5 Drivers

BizMOOC Discussion paper 5

Drivers behind MOOCs/reasons to get involved

BizMOOC – BizMOOC – Knowledge Alliance to enable a European-wide exploitation of the potential of MOOCs for the world of business
Programme: Erasmus+ | Key Action 2 | Knowledge Alliances
Reference Number: 562286-EPP-1-2015-1-AT-EPPKA2-KA
Grant agreement number: 2015-2929 / 001-001
Project Duration: 36 months, 1/1/2016 – 31/12/2018

Drivers behind MOOCs / reasons to get involved

Author: Darco Jansen (EADTU)

1. Abstract

This paper discusses the main reasons to get involved in MOOCs. The main focus is related to the main drivers playing a role behind MOOCs.

a. Drivers at society level and for governmental involvement

b. Reasons for HE institutions to get involved in MOOCs
c. Benefits for people to participate in MOOCs.

2. Introduction

Learning is in general recognised as an engine for individual, social and economic development. As such, it is highly advantageous for both individuals and society to invest in education. Over the past twenty years, higher education (HE) has undergone major transformations brought about by (i) increasing internationalisation and mobility of students; (ii) an ever growing demand for quality higher education and lifelong learning; (iii) changing student demographics; (iv) rise of online and blended learning, which have enabled increased democratisation of access to knowledge and education; (v) cross-border higher education, recognition and quality assurance of qualifications in a digital world with no borders.

In this context Massive Open Online Courses (MOOCs) are a new kid on the block. Since 2012, known as “the Year of the MOOC”, MOOCs have expanded worldwide, shaking up the higher education landscape, potentially disrupting the model of brick-and-mortar universities. In 2013, MOOC activity began in earnest in Europe starting with the pan-European initiative OpenupEd, and in addition different (regional) MOOC platforms became available (e.g., FutureLearn, Iversity, FUN, UNEDcoma, Miríada X). In September 2013, the European Commission launched the initiative Opening Up Education to further enhance the adoption of open education in Europe (European Commission, 2013). In this context the European Commission funded a number of MOOC projects (e.g., HOME, ECO, EMMA, SCORE2020, LoCoMotion, TraMooc, BizMOOC, LangMOOCs, MOOCs for web skills, MOOQ, MOOC-Maker, etc.). Some overall research on Open Education is also conducted on behalf on European Commission1. In addition national governments are funding MOOC initiatives or even start with national MOOC platforms (e.g., FUN in

France) and Open Education initiatives (e.g., Opening Up Slovenia).

This BizMOOC Discussion paper focusses on the main drivers behind the MOOC movement. This paper is based on existing studies. First the main reasons why governments are involved is discussed, focussing on the main drivers at a society level. Secondly the main reasons why (higher educational) institutions are publishing MOOCs is summarised. And finally the benefits for MOOC participants are reviewed.

3. Drivers behind MOOCs for the benefit of society

One could question why governments should invest in MOOCs? I.e., what is that policy makers at national governments are concerned with in an increasingly competition of higher education system? Is that for counteracting the US dominance and protect their national higher education system? And subsequently help their national HEIs with recruitment and reputation? Or is their involvement also related to the main drivers why governments invest in higher education system?

In general MOOC provision is much more open to external scrutiny than is residential education, the quality of what a country's own universities offer in this area is important to the 'national brand' of its higher education system. Ensuring high quality in curriculum design and delivery is not only of key importance for the education of local students but also as part of a window into the quality of the national HE system as a whole. MOOCs may therefore be part of a general endeavour to maintain competitive position in an expanding global market. These concerns will influence the degree of support of national governments for MOOCs and open education.

Governmental investments in higher education in general

A high ratio of participation in tertiary education is especially beneficial for governments and society, since well-educated people present lower unemployment rates, live longer, have better health (less health costs for society) and are more satisfied with life in general (Baum, Ma, & Payea (2013) and Department for Business, Innovation & Skills, 2013). Consequently, governments invest in tertiary education. In 2010, the OECD countries spent on average about 1.6% of their GDP on tertiary education (OECD, 2014).

Provision of higher education is funded and partly (quality) controlled by national governments. But there are significant differences between higher educational systems. The continental European approach to higher education is related to state funding in which most institutions have equal resources and status while the more market-based U.S. model has mixed private-public funding and provision with large difference between HEIs (see also Chart B.2.2 from 'Education at a Glance' from OECD, 2014; or table B2.2. trends in expenditure on educational institutions as a percentage of GDP, by level of education (1995, 2000, 2005, 2008, 2009, 2010, 2011), p. 231). This social dimension seems to be very strong in continental European compared to the U.S. Investments of governments in higher education must also be related to the society level and consequently to aspects like access to HE, inclusion and social mobility. In this context the (society) costs of higher education is an important driver. Jansen, Schuwer, Teixeira, & Hakan Aydin (2015) state that this social dimension of higher education in continental Europe might be a possible explanation for the observation that HEIs are much more involved in MOOCs compared to U.S.

Governmental investments in education – cost reduction and technology

With increasing participation figures the total costs of HE provision is increasing as well (Eurostat, 2015), see for example figure C9). Governments, especially with financial crises, are trying to reduce their costs for higher education at a national level. Between 2008-2011 the expenditure per tertiary student has decreased in more than a third of countries, mainly because enrolment increased faster than expenditure (OECD, 2014). Open and online education in general (and MOOC specifically) is seen as a new and flexible way to educate the many while not increasing costs drastically (and even increase quality of education while keeping total costs equal). Moreover, it might even reduce the total costs of higher education while maintaining (or even increase) the number of tertiary students.

Investments in education are made through technology-driven innovation, which is often made possible by constant reductions in costs ("Moore's law"). ICTs can significantly reduce both variable and fixed costs. In some situations, the variable costs are minimal and the difference between serving a small or a large number of customers is thus negligible. This phenomenon has been called 'variable cost minimisation' (Kalman, 2014). ICTs have created the possibility of large-scale education by bringing courses to the public domain, as is the case with OERs (course content) and MOOCs (a complete learning experience). MOOCs have engendered discussion on blended and online education in European universities and in national ministries, e.g. in the Netherlands, Norway, France and the UK.

Investments for increasing access to open

education

Technology has not provided a solution that gives all people access to tertiary education. On the contrary, access has decreased. For example, the cost of education in the U.S. has risen 84% since 2000, which has led to lower participation and an accumulation of student loan debt. Part of the problem in the U.S. is related to the high cost of textbooks, which has reduced citizens' access to higher education.

The problem of accessibility to HE is frequently addressed. The number of students enrolled in HE is forecast to rise from 99.4 million in 2000 to 414.2 million in 2030 – an increase of 314% (Calderon, 2012). This growth is being fuelled by the transformations that we are witnessing in the developing and emerging regions and countries of the world, and it will only accelerate in the next decades. Accommodating these additional students would require more than 4 major universities (30,000 students) to open every week for the next 15 years (Uvalić-Trumbić & Daniel, 2011). However, this raises problems as developing countries and emerging economies have a shortage of qualified teachers and a lack of high quality learning materials. The optimal solution would probably be to continue opening universities (both traditional and distance teaching), as well as to encourage universities to develop high quality MOOCs.

This question is further complicated by wide-ranging factors such as financial constraints, lack of capacity, national priorities and the digital divide, rendering the scope of this problem very hard to grasp. Options such as the construction of more university campuses, bolstering online learning and removing barriers to learning barely touch the surface of this massive challenge (Johnson et al., 2014, pp. 30-31).

MOOCs can contribute to goal number four of the UNESCO Sustainable Development Goals states: "Ensure inclusive and equitable quality education and promote lifelong learning

opportunities for all" (UNESCO, 2015a and 2015b). This framework refers to the role of technology in providing open educational resources (OERs) and distance education, and says that tertiary education should gradually be made free, in line with existing international agreements.

This requires active government involvement (e.g., UNESCO&COL, 2016), with investments that will also depend on the level of society and consequently on aspects such as access to HE, inclusion, equity, quality, affordability and social mobility. However, OERs only contain information and knowledge from higher education. They do not provide complete learning experiences in the way that informal courses do. For this, MOOCs are (or were originally) seen as the next step in the quest for greater access to higher education. However, at present MOOCs are not formally linked to higher education systems. To really provide access at the system level, learning through OERs and MOOCs must be incorporated into formal programmes.

Investments in open education – a need for scalable open education

OERs and MOOCs can be positioned within the broader development of open education as described above. The potential of open education was strongly marked by the Cape Town Open Education Declaration (Shuttleworth/OSF, 2008). However, although the concept of open education is often mentioned, it is not usually combined with a clear and solid description of what the term means. What "open" means in open education has been the subject of some debate and is increasingly becoming associated with "free". However, open education is primarily a goal associated with removing barriers to education (Bates, 2015). The aim is to increase access to and successful participation in education by removing barriers and offering multiple ways of learning and sharing knowledge, and to improve accessibility to formal and

non-formal education. In this context, MOOCs form part of open education and should be defined as such (UNESCO&COL, 2016). Recently, Jansen, Schuwer, Teixeira and Aydin (2015) validated this relation between MOOCs and open education.

In general, open educational practices (OEPs) are related to the removal of all kinds of barriers in education. For example, successful participation in higher education can be increased by removing economic barriers. MOOCs contribute both by reducing costs for participants and by providing education for the masses, but they also remove barriers related to entry requirements, location, scheduling, network connectivity, digital literacy, accessibility over time, language, age, culture, legal issues and quality. Possible incentives for Open education are related to learner satisfaction, completion and recognition. Mulder and Jansen (2015) explored whether MOOCs can be instrumental in opening access to education. They concluded that MOOCs and their providers would not or probably cannot remove some barriers easily. Moreover, MOOCs themselves do create other barriers, such as network connectivity (learners need good Internet connection), digital literacy and, for now, cultural and linguistic barriers (as most MOOCs are still from Western countries and in English).

In addition, on the macro level OEPs are related to governmental policies that stimulate access to and success in education or society as a whole. Examples include open access policies for publicly funded research or open licensing policies for the outputs produced by subsidised education so that they benefit everyone in society and not only educators. Reference should be made here to the European Commission's initiative, "Opening up Education" (European Commission, 2013). This was launched in September 2013 as a joint concerted effort and integrated approach of DG Connect and DG EAC. This plan focusses on innovative teaching and learning for all through ICT, contributing to the modernising EU education through OER, digital competencies, infrastructures,

interoperability, equity, quality, visibility, licensing, certification, etc. It is an plan towards innovative learning and teaching through ICTs aimed at modernising education for the full spectrum of learners in all educational sectors using OERs and MOOCs.

Online and open education has great potential to improve the quality of education by promoting innovation in teaching and learning processes and increasing flexibility and accessibility for students. Openness is an important driver for various social dimensions, but also for promoting the development of skills, enhancing knowledge transfer and increasing the pace of innovation. ICTs enable openness and in addition provide the efficiency and scalability needed in open education.

However, it must be recognised that different barriers exist in each continent, country and region and the incentives required will also vary. This is due not only to language differences, but especially to local and cultural characteristics. Open and online education can overcome these obstacles and provide access to and successful participation in higher education. The main challenge is to provide solutions that scale (both pedagogically and economically) and respect cultural differences and the need for personalised interaction in education.

4. Reasons for HE institutions to get involved in MOOCs

Although European higher education institutions (HEIs) are aware of the importance of MOOCs as a global movement and an instrument for educational policy, many have been hesitant to adopt or engage with MOOCs. Yuan, Powell, & Olivier (2014) indicated that pedagogical issues, strategic and cost questions are among the concerns that have delayed European HEIs from entering into this movement. However, the last few

years this has changes significantly. Four independent European studies demonstrate that the uptake of MOOCs in Europe is not only maturing but is doing so at a much higher level when compared to the US.

One of the MOOC projects funded by European Commission, entitled as Higher Education Online: MOOCs the European way (HOME, 2014) conducted two successive survey studies (Jansen et al., 2015a/b, 2016) to contribute to the literature by providing an insight about European perspectives on MOOCs, to gain a better understanding of the strategic reasons why a higher education institution is or isn't involved in MOOCs, and to compare these reasons with the results of similar studies in U.S. (Allen & Seaman 2014, 2015, 2016).

In addition two other studies were conducted in Europe that included similar MOOC questions, i.e. by the European Universities Association (EUA) in 2013 (Gaebel, Kupriyanova, Morais, & Colucci, 2014) and by JRC-IPTS in 2015 (Muñoz, Punie, Inamorato dos Santos, Mitic & Morais, 2016). The latter did perform post-data correction to correct for several biases.

In the figures below the results of these studies are compared. The abbreviations US2013, US2014 and US 2015 refer to the US studies by Allen & Seaman published a year later. EUA (2013) to the European survey published by Gaebel et al. (2014), EU 2014 (all) to results of Jansen (2015a, 2015b), IPTS (2015) to those published by Muñoz (2016) and S 2015 (all) to results of Jansen&Goes (2016).

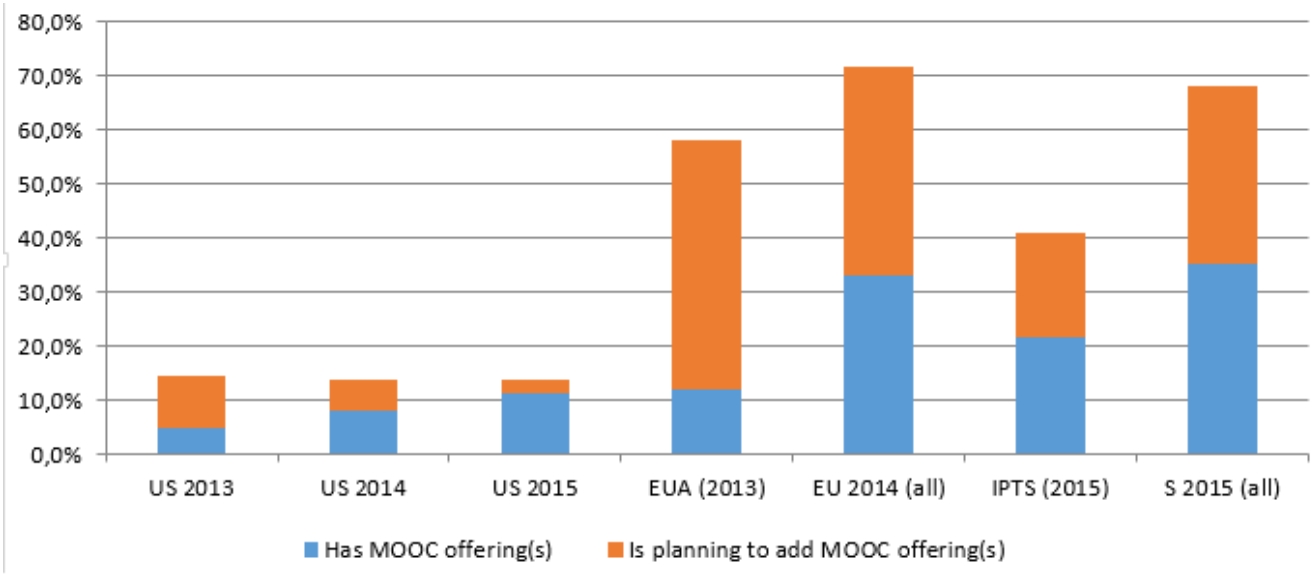


Figure 1. Institutional profile in MOOC offering.

Figure 1 presents the results of those seven surveys on exactly the same question on the status of MOOC offering of Higher Education institutions (HEIs). The differences between U.S. and Europe are striking. While in the U.S. the number of HEIs have a MOOC or planning to add MOOC offering is stable at 12-13% for the last three years, European HEIs seems much more involved with in general over 45% of HEIs (planning to) offer MOOCs. Although difference between European countries are reported (Muñoz , 2016: ranging from 25% in Germany to about 60% in France; Jansen et al., 2016: 45% in Turkey to 90% in Italy and Portugal) in general these studies demonstrate that the ”interest in MOOCs has far from peaked in Europe” (Gaebel et al. 2014, p54).

Jansen (2015a) poses the thesis that these large differences between U.S. and Europe might be related to the differences between higher educational systems. As in continental European HEIS are strongly state funding – most institutions have equal resources, the market-based US model has mixed private-public funding and provision with large differences between HEIs. These differences are also reflect in institutional policies.

Much of the literature and the academic discussion about institutional strategic planning of MOOCs has been centred on

the U.S. context. Only recently several European studies are conducted on how are HEIs responding to the challenges of the MOOC phenomena and are integrating it in their own strategic planning. The suggest that the response in Europe in some aspects differs from the U.S.

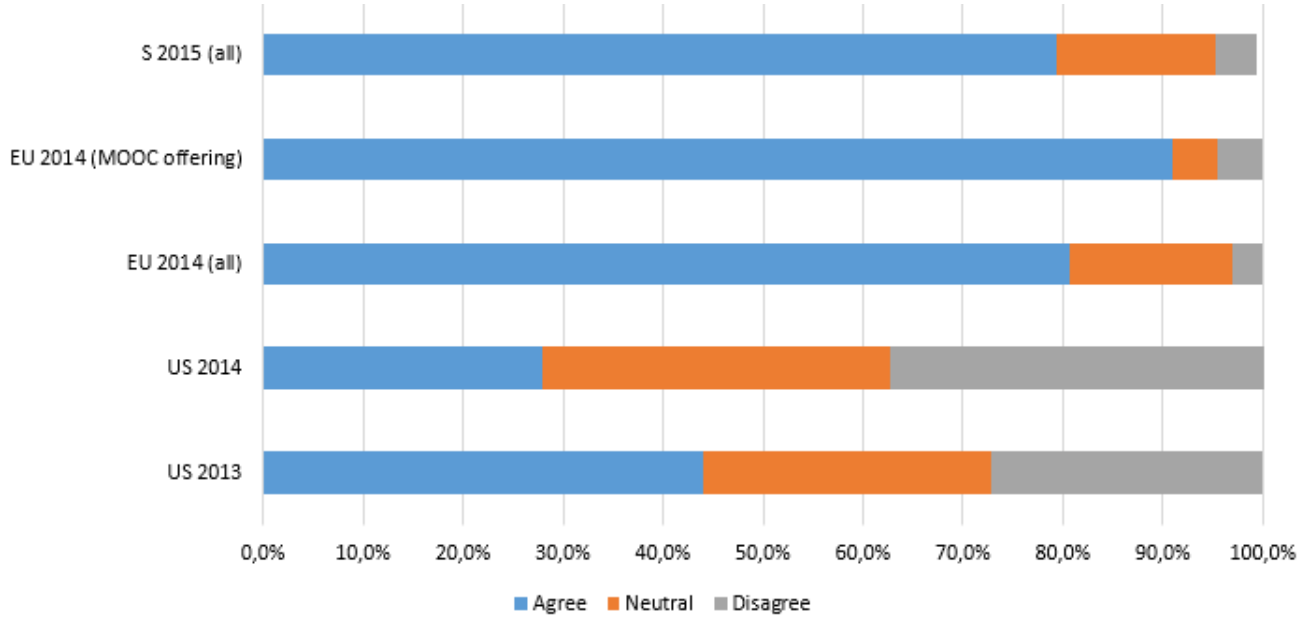


Figure 2. MOOCs are important for institutions to learn about online pedagogy.

While in the U.S. survey, the opinions are mostly neutral or disagree, in the EU version a large majority of the respondents agree that "MOOCs are important to learn about online pedagogy." (figure 2).

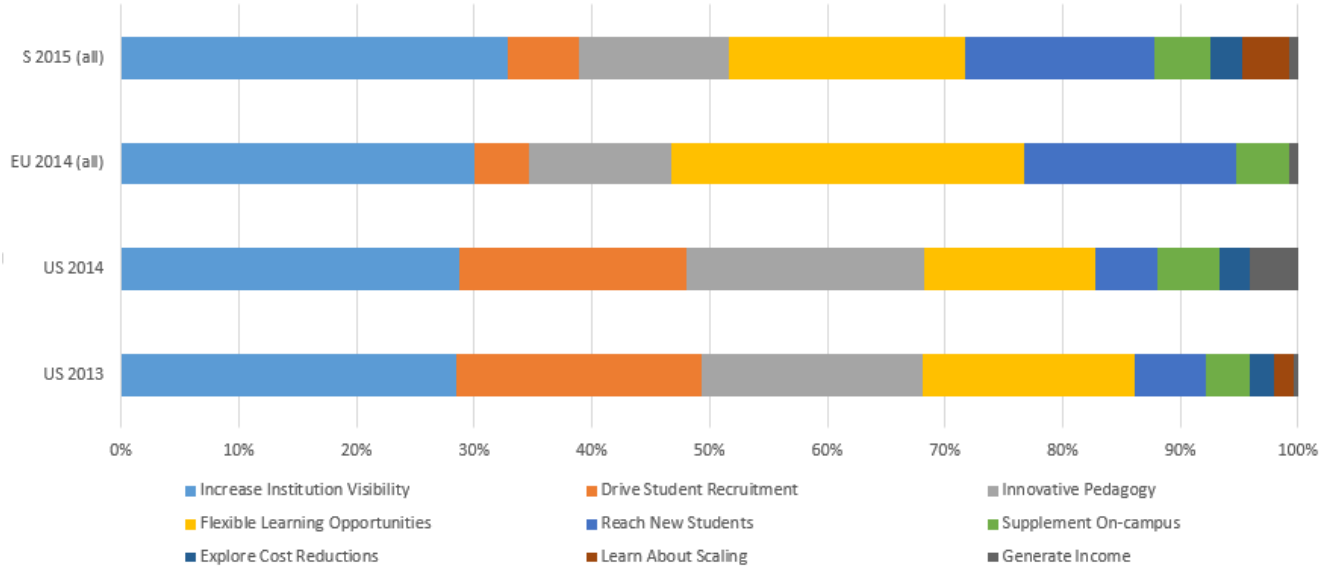


Figure 3. Primary objectives to offer a MOOC.

Figure 2 indicates that the European HEIs are much more interested to use MOOCs for innovation of the educational provision. This is confirmed when comparing the primary objectives of the HEIs for offering a MOOCs (figure 3). In Europe using MOOCs for student recruitment is not considered as important as in U.S., but rather to reach new students and creating flexible learning opportunities (for those new students). In all surveys, the objectives related to finance (explore cost reduction, generate income) and scalability dimensions of MOOCs are not regarded as primary objectives.

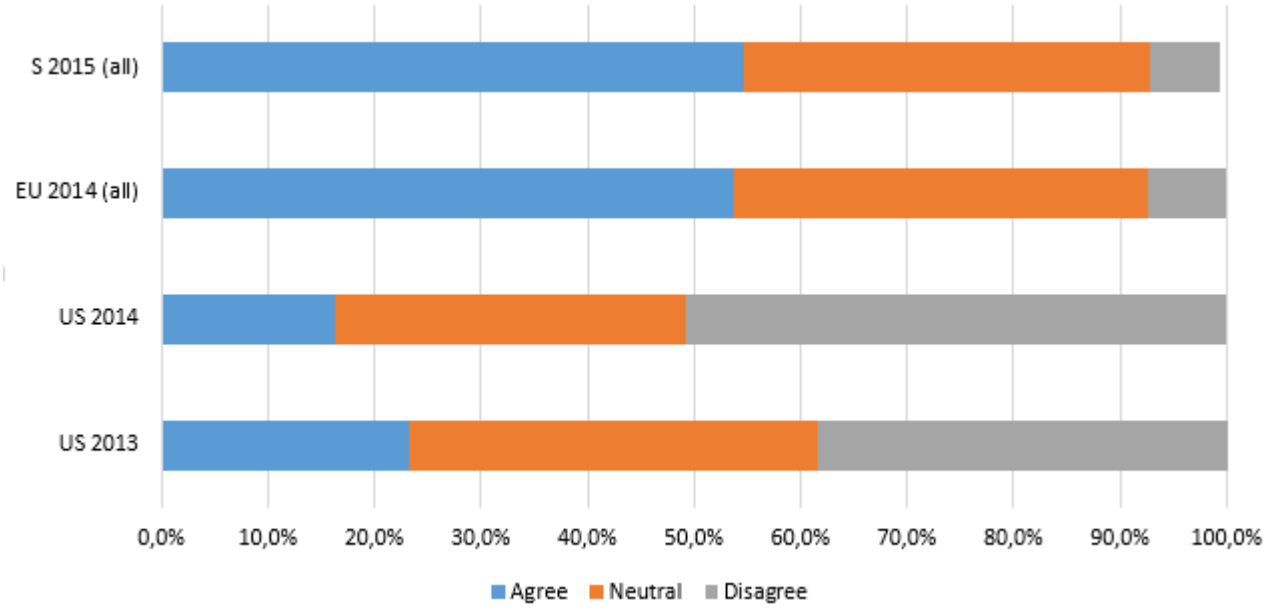


Figure 4. Response to "MOOCs are a sustainable method for offering courses"

These independent studies confirm that the European HEIs are more broadly involved in MOOCs compared to the U.S. institutions. Moreover, it seems that European HEIs are clearly confident regarding MOOC development and implementation. The European institutions are having a more positive attitude towards MOOCs and those offering MOOCs have positive experiences (see for example figure 4). More than half of European HEIs already stat that some/most institution's objective are already met, indication an overall institutional strategy and/or policy on MOOCs.

5. Reasons for people to participate in MOOCs.

MOOCs are gradually regarded as a way to address the growing number of individuals seeking to gain access to HE. Evidence points to rising numbers of learners signing up for “wholly online learning” as an indication that there is a real demand for such courses. Class Central reported that in 2015, the total number of students who signed up for at least one MOOC crossed the 35 million mark, more than doubling the estimated 17 million for that year (Shah, 2015). Prospective students want to learn in their own time and at their own pace, and the Internet is allowing them to access learning opportunities online that previously were beyond their reach.

From the students’ point of view, MOOCs not only provide access to quality educational materials over the Internet but also help them learn flexibly. Moreover, they can compare materials and educational systems through MOOCs. Besides the learning itself, MOOCs provide the opportunity to connect with people who share the same interests or professional profiles. As a result, citizens in general are able to reach out to new groups and generate new ideas, to initiate novel projects or other interpersonal engagements, for a wide variety of purposes.

Although some argue that MOOCs have the potential to make high-quality education available for everyone, in reality, access seems mainly limited to a specific category of learners. Ho and colleagues (2015) analysed 68 MOOCs offered by Harvard and MIT from Fall 2012 to Summer 2014 and identified the following learner characteristics:

- 71% of the participants already had a bachelor’s degree or higher.
- 53% were under 30 years of age.
- 32% were based in the United States.

- 31% were female.

Schmid and colleagues (2015) confirmed that a majority of learners (69 per cent) originate from developed countries (see also O'Brien, 2015). Recently, IPTS (2016) confirmed that also MOOC learners in Europe are individuals from privileged socioeconomic backgrounds. Christensen and colleagues (2013) found that about 16 per cent of participants in their study originated from developing countries. These participants possessed largely the same characteristics as those from developed countries (i.e., they were well educated, young and male). Findings from the same research also provided insights into learner motivation for participating in a MOOC. Table 1 list the results by region. Each respondent could select all motivations that applied, so the totals add up to over 100%.

Region → Motivation ↓	USA (n = 11,933)	Non-U.S. OECD (n = 10,784)	BRICS (n = 5,151)	Other Developing Countries (n = 6,911)
Gain knowledge to get my degree	6.8%	12.1%	20.3%	20.9%
Gain specific skills to do my job better	37.0%	46.4%	47.7%	49.0%
Gain specific skills to get a new job	12.9%	16.9%	21.0%	21.3%
Curiosity, just for fun	55.5%	52.5%	43.7%	41.2%

Table 1: Motivation to Take a MOOC, by Region. Source: (Christensen et al, 2013)

Although research studies such as the ones cited above are scarce and have not targeted MOOC offerings from developing countries, they nonetheless reveal that the promise of MOOCs providing access to quality HE for all individuals worldwide is far from being realised. Franco Yañez (2014) identified three major barriers to access 1) Technological. 2) Linguistic and 3) Prior knowledge

Learners have different goals when following a MOOC. These goals are reflected in the way a learner takes a MOOC. Hill (2013) has identified five categories of learners' behaviour

in a MOOC:

- No-shows: register but never log in to the course while it is active.
- Observers: log in and may read content or browse discussions, but do not take any form of assessment beyond pop-up quizzes embedded in videos.
- Drop-ins: perform some activity (watch videos, browse or participate in the discussion forum) for a select topic within the course but do not attempt to complete the entire course.
- Passive participants: view a course as content to consume. They may watch videos, take quizzes and/or read discussion forums but generally do not engage with the assignments.
- Active participants: fully intend to participate in the MOOC and take part in discussion forums, the majority of assignments and all quizzes and assessments.

A recent study by Wang and Baker (2015) has shown that participants who expected to finish a MOOC were more likely to do so, compared to participants who did not think they would complete the course. This motivation in the category of "active participants" is a good predictor for completing a MOOC. Although this finding is in line with the findings of other studies, they concluded that further research is needed to gain more insight into the motivations of MOOC participants and how these relate to MOOC design, in order to provide a learning experience worthwhile for a large community of learners.

Other research are related to specific MOOC initiatives like ECO project (table 2), MOOCs offered by of University of Edinburgh (figure 5) and of University of Derby (figure 6).

What did you hope to get out of this course?		
	2nd Edition	3rd Edition
Learn new things.	75,6	76,4
To get a certificate.	42,3	41,0
Improve my career options.	30,8	31,9
See what MOOCs are.	33,1	26,8
Try online education.	17,5	18,5
Browse ECO's offering.	18,2	17,6
Meet new people.	7,6	4,6
Other	1,8	3,3
Unsure	0,8	0,9

Table 2: Survey amongst MOOC participants of ECO (2016). Source ECO (2016), page 93

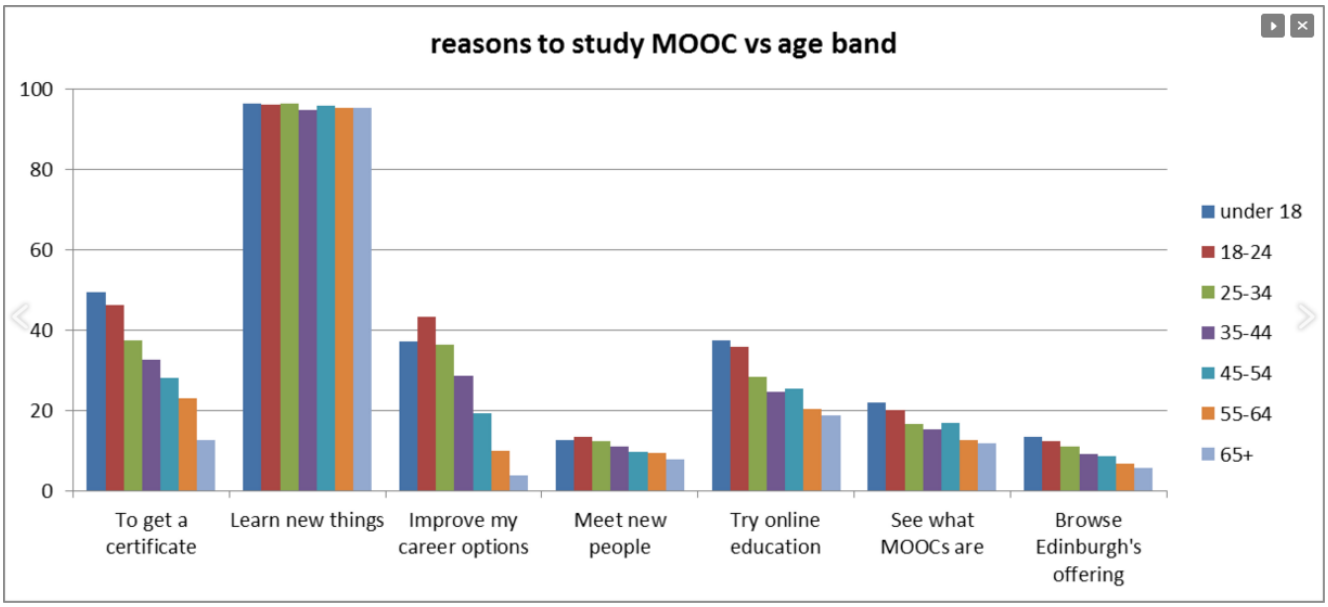


Figure 5. Response from participants of MOOCs offered by of University of Edinburgh

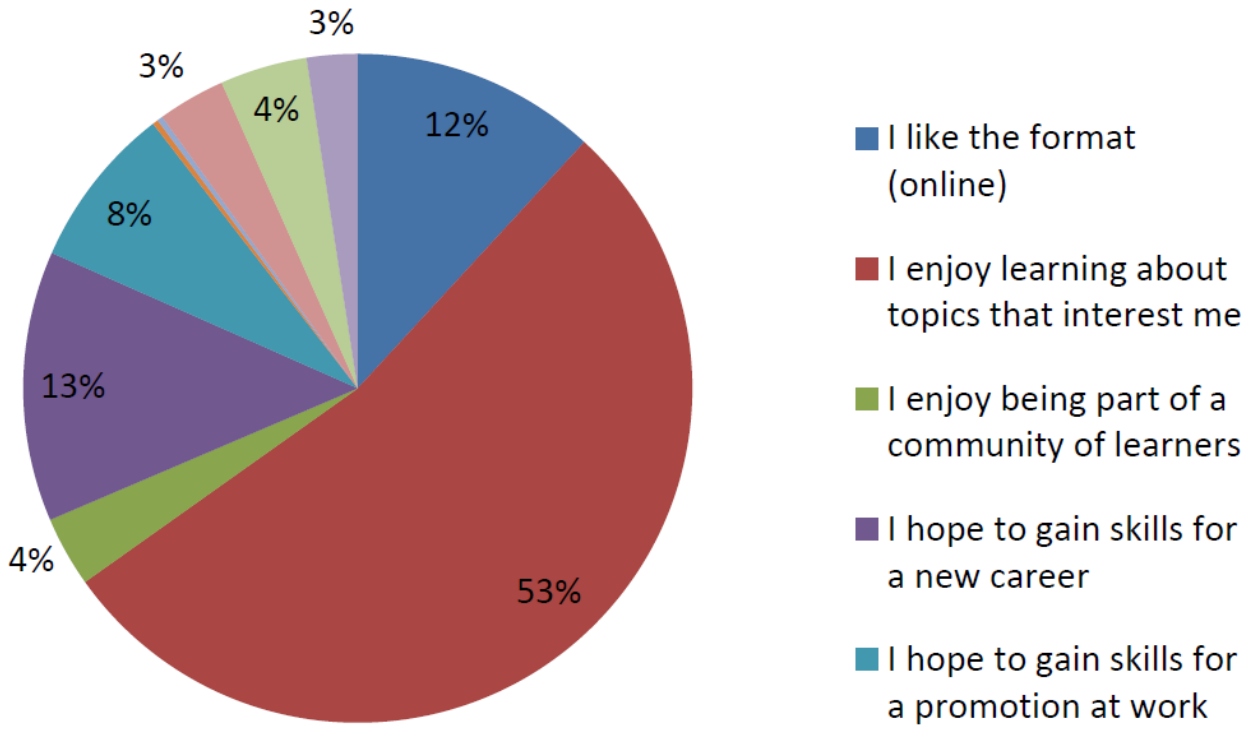


Figure 6. Response from participants of MOOCs by entry offered by of University of Derby

These motivations reflect the possible benefits for learners. Such benefits relate to general education, to lifelong learning and to skills acquisition for the labour market. We must realise, though, that these motivations were reported by learners with specific characteristics and do not necessarily reflect the motivations of learners who are not yet well educated.

MOOC for students – cost dimension

Moreover, investments in education on a personal level is profitable in the long term. In Europe, employees with tertiary education earned almost twice as much per hour as those with a low level of education (Eurostat, 2013, 2015). On average, the relative earnings for tertiary educated adults in OECD countries are over 1.5 times higher than those of adults with an upper secondary education (OECD, 2014).

Although in principle MOOCs are for free, some MOOC providers no longer offer all of their services at no costs; instead, they only grant free access to explore learning materials (Straumsheim, 2016). Access to the HE system (i.e., including recognition options) in these cases is therefore limited to those who can afford to pay for these additional services (for example certificates). For full-time students a master is about 30 courses of 3 ECTS each. Even if students has to pay about €50 per formal exam per MOOC (of 3 ECTS), the total costs for a complete Master Program is €1.500 (hence €375 annual fee when master is completed in four years).

As MOOCs are for free they might provide a could alternative if MOOCs are part of complete degree. But this might only apply for those countries who have a high annual tuition costs for students. For example it might be beneficial for students studying in the UK with an annual tuition costs of £9000 a year, but not in Germany with no tuition costs (see figure 2) However, online provision also reduces travel, subsistence and other costs for students. Note that the expenditure on core education services in tertiary institutions is, on average across OECD countries, USD 9.262 per student (OECD, 2014 – Expenditure per student on core education services, page 206). It ranges from USD 5 000 or less in Estonia to more than USD 10 000 in Austria, Brazil, Canada, Finland, Ireland, Israel, the Netherlands, Norway and Switzerland, and more than USD 19 000 in the United States".

6. Multi-stakeholders approach for skills and jobs

Youth unemployment is approaching 23% across Europe and at the same time we have over 2 million unfilled job vacancies (European Commission, 2012). The European knowledge economy needs people with the right mix of skills: transversal competences, e-skills for the digital era, creativity and

flexibility and a solid understanding of their chosen field.

But public and private employers increasingly report mismatches and difficulties in finding the right people for their evolving needs. The value of work-based learning – and notably of apprenticeships or "dual training" systems – in facilitating employment and increasing economic competitiveness is clearly recognised. There is a strong need for flexible, innovative learning approaches and delivery methods for improving the quality and relevance of higher education. Moreover, this is not just a matter of up-skilling individuals.

Responsibility to deliver the right skills for the labour market must be shared between businesses, educational providers and other stakeholders, including students. In May 2014, the European Commission launched the "e-Skills for Jobs" campaign (http://eskills-week.ec.europa.eu/). This multi-stakeholder initiative aims to supply Europeans with the required ICT skills and brings together representatives from the industry, education, and policy sectors.

MOOCs provide flexible, innovative learning approaches and delivery methods for improving the quality and relevance of higher education. Aiming at a right mix of skills: transversal competences, e-skills for the digital era, creativity and flexibility and a solid understanding of their chosen field.

7. Conclusions

MOOCs are an important part of non-formal learning for individuals with higher education experience, particularly those who are either unemployed or low earners. The socio-economic profile of MOOC learners varies according to the subject of the course. Data from studies of MOOCs in Europe sometimes differ from US studies. Several studies demonstrate that the uptake of MOOCs in Europe is not only maturing but is doing so at a much higher level when compared to the US. It is

concluded that the European HEIs are much more involved in MOOCs and also that their reasons to invest in this new format differs in some aspects as well.

The responsibility to stimulate the uptake of MOOCs must be shared between government agencies, academic and non-academic institutions, employers, civil society organisations and other concerned stakeholders. Governments should support and scale up multi-stakeholder partnerships for efficiency reasons but also for the benefit of society as a whole (EADTU 2016). Consequently different (regional) strategies are stimulated to leverage the full potential of online learning and open education for Europe (SCORE2020, 2015).

References

Allen, I.E, & Seaman, J. (2014). *Grade change: Tracking online education in the United States*. Babson Survey Research Group Report. Retrieved from http://www.onlinelearningsurvey.com/reports/gradechange.pdf

Allen, E., & Seaman, J. (2015). *Grade level: Tracking online education in the United States*. Babson Survey Research Group Report. Retrieved from: http://www.onlinelearningsurvey.com/reports/gradelevel.pdf

Allen, E., & Seaman, J. (2016). *Online Report Card: Tracking online education in the United States*. Babson Survey Research Group Report. Retrieved from: http://onlinelearningsurvey.com/reports/onlinereportcard.pdf

Bates, A. W. (2015). Teaching in a digital age: Guidelines for designing teaching and learning for a digital age. Retrieved from http://opentextbc.ca/teachinginadigitalage/

Baum, S., Ma, J., & Payea, K. (2013). Education pays 2013: The benefits of higher education for individuals and society. New York, NY: College Board. Retrieved from

https://trends.collegeboard.org/sites/default/files/education-pays-2013-full-report.pdf

Calderon, A. (2012, September 2). Massification continues to transform higher education. Retrieved from: http://www.universityworldnews.com/article.php?story=20120831155341147

Department for Business, Innovation & Skills (2013). The Benefits of Higher Education Participation for Individuals and Society: key findings and reports “The Quadrants”. Bis Research paper no 146. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/254101/bis-13-1268-benefits-of-higher-education-participation-the-quadrants.pdf

EADTU (2016) European Policy response on MOOC opportunities. Retrieved from http://eadtu.eu/images/publicaties/European_Policy_response_on_MOOC_opportunities_June_2016.pdf

ECO (2016). D4.5 Report on users satisfaction. Retrieved from http://project.ecolearning.eu/wp-content/uploads/2016/03/D4.5_Deliverable__Report_on_Users_Satisfaction__v0.4-compressed.pdf

Eurostat (2012). Public expenditure on education in Europe. Retrieved from http://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tsdsc510&plugin=1″>

Eurostat (2015). Eurostat regional yearbook 2015: Education. Retrieved from http://ec.europa.eu/eurostat/documents/3217494/7018888/KS-HA-15-001-EN-N.pdf/6f0d4095-5e7a-4aab-af28-d255e2bcb395

European Commission (2013). Opening up education: Innovative teaching and learning for all through new technologies and open educational resources. Brussels, Belgium. Retrieved from http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:5

2013DC0654&from=EN

Franco Yańẽz, C. (2014, December). DeMOOCratization of education? Massive open online courses, opportunities and challenges: Views from Mexico, Thailand and Senegal. NORRAG Working Paper No. 8. Geneva, Switzerland: NORRAG. Retrieved from http://www.norrag.org/fileadmin/Working_Papers/Working_Paper__8_Franco.pdf

Gaebel, M., Kupriyanova, V., Morais, R., & Colucci, E. (2014). E-learning in European higher education institutions: Results of a mapping survey conducted in October-December 2013. Retrieved from http://www.eua.be/Libraries/Publication/e-learning_survey.sflb.ashx

Hollands, F. & Tirthali, D. (2014b). Resource Requirements and Costs of Developing and Delivering MOOCs. IRRODL, 15(5), 113-133. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/1901

Ho, A. D., Chuang, I., Reich, J., Coleman, C., Whitehill, J., Northcutt, C., Petersen, R. (2015). HarvardX and MITx: Two years of open online courses fall 2012 – summer 2014. HarvardX Working Paper No. 10. doi:10.2139/ssrn.2586847

HOME (2014). Higher education Online: MOOCs the European way. Retrieved from http://home.eadtu.eu/

IPTS (2016). MOOCs in Europe: Evidence from pilot surveys with universities and MOOC learners. Retrieved from https://ec.europa.eu/jrc/sites/jrcsh/files/JRC%20brief%20MOOCs_JRC101956.pdf

Jansen, D. (2015, March 3). When are MOOCs truly massive? [Blog post]. ECO. Retrieved from http://project.ecolearning.eu/should-moocs-be-massive/

Jansen, D., Schuwer, R., Teixeira, A., & Aydin, H. (2015). Comparing MOOC adoption strategies in Europe: Results from the HOME project survey. International Review of Research in Open and Distributed Learning, 16(6). doi:10.19173/irrodl.v16i6.2154

Jansen, D. & Schuwer, R. (2015a). Institutional MOOC strategies in Europe. Status report based on a mapping survey conducted in October – December 2014. EADTU. Retrieved from http://www.eadtu.eu/documents/Publications/OEenM/Institutional_MOOC_strategies_in_Europe.pdf

Jansen, D., Schuwer, R., Teixeira, A. & Hakan Aydin, C (2015b). Comparing MOOC Adoption Strategies in Europe: Results from the HOME Project Survey. International Review of Research in Open and Distributed Learning, 16(6), 116-136. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/2154

Jansen, D., Goes-Daniels, M. (2016) *omparing Institutional MOOC strategies. Status report based on a mapping survey conducted in October – December 2015*. EADTU – HOME project. Retrieved from http://eadtu.eu/images/publicaties/Comparing_Institutional_MOOC_strategies.pdf

Johnson, L., Adams Becker, S., Estrada, V., & Freeman, A. (2014). NMC Horizon Report: 2014 higher education edition. Austin, TX: The New Media Consortium. Retrieved from http://www.nmc.org/publication/nmc-horizon-report-2014-higher-education-edition/

Kalman, Y. M. (2014, January). A race to the bottom: MOOCs and higher education business models. *Open Learning: The Journal of Open, Distance and e-Learning, 29*(1), 5-14.

Mulder, F., & Jansen. D. (2015). MOOCs for opening up education and the OpenupEd initiative. In C. J. Bonk, M. M. Lee, T. C. Reeves, & T. H. Reynolds (Eds.), *MOOCs and open education around the world*. New York, NY: Routledge. Retrieved

from http://www.eadtu.eu/documents/Publications/OEenM/OpenupEd_-_MOOCs_for_opening_up_education.pdf

Muñoz, J.C., Punie, Y., Inamorato dos Santos, A., Mitic, M. & Morais, R. (2016). How are higher education institutions dealing with openness? A survey of practices, beliefs and strategies in five European countries. JRC Institute for Prospective Technological Studies, European Commission. Retrieved from http://publications.jrc.ec.europa.eu/repository/bitstream/JRC99959/reqno_jrc99959.pdf

O'Brien, L. (2015). Duke University annual report 2014–2014. Retrieved from http://docplayer.net/1358780-2014-2015-annual-report.html

OECD. (2014). Education at a glance 2014: OECD indicators. Retrieved from http://www.oecd.org/edu/Education-at-a-Glance-2014.pdf

Schmid, L., Manturuk, K., Simpkins, I., Goldwasser, M., & Whitfield, K. (2015). Fulfilling the promise: Do MOOCs reach the educationally underserved? Educational Media International, 52(2), 116–128.

SCORE2020 (2015). Support Centres for Open education and MOOCS in different Regions of Europe 2020. Retrieved from http://score2020.eadtu.eu/

Shah, D. (2015). Less experimentation, more iteration: A review of MOOC stats and trends in 2015. Class Central. Retrieved from https://www.class-central.com/report/moocs-stats-and-trends-2015/

Shuttleworth Foundation & Open Society Foundation. (2008). The Cape Town Open Education Declaration. Retrieved from http://www.capetowndeclaration.org/

UNESCO (2015a). Incheon Declaration. Education 2030: Towards inclusive and equitable quality education and lifelong learning for all. Retrieved from http://unesdoc.unesco.org/images/0023/002338/233813M.pdf

UNESCO (2015b). Education 2030 Incheon Declaration and Framework for Action Towards inclusive and equitable quality education and lifelong learning for all. Retrieved from http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/ED/ED/pdf/FFA_Complet_Web-ENG.pdf

UNESCO&COL (2016). Making Sense of MOOCs: *A Guide for Policy-Makers in Developing Countries*. Mariana Patru and Venkataraman Balaji (Eds.). UNESCO and Commonwealth of Learning. Retrieved from http://unesdoc.unesco.org/images/0024/002451/245122E.pdf

Uvalić-Trumbić, S. & Daniel, J. (2011). Let a thousand flowers bloom! Retrieved from http://oasis.col.org/bitstream/handle/11599/1335/2011_UvalicTrumbicDaniel_1000Flowers_Transcript.pdf?sequence=1&isAllowed=y

Yuan, L., Powell, S., & Olivier, B. (2014). Beyond MOOCs: sustainable online learning in institutions. Lancaster, UK: CETIS. Retrieved from http://publications.cetis.ac.uk/2014/898