pedagogy, quality, and impact was used *(see Annex)*. 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 the primary research interests.

Why the need for further research, and selection of study cases

Most of the current literature on MOOCs focuses on perspectives from developed countries, and they tend to have a commercial viewpoint, highlighting mostly the positive aspects of MOOCs, and not really stepping into a critical

analysis of what might be their limitations, or what is the real quality of MOOC courses. The approach used in this study is cross-cutting across different groups of stakeholders; as MOOC students in developing and emerging countries were also surveyed, to gain insight into their own perceptions of how MOOCs might or might not help them. Do MOOC students from developing regions perceive that MOOCs will give them tangible benefits? Do MOOC professors or educational stakeholders perceive a bias in MOOCs towards developed countries, catering to the needs of their own populations? How do they think MOOCs may help students in developing countries? Do MOOCs meet requirements of quality higher education? *What exactly* ¸ is the kind of higher education that MOOCs might complement or substitute, in these developing regions of the world?

This study aims to give further perspectives about MOOCs, and their possible future and limitations, in developing countries, specifically Mexico, Thailand and Senegal, as representative developing economies from Latin America, Southeast Asia and West/Sub-Saharan Africa, respectively. These three countries have a certain degree of economic influence in their respective regions. They currently host regional offices of major international organizations: the World Bank has a regional office in Mexico, the UN's Economic and Social Commission for Asia and the Pacific currently has its seat in Thailand; and UNESCO as well as the International Office for Migration have regional offices in Senegal.

Today several Asian, Latin American and African states are experiencing a lack of skilled managers and specialists in different areas. It is thought that investment in higher education could help them to achieve sustainable impact/develop their economies[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 as a means to achieve the MDGs. However, low rates of access to higher education are still a significant challenge faced by many Southeast Asian, African and Latin American countries in general. 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), and it remains especially low in Sub-Saharan African countries.

In all three countries, therefore, the need exists to substantially expand access to, and raise quality of higher education. Could MOOCs potentially help in this endeavor? One must also consider, however, that according to World Bank data, in all three countries the rate of personal access to broadband Internet per 100 people was around

Figure 1 Gross Enrollment Ratios in Higher Education by Region, 2000 and 2009

Notes:
1. In UIS (2011), Arab States include Algeria, Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Mauritania, Morocco, Oman, Palestine, Qatar, Saudi Arabia, Sudan (presecession), Syrian Arab Republic, Tunisia, United Arab Emirates, and Yemen.
2. Gross enrollment ratio is measured by the average of gross enrollment from countries in each region.
3. Number of countries by region: Sub-Saharan Africa (45), South and West Asia (9), Arab States (20), East Asia and the Pacific (33), Central Asia (9), Latin America and the Caribbean (42), Central and Eastern Europe (21), North America and Western Europe (29), and World (208)

Source: UIS (2011).

Source: Asian Development Bank[9]

11.1 for Mexico, 7.4 for Thailand and 0.8 for Senegal (data for 2014)[10] .

This is undoubtedly an insight into one of the major possible shortcomings or limitations of MOOC impact. The World Bank classifies both Mexico and Thailand as "upper middle income" economies, and Senegal as "lower middle income"[11].

The 2013 report from the International Telecommunications Union, *"Measuring the Information Society"*[12] – which includes data for 2012 – informs that the percentage of households with internet access is 26% in Mexico, 18.4% for Thailand and 5.8% for Senegal (but this is not always broadband access). This shows an increase in access from the previous year; however, in all three countries, personal and household Internet access remains a possibility only for around (or well below) one quarter of the total population.

MOOCs' objectives: Whose Goals?

"To empower people with education, (…) to connect people to a great education, so that anyone around the world can learn without limits" [13]

(Coursera, Official Website)

a) "Free Education For All"? MOOCs in the context of the Millennium Development Goals, EFA and national educational systems.

MOOCs are not the first initiative intending to provide access to higher education for all. Indeed, 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 (ICESCR) of 1966, not only mentions access to primary education as a human right, but indeed 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".*[14]

Millennium Development Goals (MDGs) and UNESCO's Education For All (EFA) Goals, which attempt to design an efficient strategy to provide education to all, especially "underserved" people, pursue this goal since 2000. Some researchers and bloggers share the belief that MOOCs could be a tool to achieve the MDGs education agenda: *"There will be MOOCs designed to support the successor to the Millennium Development Goals (MDGs)"*[15]. However, it is necessary to mention that the MDGs and the MOOC providers pursue obviously different directions and goals. EFA, and especially MDGs, target mostly primary schooling, while MOOCs rather have to do with higher education – or on-the-job training. Even though "education for all" is highlighted in MOOC providers' missions, the knowledge they provide is mostly available to people who already have a degree, or some level of higher education. Our data shows that 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[16]. As such, underserved people still remain behind a barrier. Therefore, the answer to the question *"how can MOOCs help the less educated people to learn or get access to education?"* has not been found yet.

Nevertheless, some researchers carefully following MOOC's rise do see them as a potential mechanism that can be used to achieve MDGs. However, 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 for our educational problems"* (Larisa Enríquez, UNAM)[17]. They could be further investigated as a way to achieve MDGs, if MOOC providers would expand their goals by targeting primary 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). Other interviewees have further presented ideas for making MOOCs become a part of current educational systems in developing countries, through "blended learning" approaches that mix traditional, on-campus learning with some elements of MOOCs. For instance: delivering only some courses or some lectures via MOOCs in University programs, in order to "free up" the capacity of some overwhelmed public educational institutions.

Overblown statements about how one particular innovation "is here to change education forever" are not new. Over and over again, those in the educational field have heard about "disruptive technologies that will revolutionize education"[18]. This grandiose potential has been attributed

before to *"the radio, educational TV, computers and the Internet itself"*, states Olivier Sagna, who works at the Senegalese Ministry of Higher Education and Research and presented one of the most critical views on MOOCs among the interviewed stakeholders. *"Every new technology has generated discourses about how it's going to revolutionize teaching and learning. MOOCs can have an impact for continuous education: they make resources available freely to whoever wants to find them – but they are far from having the potential to 'revolutionize education', as the discourse goes"*[19] (Sagna).

b) The perspective of providers (Coursera, UdaCity, EdX, and FutureLearn)

According to an indirect interview with Coursera staff[20], the MOOC experience should *"provide easy access, relevant content, and value of the learning experience"*[21], so that MOOC students can turn their knowledge into action that transforms their communities and their lives. More dialogue is needed with stakeholders in the educational sphere of each country, in order to understand local students' particular needs. The staff at Coursera believes MOOCs to be *"a great equalizer of education"*; by leveraging Internet infrastructure, pedagogical tools and educational content, to give open access to higher education.

What is remarkable about MOOC platforms' mission statements is that all of them highlight the issue of *scalability*; they want to reach millions of users, while only one provider – FutureLearn – mentions the importance of high quality of courses 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 to those of developed regions, and have other cultural determinants. The added value of "massive access" proposed by MOOCs can be quite debatable in other social and cultural contexts. In societies that place a larger emphasis on social relations between teacher and student, or where learning is understood as a collective and group endeavor where an instructor's personal follow-up is essential, perhaps "massive access" will not be seen as an educational improvement.

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? Are there other reasons 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 MOOC providers and offers[22]. He uses the phrase *"free, but not free"*, recalling 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"*[23]. In contrast to the Campaign for the Future of Higher Education's (CFHE) report[24], 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"*[25].

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 the cost of university-level education[26]. However, in their report, Yuan and Powell further claim that the commercial interest of providers, which enables them to *"enter the higher education market using a MOOC approach"*[27], can also be an explanation for the interest in offering MOOCs.

b.1) Quantity for quality?... Concerns about MOOCs' pedagogy and quality

It is important here to address, firstly, the fact that two different types of MOOCs exist: cMOOCs and xMOOCs; the latter being the most common model of instructor-centered teaching, used by the main providers like Coursera. The cMOOCs emphasize the "connectivist" model of teaching that falls outside of the "traditional behaviorist approach" or "instructional model" of the xMOOCs, which people often are most familiar with. cMOOCs often consist of a simpler form of sharing academic and educational material online, for specific communities that benefit from it, where knowledge and learning are generated through the exchange of information[28]. As such, they are a more "personalized" experience, and are harder to homogenize or assess. xMOOCs, on the other hand, focus on the use of a traditional behaviorist approach, namely the instructor-centered one, while also leaving out the "connectivist" concept of teaching. This study mainly refers to xMOOCs,

as they have become the most common and well-known model, used by the biggest platforms. Critical views often also focus on xMOOCs, because of their higher degree of resemblance and parallelism to traditional higher education courses.

Even if MOOCs were to become a helpful tool to achieve, in numbers, the goals set out by EFA and the MDGs, what would the quality of education provided via MOOCs be like?... MOOCs' pedagogical methods have received praise by some authors, who claim that the learning methods advanced by MOOCs are effective, and part of the "flipped classroom" strategy: where students learn the content of their courses at home, and additionally – for those enrolled in a traditional school setting – practice in the classroom through exercises. Glance *et al*. praise MOOCs' methods, arguing 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"*[29] . But others question that MOOCs' pedagogical approaches provide an adequate learning experience, or that they are any different at all from the traditional instructor-led and instructor-centered learning. Yuan and Powell, in their journal article for the Joint Information Systems Committee – Centre for Educational Technology & Interoperability Standards[30], have conducted research on MOOCs' implications for higher education, and found a number of flaws in MOOCs' pedagogical approach. They are aware of the fact that MOOCs are receiving criticism from many for their "instructional" and "traditional knowledge transmission model", in their use of a pedagogical model that centers the teaching framework on the instructors; and their report deems that it is not the optimal method that should be solely adopted in online learning.

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[31]. 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*[32], 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 new, but rather the same techniques that have been used in Online Distance Learning since several decades ago. Bates also points out that it is a false belief that computers would help a learner to 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 as 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. He elaborates on Coursera's style of teaching, arguing that Coursera is using the model of "trial and error" as the basis for their pedagogy. According to him, 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 from the beginning. Other important concern is the fact that MOOC students will often lack prompt and adequate feedback from an instructor or peers. Authors have criticized that the lack of personal follow-up by an instructor, in a MOOC "classroom" of thousands of people, does not contribute to a stimulating learning environment. The MOOC pedagogy involves the same kind of instructor-

oriented traditional teaching seen in ex-cathedra courses; but with a much more limited (or, often, completely absent) possibility of personalized follow-up for the student. Yang *et al.* 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 MOOC environments[33]. From our interview partners, a critical view on MOOCs' pedagogy was given by Mamadou Sarr, from the Cheikh Anta Diop University in Senegal, who argues that *"MOOCs do not quite have an effective pedagogy"*[34].

Regarding the specific aspect of quality; the first problematic aspect is that the very notion of "educational quality" can lend itself to different interpretations. Alexander, in his critical report *Education for All: the Quality Imperative and the Problem of Pedagogy,* highlights 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[35]. He also emphasizes that the definitions provided by UNESCO, OECD and a number of other international organisations 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*"[36]. This is relevant to the case of MOOCs, where MOOC platforms often 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 a MOOC is done by one partner university of Coursera, the University of London International Academy, in which a brief definition of "quality" is given. In this article, *Quality Assurance in Coursera Courses*, "quality" refers to the *"coherency of the curriculum, teaching, learning and assessment activities of each MOOC"*[37]. The main issue remains largely in that the MOOC platforms – such as Coursera – often do not have explicit and visible definitions or indicators to guide the policies of their quality assurance processes. Before MOOCs could develop an effective quality assurance programme, they first would have to identify the definitions and indicators of what they refer to as "quality". In their Report, Yuan and Powell[38] 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. Some other MOOC platforms such as FutureLearn, however, do provide partner Universities with more assistance throughout the creation of course contents[39]. If MOOC platforms are to be considered as significant stakeholders in the future of higher education, for either developed or developing regions, a more careful and clear methodology to ensure course quality would perhaps prove to be a meaningful improvement.

b.2) Blended Learning

In order to improve the model of MOOCs' pedagogy and quality, literature and interviews highlight the need to adapt the model to be more of a mix of both instructional and connectivist models of learning (the *"flipped classroom"* or *"blended learning"*). With the blended approach to learning, students will make use of both face-to-face and online content systems. This would increase the flexibility in the organisation of the learning process, and it could help lessen problems such as the dropout rates. An educational model that relies on students spending more time learning by themselves through a computer or smartphone, could potentially also help to "free up" limited space in overcrowded public universities. The quality assurance can also be more easily implemented and controlled because the content will be 'reviewed' by the staff of educational institutions, and the experience of learning will be more than just either online or offline, but rather *both*.

And finally, this is also related to another key element that needs to be looked at: whenever "blended" solutions are adopted, there should be more collaboration and partnership between universities and MOOCs platforms, to ensure that MOOCs are implemented or developed with consideration to the specificities of culture, tradition and pedagogy in 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 specificities of the country, local students' learning process may be undermined. Concerning pedagogy, quality, and the issue writ large of delivering "universalized" education via MOOCs, several of our interview partners mentioned that education has its own cultural determinants, especially the "softer" or social sciences. Language, cultural peculiarities, familiar sets of references and local context will always be important in education – one cannot simply apply universal standards, methods and study plans across every country, every society and every locality. Diallo mentions that *"contextualization is important in education, not just translation (…) to focus on the needs of the locality"* [40], and Sagna states that "*for 'hard' sciences it might be easier to apply massive courses and universal standards – teaching computer sciences via MOOCs might make sense for certain regions; but disciplines such as sociology and history are necessarily grounded in students' local context, the references in their immediate surroundings, and their local culture's points of view".* Attempting to adopt universal, "one-size-fits-all" solutions exported from elsewhere may not always be the best solution for wider access to better education. It would risk focusing too much on technical/hardware aspects, and too little on content and context. This could turn out to be a very market-and-technology-oriented solution that might not adequately fit the cultural context in a developing region. Collaboration and leadership for local solutions that incorporate certain elements of MOOCs and others of traditional education – while considering local or national development goals – can perhaps yield better results than being mere "consumers" of the solutions developed abroad.

c) 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, Monterrey Institute of Technology and Higher Education, Mexico

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 educational leaders interested in MOOCs? What motivates elite universities and institutes to offer "free online courses"?

Although seemingly MOOCs have been launched with the initial purpose of giving free access to higher education to a large proportion of users around the globe, elite universities and institutions may be driven by the market-oriented idea of expanding their brand through MOOC platforms[41]. 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"*[42]. 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"*[43]. This viewpoint is also evident in Rowbotham's report: *"In terms of MOOCs, signing up with high quality U.S. 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'"*[44]. 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[45] – which declares that *"MOOCs are about money; and the biggest winners in MOOCs are not students, but elite universities"*[46].

Looking closely at current trends can thus lead us to question the real intention of MOOC instructors and partner universities with regard to the much-touted slogan of "education for all". At least three (out of six) of our interview partners mentioned that the Universities who are providing MOOCs have also 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 course. It implies a good positioning for the school"* (Villanueva)[47].

Why would a professor be interested in teaching MOOCs? 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"[48] (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"*[49]*.* Sagna mentions the phenomenon of the "*star-ization"* of professors who deliver MOOCs: the "rise to fame" of a few prestigious, charismatic professors from world-renowned universities, who attract thousands of viewers – perhaps sometimes, on the basis of their own personal charisma, more than the content of the course itself. One might also wonder if this *"starization"* could inadvertently create a divide between professors – even from one same University –; some of them benefiting from the fact that they are "MOOC-worthy" while others aren't. Sagna mentions also the concern that the courses given by these "star" professors may be embedded in their particular cultural context, which is not always necessarily adapted to the educational needs of students from other regions of the world. This is especially the case in social sciences which, by their very nature, require local understandings and perspectives[50].

Villanueva, from ITESM in Mexico – a MOOC-providing institution – makes an interesting point: instead of 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 massive educational access, the cost for a University like ITESM of missing out on the opportunity to become a "big player" may be a much higher cost than any sort of implementation costs. Also, he says that having unskilled people in Mexico is ultimately a very considerable "cost" (meant as a toll on the country's development potential). And none of our partners seemed concerned about the fact that it is mostly a few elite Universities (and predominantly 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 higher education. Some of them appeared unconcerned 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 the new possibilities – which could include collaboration with developing countries and their local schools – than they are concerned about a possible "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 developed regions; 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. Meanwhile, Sagna holds the view that since MOOCs are still very far from delivering on a promise of either "revolutionizing" or "substituting" traditional higher education, a threat of "cultural imperialism" – though it cannot be ignored altogether – is not quite realistic, in the first place.

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. MOOCs could be used by professors to analyze how students learn better, or to test particular online learning tools before implementing them into their traditional courses for formally enrolled students. 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 visible as to how partner Universities and professors may potentially be in for the business or marketing opportunities. And if MOOCs are being mainly used as a marketing tool, pedagogical quality can once again be brought into question – since educational quality or appropriate learning methods are unlikely to be the main concern of creators, instructors and implementers.

A final curious aspect about the interviews with MOOC instructors was that, even if most of these instructors 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 social networks, 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 in the case of their own solid, reputable and long-standing institutions.

Access to MOOCs: a likely benefit for those who need it the least

Even assuming that MOOCs could help achieve MDG and EFA Goals, and that the quality were excellent, the question of *who* is actually able to access the courses still remains. Many interview partners and survey respondents don't appear to always have in mind the barriers that still keep MOOCs out of the reach of large sectors of the population.

Three significant barriers of access exist, not only to the MOOCs themselves, but also to the benefits that MOOCs are supposed to offer, namely, employability or credits for further University studies. The first is a technological barrier: MOOCs are designed to work on a computer with broadband Internet, something that in many developing countries, less than a quarter of the general population has access to. Reports from the World Bank and International Telecommunications Union remind us that in countries like Mexico and Thailand, only around 25% of the people today (in 2013) have personal access to broadband Internet. For Senegal, the figure is much lower still. In some developing regions, such as sub-Saharan Africa, it is possible that people will bypass the tendency to use Internet through computers, and instead begin to capitalize on a widespread use of smartphones and mobile-related technology – MOOC platforms could largely benefit from exploring options for delivering MOOCs via smartphones. In some parts of Africa, access to a mobile phone is much more common than access to a PC and modem. 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"* and that *"learning happens regardless of location"*[51]. It can be helpful to wonder if for some people in countries like Mexico, Thailand and Senegal, where mobile phone use is also more common than household access to broadband Internet, educational tools that 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. In Thailand, while 18.4% of households have Internet access, there are 120.3 mobile phone subscriptions per 100 inhabitants. And in Senegal, only around 5% of households have Internet access, yet 87.5 people out of 100 are mobile phone subscribers[52]. 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. Bakary Diallo states that *"in trying to reach the masses, developing MOOCs that can function with low bandwidth, for mobile phone users, can give a much wider reach"*[53].

The second significant barrier is language: most MOOCs are provided in English, which not everybody in emerging economies speaks. Even though providers like Coursera have long featured MOOCs in other languages, and also have recently (as of 2014) begun to implement a network of

translators, among other efforts to breach the language barrier, poor mastery of a language is likely to remain an important obstacle for accessing MOOCs. This will be especially true in the case of advanced courses with a complicated vocabulary. And finally, 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. Universities who offer MOOCs – with the aim of gaining greater visibility – are generally creating advanced courses related to cutting-edge technology or state-of-the-art knowledge (like artificial intelligence or genetic engineering). Although theoretically not barred from access, most people who did not attend any sort of formal higher education will simply not be equipped to grasp the concepts.

Interviewees with many years of experience in teaching also mention the additional barrier of a capacity for individual study and learning. Oulimata Sarr is a program coordinator at the Technical Institute of Commerce in Senegal; a private institution of higher education which specializes in trade and finance and offers online degrees. Part of Sarr's academic background is in educational sciences, and she followed a Massive Open Online Course herself, as continuous education to help her professional growth at ITECOM. She mentions that

> *"MOOCs can help open students' eyes to new discoveries, encourage them to become more autonomous and foster their curiosity to find new materials, but for now they cannot replace traditional education in developing countries. It can be a useful complementation tool. But most students at the University level often need guidance, motivation and support to complete courses. An additional barrier is the fact that many students in formative stages (first years of University and below), do not have a culture of self-discipline for studies"*[54].

And Olivier Sagna mentions that

> *"A great degree of personal motivation is needed to complete the courses. MOOCs are an additional resource, they may help provide additional resources to some curious and engaged students and researchers, but not everybody is equipped to learn by themselves. It might be easier for people studying at very high levels, such as Master or graduate studies, to learn by themselves via MOOCs – but for lower educational levels, and at a formative level, it is not realistic to think that just about anyone can follow distance learning, without the support of teachers and instructors. Education is not only about providing "ready-made" knowledge, but rather also about developing a critical view. And for this purpose, guidance by an instructor is needed at the formative levels – a definition of which may include the Bachelor level as well. MOOCs, as such, fail to provide the necessary follow-up to develop a critical view"*[55].

In the survey, we asked respondents about their perceptions on *who* is having access to MOOCs, about barriers to access, and about the main advantages and disadvantages that they perceive MOOCs have for their own countries[56]. One of the most telling facts from this survey is 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 higher* (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 primary, middle or high-school education at most (meaning: the educational levels that come before an undergraduate degree, and the only ones that many developing countries' governments strive to make universally accessible). 31.9% of respondents have graduate or post-graduate level education (Master or PhD), which is much higher than the national average of graduate and post-graduate education in a country like Mexico. According to Mexico's National Population Census by the National Institute of Statistics and Geography, in year 2010 only 17.8% of Mexicans over 24 years of age completed a higher education degree (counting from Bachelor-equivalent degrees upwards)[57]. These figures already tell a powerful story about *who* is able to benefit from MOOCs; mostly people who *already had benefitted from formal, traditional higher education,* for whom finding out about MOOCs – and actually completing them – is feasible. Of our 391 survey respondents, 164 (or 41.94%) are students, researchers or University professors, and are therefore already directly part of higher education institutions. And 54% of MOOC students responded that they learned about the existence of MOOCs from the Internet – which makes us reflect on the fact that someone with no Internet access to begin with, will be much less likely to realize that MOOCs are even "out there".

It is curious to see how our interviewees and survey respondents seem to hold ambivalent ideas about MOOCs. A majority of them appeared to be unaware about the barriers that still keep MOOCs out of the reach of large sections of the population. 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. However, at the same time they recognize that important barriers are in place, which in reality means that MOOCs are largely benefiting the people who have already had advanced educational opportunities. Even though most survey respondents seem to agree that MOOCs provide educational access to people who otherwise would not have it, when further asked about barriers to access, many seem to readily identify at least the most important ones:

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 in 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%

These were the most prevalent answers (along with others that appear less than ten times each). 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.

This cross-examination seems to show that, just as some of our interview partners do not always recognize the potential barriers of entry for people who had less access to an educational environment than they have; also many MOOC students do not seem to realize that the opportunities they have had in being able to attend at least undergraduate education (since most of our respondents did) are not available to everyone in their countries. From some of our interview partners it can also be inferred, when 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 that they themselves live immersed in.

Certifications, the employment market, and the "Big Data" concerns

Analysis of our results from interviews and surveys seems to show that MOOCs, writ large, benefit those who would appear to need them "least": people who had access to traditional higher education, or who are currently employed and using MOOCs to update their knowledge – as a form of "continuous education" or on-the-job training. If MOOCs are better suited for people with previous specialized knowledge to keep their skills updated and for continuous education, then the MOOC "solution" hardly brings any better employability benefits to those who could never attend school or never had a formal job.

This doesn't imply, however, that MOOCs cannot be beneficial as further training for those who have already capitalized on formal education or specialized skills. Employers in developing countries, just like educational stakeholders, could see MOOCs as an opportunity to save significant amounts of time and financial resources for training their staff in developing countries. Yet, given the fact that some authors have criticized MOOC-providing platforms for not having any uniform standards of quality for the courses[58] – and rely, instead, on the assumed quality of the

"big brand-name" universities – there could be a concern with MOOCs whose quality is not verified by the provider.

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%

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

According to the table, employed people, professors, and students are the groups that mostly agree with the statement that MOOCs would give them better employment opportunities, while the unemployed people and business owners see somewhat less relevance in the statement. It is interesting to observe how respondents seemed to agree with the following statement "MOOCs would help me to gain better job opportunities"; but when asked about advantages they perceived in MOOCs for their own countries, of the 391 respondents, only 12 mention the employment opportunities of MOOCs. Although most respondents share a belief that MOOCs are a good way to gain better job opportunities and professional growth, at the same time they are of the opinion that MOOCs are not yet able to bridge the existing gap between employees and future employers in developing countries.

The apparent inconsistencies in responses can be explained by some prior findings: the fact that most people following MOOCs have already benefited from formal higher education, and therefore are more likely to be employed or have been employed in the past for their specialized skills. Also, MOOCs being a recent phenomenon, many employers in developing countries most likely have not heard about them – and might question the legitimacy of the certificates –, a problem that could vanish as MOOCs gain popularity and traction. In order to assess how MOOCs can affect the job market in developing countries, it is important to understand the respective contexts in which MOOCs are implemented. The question of MOOCs' impact on emerging economies is directly related to the question of accessibility – *"who is having access to MOOCs today?"...* As shown already, there are several limitations that should be taken into account before exporting MOOCs to developing countries as a universal solution for either higher education or vocational training.

This brings us to another key element: certifications of completion. Obtaining a certificate of completion (even though it is still not clear whether it provides advantages concerning the employment market), is a relevant concern among MOOCs users. Some MOOCs offer participants the opportunity to obtain certifications once they have completed the courses and fulfilled all the requirements. In very few cases, MOOCs are considered as valid academic credits in certain schools, though this is not yet a widely used option[59]. The fact that many MOOC takers already have obtained university degrees reinforces this statement. And with MOOCs being a recent phenomenon, assessments about certifications – which could be used by participants as evidence, for their employers, that they have developed particular skills – and about their potential

usefulness, are still premature. Our interviewees (Salinas[60], Duangchinda[61] and Villanueva[62]) argue that MOOCs, rather than potentially "replacing" traditional higher education, will be useful as *"life-long learning"* and *"a complementation to traditional education";* agreeing also that MOOCs might be sometimes useful in the job market, but have not yet acquired critical importance. According to our findings, certificates of completion for MOOCs attract a lot of positive views. As many as 31% of MOOC participants think that it is *'moderately important'* for them to get a certificate; while 30.2% of them deem it *'very important'.* 13.55% think that it is *'essential',* and 14.06% of the participants think that it is '*not important'* (meaning, the views on both extremes). 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 obtaining a certificate is important, but it is not something that they expect from MOOCs as a priority. We may thus draw an early conclusion that most MOOCs users from developing/emerging countries do perceive *some* potential advantage from obtaining a certificate of completion, but such advantage is not yet clear. From the rest of the literature and responses that we have analyzed, we also infer that for those who have never attended school nor been employed before, there are still no clear advantages in the labor market to having one – but this is because precisely those people tend to not have real access to MOOCs, due to barriers. However, MOOCs as continuous education for those already employed, who can use them to acquire or develop specialized skills, may be a different story – as those already educated and employed can perhaps adapt to an environment of online learning much more easily, and use MOOCs as a less costly and more flexible way for further professional growth.

Moreover, Coursera, in September 2013, has taken a step forward in improving its certification process by teaming up with its partner universities to issue the *verified certificate*[63], which could create a better chance for the students to use their MOOC knowledge for future employment. They also launched experiments with their partner institutions and employers on the use of a "signature track" system, where students' profile and "detailed course performance" will be traceable and shared with partners who might be interested in hiring those with high performance ratings[64]. This, however, brings a renewed concern about online privacy, the sharing of information and "Big Data": it remains to be seen as well, what the implications might be – for better and for worse – of the creation of enormous pools of data within MOOC platforms. Data might include names, e-mail addresses, years of birth; and powerful indicators about users' study fields, areas of academic interest, and scholarly progress and skills[65]. All this data could potentially be available for both research and commercial uses – ethical and otherwise.

New solutions through blended learning: where might they work, and why?

Some educational initiatives incorporating MOOCs, in fact, already exist in developing regions. In Tanzania, the NESAP-ICT project was carried out in cooperation between the World Bank, Coursera and the Tanzanian government to provide young African students with IT skills, aiming to bridge the gap between the unemployed young adults and the strongest requirements of the labor market[66]. Boga and McGreal analyze this recent partnership[67]. They emphasize the need for MOOC platforms to work with the local actors, as well as the need to *adapt content,* to make the content relevant to the local labor market's needs – mentioning also the higher prevalence of mobile technology than computers in the developing world[68]. An interesting aspect that they also quote, is that *"disruptive technologies"* – such as MOOCs – stand a greater chance of having an impact in markets where *"the alternative is nothing"*[69]. Liyanagunawardena's study mentions, too, the potential that MOOCs have to reach "marginalized groups" (for example, women living in poverty), while being aware, however, of existing barriers of access: *"MOOCs have the potential to become an invaluable tool in offering education to marginalized groups in some cultures, if the other necessary conditions for participation are met"*[70]. What Boga and McGreal argue is that solutions shouldn't be "made to fit" from the developed into the developing world – it is important to keep in mind the aforementioned

barriers–; but rather that MOOCs can become one aspect of cooperative solutions between policy makers, governments, Universities from both developed and developing countries, the private sector (who tends to be more acutely aware of the local labor market's needs), and educational stakeholders. In Brazil, a very successful scheme for higher education is being implemented by two firms that deliver online education services, Kroton and Anhanguera, through the Unopar University in Paraná. Through this scheme, Unopar offers an affordable and flexible higher education degree that combines some courses given through MOOCs, some courses attended at the institution, and close follow-up to enhance students' engagement in the learning process[71]. The Kepler Project in Rwanda is another initiative that has also implemented "blended learning" solutions that combine both in-classroom and online learning via MOOCs, as well as involvement of the corporate private sector which can provide internships, traineeships, vocational courses or job opportunities – and thus map out a clear track towards employability for its students[72].

In order to analyze the potential of a MOOC-incorporating solution, we would need to contrast this solution against *what* the local educational alternatives are. In some developing regions, public universities are overwhelmed in their capacity, accommodating tens of thousands of students and struggling to keep up with demand, while the quality of education necessarily suffers. In the African case this was mentioned by Diallo, director of the African Virtual University, in the personal interview[73] and also in an article he wrote for University World News[74]. He mentions that many parts of francophone Africa don't need "MOOCs" but rather *"MOOPs": Massive Open Online Programs* of distance education, since the traditional educational alternatives tend to be overcrowded. The infrastructural capacity, the resources in teaching personnel, and the time that professors can devote to each individual student are sometimes far below the ideal in order to maximize students' learning. Ex-cathedra university courses in some francophone African regions can have close to a thousand attendees. Such a course is in itself "massive", and it's only logical that it will be lacking close and careful follow-up by a professor, as analyzed in a report by the Senegalese Ministry of Higher Education and Research[75]. Insights provided by our interview partners point at the fact that, to analyze whether or not MOOCs can provide any meaningful alternative for higher education in a specific region, we must consider *what the local alternatives are; and what they look like.* Arguing that MOOCs' weakness lies in "*the lack of instructor follow-up"* makes less sense if the local alternative is an ex-cathedra course with thousands of students, which *also* lacks personalized follow-up. Therefore, what kind of course are we comparing MOOCs against? Only by carefully studying the specific local context and the local alternatives, it might be easier to assess whether or not a solution that incorporates MOOCs can provide a new tool for expanded access to quality education – be it through blended learning, or any other mix of MOOCs with "traditional" classes, or MOOCs by themselves. MOOCs may be part of a good alternative for regions where the only educational possibilities are overwhelmed in their capacity. Conducting certain courses by distance, while offering complementary exercises and Q&A sessions in the classroom, could potentially free up capacity and infrastructure – but this, of course, does not fundamentally address the pre-existing barriers to access. According to Olivier Sagna, MOOCs could also be of interest for educational institutions in Africa that do not have, for example, enough professors who are specialized in some specific disciplines such as state-of-the-art technology… or for the further formation of the professors themselves, as well.

Even though these "blended" solutions tend not to address existing barriers of access to education, they might present interesting options for higher education in countries where alternatives are weak, overwhelmed – or nonexistent altogether. But, as mentioned before, local cultural aspects of education must be taken into consideration in order to create any sustainable, long-term feasible solution.

Conclusions

Views surrounding MOOCs are largely positive; instructors from developing countries who participate in them tend to express enthusiastic comments about their own MOOCs as well as other MOOCs; yet throughout this analysis we found echoes to suspicions voiced by other authors. Even

though key players in Universities see in MOOCs many promising possibilities to better address the needs of developing countries, other motivations are at play as well: be it prestigious Universities' (or professors') attempts to publicize their name and "brand", to gain access to more – formally enrolled – students, and in general for the publicity gains to be had by putting their name "out there". Others apparently want to avoid the losses of being "left out of the game", if in the future MOOCs *do* happen to change higher education irreversibly. MOOC supporters, be it students, instructors, or those involved in their implementation do not always seem to keep in mind the barriers that still put MOOCs out of the reach of most people in developing countries. Apparently, MOOC actors hold ambivalent opinions: the general feeling that MOOCs do give access to higher education to people who otherwise could not have it; while recognizing that important barriers are in place and that MOOCs are largely benefiting people who have already had advanced educational opportunities.

This, however, does not imply that educational institutions' interests in pursuing MOOCs are always monetary, or that such interests cannot be harnessed for national development. Many of these stakeholders, besides being very enthusiastic about their participation in the MOOC phenomenon, are also eager to share interesting ideas for the future of MOOCs, with regards to developing countries' further growth. For example: solutions that incorporate certain MOOC-related elements into schemes of blended learning; by creating degrees in public or private universities consisting in a mix of "traditional" courses and some MOOCs, the latter perhaps verified and certified by diverse certification agencies. Another interviewee mentioned the possibility of creating partnerships between educational institutions in developed and developing countries, governments, development agencies, or the private sector, to create and implement MOOCs that specifically address needs of developing regions; such as public health, sustainable ecotourism, public sanitation, urban development, or more efficient agricultural technologies.

To address MOOC platforms' purported goals of making higher education "accessible to all", we need to keep in mind the barriers that still put MOOCs out of the reach of large sectors of the population in developing countries – and the fact that MOOCs themselves do not quite delve into this problem at all. There will be, in the near future, a need to create a solid business model that benefits providers, universities and students; and to explore further ideas that could help MOOCs address the particular needs of developing countries and emerging economies. MOOCs, as they are today, can hardly help address development goals in the most underprivileged regions, as they seem to provide more education to those already educated, and more employment advantages to those already employed or specialized. They provide continuous education, rather than expanded access. In the future, however, a certain variant of MOOCs could mature enough to better help address the developing world's educational challenges. MOOCs, or some aspects of the MOOC phenomenon, can be incorporated into the existing educational systems, with solutions that mix the traditional and the novel, to increase access to better education. In which case, they could be used as a tool for the government to help strengthen their national education systems, to ease pressure on public universities and institutions, and to follow the principles set forth by the MDGs, which in turn would help national development in other areas: gender equality, poverty reduction, etc… and ultimately create an environment where education, through the use of technology, is not only better, but also more easily accessible. It would be recommended, however, that stakeholders willing to implement MOOCs into a possible educational solution for developing regions keep in mind the concerns mentioned here – barriers to access, pedagogical shortcomings, questions on quality, and local specificities, as well as consequences on existing educational policies and institutions.

All in all, MOOCs are relatively recent, and thus their full potential and limitations may be equally hard to assess today. In the case of developing countries and their educational systems, MOOCs may present a useful tool for some; however, their major limitations may mean – at least for now – that this tool is mostly available to those already in a privileged environment.

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Appendix

Annex 1: Interview questions used for MOOC professors

I. 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 2: Interview questions used 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 3: Interview questions used for other educational stakeholders (in Sub-Saharan Africa)

I. General questions

• Are you familiar with recent discourses about how MOOCs might help higher education in developing countries? If so, from whom do these discourses come from? (organizations, governments, etc.)

• What is your own opinion on the issue?

• What is the institutional position (Ministry or Implementer) / Is there any discussion within the system and if so what are the issues being discussed or has it been adopted without any prior thinking?

II. Impacts on country, participants, on education, on a globe

• Do you think the implementation of MOOCs might change higher education in your country?

• If so, how? What might be the options available? (incorporating them into already existing educational systems, or bypassing them through a completely new solution. If so how could that solution look like for the country?)

• Do you think that currently available MOOCs are adequate for the needs of students in developing countries? And if so, which categories – or fields – of studies in particular? Do MOOCs respond to the learning/training needs of students in your country? (and which students)?

• How does the MOOC phenomenon fit into the picture of education and technology in developing countries in general and in Senegal in particular?

• What are technological costs of MOOCs for the developing world?

• What kind of impact do you think MOOCs may have for developing countries? And specifically for Senegal?

• What can MOOCs do for someone in a developing country? In Senegal?

• Do you think many students in your country know about MOOCs? (If not, how come? What could be the reasons?)

• What do you think students in your country expect from MOOCs? (if they know them) Does this have any impact for them in the employment market or for further schooling?

• Can MOOCs help a student in a developing country to gain better employability in the job market? Quid in Senegal?

• How/to what extent is the content of MOOCs that you know, relevant to people from developing countries? To Sénégal

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

• How do/will MOOCs help the less advanced students to learn, or get an education? Any policy action in this respect?

• Can MOOCs affect the cost of the traditional University?

• Do you think MOOCs may impact educational access in developing countries? In Senegal?

• How can the quality of contents be assured? What is being done concretely in the case of Senegal to address the quality issue?

• What are MOOCs' potential disadvantages? What is being done to address the identified challenges?

• In your opinion, what is the most valuable outcome of MOOCs? Were you able to observe them in Senegal? (*note: if the process is evidence-based or merely bandwagoning…)

• Could it be the case that Universities in your country may be also interested in offering their own MOOCs? And if so, is that feasible?

III. Pedagogy

• What would be the motivations for University professors in your country to participate as MOOC instructors?

• If professors in your country participated as MOOC instructors, would it change the way they teach in traditional University? If yes, do you have evidence thereof (either in terms of improved learning outcomes or of change in teaching practices?)

• If they did so, how can the pedagogical quality of contents be assured? What is concretely being done in your country, university to that effect?

• Do you think the pedagogical model currently used by MOOCs would encourage adequate learning for the students in your country? If yes: how? If no: what are the issues and how address them?

• How might MOOCs fill the gap in the social relations aspect of learning which is missing?

IV. Access

• Can MOOCs, in your opinion, replace the traditional University?

• Do you think MOOCs may impact educational access in developing countries, and if so, how? Any suggestion that this is the case in Senegal?

V. Credits and certification

• Do you think a MOOC certificate could be considered a legitimate educational degree for employers in your country?

VI. Conclusion questions

• What is your opinion about the fact that MOOCs are predominantly being taught by people and universities in developed countries? Do you think this brings any change into the educational landscape of developing countries?

Annex 4: Online survey questions

4.1: 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
Neutral

Satisfied
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
Neutral
Agree
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
Neutral
Agree
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)

4.2: 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 foros de discusión
Con la retroalimentación del instructor
Con los exámenes y tareas
Con la calidad de los materiales
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
Neutral
De 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)

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Since its launch in 1985, NORRAG has established itself as a multi-stakeholder network of researchers, policymakers, members of NGOs, foundations and the private sector seeking to inform, challenge and influence international education and training policies and cooperation. Through networking and other forms of cooperation and institutional partnernships, it aims in particular to stimulate and disseminate timely, innnovative and critical analysis and to serve as a knowledge broker at the interface between research, policy and practice. As of November 2014 NORRAG has more than 4,300 registered members in more than 170 countries, 45% from the global South.

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NORRAG is hosted by:

THE GRADUATE INSTITUTE GENEVA

INSTITUT DE HAUTES ÉTUDES INTERNATIONALES ET DU DÉVELOPPEMENT
GRADUATE INSTITUTE OF INTERNATIONAL AND DEVELOPMENT STUDIES

NORRAG is supported by:

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

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