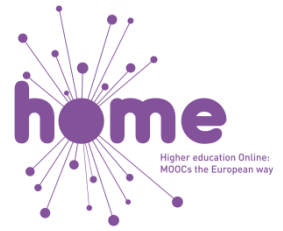# European Policy response on MOOC opportunities

Overview of papers representing a European Policy response on MOOC opportunities as presented during the HOME policy forum in Brussels, June 2016

EADTU, June 2016

European Policy response on MOOC opportunities

Overview of papers representing a European Policy response on MOOC opportunities as presented during the HOME policy forum in Brussels, June 2016

Editors

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EADTU, June 2016

Acknowledgement / about HOME project

This report is published as part of the project HOME - Higher education Online: MOOCs the European way. HOME is partly funded by the European Commission's Lifelong Learning Programme. HOME started in January 2014 and is funded to June 2016.

The aim of the project is to develop and strengthen an open network for European cooperation on open education, in general, and Massive Open Online Courses (MOOCs), in particular. The partners will build an open institutional network on MOOCs based on European values like openness, equity, quality and diversity.

The HOME project invited experts outside the partnership through an open call for papers. The HOME partners will continue to include experts during the project life time.

- EADTU
- Universidade Aberta
- UNED – Universidad Nacional de Educación a Distancia
- Anadolu University
- DAOU – Danish Association of Open Universities
- Dublin City University
- Open Universiteit Nederland
- Univerza v Ljubljana
- The Open University
- Ministère de l'enseignement superieur et de la recherche
- Fédération Interuniversitaire de l'Enseignement à Distance
- Finnish Online University of Applied Sciences
- Hellenic Open University
- Open University of Cyprus
- International Telematic University UNINETTUNO
- Maria Curie Sklodowska University
- Tallinn University
- Kaunas University of Technology
- Czech Association of Distance Teaching Universities
- Slovak University of Technology in Bratislava
- Danish Association of Open Universities
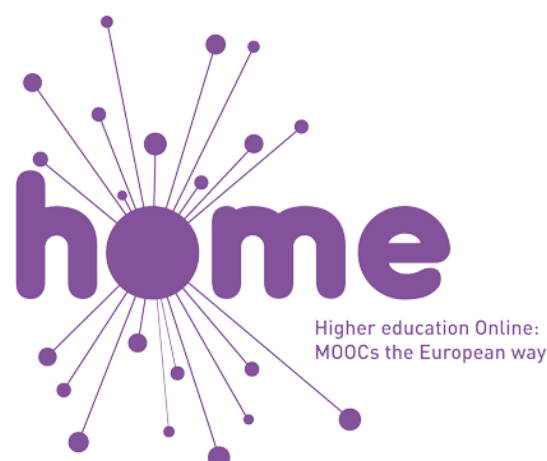- The Open University of Israel

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Foreword

Massive Open Online Courses (MOOCs) are becoming mainstream in Europe. Different independent studies show a strong MOOC involvement of higher education institutions (HEIs). At least about 40% of HEIs in Europe are having MOOCs or planning to develop MOOCs soon. Although some differences are observed between countries, it seems that a strong European involvement is widespread. In addition, an increasing number of supportive policies to stimulate the uptake of MOOCs at various levels are created, including IGOs (e.g. UNESCO, OECD, EADTU), European Commission (for example through programmes of DG EAC and DG Connect), national governments (e.g., France, Netherlands, Slovenia) and private companies (like MOOC platform providers). As such, collaboration between European HEIs, governments and civil societies seems to accelerate the development, delivery as well as the usage of MOOCs.

To inform different policy makers of various stakeholder a *Policy Forum on European MOOCs* is held in Brussels on 28 June 2016. This Policy Forum is organised by EADTU as part of a European network on MOOCs, stimulated by the HOME project. After three successful European MOOC events, the HOME project invited policy makers from the National governments, Intergovernmental Organisations, higher educational institutions, MOOC platforms and -service providers. They all submitted policy papers beforehand, made available in this publication before the policy forum.
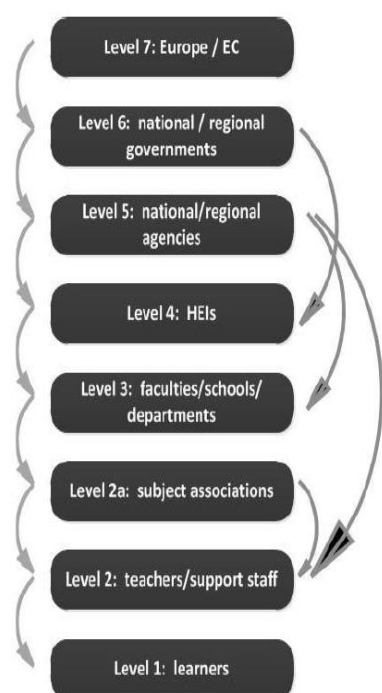
Each stakeholder involved in this widespread uptake of MOOCs has different objectives related to improvement of (higher) education provision. To effect change in the European higher education system, consistent actions at least seven main "levels" are needed (source figure: The changing pedagogical landscape). If viewed as a hierarchy higher levels should lead to positive actions at lower levels (where positive means aligned with the outcomes intended at the levels above). However, many innovation start from bottom-up and can only become sustainable if supporting policies at higher level are created. MOOCs are no exception as many first MOOC initiatives started at the professor level.

At the highest level the objectives are related to challenges at society level. For example '*The Education 2030 Framework for Action*', adopted at Incheon (Republic of Korea) in May 2015 calls on countries to "develop policies and programmes for the provision of quality distance learning in tertiary education, with appropriate financing and use of technology, including the Internet, massive open online courses (MOOCs) and other modalities that meet accepted quality standards to improve access." MOOCs could be successfully designed and adapted to support the expansion of access to post-secondary education for all categories of learners and to maintain their motivation. They could also play a significant role in providing learning opportunities for those in fragile/emergency situations.

The recent UNESCO-COL publication "Making Sense of MOOCs: A Guide for Policy Makers in Developing Countries" is in this respect a call to re-vitalise the role MOOCs play in different society goals. Education 2030 must be seen within the broader context of development today. MOOCs can contribute to SDG 4: *Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*. In addition to the achievement of SDG 4, MOOCs could also make an important contribution to SDG 5: *Achieve gender equality and empower all women and girls*. This emphasises the role of MOOCs as a viable channel

to achieve greater equality for women in education and employment, particularly in jobs and industries where women are underrepresented.

Next, MOOCs are also seen as a medium for providing "relevant" job training courses to interested citizens who access them on the Internet. In this respect different programmes of the European Commission are important to notice. The *Modernisation of Higher Education* agenda amongst other aims at an inclusive digital learning for all -Europe's youth, workers and citizens -to get the knowledge and skills to work and live in the 21st century. *Supporting Growth and Jobs: An Europe's Higher Education Systems* for example states "... to reinforce digital skills and learning across society, with a view to empowering Europe's work-force and consumers for the digital era." DG EAC already invests in different projects in their previous Life-long Learning Programme and nowadays by Erasmus+, pilots and research related to MOOCs (HOME, Biz-MOOC, LangMOOCs, SCORE2020 and many more). In addition, H2020 and FP7 invest in MOOC projects like EMMA, ECO and TraMOOC
The Opening up Education, as a joint concerted effort and integrated approach of DG Connect and DG EAC is important action plan at this respect as well. 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.

In addition, countries and educational institutions around the world have formulated policies and launched initiatives in favour of developing, adapting, adopting and sharing quality online educational provisions like MOOCs. With technology rapidly evolving, policy makers at different levels need to better assess ways in which MOOCs and OER could be effectively leveraged to improve access, enhance quality and potentially lower the cost of higher education.

The responsibility to stimulate the uptake of MOOCs must be shared between government agencies, academic and non-academic institutions, employers, 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.

In this respect the following overarching recommendations of The changing pedagogical landscape are relevant for this context as well.

- At European and national/regional levels, all policies and processes (including legislation, regulation, funding, quality assurance, IT infrastructures, pedagogical support for teachers) must be aligned to prevent conflicting actions and priorities. These policies and processes should support and promote innovation in pedagogies and greater use of technology, and a vision for change should be expressed through national strategies.
- A common agenda should be agreed between the stakeholders in higher education that addresses the challenges of the present as well as shaping a roadmap for the future. This agenda should allow sufficient flexibility to develop concrete actions, particularly at national and regional levels.
- All countries should put in place measures to support universities in their innovation in pedagogies (including learning design and assessment) and in greater use of technology. Establishing dedicated agencies at national level has proven a powerful means of driving change.

Several reports on MOOCs are designed to raise general awareness amongst policymakers as to how MOOCs might address their concerns and priorities, particularly in terms of access to affordable quality higher education and preparation of secondary school leavers for academic as well as vocational education and training. Next to the several HOME reports, also the efforts of JRC should be mentioned. Several recent JRC studies confirm that open education is becoming increasingly important in Europe but is also facing a

number of challenges. The JRC will release an Open Education framework for higher education institutions following a common methodology based in a strong collaboration between academics, educational experts and policy makers across regions and member states of the EU. This OpenEdu study is facilitated by the Directorates-General for Employment, Social Affairs and Inclusion and for Education and Culture.

Ultimately, this publication and the policy forum is designed to contribute to the awareness amongst policy makers in terms of the potential that online learning, including in the form of MOOCs, has for building new learning pathways towards tertiary education and for expanding lifelong learning opportunities. Policy and decision makers of all stakeholders involved need to be in a better position to understand the "MOOC phenomenon," capitalise on the advantages of these large-scale courses and use them as a strategic opportunity to help meet local needs and develop related capacities. Different regional strategies are necessary to leverage the full potential of online learning and MOOCs for education and development. In this we should embrace diversity – equity and increase accessibility. MOOC provision (and collaboration on shared services) should account for diverse languages, cultures, settings, pedagogies and technologies. As such the generic MOOC model needs to be re-engineered to allow for a broad spectrum of approaches and contexts.

Darco Jansen
EADTU
24 June 2016

Governmental policies on MOOCs

Need for national MOOC policy?

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Norwegian National Policy for Open Online Higher Education

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Need for national MOOC policy?

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1   Summary

MOOCs are a possible answer to an issue, not necessarily something you need a policy *for*. But it is useful to approach MOOCs from the other direction too: what could they help us with? This paper presents some general observations that should be taken into account when thinking about national MOOC policy. Along with presenting the Finnish case, it is argued that a no "separate" MOOC policy is needed but moreover features and inspiration from MOOCs can be used widely in policies for different objectives.

2   Introduction

Some of the current policy issues in the Finnish higher education system include

1. Speeding up the transition from secondary education to higher education
2. Speeding up graduation and transition to labour market, by making flexible year-round studies possible
3. Digitalizing HEIs' learning environments
4. Increasing co-operation between HEIs
5. Strengthening the educational and research profiles of HEIs
6. Enhancing the quality of education

The current government programme[1] of PM Juha Sipilä has introduced key projects targeting the above, among other objectives. The Finnish higher education system has also faced substantial budget cuts during the current and previous government terms. This and the above issues call for innovation in education. Inspiration form MOOC-like provision has been a part of the defining of policies.

In addition to degree education, Finnish HEIs have since the 70s provided *open university education,* currently defined in the legislation as having the same learning objectives as degree education, but open to everyone. All Finnish HEIs provide it. HEIs can charge a fee of 15€ per ECTS credit for open university education and the government funding formula also includes a component based on the outputs. A lot of the open university education has been available online since the late 90s.

In addition to open university education, HEIs also provide continuing education courses based on market need and not funded by the government and whose content is not tied to that of degree education.

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[1] Finland, a land of solutions: Strategic Programme of Prime Minister Juha Sipilä's Government, 29 May 2015, http://valtioneuvosto.fi/documents/10184/1427398/Ratkaisujen+Suomi_EN_YHDISTETTY_netti.pdf

Finnish HEIs have organized MOOCs since 2012. Most of the MOOCs have been in Finnish language. None of the Finnish HEIs have so far partnered with big international platforms such as EdX, FutureLearn or Coursera.

The access to higher education is relatively equal Finland. The effects socioeconomic background to access to higher education is low compared to most other countries but still substantial in some fields of education, medicine for example.[2]

3   From MOOCs to policy and vice versa

3.1   From MOOCs to policy issues

What issues could MOOCs help us with? A 2014 survey by EUA showed that by far the most important motive for European HEIs to develop MOOCs is increasing the international visibility the institution. Other motives include developing innovative learning methods, boosting student recruitment and pre-selection, and providing more flexible learning opportunities.[3]

	Global (or European)	National
Provision	- Visibility - Reputation - Global equity - Global student recruitment	- Access - Equity - Flexibility - Open university education - Outreach - Student recruitment
Use, co-operation (by institution)	- Offering more to students - Use of quality resources	- Enhancing quality and flexibility - Sharing of resources - Sharing of responsibilities - Freeing resources for focusing on institutions strentghs

Figure 1: Motives for MOOCs

One could here distinguish between motives relating to the global (or European) higher education landscape and to more local motives. Another axis could be the drawn between the provision of MOOCs, and using MOOCs or MOOC-like courses by others and co-operation with other HEIs. These are summed in figure 1. Both of these dimensions can be contested – same motives for national and international co-operation can be thought of - but are still useful.

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[2]   See for example *Table A4.1b. Likelihood of participating in tertiary education, by parents' educational attainment and gender (2012)* in Education at a Glance 2014: OECD Indicators, OECD Publishing 2014. http://dx.doi.org/10.1787/eag-2014-en

[3]   E-LEARNINGIN EUROPEAN HIGHER EDUCATION INSTITUTIONS - RESULTS OF A MAPPING SURVEY CONDUCTED IN OCTOBER-DECEMBER 2013, EUA 2014, http://www.eua.be/Libraries/publication/e-learning_survey.pdf

3.2   From policy issues to MOOCs

Some of the current issues in Finnish higher education were summed up above in section 3. MOOC-like provision is seen as a tool in many of the issues: enhancing quality, faster completion of degrees through more flexible studies throughout the year, and also for the speeding up the path from secondary education to higher education.

Combining these with the dimensions of figure 1, we see that the national dimension dominates. The current issues motivate MOOC-inspired provision of courses for both degree students in one's own institution, degree students in other (Finnish) institutions, but also as open university education for everyone, and targeting of open courses to students finishing secondary education. Digitalization of each HEIs learning environments more generally is also seen as important, digital assessment being an example.

An example of the above already in place are the common summer semester studies for all students in universities of applied sciences[4]. Another example is a programming MOOC that the university of Helsinki has used for admissions to degree education since 2013.

On the other hand using MOOCs for say, global visibility (and possibly teaming up with an international platform), is seen as a choice Finnish HEIs can consider and make according to their strategy.

3.2.1   MOOCs and "open university education"

MOOCs are by definition Massive Open Online Courses. As is well known, each of the defining terms are subject to discussion and controversy, and could be dropped and still a course can still be MOOC-like in many respects. One defining feature of MOOCs that should be pointed out is the ease of starting a course – it just takes a click of the mouse, or two, to start. This feature has been adopted by fee charging providers too; fees are just charged at a later time[5]. *Open university education* as defined in the Finnish legislation can and has already been offered "MOOC-style" meaning that course is open for everyone to start and follow through and the 20€/ECTS fee is charged only before an exam is organised for the course.

MOOCs are thus finding their place in the existing system by introducing MOOC like features to provision.

3.2.2   The issue of platforms and other infrastructure

The issue for a need for a national MOOC platform regularly rises. It can be argued that a common platform would make the provision of MOOCs and other online courses easier for HEIs, it would be easier for HEIs to include courses by others to their curriculum and also students wouldn't have to deal with a plethora of platforms and LMSs.

On the other hand too rigid national solutions can be seen as a hindrance to innovation in learning technology, and the same goals can be achieved through *interoperability*. The Finnish policy is to stress the interoperability of HEIs' systems, and build national systems where they are most useful. Interoperability issues can be solved with national data-warehouses and identity management systems and also by agreeing on common data-models and APIs (Application Programming Interface) to student information and other rele-

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[4] See http://summersemester.fi/en/

[5] See for example Udacity's nanodegrees: https://www.udacity.com/

vant systems. In Finland a national data warehouse containing information on all students, completed course units and degrees has been in use since 2014. A federated identity managements system for HEIs is also in use[6]. Further work is needed to standardise the data on course offerings, and also for example the criteria for admission to course units to make co-operation between HEIs easier.

4   Finnish policy

A key process in the steering of Finnish HEIs is the negotiation of performance agreements every 4 years. The agreements include degree targets but also more general development objectives for all HEIs, and for each particular institution. The objectives described in section 4.2 are at the heart of performance agreements being negotiated between the government and Finnish HEIs for the term 2017-20, and a share of strategic funding for HEIs will be based on furthering these objectives.[7] In addition to this, a share of a separate funding of 105M€ will be made available for HEIs projects.

5   Recommendations

MOOC policy should not be thought of as an issue separate from general national higher education policy. MOOCs and MOOC-like features (scalability, openness, being online, flexibility, ease of starting courses) in providing education can be used broadly in tackling policy issues. Interoperability is key to harnessing these features for different kinds of purposes, be it degree education or university level courses open for all. Standardization should also take place at the international level.

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[6] https://www.csc.fi/en/-/haka-kayttajatunnistusjarjestel-1

[7] Finnish HEIs receive most of the state funding based on outputs (degrees, scientific publications and other outputs). For the coming 4 year term, a share of 12% for universities and 5% for universities of applied sciences will be based on strategic objectives. See
http://www.minedu.fi/OPM/Koulutus/yliopistokoulutus/hallinto_ohjaus_ja_rahoitus/?lang=en and
http://www.minedu.fi/OPM/Koulutus/ammattikorkeakoulutus/hallinto_ohjaus_ja_rahoitus/?lang=en

Norwegian National Policy for Open Online Higher Education

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1   Summary

The threshold for gaining access to higher education in Norway is relatively low, and the capacity to provide free access is not an issue in Norwegian politics. On the contrary, this is considered the natural state of affairs. However, digitisation is lagging behind in Norway. A powerful digital infrastructure is in place, but its potential to drive pedagogical and organizational changes in the sector is not fully realised. After a period of many years of relative stability, the higher education sector is now subject to a structural reform, and an important government white paper on quality in higher education is due to be released in 2017. This paper is expected to initiate another reform, and it is the recommendation of the Norwegian Agency for Digital Learning in Higher Education that digitisation for quality and openness should be among the primary forces of this reform.

2   Openness and access in Norwegian higher education

Open education is not frequently referred to in the politics of Norwegian higher education. The reasons for this are many:

- All public higher education is free and – at least in principle – open.

- Almost all higher education is public.

- The Norwegian higher education sector is well established and has sufficient capacity.

- Even though it is not an established legal right, any candidate holding a high school diploma may access some kind of higher education.

- Openness in the sense of transparency is safeguarded by NOKUT, the national agency for quality assurance and enhancement in education, which ensures that all courses at accredited higher education institutions adhere to the same strict standards and publish their findings.

Because of this, the threshold for getting access to higher education is relatively low, and the capacity for open education to provide free access is not an issue in Norwegian politics. This is considered the natural state of affairs. Accordingly, the potentially disruptive character of MOOCs – in the sense of opening up parts of the higher education system to new groups -- has not been emphasised as much in the Norwegian debate on digitisation f higher education as it has, for example, in the UK or the US.

Another factor that completes this picture is the Norwegian geography. Norway spans 1752 km from north to south and one of four citizens live outside the cities and towns. Because of this, the government promotes flexibility in higher education and many higher education institutions offer flexible and distance education options in subjects that are popular or of national importance. The Norwegian Agency for Digital Learning in Higher Education, *Norgesuniversitetet,* was founded to facilitate the institutions' efforts. Today

the main focus of our work has shifted to include the educational use of technology to improve the quality and flexibility of campus studies as well as distance learning.

2.1 Factors that detract from openness

One factor that detracts from this openness is that, even though all lectures are open by law, online lectures, lecture notes and other resources most commonly require an authentication procedure, which is reserved for registered students only. Consequently the online learning resources provide one kind of openness (i.e. flexibility in time and space), but at the same time the resources are no longer accessible for everyone.

Digitisation is a mega trend. In the 2015 trend report of the European University Association (EAU)[8], digitisation – alongside internationalisation and demography – is considered one of three key trends that European higher education must relate to. Additionally, digitisation was the sole theme of EAU's annual conference in April. However, despite the fact that Norway is among the countries with the best-developed digital infrastructure, our higher education system is lagging behind. This constitutes another challenge to open online learning. The official Norwegian Report 2014:5 *MOOCs for Norway*[9] states that:

> The Commission is of the opinion that digitalisation of higher education in Norway has not progressed quickly enough and that the institutions' ability to deliver has been too weak. If the responsibility is placed solely on the institutions, the Commission feels that development will not proceed quickly enough. Consequently, the Commission is of the opinion that national authorities must facilitate increased digitalisation of higher education through national initiatives to support the institutions' work in developing MOOCs. (p 92)

In our monitor report, *Digitisation in Higher Education 2014*[10], the Norwegian Agency for Digital Learning in Higher Education found that both campuses and students are now well equipped with digital infrastructure, tools and/or media. Nevertheless, most of the teaching is still done through traditional on-campus lectures. The proliferation of technology has little impact on and effects little change in terms of educational practices (p 137).

A third challenge is that, by law, most of the material prepared for the students by the lecturer is the property of the lecturer, not the university, and consequently cannot be shared openly. This holds true even though the taxpayers finance the salary of the lecturer. However, the law leaves room for higher education institutions to adopt varying practices in this regard. The Ministry of Education and Research encourages open sharing of these resources and there are some incentives in place. For example, at the Norwegian Agency for Digital Learning in Higher Education we use open sharing of learning resources as one criterion

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[8] European University Association. Trends 2015: Learning and Teaching in European Universities. 2015. Available from: http://www.eua.be/activities-services/news/newsitem/2015/05/07/Trends_2015_the_changing_context_of_European_higher_education.aspx

[9] Ministry of Education and Research. Official Norwegian Report 15/2014. MOOCs for Norway, new digital learning methods in higher education. 2014. Available from: https://www.regjeringen.no/contentassets/ff86edace9874505a3381b5daf6848e6/en-gb/pdfs/nou201420140005000en_pdfs.pdf

[10] Norgesuniversitetet. Digital tilstand 2014. Norgesuniversitetets skriftserie 1/2015. 2015. Available from: https://norgesuniversitetet.no/digitaltilstand

for distributing seed money for flexible and online education. We also collaborate with the Norwegian Centre for ICT in Education (aimed at primary and secondary education) in running a service for legal advice relevant to the sharing of learning resources online[11].

The fourth challenge to open online learning is that there is no common platform for publishing or accessing open educational resources (OER) across higher education institutions. Currently in pilot version, BIBSYS DLR[12] is a cloud-based service for publishing and sharing digital learning resources across subjects, study programs, systems and institutions. BIBSYS is an administrative agency under the Ministry of Education and Research that delivers products and services for exchange, storage and retrieval of data to the Norwegian higher education and research sector.

3   Norwegian national policy on MOOCs and open online learning

As we have seen above, the 2014 official Norwegian report on MOOCS found that:

> [T]o date, digitalisation of higher education in Norway has not been fast enough, and that the institutions' implementation capacity has been too weak. If the responsibility is placed solely on the institutions, the Commission feels that the development will not proceed quickly enough.

The mandate of the commission behind the official 2014 Norwegian report on MOOCs was to explore the emerging field of MOOCs and propose ways for the Norwegian higher education institutions to respond, present recommendations to the authorities, and present recommendations to the institutions of higher education. The following were among the concrete recommendations of the commission:

- One or several platforms should be adapted to the Norwegian and Saami languages

- Establishment of a national support unit to promote competence in relevant pedagogy and technology at higher education institutions (4.3 mill €)

- Additional investment in research-based knowledge development on the use of technology in higher education (1.5 mill. €)

- Additional investment in research-based knowledge development on learning design (1.5 mill. €)

- Massive governmental support for use of MOOC in lifelong learning to address competency shortages in the work force (5-30 mill. €)

- Support for the use of MOOCs to speed up the learning process of high school students (1 mill. €)

Due to a change in government after the 2014 elections, the report was not followed up by any government initiatives other than five years of funding (542 000 € per year) for research in learning analytics.

The report is not forgotten, though, and is part of the input for the important government white paper on quality in higher education that will be published in 2017.

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[11] Del Rett. Norwegian Centre for ICT in Education and Norwegian Agency for Digital Learning in Higher Education. Available from: http://delrett.no/

[12] BIBSYS. Digitale LæringsRessurser – DLR. Available from: http://www.bibsys.no/produkter-tjenester/produkter/digitale-laeringsressurser-dlr/

3.1 The policy structure

The Ministry of Education and Research is an expert pool for the minister, functioning as a policy secretariat in addition to directing and controlling agencies and institutions owned by the Ministry. The civil servants advise the minister and his or her political staff and produce relevant policy documents, including government white papers. As noted, the Ministry may also appoint various commissions consisting of relevant experts and stakeholders providing background analysis and policy advice.

There are several agencies working for the Ministry who advise the Ministry on the field pertinent to this paper. We have already mentioned BIBSYS, an agency under the Ministry that delivers products and services for exchange, storage and retrieval of data to the Norwegian higher education and research sector. UNINETT is a company, owned by the Ministry of Education and Research, which is meant to develop and operate the Norwegian national research and education network. NOKUT, the National Agency for Quality Assurance Education, is responsible for accrediting institutions and their programmes. Furthermore, the agency ensures that all institutions offering higher education are accredited and that they publish their findings. The agency also sees to it that the courses such institutions offer adhere to the same strict standards.

The Norwegian Agency for Digital Learning in Higher Education works alongside these organisations. Our objective, as stated in the National Budget for 2015-2016[13] (p 171), is "to stimulate the development and use of technology for learning and flexible studies in higher education".

Within this framework, we work to advance the development of quality in higher education as well as innovative practices for teaching and learning – through digitisation. We also strive to improve the conditions within which this process takes place – on campus, through blended learning and online learning. To achieve this, we perform the following services:

- serve as policy advisors;
- organise strategic initiatives to develop new practices in the sector; and
- issue recommendations to other national agencies, as well as higher education institutions, aimed at both top and mid-level management.

The higher education institutions have a high degree of autonomy. The rationale behind this autonomy is to maintain a free basis for research and, consequently, to provide a critical voice in Norwegian society. According to the Universities and Colleges Act (§ 1.5 (3-5)[14], universities and colleges cannot be instructed or mandated on the content of their teaching, research, artistic or scholarly development, nor regarding any individual employment or appointment. Faculty members have an independent responsibility for the content and delivery of their teaching within the regulations of their institution, and those employed to do scholarly or artistic development have the right to choose freely the subject and method of this research or development within the limitations of the conditions of their employment.

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[13] Prop. 1 S (2014–2015). Available from: https://www.regjeringen.no/no/dokumenter/Prop-1-S-20142015/id2005447/

[14] Norges lover. Lov om universiteter og høgskoler (Universitets- og høgskolelova). Available from: https://lovdata.no/dokument/NL/lov/2005-04-01-15#KAPITTEL_1

In order to obtain more robust institutions, critical mass for research environments, and improved quality of education, the government announced a structural reform of higher education in a government white paper to Parliament in 2014[15]. At the present stage in this process, 14 institutions have merged into five, and further mergers are on the horizon.

When you add the newly increased size of institutions to their high level of autonomy, higher education institutions are now even more empowered. Additionally, they have become even more important partners for the Norwegian Agency for Digital Learning in Higher Education in the process of promoting quality through digitisation in general and in promoting MOOCs and open online learning.

Furthermore, we have a more important task in advising institutions as they go through the restructuring that is a necessary consequence of the mergers. Most Norwegian higher education institutions now have campuses in more than one city. They will need new strategies and a different degree of digitisation to get the most out of faculty staff members and students who are separated by large geographic distances. Together, we have the task of developing high-quality multi-campus education.

4   Policy recommendations

4.1   A window of opportunity

Given these challenges, we are now working to influence the different processes taking place to reform Norwegian higher education, most notably the government white paper on the quality of higher education, which is of great importance to the Minister of Education and has the potential to transform many aspects of the sector. This is partly because it will be published just one year after large changes in the structure of the institutions and, thus, will find them in a continuing process of change; i.e. open to advice. The last government document addressing systematic pedagogical changes in higher education was the so-called *Quality Reform* of 2001[16]. Research shows that many intentions expressed in this document were never implemented. Because of this, much is expected from the impending whitepaper.

Our message is that digitisation must be a precondition to and a catalyst for the kind of change that is needed. This is communicated to the Ministry in all of the documents that form the basis from the following recommendations.

4.2   Digitisation of higher education

Based on our findings in *Digitisation in Higher Education 2014*, the Norwegian Agency for Digital Learning in Higher Education has made a series of recommendations. The recommendations on a national level (p 145) concern the digitisation of higher education in general, not MOOCs and open learning in particular. These recommendations are still relevant in the context of this paper.

The Ministry should:

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- Actively advance digitisation as a tool for the development of the quality of education […].
- Develop a national strategy for coordinating and fostering the utilisation of digitalisation to generate pedagogic innovation, quality and accessibility.
- Ensure that the impending government white paper covers the issue of digitisation for quality of education and accessibility.
- Make digitisation for quality of education a topic in the governance of public higher education institutions and make sure this is a criterion for future public funding.
- Strengthen and incentivise the development of higher education institutions by expanding the national infrastructure and cloud-based services provided by UNINETT.
- Stimulate and strengthen the development of higher education institutions by continuing the national effort of providing recommendations, information and knowledge that is carried out by NOKUT and the Norwegian Agency for Digital Learning in Higher Education.
- Fund more research contributing to high quality results in the area of technology for innovative pedagogy in higher education.

4.2.1 MOOCs as agents of pedagogic development

In preparation for the upcoming government white paper on quality in higher education, the Minister of Education has asked for advice from several agencies and institutions. In our recommendations, we write about the role of MOOCs for imparting 21st century skills (p 5):

> There is a large untapped potential in other modes of study provided by the MOOC systems for peer assessment of text. There is but a short step from practices like these to students (b)logging about their own learning progress, the practices of their fellow students – cases which may serve as a basis for debates and reflection about learning strategies, practices, skills, and competences.

4.2.2 MOOCs for improved collaboration between academia and the workplace

In our input on the government white paper on quality in higher education, we make the following recommendations about collaboration between academia and the workplace (p 9):

> Technology can be useful in many ways when institutions of higher education collaborate with businesses or industries. Technologies for sharing, collaborating and analysing big data can provide shared access to realistic cases for the students to explore through problem-based learning and student research in dialogue with relevant researchers. At the same time, businesses benefit from assistance in solving real challenges. Business specialists can provide video lectures or remote advice on case-based work through cloud-based platforms for collaboration. Students who have received this kind of education are then easy to recruit when their education is complete and will already know the core practices and methods of the organisation when they start to work. MOOCs are especially relevant in this context.

4.2.3 Open online learning for scalability of active and collaborative learning

In the same recommendations (pp 9-10) we address the ways in which open online learning can aid in the scalability of active and collaborative learning:

> Digitisation enables active modes of learning, e.g. collaborative learning, flipped classroom, case-based learning, and learning environments for collaboration and exploration.

4.2.4 National coordination for open and online learning

In another recent letter of recommendations to the Ministry, this time on the structure of the agencies and offices supporting the Ministry[17], we write about national coordination for open and online learning (pp 6-7):

> One of our most important recommendations to institutions of higher education in *Digitisation in Higher Education 2014* is to establish institutional support centres. These centres should be knowledgeable in areas such as learning technology, media production, and university pedagogy to evaluate the educational programmes offered, to connect teaching practices to educational research, and to develop the pedagogic and digital innovation skills of the professors. The goal is to achieve coordinated support to develop high-quality innovative facilitation of teaching, learning and assessment. We propose the same approach on a national level with suitable adjustments.

In the document, we go on to recommend a merger of national agencies providing support to the education management and support centres of the institutions in their strategic and operative efforts to achieve and improve high-quality education. Given the present challenges, a national agency like this will be an important strategic instrument for the Ministry by providing the following elements:

- specially negotiated national licenses for edtech solutions;
- technology support for collaboration, media production, communication, and assessment (including digital learning arenas such as LMS and MOOC); and
- pedagogic advice and best practices for the use of these technologies.

5 Recommendations

> Digitisation is an impetus for innovation in all areas of society, both in industry and in the public sector. This disruption is caused by technologies such as the Internet of things, automatization, cloud services, big data, social media, the digital sharing economy as well as the interaction between these factors. Higher education is obviously not an exception from this rule, as seen in open online learning, social learning, learning analysis, and data-driven development of institutions and their teaching. This holds true all over the world, and the fact that students everywhere have access to computers and/or smart phones makes digitisation a powerful tool for social change.

> Because of this, any proposed policy founded on the pre-digital paradigm is insufficient. Institutional structure, use of indicators or pedagogical theories alone cannot drive this process without a comprehensive strategy for digitisation. On the other hand, digitisation is not a cure-all and any policy for digitisation of higher education needs to address organisational, pedagogical, social, and cultural factors as well in order to effect the change needed.

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Policies of MOOC platform providers

FutureLearn
Mark Lester

Partnerships Development – FutureLearn

edX reinventing education
Caroline Mol

edX

Federica WebLearning and the Italian MOOCs challenge
Mauro Calise, Valentina Reda

Federica WebLearning, University of Naples, Federico II

Creating a Mezzo-Structure for MOOCs in Europe
Fabian Schumann

iversity

FutureLearn

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1   Summary

FutureLearn, as the leading MOOC platform in Europe, sees MOOCs being used in numerous ways for reforming higher education, opening up flexible ways of learning for employees and students, and addressing major skills gaps and health emergencies. FutureLearn is well placed to offer learning experiences that draw effectively on the wisdom of thousands of people on its courses, and address some of the major shortcomings of elearning – the feeling of isolation and lack of quality interaction with other learners.

FutureLearn recommends universities and governmental agencies think more deeply about the quality achievable on MOOCs and how they might be used cost effectively (including private versions of such courses) to provide new models of education for people, while making learning available to the widest audience for free. By bringing the right partners together on an initiative, there is great scope to offer innovative solutions to major educational challenges.

2   Introduction

FutureLearn is the largest European-based MOOC platform with over 80 institutional partners serving nearly 4m learners. Of our partners, 50 are in the EU including from the UK, France, Spain, Italy, Switzerland, Ireland, Norway, Sweden, The Netherlands and Denmark.

FutureLearn is a true partnership organisation where all its university members sit on a strategic advisory group. But besides supporting the goals of universities, FutureLearn brings cultural partners and other agencies, such as the British Library and British Council, together to create courses that support general education. We are looking to work with more such partners from all parts of the world.

FutureLearn's award-winning platform is differentiated from other providers as it was built upon proven social constructivist pedagogy, which puts conversation at the centre of the learning experience. Together with our partners we are pioneering a "pedagogy of massiveness" that seeks to provoke knowledge sharing and discussion at scale so learners can create meaning together.   On courses with FutureLearn, 40% of learners post comments to other learners. The platform addresses key weaknesses of traditional elearning by removing the sense of isolation and lack of interaction.

FutureLearn's commitment to advancing the interests of its partners and tackling large educational challenges means we look beyond providing a platform. We offer training and course building capacity, a vast network of exam centres globally, and consultancy and marketing support to shape and implement strategies that can help towards some of the major challenges listed below.

Major problems where we see potential for massive scale courses are:

1. **Reforming inflexible methods of delivering formal qualifications**: Universities have been slow to evolve and cater mostly to students for education at the start of their careers. However, universi-

ties should be offering flexible modes that allow people at various stages of their lives to up skill, change direction and undertake study in ways that work with their constraints.

2. **Address major skills gaps**: Employment is changing rapidly with developments in technology and business models. However, academic qualifications can take 18-24 months to materialise. FutureLearn seeks to work with universities, employers, professional bodies and governments to create new, flexibly delivered credentials that can help address skills deficiencies.

3. **Address the shortage of places in, or access to, higher education:** Many developing countries have rapidly expanding middle classes and limited capacity to service their demand for education. There are also many other people who may be less confident in their ability to return to study.

4. **Tackle global health or related issues:** Emergencies like Ebola, Zika and SARS are growing in frequency, and education is essential to support health professionals and community workers to respond to these challenges. Time pressure means scalable, digital solutions are often necessary.

3 Policy options applied / recommendations

3.1 Support strategies that provide flexible programmes serving multiple audiences

FutureLearn is working with a number of universities to reshape their educational qualifications around a mix of open and private programmes. This goes far beyond flipped classroom models to thinking about how to redesign programmes to offer much greater flexibility and openness, as well as enrich curricula with content and discussion on the open courses.

3.2 Create new programmes to address significant skills shortages

FutureLearn is linking up its partners with professional organisations and industry bodies to courses more relevant or practical. For example, FutureLearn has tied up with the Open University and British Government to expand national capacity in cyber security. FutureLearn is working with the national training arm of the National Health Service to build capacity in genomics for healthcare workers. And universities are developing courses with corporates aimed at teachers to help them with changes to the curriculum, e.g., helping UK teachers to teach the new IT curriculum.

3.3 Expand access to formal qualifications and promote higher education exports

MOOCs can offer a way for universities to open up pathways for people in countries without the capacity or who may be less confident in their ability to study and, for whatever reason, prevented from entering higher education. FutureLearn has recently announced it is offering open programmes with academic credit from the Open University and the University of Leeds, which give flexible ways to earn credit and open up the prospect of universities being able to recognise each other's courses. FutureLearn is also working with partners to promote British and European universities to a transnational student population.

3.4 Tackle or prepare for major emergencies, e.g., global health and patient support

FutureLearn is tying up with international agencies and specialist organisations to deal with health challenges. For example, the London School of Hygiene and Tropical Medicine has created courses to help local physicians and health workers understand Ebola and Zika. The richness of insight from the learners on the ground makes such courses incredibly relevant and practical.   Cancer Research UK, another FutureLearn partner, is helping to educate families in how to talk about Cancer.

4 Recommendations

FutureLearn recommends thinking creatively about the use of MOOCs to help achieve national and regional objectives, including providing new, dynamic and flexible ways (pure online or blended) to deliver credentials that support lifelong learning and the knowledge economy. Governments should also think about what they can do to encourage and remove barriers to the use of flexible models and open courses in formal education.

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Introduction to Cyber Security - https://www.futurelearn.com/courses/introduction-to-cyber-security

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Preventing the Zika Virus - https://www.futurelearn.com/courses/preventing-zika

edX reinventing education

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1   Summary

EdX is a not-for-profit, open source, online learning destination, founded by MIT and Harvard in 2012. edX and its partners, a consortium of 100 institutions is committed to a mission to expand access to education, enhance on campus education using innovative technologies, and improve the quality of teaching and learning by leveraging online learning data and supporting educational research. Challenges are academic integrity and global relevance of our products. edX aims to offer instructional technology and solutions that overcome these challenges in order to realize our mission.

2   Introduction

EdX is a not-for-profit, open source, online learning destination, founded by MIT and Harvard in 2012. edX and its partners, a consortium of 100 institutions is committed to a mission to expand access to education, enhance on campus education using innovative technologies, and improve the quality of teaching and learning by leveraging online learning data and supporting educational research. Since its start in 2012, our products and our instructional technology have been evolving. We have grown from offering single courses to series of courses, and are now offering MicroMasters program designed to enable students to advance their careers. MicroMasters are Master's degree-level programs that are condensed and specialized, backed by academic credit, and endorsed by corporations.

3   Problem description / challenges

In order to advance our mission and make education affordable, accessible and outcomes-focused, we are building MicroMasters programs. Because these programs are backed by university credit, academic integrity is key. Research about the frequency of cheating online compared to on campus is inconclusive, with some evidence demonstrating that learners cheat more in online education settings, while other studies reveal that learners are less likely or no more likely to cheat. However, both learners and educators hold the perception that cheating in online educational environments is more prevalent than on campus. Given this perception, it is critically important to the success and acceptance of our MicroMasters programs, that learners, educators and employers trust the integrity of the credential.

In addition to academic integrity, another challenge is in offering MicroMasters programs that are applicable and relevant globally. Education systems, particularly in regards to credit-backed programs, and the needs of the employment market differ in the EU region compared to North America and elsewhere.

4 Policy options applied / recommendations

4.1 Academic Integrity

By leveraging our platform capabilities and innovating the types of exercises and assessments available to educators, we are raising the bar for online education integrity standards. For example, we have implemented randomized problem banks, timed exams, photo ID verification, and virtual proctoring.

4.2 Global Applicability

With our globally dispersed team and hence networks, we are able to validate our products in the different regions and be aware of the differences per region (i.e. the ECTS in EU versus other credit systems in other regions). The acceptance of MOOCs for credit by universities and of each other is still work in progress.

5 Recommendations

Experimentation and adjusting, by using data and research, help our partners and edX evolve.

References
www.edx.org

Federica WebLearning and the Italian MOOCs challenge

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1 Summary

Development of MOOCs in Italy has been hampered by institutional fragmentation and lack of adequate funding at the local University level, with little if any action taken at the Ministerial level. The development of Federica, by far the largest single-University platform in Italy and one of the largest in Europe, has been possible thanks to generous EU funding, cohesive management and an innovative cultural vision. More than 9 years in the making, Federica is not just a course provider, but a comprehensive educational environment, with special emphasis on interface design and guided access to on-line reference sources. Recently transformed into an autonomous University Center, with its own budget and personnel, Federica is increasing its range of International activities and expanding its network of qualified partners, both institutional and corporate.

2 Introduction

The Federica Portal was first developed in 2007 as a project of the University of Naples, Federico II, co-financed by the European Union through structural funds (FSE 2006-8; FESR 2007-2013/15). In its 9 years of activity as the e-learning project of the University of Naples Federico II, Federica consolidated its experience, with more than 300 courses published on its original platform Federica.unina.it, and more than 5 million accesses in 2015.

In 2015 the project Federica has been converted to Federica Weblearning, the first Italian University Center fully devoted to innovation, experimentation and dissemination of multimedia distance learning. The institutional consolidation has coincided with MOOCs becoming Federica's core activity. Between 2015 and 2016, over 40 MOOCs have been published on the new platform Federica.EU, with 30 more in the pipeline.

The Federica vision has four distinctive features:

- **High Quality Contents**. Course instructors are recruited from among the most authoritative Professors in their disciplines at a national and international level. All videos, texts and resources are produced by them, with the support of a specialized team. All courses comply with the requisite of high academic standards.
- **Interface design**. Since its beginning a key feature of Federica has been its innovative and user-friendly interface. An essential element of the MOOC revolution is represented by the dismantling of the traditional classroom habitat. In our vision, the future success of MOOCs will largely depend on creating a new learning environment as adaptive as possible to the navigation habits of the digital generation. Federica's interface allows for a seamless navigation between text and videos, with professional attention to functional as well as aesthetic details, in the best tradition of world renowned Italian design.
- **Electronic Alexandria**. A plus of Federica courses is that they offer guided access to the extraordinary wealth and variety of – possibly open – sources, which are now available on the Web. Drawing on long-term experience as the editors of IPSAPortal, the International Political Science Association's electronic journal offering a selection of PS most authoritative electronic sources, at

Federica we have always placed special emphasis on *weblinks*, which offer the student the possibility of directly accessing a book, a review article, a data set, a lab-experiment, a video-reference. Web-links are all clearly embedded in the text slides, and are a distinctive feature of Federica's augmented content.

- **Openness**. Access to all Federica courses is free. Given the public nature of the Italian University system, this offers Federica a potentially unlimited student audience, as well as an expanding target in the life-long-learning segment.

3 Problem description / challenges

3.1 Institutional Profile

Analyses of the MOOC phenomenon in Italy are affected by a lack of definitional and classification criteria. In many cases, the existence of MOOC courses results from simple self-certification by individual universities. A limit that is also reflected in the CRUI (Conference of the Italian Universities Rectors) survey, published in 2015 with very imprecise data dating back to about two years ago.

The main problems each University has to face with respect to the development of a consistent MOOC policy are the following:

- Lack of cultural awareness
- Lack of internal cohesive and unitary strategy (competition among different visions by individual teachers, vested interests in the computer services centers, etc.
- Lack of financial means (recent seed funding from the Ministry of education may partly compensate)

3.2 Business models

The Italian MOOC scenario is characterised by a variety of models:

- Telematics universities. These are private universities, recently licenced by the Ministry of Education, with traditional e-learning platforms and none of the driving features of MOOCs: open access, international benchmarking, 2.0 dissemination.
- In-house experiments. Some Universities just activated occasional experiences in house – using platforms like Moodle or Blackboard, or by developing their own platforms.
- Big providers-oriented experiences. In a few cases, Universities have activated more structured collaborations with one of the main providers, as is the case for large universities such as Bocconi and Sapienza with courses available through Coursera. Due to costs and organizational constraints, the number of such courses is severely limited
- National consortia. EduOpen is coordinating a number of smaller universities through a common platform

4 Policy options applied / recommendations

How has Federica tried to respond to these challenges?

4.1 Institutional Profile

With respect to its institutional profile Federica has been able to draw upon

- A solid cultural background
  - established experience in weblinking, with IPSAPortal
  - Federica's Director is the Author of an Open book, Hyperpolitics, published by University of Chicago press and also available on an interactive and open access website at www.hyperpolitics.net
  - Work on the Federica platform was prepared through a one-year comparative research on all e-learning platforms published by major Universities worldwide
- A unitary vision and command structure
  - Federica has been developed under the full responsibility of a Scientific Director, who has also been in charge of recruiting and coordinating the personnel employed (approx. 20 junior professionals, mostly women, mainly with a digital humanities background)
- EU funding
  - Federica has been possible thanks to generous support from the European Union through structural funds (FSE 2006-8; FESR 2007-2013/15).

4.2   Business Model

With respect to the *Business Model*, there are two distinct steps in Federica's strategy:
- **Step One**, through the first six years of activity, has concentrated on
  - developing an innovative web-learning *format*, which could easily be adopted across all university disciplinary areas
  - recruiting and consolidating a team of dedicated young professionals to perform the various tasks implied in advanced weblearning production (software dev., graphics, course design and management, communication, etc.)
  - reaching national visibility and prominence in the fast developing e-learning environment
- **Step Two**, 2013-, has focused on MOOC research, production and dissemination through a new platform and interface, with several innovative traits:
  - Federica has been constituted as an *autonomous University Center* (Federica Weblearning, Centro di Ateneo per la Innovazione, Sperimentazione e Disseminazione della Didattica Multimediale), with its own budget and administrative staff.
  - *Target* of Federica MOOCs has become expressly *national*, with a massive press campaign
  - While the core of Federica's authors are still from University of Naples Federico II, many *outstanding scholars from other universities* have been recruited to offer a course on Federica.eu
  - A number of *selected partners* – academic and corporate – have joined or are in the process of joining federica.eu, such as:
    - SNA – National School of Administration
    - Tim – Telecom
    - University of Turin
    - Il Mulino Editori
    - IPSA, International Political Science Association
    - MISE, Ministry for Economic Development
  - *International cooperation* is being developed both at the research and operational level through
    - Conferences as the International Anacapri Colloquium (first edition, September 2015; second edition, September 2016) and Congress co-sponsorship

(ICEM, International Council for Educational Media, September 2017 to be held at Federica, Naples)

- Joint venture with IPSA, the International Political Science Association, for production and dissemination of a set of PS MOOCs for a core Political Science Curriculum (launch scheduled at the Poznan IPSA World Congress, July 2016)
- Federica has also been the promoter - and coordinator - of the EMMA project, the European Multiple MOOCs Aggregator, including 11 partners (6 Universities). EMMA is a 30 month pilot action supported by the European Union, providing a system for the delivery of free, open, online courses in multiple languages from different European universities.

5   Recommendations

The MOOC revolution is impacting on a variety of actors, at different levels of the educational reproduction chain. Yet, the distinctive feature of MOOCs' rapid worldwide expansion has been the involvement of top ranking US universities, with their quality branding and attraction. International competition will have to stand up to highly demanding standards, in terms of lecture content and teacher reputation. Many European ventures have, so far, been unable to convey – and be identified with – this message. EU cooperation and coordination should place more emphasis on cultural and academic branding if it wants to effectively counteract the current US predominance.

Creating a Mezzo-Structure for MOOCs in Europe

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1   Summary

Looking at the current state of MOOCs in Europe it does not seem that we are moving toward an integration of MOOCs into European higher education. While more and more higher education institutions (HEIs) are offering MOOCs there is little development regarding an integration of MOOCs into the European Higher Education Area and the ECTS. If the goal is such an integration (*a macro-structure*), we need to create ECTS Credit-bearing MOOCs (ECTS-MOOCs), which can be easily integrated into the curricula of interested HEI and where HEI receive funding for teaching online students. The problem is that the current system (*the micro-structure*) does not incentivise HEI to offer ECTS-MOOCs and does not allow students to take ECTS-MOOCs for free.

In order to create a working system for online education in Europe, there is a need to advance multilateral collaboration between HEIs to share the cost of course creation (creating supply of courses), as well as to create a support system for students (creating demand for courses) (*the mezzo-structure*).

I propose two funding initiatives to a) build HEI networks based on an exchange of ECTS-MOOCs and b) a scholarship system for ECTS-MOOCs to allow students to finance the cost of certificates until HEIs can offer them for free.

2   About iversity

iversity launched its MOOC platform in October 2013 as the second platform in Europe. One of our main goals since then has been the integration of MOOCs into European higher education. We took first steps in this direction by being the first MOOC platform to enable HEIs to offer ECTS Credit-bearing MOOCs in early 2014.

3   Problem description

While initial MOOCs where often copies of regular lectures, today only few MOOCs are equivalent to on-campus teaching. Even fewer MOOCs offer ECTS Credits, few HEIs have integrated MOOCs from other HEIs into their curricula or have a working and scalable system of how to accept ECTS Credits earned via MOOCs. Few students take MOOCs to supplement their regular curriculum.

Most MOOCs are very reduced on-campus courses, between 4-8 weeks long, with an overall workload of 12-32 hours. The reason is simple: most MOOC participants are not regular students, but working professionals who learn parallel to work and who require short courses.

But to leverage the benefits of MOOCs for European higher education, another type of MOOCs is required. MOOCs that actually award ECTS Credits and that are easy to integrate for students into their study programmes. Since there is a public education system, a financing system where HEIs receive public financing for MOOC students to re-finance their expenditures is required, such that students do not have to finance the certification of MOOCs themselves.

The challenge is that currently HEIs have little incentives to offer ECTS-MOOCs. They either have to cover the additional costs themselves or need to charge students to earn certificates and credits. And since students in Europe are used to a public education system, they show little interest in financing their certifications next to the tuition fees they already pay.

ECTS-MOOCs could also be integrated into internal study programmes. However, there are additional costs associated with creating an ECTS-MOOC instead of a normal MOOC. They

- require additional administrative work for accreditation
- often require manual grading by faculty staff and
- generally have higher production cost, because of the higher workload (180 hours compared to 12-32 hours).

Due to the uncertainty in demand as well as the higher cost structure, there is no surprise that only 10% of MOOC-offering HEIs named "Supplement On-campus" as a primary objective in the latest HOME "Comparing institutional MOOC strategies" study.

The online education ecosystem is therefore still stuck with MOOCs mainly being used for marketing and branding reasons. Again, the HOME study confirms this hypothesis. The branding and recruitment factors "increase institution visibility", "drive student recruitment" and "reach new students" account for more than 50% of the primary objectives to offer MOOCs.

4 Policy recommendations

If MOOCs shall be integrated into the European higher education system, there is a need to:

- create incentives for HEIs to offer ECTS Credit-bearing MOOCs,
- set up working systems to integrate MOOCs into curricula and
- allow students to receive ECTS Credits free of charge.

To start the process toward such a macro-system and a move away from the current micro-system with little collaboration, I propose the creation of two EU initiatives to develop a mezzo structure for both creation and recognition of ECTS Credit-bearing MOOCs and to foster demand for these courses. I see this as an essential step towards a true integration of MOOCs in European higher education.

4.1 EU Initiative: MOOC Networks

To create ECTS Credit-bearing MOOCs and to integrate these into the curricula of higher education institutions, the cost-benefit relation for individual institutions needs to change. I propose the creation of higher education networks funded through EU initiatives to kick-start the process.

In these networks participating HEIs commit to:
- creating MOOCs according to ECTS guidelines *(funded by the EU Initiative)*;
- integrating MOOCs from other network HEIs into their curricula via mutual credit recognition;
- hosting onsite exams for MOOCs created in the network *(funded by the EU Initiative in the first year)*;
- grading exams or projects from their own MOOCs for all network students free of charge *(funded by the EU Initiative in the first year)*;
- allow external students to earn ECTS Credits against any charge.

This set-up would not only enable participating HEIs to start using MOOCs as part of their core teaching activities, but to also learn what it takes to hand out ECTS Credits for their own MOOCs and integrate MOOCs from other HEIs into their programmes. It would also foster awareness of students within the participating HEIs and provide insights into how MOOCs should be set-up to provide the best learning experience.

It would also allow for economies of scale by bundling the demand from multiple HEIs for similar courses and allow for a sustainable digital mode of instruction. This could be modelled by the following scenario:

Assumptions:
- Five higher education institutions create two MOOCs each = ten MOOCs in total
- Each MOOC has 200 onsite students per year from each partner = 1000 participants per year
- Cost of MOOC creation = 50.000€
- Cost of MOOC support (one year) = 25.000€
- Cost of evaluation per student = 10€

Costs for participating HEI:
- One-time costs: 100.000€ for the creation of two MOOCs
- On-going costs: 90.000€ (50.000€ for course support + 40.000€ evaluation costs (400 participants))

Return for participating HEI:
- 2000 students taking MOOCs each year = 45€ per student per year
- Two own MOOCs with "typical" benefits
  - o Branding and outreach
  - o Experience with online courses
  - o Revenue from external participants

While this set-up would also be possible without an EU Initiative and I am aware that individual networks are already in the making, I believe an EU Initiative would greatly accelerate this development.

4.2   EU Initiative: MOOC Scholarship

The second initiative could be a stand-alone initiative, but would also complement the MOOC Networks. The basic idea is to offer students in the EU the option to apply for a scholarship for ECTS Credit-bearing MOOCs, which covers the cost of the exam and certification.

The application requirements would be:
- Student at an institution in the European Higher Education Area (EHEA)
- Confirmed acceptance of the MOOC as part of the student's study programme by his or her institution
- Letter of Motivation
- Optional: Prove of need for financial aid

The initiative would create a demand for ECTS Credit-bearing MOOCs and through this demand incentivise HEIs to not just offer regular MOOCs for a public audience, but to develop MOOCs especially for students and to go through the additional administrative work to offer ECTS Credits-bearing MOOCs.

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Institutional MOOC policies

Higher Education in the Post-MOOC Era: Reflections from UC3M

Carlos Delgado Kloos, Eva Méndez
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The Impact of DelftX MOOCs

Willem van Valkenburg
Delft University of Technology

MOOCs at Fontys University of Applied Sciences

Robert Schuwer, Fred de Vries
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MOOC @ KU Leuven: an ICT perspective

Frederik Truyen
KU Leuven

MOOCs and other educational resources at the University of Porto

José Manuel Martins Ferreira
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Higher Education in the Post-MOOC Era: Reflections from UC3M

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1   Summary

The Spanish Government does not have a policy regarding Massive Open Online Courses. There are no initiatives to promote the creation of MOOCs or to consistently introduce MOOC elements at the Higher Education level. There are however commercial providers (eg. miríadaX) and some regional initiatives (eg. UCATx).

In this short paper, we will cover the policy recommendations/actions at institutional level at Universidad Carlos III de Madrid (UC3M). The university has taken effective steps in the last 3-4 years that can be considered among the most advanced policies regarding MOOCs in the country. We will also point out several reflections about the main challenges and solutions as well as recommendations for policy makers at European/International or national level.

2   Introduction

The UC3M was born with the Web. The university was founded in 1989, in the year the Web was invented. In the last 25+ years we have been growing with the Web, implementing and adapting its revolutionary developments to our institution and to the way we teach and share knowledge with our students and the society.

Our first web-based learning management tool was implemented and deployed in 2002. We have been creating Open Educational Resources in Open Courseware (OCW) since 2006, where we have published almost 230 courses so far [1]. These are mostly in Spanish, although some courses are available in English. All materials are reviewed centrally, to be cleared of copyright issues and be published under Creative Commons licences. The university established a peer review quality control system to evaluate the OCW courses before their publication. UC3M was also one of the first public face-to-face universities on adopting *b-learning* approaches for several of our undergraduate and graduate studies, based on the integration of Moodle as LMS with the recording of the face-to-face lessons.

Aware of our online evolution and the webby trend of our University, in May 2012 we created a working group called MAREA ("tide", in Spanish) to analyse the status and prospective of all multimedia and online learning initiatives, as well as the Open Educational Resources in our University. In November 2012 we created a specific technical support Unit for Educational Technology and Teaching Innovation (UTEID) [2], which has been helping our faculty to create, manage, and deploy MOOCs, as well as other innovative endeavours in teaching and learning.

In August 2012 we launched remedial courses for freshmen based on the Khan Academy platform. We joined miríadaX, the Spanish MOOC platform, at its creation at the end of 2012 [3]. We launched our 3 first MOOCs in February 2013 with the first group of courses launched by this platform. We have been the first Spanish university joining edX, which occurred in February 2014 [4]. These particular milestones in the MOOC environment have behind a tacit policy of being "in the tide", being digital ([5]) in different platforms (including iTunesU, YouTubeEdu, edX, and miríadaX).

In the last three years we have been creating MOOCs in edX (12 so far) and in miríadaX (5 courses), and we have been MOOCifying our teaching on campus thanks to different MOOC-like initiatives. To host these SPOCs (Small Private Online Courses) first Google Course Builder was used and when OPENedX was released, we switched to OPENedX ([6]).

UC3M believes that the future of education, whatever it is going to be or whatever it will look like, it is going to be digital, so we are proud to have, since April 2015, a specific Vice Presidency on Strategy and Digital Education, as part of the main strategy for the University evolution.

3   Problem description / challenges

The main problems or barriers that we have found in the creation of MOOCs and, in general, in relation to educational innovation at University level are:

- The cultural change of opening the class to the world. Some faculty are reluctant to be recorded and they have problems to adapt the traditional teaching model to the new audio-visual environments and requirements.
- The lack of incentives to create high quality MOOCs. Traditionally in Spain, most of the incentives for professors are based on research and they are currently assessed and rewarded by their research being the teaching, just a collateral issue of the academic performance.
- The high investment needed to create new educational infrastructures.
- The different level of engagement of students.

4   Policy options applied / recommendations

Regarding challenges, there are many, but we underline several of them here below, as well as ways to address them for establishing digital education policies. For the sake of brevity, the ideas are presented with bullet points in lists:

- If it is uncertain what the future holds, how to prepare well the University for a first class Education in the future?
    - Experiment
    - Experiment
    - Experiment
    - Incentives to try out new things
    - Calls and contests to promote action
    - Get help from internal enthusiasts
    - Spread the word (e.g. organize events, disclose experiences, etc.)
    - Develop a strategic plan
    - Get help from outside (edX)
    - Be in touch with the leaders
    - Be leaders ourselves
- If knowledge is abundant, what should be the focus of the university?
    - Be prescriptive in new students PLE (Personal Learning Environment): Purposeful selection of content, new literacies (information and data literacies), etc. and create life-long learners
    - Laboratories
    - Field experiences

- o Mentoring
- o Social interaction
- o Specific advanced expertise
- o Certification
- o Life experience
- o Prepare for an uncertain future job market
- If technology allows to present, exercise, model, reflect, share, assess knowledge in exciting new ways, how to harness its affordances?
  - o Allow new instruction models
  - o Stimulate new presenting technologies
  - o Inspire new learning models and new ways to evaluate learning outcomes
  - o At institutional level: motivate the experimentation with all these technologies and analyse and reveal its results to implement them at large
- What should we be prepared to change?
  - o Organizational structures
  - o Time tables
  - o Granularity of courses
  - o Physical teaching locations and infrastructures
  - o Kinds of roles of personnel
  - o Teaching habits and performance

5 Recommendations

From our experience in digital education, we can list the following recommendations.

At International/European level:
- Although education is a competence of the member states, the Erasmus programme was launched by the European Commission and it has been a tremendous success. The EC should lead a similar initiative to promote virtual mobility as a complement to traditional mobility.
- The Bologna process has been another very successful initiative promoted at the European level and adopted by member states and beyond. It defined a frame for the recognition of higher education study levels and a common measure of student effort (ECTS). However, formal, closed education is being complemented by open, informal and non-formal elements. The formal educational system is based on a hierarchical degree granting principles. New private initiatives come more and more into the arena with innovative and distributed proposals (for instance, with blockchain and badges as ways of recognition). Since it is difficult to approach this challenge, reflection groups should be set out to bring light into these developments.

At national level:
- We recommend member states to create national policies to recognize:
  - o Good innovative teaching experiences in academic records of the teachers, incentivising the permanent innovation spirit.
  - o New roles in teaching and learning institutions which guarantee the right MOOC-like teaching performance.
  - o Mechanisms to guarantee the quality of online learning taught at University level.

At institutional level:
- Best practices for MOOC design, deployment, maintenance, and reuse should be made available.

- MOOC technology is not just about MOOCs. The same technology can be used in a variety of different settings that need to be necessarily massive, nor online. SPOCs (small private online courses) and flipped classrooms are two examples. It is necessary to experiment and clearly identify new models and a terminology that helps in adoption.
- Learning Analytics opens the door for research-driven education. Education can be improved looking at the data. However, the field is still at its infancy and to experiment and advance the field some fundamental elements are needed. One the one hand, access to good data sets is needed to advance educational research. On the other hand, standards are needed.
- The recording of student data requires having policies in place that handle these data taking into account the relevant privacy and security measures both from the technical and the legal standpoint. Recommendations and examples should be useful as educational institutions are confronted with these new challenges.
- The role of education should be rethought in a context where on the one hand the jobs of the future are uncertain and wicked problems have to be solved in an inter-/multi-/trans-/anti-disciplinary way, and on other hand people will have instant, ubiquitous access to a wealth of information and to intelligent support systems (like Watson).

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The Impact of DelftX MOOCs

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1   Summary

When TU Delft started with the MOOCs we had some ideas what the impact could be. After three years we can say that the impact is much bigger and more diverse than expected. Openness of our MOOCs has been key enabler of the impact.

So we can recommend any university to start with open MOOCs. Especially for research universities it can be an enabler for more focus on education.

2   Introduction

In 2013 Delft University of Technology (TU Delft) joined the edX Consortium to offer MOOCs. This step fitted in the strong commitment to Open Education since 2007. From the beginning the MOOCs have been truly open. So not only open for enrolment but also with an open license.

A year after TU Delft started the Delft Extension School for Open and Online Education. In this school all activities in open and online education are bundled and supported from one department. The products that are offered are:

* OpenCourseWare: course materials of our regular campus courses shared online with an open license.
* MOOCs: all the DelftX MOOCs offered via edX platform.
* Professional Education: online courses targeted at the working professional.
* Online Courses: the online variants of regular campus courses, can lead up to a full MSc degree.

This year the programme of the Extension School is ending. For the funding of the next phase it is important to show the impact of our programme and especially for relatively expensive MOOCs.

3   Problem description

Since the start in 2013 we have developed more than 30 MOOCs in the field of science, engineer and design. More than 900,000 enrolments in 3 years' time has made quiet an impression in our university.
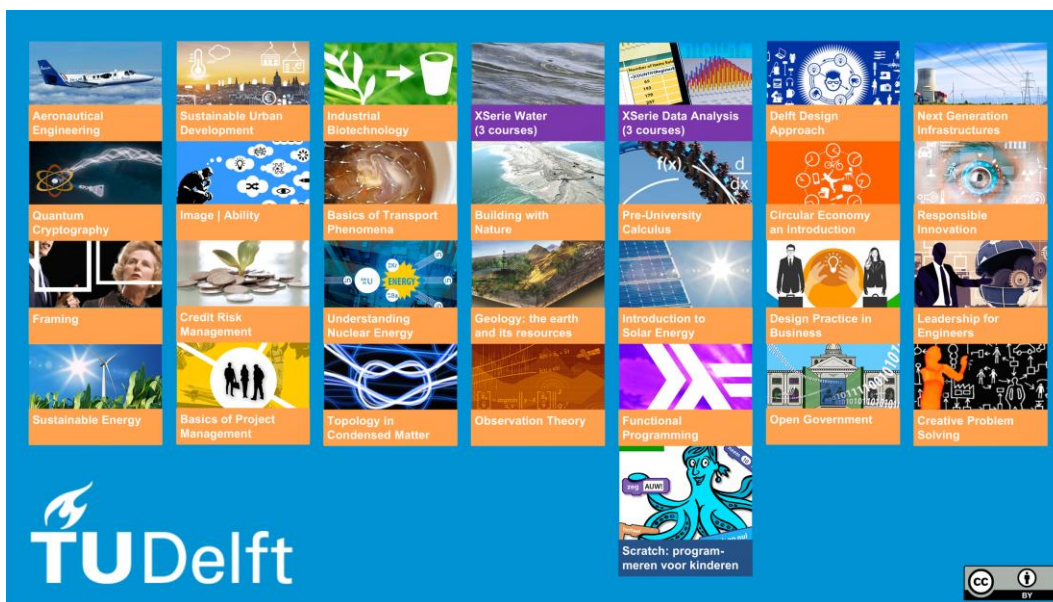
Figure 1: Overview of DelftX MOOCs

Although the MOOC are free to enrol, learners can choose to pay 50 dollars for a certificate. This has generated more than half a million dollars in revenue. In total it doesn't come close to the development costs. On course level, there are some very successful courses that generate enough money in 3 to 4 runs to cover the costs. This causes us to look broader at the impact of the MOOCs and the non-financial benefits it generates.

4   Impact of MOOCs

Our MOOCs have some expected impacts, but also some unexpected impacts. In this chapter the five most important ones are discussed.

4.1   Educate the World

This is the original objective of our programme. With a reach of more than 900.000 learners, we can certainly say that we are educating the world. Considering the fact that TU Delft caters for only 21.500 on-campus students, our 900.000 online students is quite remarkable.
The learners are from all over the world, only 3% is from the Netherlands. The biggest groups of learners are from the US (20%) and India (14%), all the other countries are below the 5%.
Via our surveys and interviews we conclude that doing our MOOC can have an impact on someone life. For example, the story of Andersson Contreras (Contreras, 2014). Many more learner stories are available on our website (TU Delft Online Learning, 2016).
Our MOOCs are also used in classrooms around the world, for example our MOOC on Functional Programming is taught in a class in India (Pramode, 2014), or translated in other languages, such as Arabic and Vietnamese (Ouwehand, 2016).

4.2 Impact on international reputation

Being visible on the edX platform among some of the top universities in the world, such as MIT, Harvard, and Berkeley, helped our international reputation. We have seen a strong increase in the number of international applicants to our campus programmes since joining the edX Consortium.

Most interesting is that we see enrolments from more countries. Most of these countries we don't do any marketing activities. Especially remarkable is the growth in the number of US students. From less than 5 in 2012 to almost 100 in 2016.
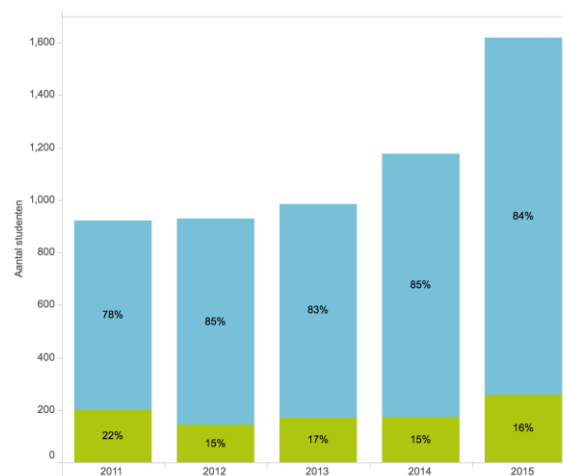

Figure 2: Number of international students per year (green is Bachelor, blue is Master) (TU Delft, 2016)

4.3 Impact on campus education

All our MOOCs are used in our campus education. Some use the complete MOOC, other just the videos. 80% of the lecturers agree or strongly agree that online/blended education has improved their teaching skills. An even bigger portion of them agrees or strongly agrees that online/blended education allows them to improve their course material for campus courses. Arno Smets (2014) saw an increase in the average grade, pass rate and student satisfaction. Felienne Hermans (2016b) wrote a blogpost about flipping her course.

The next step for our university is that we are going to provide credits for MOOCs to our own students to be included in their honour programme, PhD programme or as elective course. Together with 7 other universities worldwide, our students can choose from 80 MOOCs from top universities (Mulder, 2015b).

4.4 Connecting Research and Education

Online learning is a new activity for TU Delft. That is why we started a project to do research in the field of open and online education. Two PhD students were hired and started their work at the Web Information Systems Group in close cooperation with the Extension School support team. Their research focuses on:

- Gain actionable insights into learner behaviours at scale. (Data science and big data processing
- Increase our knowledge about learners by looking beyond the learning platform. (Web data analytics)
- Design and implement interventions that enable adaptive learning at scale. (Web engineering, Human-centered design, Learning technologies)

For this research the use the learner data of >900.000 enrolments, survey data (>100k responses) and edX course data. The group has published more than 10 papers and have presented at international conferences.

The unexpected connection is that lecturers of the MOOCs started to use the MOOC to collect research data. Felienne Hermans (2016a) asked learners in the MOOC to click labels in an online game and she got 160.000 answers to test with. Arno Smets used the MOOC to collect data about the opportunity of solar energy in a country. In the Framing MOOC learners were asked to respond to a certain 'frame'. Their interest was to find difference depending on the cultural differences of the learners (Van Valkenburg, 2016).

4.5   Collaborating with industry

Traditionally TU Delft has a strong collaboration with industry with regards to research. The Open Education activities, especially the MOOCs, have let to new collaboration with industry: co-creating courses, sponsorship, offering MOOCs to their own employees (Mulder, 2015a).

5   Recommendations

As shown in previous chapter MOOCs have a much broader impact than anticipated on forehand. MOOCs have influenced our university in a positive way:

- Education got more attention. This improved our education and changed made research and education more in balance.
- It improved our reputation and the visibility of our education worldwide.
- It is a drive for innovation within the university.

An important aspect for us is that our MOOCs have been openly licensed from the beginning. This makes reuse, collaboration and sharing much easier. Open increases the impact!

The next step for our university is credits for MOOCs. Not only our own, but also from 7 other universities.

6   Further Reading

- TU Delft case study in the report OpenCases: case studies in Openness in Education: http://www.e-learn.nl/2016/06/03/case-studies-on-openness-in-education
- Slidedeck about the impact of our MOOCs: http://www.slideshare.net/wfvanvalkenburg/oeglobal-impact-of-moocs
- Position paper Is there a sustainable business model for TU Delft Extension School? in MOOCs in Europe: http://www.e-learn.nl/2015/12/02/wow-europe-embraces-moocs

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MOOCs at Fontys University of Applied Sciences

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1   Summary

Several trends force Fontys University of Applied Sciences to formulate an open policy regarding MOOCs and other forms of open education. These trends encompass the ambition to offer more tailor-made education and the need to enlarge an international focus. In formulating this policy, Fontys can build on some experiments and experiences from recent initiatives within Fontys.

2   Introduction

Fontys University of Applied Sciences is located in the Southern part of the Netherlands. It has 44,000 students participating in 85 Bachelor programs and 22 Master programs. Fontys has 41 research chairs ("lectoraat" in Dutch), mainly conducting applied research in close cooperation with practice and education[18].

Universities of applied sciences in the Netherlands offer professional education, applying a practical approach to (scientific) knowledge. Both education and research are determined by the needs of society and work field. The majority of education is campus-based with students coming from the close region of the university. There are some exceptions. At Fontys these are a.o. an International Business School (with many students from Germany), the School of Arts and an international program at the School of ICT (with ~500 students, being 18% of the total number of students at this school).

From these characteristics it seems that for the majority of schools at Fontys publishing a MOOC for international visibility (the most mentioned primary objective to publish a MOOC in the research described by (Jansen & Schuwer, 2015)) is not an option. Instead, more and more teachers reuse and sometimes adapt MOOCs and other forms of open online education (like OER) and design their educational activities around them. Experiences on these reuse activities are hardly shared and communicated. But trends demand a different viewpoint in these as will be shown in the next chapter.

3   Problem description / challenges

Fontys Focus 2020 (Fontys, 2016) describes the medium term ambitions for Fontys. The focus will shift to talent-based education: "Talents are the future; the future shapes our talents". The main challenges to realize these ambitions are:

- Realize maximal development of each individual talent
- Students are educated to become critical professionals

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[18] Source: http://fontys.edu/About-us/Who-we-are/Who-we-are.htm

- Education as personalized as possible
- Demand driven education with both the student and the work field as starting point

Connecting the classroom with the outside world and reusing OER, MOOCs, open data and open research enables the tailor made programs necessary for realizing these ambitions.

As mentioned in the introduction, the education programmes of Fontys in general do not focus on students abroad. However, current trends demand a stronger international orientation in which forms of open and online education can be of use:

- An increasing number of students want to move from an international orientated program in English at a research university to a university of applied sciences. To facilitate this, more English programs should be offered in an international classroom setting. The same counts for incoming students from Dutch secondary education offering an English stream.
- Especially for the field of ICT, in the near future the demand for graduate students in the Eindhoven region cannot be met by the current population. This demands for the need to attract students abroad and thus to be more visible internationally. Publishing MOOCs can be a means to become more visible in the region and internationally, enabling different stakeholders including future students, current students, collaboration partners and the experts and part-time students in the regional industry to work and learn together on shared interests. MOOCs can thus be a primer for the collaboration in the regular curricula and applied research.
- The future working environment for the student is more and more becoming globalized. This provides the demand to prepare students for working and living in an international environment, with a mixture of cultures, values and beliefs. Participating in an international learning environment is one of the means for education to prepare students for this. An online learning environment based on a pedagogy that supports cooperation and group learning (e.g. in the form of a MOOC) is a way to realize this.
- In fast-developing areas like ICT, employers demand to have an up-to-date program addressing these developments. Developing learning materials from scratch is not feasible in that situation. Instead, reuse, adapt or remix existing open online resources is one way to go.

And lastly, it seems that MOOCs are here to stay and will likely play an important role in lifelong learning activities. Involvement with MOOCs in their program is a way to make current students aware of these forms of open online education.

These trends demands for an institutional policy on openness. The next chapter will elaborate on this.

4   Policy options applied / recommendations

Within Fontys, policy on openness is currently under construction to address the challenges as outlined above. There are however a few initiatives on MOOCs and other forms of open online education. In this chapter, three of these initiatives will be described.

4.1   Promote Open Access including OER

Recent research on adoption of forms of open online education indicate that a majority of teachers still are not aware of the existence of these resources and the advantages these can bring (Allen & Seaman, 2014),

(de los Arcos et al, 2015), (Schuwer & Janssen, 2016). A way to overcome this is to promote and support using existing open resources from other academics in compiling MOOCs and other learning resources as much as possible. Once teachers get accustomed to this, the move to sharing resources written by themselves under an open license or reuse and adapt resources from elsewhere may become obvious for them. Awareness on the reuse and adaptation of learning resources is the pivotal role librarians can play. In the libraries on location and through their online portal the principle of academic sharing and reuse of electronically and sometime editable resources can be promoted. The most obvious way to realize this situation is the university wide application of an Open Access policy, including the use of Open Educational Resources. Such a policy is under preparation for the Fontys institutes.

4.2 FINE innovation programme

In January 2015 four pilot projects under the FINE innovation programme started. FINE stands for 'Fontys Inline Education', a combination of online and offline education. The objective of the programme was to experiment with a balanced combinations of open offline and online educational offerings. Results included learning resources (OER) consisting of instructional units and exercises on Statistics and products of Arts students which are shared in offline and online environments. Broader use of the resulting products is one of the objectives of the programme. The policy initiative mentioned can accelerate the actual reuse of resources for online and offline education in and between the Fontys institutes.

4.3 Open innovation stream

At the School of ICT, in September 2016 an open innovation stream will be offered to interested students in their second year. This program will be part of the Bachelor Program. In this program, students have many choices in shaping their individual program, both in subjects and in didactics. A student in this stream starts with defining their learning objectives around a subject of his own interest. Where possible, they are connected to business partners and students with similar objectives to realize their objectives. The knowledge and theory needed will be mainly offered by reusing available OER and MOOCs. Teachers are coaching the students during their learning experience. Assessment of the student will be portfolio-based. This stream is an example of realization of the talent-based education ambition.

5 Recommendations

To realize the ambitions of Fontys as outlined in their program Fontys Focus 2020, tailor-made, personalized programs are necessary. For efficiency reasons reuse of available open resources is a conditio sine qua non. MOOCs are one of the many options to address the challenge. Formulating an open policy should start from the vision on education. An open policy should also connect to the trend that different manifestations of openness becomes more and more integrated: OER, Open Data, Open Access publications, Open research and Open online courses, whether or not Massive.

This demands for an open policy with an integrated vision on these diverse forms of openness. This policy should also take into account the opportunities of MOOCs and other forms of open education in being more visible internationally and to support the demands the global oriented environment of Fontys are setting. Collaboration with the regional internationally oriented work field can be boosted by involving experts from these companies in the realisation of current open learning resources to be used in MOOCs and the regular programs.

At last, openness in education is much more than just MOOCs. The acronym MOOC is given many meanings, sometimes even equalizing it with open education (Jansen et al, 2015). Maybe, to avoid the latter trap mentioned, the acronym MOOC should be replaced by OOC(EM), to become more meaningful: Open Online Course (Eventually Massive).

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MOOC @ KU Leuven: an ICT perspective

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1 Summary

KU Leuven launched 4 MOOCs on the edX platform last year under an internal tender amongst faculties. The idea was to experiment with different formats and target groups. One of the MOOCs was in fact a SPOC. In this paper we discuss what MOOCs can mean for a traditional mainstream university with an established business model. We argue that while pedagogical and business motives might remain inconclusive or open to debate, MOOCs can be a valid part of an ICT strategy aiming at solving problems, now and in the future.

2 Introduction

MOOCs started at KU Leuven from an initiative by the ICT strategic committee. On the individual level some professors were already active in MOOCs, most notably Prof. Erik Duval who worked with George Siemens on a cMOOC on Learning Analytics. The MOOC project was the proposed to the Educational Council, and the vice-chancellor of Education subsequently launched a MOOC call to faculties, in which eventually 4 pilot MOOCs where selected. This year a second round will be launched.

3 Problem description / challenges

In the midst of the 2011-2012 hype quite existential questions were raised about MOOC's, how they would transform higher education, lead to unemployment under academic staff, change the business models of universities and more. 4 years later, we can have some hindsight and realize that it was all a bit less exciting, yet I would argue the promise is still alive and kicking.

This doesn't mean, however, that MOOCs have proven to be a hot air balloon. Quite on the contrary. There is a big case to make that MOOCs have established themselves as a valid contribution to education, maybe not really as it was anticipated by its original creators, like Udacity founder Sebastian Thrun, who envisioned it as a democratic revolution. No, it is not really the 15 year old brilliant kid from a remote area that is helped by the MOOCs, at least not in significant numbers. The MOOC populations seems mostly a post-student group ages 25-35 or so, often from US or Europe with a higher education background. But it certainly has success. And with some hindsight now we can describe how it works best. I will in this position paper focus on its role for traditional universities.

Back in 2012 there was a lot of talk about the impact of the MOOC on the university business model. MOOCs could lead to a so-called "unbundling" of university activities, where roles that are now in one workflow could be split up. Instead of a researcher being also the teacher, one could make scripts of the big courses just as you would make a television show. With scenarists, voice actors, designers, translators, camera people and others all bringing in their expertise to make cutting edge recordings. Where now often for practical reasons different professors teach the same course at different campuses, the MOOC course could be followed from everywhere, so you could dismiss a lot of teaching staff, or they could have more time for research or for teaching at the MA or doctoral level.

Universities could also adapt to the availability of online courses, specializing in offering real life support for learners, even those that take online classes from other universities, by making available their premises for real life meetings, group assignments, library facilities.

But all of this didn't really materialize, or at best only in a marginal way, not affecting the mainstream way universities go about their business. So it is time for some realism. What can MOOCs really mean for a large, traditional European university, which in many case possesses huge real estate assets, with auditoria, seminar rooms, broadband networks and WIFI on campus, and has often a sizable on-campus student population and a steady instream of new students in a stable market environment? We should also take into account, e.g., that research is much more competitive as education in Europe, given that the latter is highly regulated.

Often the MOOC strategy choice is only framed around the question about what income stream it could generate, how it would fit in the business model of the university. The idea is that a sizable part of the income stream of universities is generated by student enrollments, so the question is what can MOOCs add to that. ExtensionEngine published a study (https://extensionengine.com/framework_white_paper/) where a few of the possible business models were highlighted. The for credit model simply copies the existing university model onto MOOCs, and "sells" credits through a MOOC channel. So students essentially will pay for getting a credit out of a MOOC participation. A no-nonsense approach that we also use in the LACE MOOC Literature and Change in Europe and that essentially works. However, it soon becomes clear that making a state-of-the art online course is very costly: you still have your traditional costs of academic staff who needs to make the course, and you add a lot of extra production costs. To sustain a MOOC you would probably need to renew the content after 3 to 4 years, which also adds to the cost. So while this helps to make your traditional business model more flexible and diversified over newer channels, it just doesn't improve the overall efficiency and performance of your business. The research model is another model very close to the modus operandi of universities; It is also very expensive, as essentially it is about using MOOCs to tryout a lot of pedagogical scenarios and best practices. Given the fact that notwithstanding decades of criticism about the traditional university lecture it is still the mainstream format, one shouldn't have all too high hopes that suddenly a more successful format will be developed. Anyway, it is undeniable that MOOCs offer a kind of "laboratory" conditions in which interesting pedagogical research can be performed. Usage data from video lectures can be analyzed to detect knowledge transfer issues and lack of clarity, participation levels as well as performance of students can be monitored in detail. Combined with sophisticated learning analytics, MOOCs can be a tool to improve *efficiency* (doing the same with less resources) as well as *effectiveness* (improving the impact, doing more with the same amount of resources) of educational activities.

The pre-matriculation model is also a model very attractive to universities: it focuses on how MOOCs can target specific audiences, and thus attract more people into the university. Compared to traditional advertising budgets oriented to traditional media, MOOC costs are actually rather low and affordable. It could be ideal to support specific actions to improve recruitment in strategically relevant domains, where the extra investment would be worth it. A good scenario would be a MOOC for attracting students at intermediate levels into e.g. Master programs, and offering them prep courses. Lastly, the post-graduation model targets alumni, and wants to keep a bond with them using MOOCs. Again, this could generate income like all successful alumni initiatives, but nowhere has it been proven that it would work better than other strategies. And it still needs huge investment to come up with something decent.

Which brings us to the point that essentially, universities are not waiting for a new business model: they happen to have a very solid one. They would only be looking at MOOCs if it would prove a cost-effective

way to improve on their mainstream business model. And this increased efficiency still is open to question. So, the business model approach is probably not the best one.

Coming myself from ICT, I was wondering whether we shouldn't look at MOOCs rather from the ICT perspective. ICT functions within the business models of the organizations it services, with a focus on providing solutions to current or future problems. I intentionally add "future problems", as this is quite important. In fact, good planning for ICT solutions involves building *capability* and *capacity*. First, capability. When you would be planning ICT solutions by starting with a list of existing problems, you will soon discover that it is best to develop generic solutions so that you are capable of handling similar problems in the future. The tools you would use are dependent on the state of the art of technologies, as you will want to build on available tools to get the job done more efficiently.

That is why part of ICT planning has to do with building up a capability to handle certain problems, even if they are not currently pressing but are anticipated to become so. Imho this is one of the most compelling reasons why universities should be looking into MOOCs, as we can anticipate that the cyberspace will become an ever more important space of action for universities. While they now have important real estate in the real world, they should plan for their real estate in the virtual world of the future. This real estate consists of software platforms, networks, cloud solutions that can handle typical university processes. The typical VLE's that universities have deployed in the first decade of this millennium were all about this: capturing some main processes in content delivery to students, making sure basic elements of the education system such as courses and course schedules were captured and supported by the IT solutions deployed.

MOOCs are a very good way to prepare for a next step in serializing university processes, with the possibility of capturing parts of the teaching as well as the learning process, where previous generations of eLearning systems were rather limited to content delivery. We should not underestimate what a disruptive leap it is when you can take on board the actual learning processes in your IT system. Moving teaching and learning processes to the digital means enhanced controllability, monitoring, fine-tuning, flexibility and allows for end-to-end quality control of how the university performs.

Instead of audit committees that do quality assessment of teaching after the fact, you can move to real-time monitoring and fine-tuning. E.g. when you notice that at a certain moment in the video lecture a majority of the students starts to rewind and replay, this could be an indication that something hasn't been clearly explained and the video should be reworked. The long term quality effects of this capability are important. So investing in MOOCs can be a way to invest in your capability as a university to deliver your educational goals, and to solve problems associated with knowledge transfer in a learning context.

Besides getting grip on the learning and teaching processes, MOOCs are a very good way to streamline parts of the supply chain of incoming students, by adding a highly selective way of attracting potential candidates. They also are a way to keep in touch with alumni students, who could do refresher courses. They also open up new venues to deliver output to the market, e.g. scientific insights or new procedures that you want to get as soon as possible to the uptake industrial context so as to shape the market. This can be as valid in healthcare, where you might want to educate healthcare professionals on new procedures as well as in technology, to make sure key knowledge is sufficiently spread to make new products possible.

Secondly, there is *capacity*. It is one thing to be capable of delivering top notch online courses, being able to maintain and scale this to a sizable operation is a completely different game. It is often misunderstood how scale is a differentiating factor in ICT solutions. A setup that works fine for a few hundreds of users on a single server might be totally inept to cope with tens of thousands of users. Operating one of the larger Blackboard-based VLE's in Europe, with many tens of thousands of registered users servicing thousands of courses in a multi campus scenario, KU Leuven has ample experience with these issues of scale. So, experi-

menting with MOOCs is fine, but how do you build a real capacity to grow, sustain and really build a reliable and scalable platform for these new business operations? How will you deliver over time, keep engaging the attracted audience, organize the course supply chain, and realize a steady income stream. For all the theoretical discussions about supposed pedagogical pros and cons of MOOCs, there was astonishingly little to be read in the MOOC literature on this vital topic.

4   Policy options applied / recommendations

Paradoxically, we did not choose to scale up MOOC deployment in a first phase, for several reasons. A deliberate choice as been made not to simply translate as many university lectures as possible into MOOCs, even though many of our lecture rooms feature automated recording equipment. From an educational point of view no added value was envisioned in simply taping the course lectures and putting them online, for several reasons amply discussed by educationalists in the MOOC literature; to name one: the two-hour format of a standard university lecture is simply not adapted to the online experience. But more importantly, it simply wouldn't have solved a particular problem for the university by publishing these courses as MOOCS. Essentially we would be building up necessary capacity to store and publish hundreds of video lectures without enhancing our capabilities. Capacity that would eat up resources that would be needed to do more useful things. On the internal network however we do have many lecture recordings available to students, who find it useful to catch up with missed classes or to review the content.

KU Leuven did a first tryout with a number of MOOCs (http://www.kuleuven.be/mooc) , competitively selected after an internal call for proposals among faculties. Selected were E-Health, a course on Trends in E-Psychology, GRAPH, a course on the Great War and Philosophy, FRAME, a course on the EU and Human Rights, and then two very specific scenarios: a SPOC targeting students that want to do the chemistry entrance exam for medicine studies, and a SPOC "E-governance and public sector innovation". The idea was to have different target groups, different sizes, different languages and different formats. While in Trends in E-Psychology the innovation was both in the content of the course, addressing a new range of subjects, as well as the format, the GRAPH course experimented with forum discussions – tapping on the fact that more seasoned people also attended, bringing in professional expertise, and re-injecting discussion contents emerging during the course into the course materials, the SPOCs aimed at solving very specific issues: passing a substantial hurdle in gaining access to the medicine studies in one case, getting key knowledge out to a specific group of professionals in the other. KU Leuven – Europe's innovation university of the year - will continue to target very specific audiences in collaboration with research and development units, as most of the benefits are in that domain, linking the university value chain to key suppliers such as side stream incoming highly educated students at the MA and Phd level coming from research collaboration networks as exemplified in LACE or FRAME, and uptake markets such as spin-offs in technology oriented courses. An example of the latter is the Europeana Space MOOC that will be launched next fall, and which is based on EC CIP funded research on creative reuse of cultural heritage, provided by a large best practice network involving universities, cultural heritage institutions, spin-offs and tech SME's.

As these are more costly productions, requiring very high quality video – so-called "knowledge clips" – KU Leuven did setup a specialized video production unit for this – coupled to strong security, user and account management, scalability will remain a top concern to build up capacity when called for. However, this way the MOOC efforts go hand in hand with a regeneration of the University VLE environment, which is the solid basis to fall back to and needs more gradual, planned evolution as it warrants full scalability and needs to take on board the legacy systems. The legacy VLE is tightly integrated to our administrative backbone systems, offering very advanced performance monitoring and business intelligence. Plugging MOOC delivery into this encompassing ERP system as an additional, flexible module allowing for advanced metrics on

the real endpoint teaching and learning processes promises to give to the university full-cycle control over its operations. And that is the most sensible basis for future-proof business models.

5 Recommendations

I would recommend, against common perception, to not focus on the business models as business models for traditional universities are well established and there is no sense of urgency. I also would recommend not to focus too much on the supposed pedagogical benefits, as they remain largely unproven and are always open to debate. Pedagogical benefits should be a goal for the whole university teaching, not only for what happens online. Instead, we see MOOCs as an important part of the ICT strategy of a university, to put in place systems that allow increased control over the whole business process, including the teaching and learning activities and streamlining of the supply chain. MOOCs are an ideal way to prepare for next generation VLE's, integrated with the university ERP systems. This will yield the capability and capacity required to meet future challenges and deploy lean educational business strategies.

MOOCs and other educational resources at the University of Porto

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1 Summary

This document describes how MOOCs and other educational technologies are used at the University of Porto (U.Porto). It is presented as work-in-progress, not only because technological innovation happens quickly in this area, but also because the overarching higher education (HE) policy is influenced by hardly predictable extrinsic factors, such as public financing. All IT-related matters at central level are handled at U.Porto in a division called UPdigital (http://up.pt/updigital), which comprises an educational technologies unit with 7 persons (http://elearning.up.pt). The main role of this unit is to support the e-learning infrastructure used in our 14 schools (30.000+ students in total, c. 2.300 researchers and teaching staff), namely training and support for Moodle, Panopto (video platform), Turnitin (plagiarism detection), and online exams. U.Porto's educational technologies unit started to support the development of MOOCs by the end of 2014, and our first course was launched a year later. A second MOOC is due to start in June of 2016. MOOCs are but one piece in our portfolio of teaching and learning resources, which – besides Open edX, MiriadaX, and the aforementioned platforms – also comprises Office 365 and Google for Education. This portfolio continues to increase as new technologies and trends are identified.[1,2]

2 Introduction

Mass delivery through the Internet is the main distinctive feature that sets Massive Open Online Courses (MOOCs) apart from other educational content prepared for distance delivery. The HOME project offers a formal definition of MOOCs as "courses designed for large numbers of participants, that can be accessed by anyone anywhere as long as they have an internet connection, are open to everyone without entry qualifications, and offer a full/complete course experience online for free".[3] Online courses were available long before the term MOOC gained wide acceptance, namely through learning management systems (LMS) like Blackboard or Moodle. The main differences between a traditional LMS platform and a MOOC platform are essentially the following: 1) The number of participants in a single course is usually much higher in a MOOC; 2) The pedagogical features and administration and assessment modules are usually in higher numbers and more sophisticated in a traditional LMS platform; and 3) Educational content is largely based on video clips in the case of MOOCs. Additionally, LMS platforms are mostly used for blended-learning in formal education, while MOOC platforms currently take a leading role in informal education. As these two scenarios overlap over time, the differences indicated will fade away, and Moodle HQ has recently announced that it will come up with a MOOC hosting service "very soon, may be in June 2016".[4]

MOOCs may be seen as "Open Education" resources, defined by the European Commission Joint Research Center (JRC) as "a mode of delivering education, usually via information and communication technologies (ICTs) or blended learning, which offers alternative ways of building competences and skills, and enables less restrictive access routes to formal and non-formal education, as well as to opportunities for lifelong learning (with or without formal recognition of learning achievements)".[5] One important aspect in this definition is the reference to non-formal education – which represents the main educational scenario of MOOCs –, since the European Council recommendation of 20 December 2012 on the validation of non-formal and informal learning asks the EU member states to "have in place, no later than 2018, (...) arrangements for the validation of non-formal and informal learning which enable individuals to have knowledge, skills and competences which have been acquired through (...) open educational resources".[6]

The educational technologies unit at U.Porto supports distance and blended-learning across our 14 schools, comprising a total of over 30.000 students and approx. 2.300 researchers and teaching staff. The teaching and learning resources made available to faculty members are centred on Moodle and comprise additional content-related tools such as Panopto and Turnitin. An internal Open edX server is also available, as well as Office 365 and Google for Education. U.Porto offers two MOOCs that were produced by its educational technologies unit in cooperation with faculty staff. The two courses are offered in the MiriadaX platform, and the second one is scheduled to start in 20 June 2016.[7] The data available in the European MOOC score-board [8] until February 2016 shows a relatively low number of MOOCs developed in Portugal, which is certainly related to country size and funding issues.

3   Problem description / challenges

Our institutional policy concerning educational technologies in general and MOOCs in particular addresses a variety of challenges that are certainly common to a wide range of other European HE institutions. Due to their relevance for U.Porto's strategic plan, it is worth mentioning those that are related to teaching and learning activities, and to internationalisation.

The transformation of student profiles is an important challenge faced by HE institutions worldwide. As stated by G. Kahn in an article explaining how the Southern New Hampshire University reinvented itself through online education, "college is still designed for 18-year-olds who are signing up for an immersive, four-year experience replete with football games and beer-drinking. But those traditional students make up only 20 percent of the post-secondary population".[9] The flexibility of MOOCs in terms of space and time is able to accommodate the needs of new student profiles. At the same time, when used in blended-learning contexts, they enable a much necessary transformation of pedagogical paradigms. Progressive implementation of flipped classroom methods decrease the number of plenary classes and other instructivist methods that are yet deeply rooted in HE systems. The teaching and learning models where MOOCs are being used can be of great importance to promote student-centred learning, teaching and assessment, which was recently emphasised in the 2015 edition of the Standards and Guidelines for Quality Assurance in the European Higher Education Area (std 1.3): "Institutions should ensure that the programmes are delivered in a way that encourages students to take an active role in creating the learning process, and that the assessment of students reflects this approach."[10]

The accreditation of MOOCs is another challenge worth mentioning, and it will remain so while standardised quality assurance and large-scale reliable assessment methods are not commonly used. It is interesting to refer that academic recognition seems to proceed at a slower pace than market recognition, since the 2015 Global University Employability Survey and Ranking carried out by Emerging unveiled that "48% of respondents have recruited candidates due to qualifications they acquired via MOOCs".[11]

Achieving international visibility is another challenge that is worth mentioning, particularly because the cost of joining a higher profile network such as the edX consortium can be prohibitively expensive in the current financial context (one-time membership fee and annual maintenance fee). There are however alternatives to increase visibility – our two MOOCs were released in the MiriadaX platform, which offers an excellent window into the Ibero-American world.

4   Policy options applied / recommendations

Several factors are able to influence the pace at which an institution develops its own MOOCs, and there seems to be a wide consensus about the benefits of investing in this area. MOOCs offer open access to informal education, enable unprecedented opportunities for data analytics on teaching and learning, contribute to student recruitment, promote the transformation of pedagogical paradigms, enable partnerships

with industry and other external stakeholders, and are important for institutional internationalisation. U.Porto, like most other universities, recognises these reasons, which are fairly standard across the HE sector. What differs from one institution to another is essentially how they are prioritised, and how to address the underlying challenges. As the e-learning autonomy of teaching staff increases, it becomes possible for the educational technologies unit to spare time and resources that can be used to support the development of MOOC content.

An internal Open edX server was made available for faculty members that are willing to develop MOOC-like content to be used internally in flipped classroom experiments. This server is currently available only within the university intranet, but the effort required for setting up such experiments and the difficulties of producing content have so far limited the impact of this infrastructure. MOOCs that are to be released to an external public are launched in the MiriadaX platform, which is available to the HE institutions belonging to Universia network. Universia is the most important network of HE institutions in Ibero-America, comprising 1.400+ universities in 23 countries, and reaching 19+ million students and lecturers.

We are currently setting up a second Moodle server to split e-learning support to degree-awarding programmes and training programmes. The new server will also host SPOC-like courses with tutoring and accreditation, and three such courses are under development in cooperation with the universities of Minho (U.Minho) and Trás os Montes e Alto Douro (UTAD) to be launched in the beginning of 2017.

5   Recommendations

Being a means to an end, and not an end in itself, the development of MOOCs proceeds in parallel with several other initiatives supported by U.Porto's educational technologies unit. Faculty members are encouraged to use and develop this type of courses, but they are also encouraged to use Moodle, and all other resources and tools comprised in the portfolio supported by this unit. It should be noted that the transformation of pedagogical paradigms needed to improve student success and to cope with new student profiles can benefit from MOOCs, but it can as well benefit from Moodle or even by simpler setups such as Google Classroom and Google Hangouts.

The European Commission Joint Research Center report on HE institutions and openness recalls that the integration of open education into HE systems is a policy objective.[5] "Open education" may indeed be seen in a much wider context than just MOOCs (which are normally closed in what concerns permissions to re-use content), and we should not forget that SPARC (the Scholarly Publishing and Academic Resources Coalition) defines "Open Education" as "resources, tools and practices that are free of legal, financial and technical barriers and can be fully used, shared and adapted in the digital environment."[12]

It is important to say that most MOOCs belong to the category of xMOOCs, which follow well-defined learning routes and milestones. Such MOOCs may at first sight seem to promote an instructivist approach, since the students do not have the freedom of defining their own pace of learning, and tutoring is normally restricted to peer-support. Pedagogically-minded faculty will however be able to explore student-centred models, particularly when students are required to collaborate on the production of educational resources (in which case cMOOCs or truly open educational resources are probably a better choice).

The potential of MOOCs to address the mismatch between the skills of young graduates and the needs of their potential employers is not new,[13] and the 2015 Global University Employability Survey and Ranking carried out by Emerging has already shown that the informal qualifications acquired through MOOCs are helping companies to overcome this problem.[11] Accreditation of studies made in this form, even if restricted to a small number of credits, and appropriate on-campus tutoring, can go a long way to improve student employability.

Disruptive innovations, which are by definition difficult to predict, will of course continue to happen in this field and will change the premises that we use to develop and align strategies. A few months ago, an *Inside Higher Ed* essay speculated on whether the acquisition of Lynda by LinkedIn, representing "a marriage be-

tween an online learning platform and a social network committed to enhancing and marketing its users' professional skills", could be as disruptive to higher education as Uber was to taxicabs.[14] The recent agreement that led to the acquisition of LinkedIn by Microsoft may certainly be one step further in that direction.[15]

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HEI strategies in different countries

MOOCs as a Tool for Opening Up Turkish Higher Education

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MOOCs and Educational Technologies Policy in Israeli Higher Education

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MOOC Strategies of Higher Education Institutions in Finland

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MOOCs in the Republic of Ireland: A Gap in the Policy Landscape

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MOOCs as a Tool for Opening Up Turkish Higher Education

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1 Summary

This paper intends to present several recommendations regarding widening MOOCs offerings in Turkey to the Turkish higher education institutions and the Higher Education Council. The paper first provides a background information about the status of MOOC offerings and challenges for HE institutions to offer MOOCs. Then, it provides a list of policy recommendations. In terms nationally, the HEC should develop a strategy to open up education and encourage institutions to offer MOOCs either by themselves or by joint-initiatives. The current open and distance learning providers should especially open their courses and adapt a freemium model to make earning. They should also provide support and opportunities to other institutions to offer MOOCs.

2 Introduction

MOOCs are courses designed for large numbers of participants, that can be accessed by anyone anywhere as long as they have an internet connection, are open to everyone without entry qualifications, and offer a full/complete course experience online for free (Jansen & Schuwer, 2014). MOOCs should be considered as another stage in the process of opening up education (Ozkul, 2014). This process has started with open universities and schools moved to distance learning, then with the advancements in online technologies to online learning, open courseware (OCW), open education resources (OER) and now MOOCs.

All around the world including Turkey there is a grooving interest in demand and supply for MOOCs despite several unanswered questions in minds, such as business models, sustainability and low completion rates. However, in Turkey especially the supply side can be considered as weak due to the number of initiatives: There are only a few universities and couple of for-profit MOOCs providers. Anadolu University and Erzurum Ataturk University have already a history in open and distance learning and based-on their experiences they are the major public MOOC providers in the country. Both launched their MOOC platforms in late 2014 and offered first courses in 2015. Anadolu University, for example, has started with 8 courses mainly in social sciences and humanities and more than 2000 learners in its custom developed MOOC platform called as AKADEMA. However, after the first round, Anadolu University decided to change its platform and gave a break until June 2016. Currently, AKADEMA offers 9 courses in Turkish and 2 in English to all who would like to take via its Blackboard-based platform. Atademix, on the other hand, is the name of the Erzurum Ataturk University's MOOC initiative. The University has already offered 14 courses in Turkish and currently running another course too. Atademix is a Moodle-based MOOC platform. Additionally, Yaşar University, a private HE institution in İzmir, transferred some of its online courses as self-paced MOOCs and offered to all. Currently they are offering 16 courses without any certification. Furthermore, Koç University, another private institution in İstanbul, offers 6 courses in Turkish in the Coursera, and a GSM company, Turkcell sponsors to offer 3 courses in EdX. Also, couple of entrepreneurs intended to create a Coursera like environment in Turkey, entitled as UniversitePlus (www.universiteplus.com). Currently they offer 46 courses in collaboration with four different universities.

Although there is not any study or reliable reference, the author's personal observations show that demand for MOOCs is grooving faster than supply side. Especially in the corporate settings, the training depart-

ments lead their employees to take Coursera and edX courses. Also, Khan Academy is offering courses in Turkey in Turkish and not only corporations but also educational institutions and single users show great interest in these courses. Still, there is no reliable and valid data on how many learners are participating these courses.

3   Challenges

In Turkey, one of the important shortage of data about MOOCs is related to awareness, perceptions, adaptation or refraining reasons of the higher education institutions. The same shortage felt by HOME Project partners and a survey study was conducted 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). Total 24 Turkish universities (out of 198) voluntarily participated this study.

Findings of this study show that more than half of the participant (54.1%) institution has no MOOCs or plans to offer and around 30 percent has the intention but no actions although the majority of the participant universities has distance education experience. The remaining participants indicated themselves as MOOC providers however investigation of their Web sites uncovers that only one forth of them are really offering MOOCs and others offer just online courses but not MOOCs. In sum, the study reveals that a big number of Turkish HE institutions (participants) are not really aware of MOOCs. Those universities, on the other hand, that offer MOOCs mainly because of international and national visibility.

This unawareness and shortage of adaptation can be related to the following challenges for Turkish HE institutions as well as individuals:
- **Language barriers** – A big majority of MOOCs are in English and quite a number of Turkish citizens doesn't have English language skills even though the number is decreasing,
- **Recognition** – Recognition of prior learning (RPL) is a problematic area in Turkey and there is not enough quantity and quality of standards and regulations. So, the institutions hesitate to recognize the prior learning. Even certificates issued by universities and especially by private institutions (e.g. NGOs, for-profit training centres, etc.) do not have a enough reputation and often are not accepted by employees or other institutions.
- **Reputation** – Reputation of open and distance education is also problematic in Turkey. Due to unsuccessful past and current implementations, distance learning is not considered as valuable as face-to-face. The Higher Education Council (HEC), a government agency controls and takes all the decisions about HE in Turkey, encourages all the public universities to offer distance education. However, the main reason behind this encouragement is related to income. Open and distance learning is considered as a good business rather than a form of delivery of instruction.
- **Legislations** – Although the government (via HEC) encourages the universities to offer open and distance learning, insufficient and problematic legislations barrier the development of the implementations.
- **Knowhow** – Although the country has a long history in open and distance learning, a big majority of universities does not have enough knowhow on online learning. In terms of training qualified human resources, there are only two masters (an online and a face-to-face) and one doctorate (PhD) level programs directly focusing on open and distance learning. All these programs offered by Anadolu University.
- **Infrastructure** – Some professors, experts or even institution are willing to offer MOOCs but they do not have access to the required technological infrastructure.

4 Recommendations

This section of the paper presents several recommendations to the policy makers in institutional and national levels.

4.1 National

The Higher Education Council should take immediate actions to be able to widen the opportunities for accessing the courses offered in formal programs. In order to be able to do so, HEC can start with encouraging the current online learning providers to adapt a freemium model, a business model that cover the everybody's access to the course materials with no charge and collecting fees and tuitions from those learners who would like to get credits for their formal education. This opportunity will increase demand for online learning and at the same time help the opening up education movement.

Another action HEC should take is about recognition of MOOC completion certificates. Currently, certificates earned outside the learners own institution are often not accepted as a part of formal programs. HEC should establish baseline standards for for-formal-credit MOOCs and graduates of these MOOCs should be able to use the credits they earned into their formal programs.

HEC might work with the Scientific and Technological Research Council of Turkey (TUBITAK) to launch new calls for HE institutions and individual academicians to offer MOOCs. TUBITAK has already been offering some grand opportunities for open courseware projects. Similar funding opportunities can be offered to those who would like to offer MOOCs.

HEC should also encourage institutions to collaborate on MOOC offerings. Especially, those open and distance providers can be used as facilitators or coordinators for bringing close by institutions to establish alliances to offer MOOCs. These kinds of joint-initiatives can be financially supported via TUBITAK. The experienced institutions may only provide support to beginners on how to offer MOOCs and online courses.

HEC should also encourage institutions to offer MOOCs to educate refugees. Because of access to the technology problem, these MOOCs can be just MOC without online component or mobileMOOCs. HEC should provide funding and legal opportunities to the institutions work on innovative ways of offering flexible MOOCs to these groups.

Furthermore, the private initiatives concerning MOOCs should be encouraged by the government. Ministry of Education, Ministry of Science, Industry and Technology, Regional Development Agencies and some other governmental institutions have been providing some funds for lifelong learning projects. They can offer the same opportunities for MOOC initiatives. Especially those projects/initiatives offered by NGOs or civic societies can be prioritized.

Overall, HEC should work on a strategy to open up all the knowledge and expertise in the HE institutions to all the citizens. MOOCs must be considered as a part of this strategy.

4.2 Institutional

All institutions should consider offering MOOCs even though they do not have any prior online learning experience. Those inexperienced institutions or institutions with limited technological or other sources can learn from experienced ones. So the decision makers in these institutions should look for collaboration opportunities with the experienced ones or even private initiatives.

Institutions that have been offering open and distance learning should transform their courses into MOOCs and adapt different business models (freemium, openness, corporate) to be able to reach more audiences. It is becoming a fact that the more open up their courses the more students come to formal programs.

Experienced ones should target various target groups including internationals. The number of students looking for education opportunity outside their own countries is increasing. Especially in Turkey, there is a huge body of refugees from Syria and other countries, the decision makers can use MOOCs to offer the educated refugees an opportunity to adapt the country to implement their expertise and the uneducated ones an opportunity to learn the local culture and even acquire some skills to be able to find jobs or establish an initiative. Funding opportunities are available for these kinds of MOOC offerings even from EU. Institutions should also offer MOOCs in different languages to be able to reach internationals. For instance, there is a huge potential in Africa, Turkish Republics, Middle East.

Decision makers in the universities should encourage and create opportunities to their professors to open up their course materials and courses.

Adapting one financial source will not be enough for sustainability. So, the institutions should work on alternative models.

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MOOCs and Educational Technologies Policy in Israeli Higher Education

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1 Summary

This brief abstract outlines the participation of the Israeli higher education system in the MOOC phenomenon. It describes several challenges to an effective national educational technologies policy, and suggests several policy recommendations.

2 Introduction

Israel's higher education system was an active participant in the international MOOC movement almost from its inception. Its leading research universities developed MOOCs for the top international MOOC providers, and other institutions were involved in local and international MOOC initiatives. Furthermore, various institutions were involved in attempts to utilize MOOCs for lifelong learning, K-12 education, and professional training. All of these activities were carried out without specific national level guidance or funding, and led to highly diverse MOOCs in assorted disciplines, and targeting various audiences. This bottom-up process is typical for Israel's "Start-up Nation" entrepreneurial culture. Since 2015, we see evidence for increased efforts to guide the process at the national level. This abstract outlines several issues related to these efforts.

3 Problem description

The main Israeli national initiative in regards to MOOCs is the "Learning in a Digital Age" initiative ("Learning in the Digital Age | The Council for Higher Education of Israel," 2016) launched in March 2016 jointly by Israel's higher education Planning and Budgeting Committee / Council for Higher Education, and by the "Digital Israel" directorate at the Ministry for Social Equality. The initiative is still in its early stages. It has so far announced a national collaboration with edX, and published one call for proposals (CFP) for Israeli MOOCs for edX.org. The initiative is now working on a second CFP that will be more general. The national collaboration with edX includes providing Israeli higher education institutions access to a fully localized (Hebrew, Arabic and English) version of Open edX. The localization effort is still in progress. The main challenges faced by this initiative are typical for a national educational technologies policy that requires balancing the interests and needs of the multiple stakeholders involved (Gerston, 2010). In the case of Israeli higher education, these stakeholders include: university students, junior and senior academic faculty, university leadership, university administration, technology providers, researchers, politicians, executive and non-executive government employees, local industry leaders, NGO leaders, and more. These groups differ in their goals and in their experience with educational technologies. Furthermore, even these stakeholders are not homogenous, and represent varying and often conflicting goals.

4 Policy recommendations

The process of setting educational policy in general, and specifically of developing a policy for educational technologies, is highly complex and beyond the scope of this brief abstract. Furthermore, due to the multi-

plicity of stakeholders involved in the development and use of educational technologies in academe, there are no agreed upon best-practices to work from. In lieu of such recommendations, here are two important guiding principles to assist policy makers in this field.

The first principle is to avoid technological determinism. Technological determinism is a term used by researchers to describe a societal point of view which assumes that technology is an independent force which directly influences society in a deterministic manner (Oliver, 2011). Technological determinism leads to educational technologies policy which puts excessive emphasis on technological platforms and other technologies, and which does not pay sufficient attention to the social construction of these technologies, and the complex bi-directional causal relationships between technology and society.

The second principle is that of blended learning (Bonk & Graham, 2012). This principle aids in avoiding the commonly held false assumption that one form of learning can or should replace other forms of learning. In fact, the history of educational technologies teaches us that successful applications of educational technologies augmented, rather than replaced, existing modes of teaching and learning (Bates, 2015).

In addition to these two principles, which can assist in avoiding the most common pitfalls in educational technologies policy, it is recommended that policymakers agree on clearly defined and measurable goals for the "Learning in a Digital Age" initiative. Since achieving the best possible teaching and learning is the most important societal contribution influenced by learning technologies in the higher education system, the recommendation is that these goals will define the expected improvement in the learning outcomes of students in the Israeli higher education system.

5   Conclusion

The Israeli higher education system is entrepreneurial and innovative, and it successfully integrated in the global MOOC movement. Its national educational technologies policy should: (1) avoid technological determinism; (2) focus on blended learning; and, (3) be based on measurable teaching and learning goals.

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MOOC Strategies of Higher Education Institutions in Finland

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1 Summary

In the survey conducted in October-December 2015 as part of the project **HOME – Higher Education Online - MOOCs the European way**, the Finnish higher educational institutions (HEIs) clearly express their willingness to collaborate with other HEIs on MOOCs. The main areas of collaboration suggested by the Finnish HEIs are "design of MOOCs", "development of MOOC (materials)" and creating "assessments, tests and quizzes" and "new educational scalable services".

"

The Open universities and Open universities of applied sciences (Open UASs) cover much of the need that is covered by MOOCs in some other countries. Finland could consider tuning the public financing of the Open universities and Open UASs to support creation of MOOCs. The desired development would also require changes in the online course design and pedagogy.

On the European level the existing European MOOC offering should be actively updated somewhere. At least MOOCs created in Finland remain invisible on the European level. Shared services are needed in terms of MOOC and online course platforms and repositories, and collaboration and exchange of best practices on MOOCs should continue.

2 Introduction

The recommendations presented in this paper are based on the survey conducted in October-December 2015 as part of the project **HOME – Higher Education Online - MOOCs the European way**. The current policy paper takes a national point of view, focusing on the situation of MOOCs in Finland. Nine higher education institutions from Finland responded to the 2015 survey on MOOCs. The full report of the survey is not yet published at the time of writing this policy paper.

Some of the previously existing networks and services of online education have closed down in Finland in the past few years. The Finnish Virtual University, a network of the Finnish research universities, was functional during 2001-2010 (Suomen Virtuaaliyliopisto, 2015). Its counterpart among the Finnish UASs, The Finnish Online University of Applied Sciences, "Suomen VirtuaaliAMK-verkosto", is still up and running as a network, but it closed down its shared course catalogue in May 2016 (Fouas, 2016).

Fortunately, the shared course database of the Finnish Open Universities (Avoin yliopisto, 2015), is still functional. Also the DIGMA learning platform for open online courses, shared by a few Finnish UASs is in active service (Digma, 2016).

Nevertheless, it is obvious that closing down some national shared online services in Finland creates need for new European or international shared services, where HEIs from Finland can participate.

3   Challenges

Finland has a widespread national system, and a long tradition of Open universities and Open universities of applied sciences (Open UASs). The courses offered by them seem to satisfy much the need that in some other countries is satisfied by MOOCs. The course fees at the Open universities and Open UASs in Finland are very reasonable, and the course contents are of high quality, but unfortunately, the courses are usually designed for a limited number of attendants only. The courses of the UASs are also scattered around, as there is no shared course database for the Open UAS courses.

A European challenge is that the proper MOOCs which are up and running in Finland, do not reach the European audience. To give an example, the Open Education Scoreboard (2015), administrated on the Open Education Europa website seems to be almost totally unaware of the MOOCs running in Finland.

4   Policy options applied and recommendations

4.1   Collaboration

In the survey conducted in October-December 2015, the Finnish higher educational institutions clearly expressed their willingness to collaborate with other HEIs on MOOCs. The main areas of collaboration suggested by the Finnish HEIs are "design of MOOCs", "development of MOOC materials", creating "assessments, tests and quizzes" and "new educational scalable services".

The solutions in this context include intense networking, as well as developing shared MOOC services. MOOC and online course platforms, as well as repositories are needed both on European and international level. Collaboration and exchange of best practices on MOOCs should continue.

In addition, a catalogue of the existing European MOOC offering should be continuously updated somewhere. At least MOOCs created in Finland tend to remain invisible on the European level. The Open Education Scoreboard (2015) is an example of this problem.

4.2   Policy changes in Finland

A recommendation for Finland is that the existing Finnish structure of Open universities and Open UASs could be upgraded. The change should contribute to the creation of MOOCs - online courses designed for nearly unlimited number of students. The Finnish campus universities get a part of their public financing on the basis of their annual volume of Open studies. The public financing model could be tuned to further support the creation of MOOCs instead of any online courses.

4.3   Changes in course design

Another implication in Finland is that implementing MOOCs will require changes in the online course design. The changes as such should not be difficult to implement technically of pedagogically. The challenge will probably be more on the side of becoming aware of the need for change. When other countries are turning to MOOCs, Finland cannot do it differently in the long run.

4.4   The main drivers to implement MOOCs in Finland

In the 2015 survey, the main drivers that push Finnish HEIs to implement MOOCs are "need for (e-)skills and jobs", "improving the quality of learning" and "globalisation and internationalization". The Finnish respondents also emphasize the importance of MOOCs as a way to "learn about online pedagogy".

The results imply that shared quality tools for MOOCs, intense networking, and active international networks and connections are increasingly needed. Finnish HEIs are aware that MOOCs require online pedagogy that is different from online courses with limited numbers of attendants. The Finnish HEIs are also eager to learn the latest online pedagogies. In actual fact, some of them they might be quite well into it already, so the European exchange of best practises on MOOCs should continue.

5   Recommendations

Because creation and implementation of MOOCs clearly is a big financial challenge for a single Finnish HEI (except for maybe a couple of the largest Finnish universities), educational MOOC modules could be created together on the European level. The course platforms and material repositories could be increasingly shared. Collaboration in online pedagogy and exchange of the best online learning practises should continue.

Finland could consider how to develop their exiting structures of Open universities and Open UASs to further support the creation of MOOCs. In online learning Europe has things be proud of, but the tuning is never ending.

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Policy Paper: Lithuanian Case

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1   Summary

Lithuania entered the MOOCs providers' area few years ago. Since then, three Massive Open Online Courses (MOOCs) have been provided by KTU: one in English ("Management") and two in Lithuanian ("Information Technologies" and "Python"). However, Lithuania is still on the cliff to big changes as there is no policy regarding MOOCs. The raising interest in MOOCs results in more organizations taking an initiative to organize MOOCs. However, they are forced to use their own experience gained in online courses to provide MOOCs or refuse this idea. Most of them apply policies/guidelines from other countries. This situation leads to a need to create clear National policy that would be common for all MOOCs providers in Lithuania.

2   Introduction

According to UNESCO guidelines (2015) many institutions adopt information and communication technologies (ICT) in their management, administration and educational programmes in order to serve their students more cost-effectively and to prepare them for the world into which they will graduate. In many developing countries, however, access to hardware, software and connectivity remain challenges. It is therefore critical to adapt pedagogical approaches and learning materials to this environment while ensuring high quality and relevant educational opportunities.

For the development of the courses and learning resources teaching staff naturally use what is available. The increasing pool of MOOCs not only expands their choice, but also creates opportunities for new ways of learning delivery, i.e. Massive open online courses that could be integrated in higher education.

3   Problem description / challenges

The results of primary research showed that most of the academic institutions uses e-learning tools and methods in their institutions. Also, some of them provide online courses or online study programmes. However, none of them offers MOOCs (except KTU which has already provided 3 MOOCs). The main reason for it is that MOOCs require much experience and preparation as well as resources.
Another problem is that there is no clear policy on MOOCs. According to the Law on Education (25 June 1991 No I-1489, as last amended on 15 October 2013 – No XII-553) (1991), education is a priority area of societal development that receives State support. Every person has an inherent right to learn. This Law shall establish the goals of the education of the Republic of Lithuania, the principles of the educational system, the foundations of the structure of the educational system, educational activities and educational relationships as well as obligations of the State in the area of education (Rutkauskiene, Butkeviciene, 2014). Another document - The State Education Strategy 2013-2022 (2012) - provides the right to offer a wider spectrum of educational activities due to engagement to the education system. The document describes

various actions and activities that would help to engage early school leavers and adults as well as socially excluded groups. In addition, the Strategy enables the "flexible learning method" and "life-long learning" but it is not detailed how it should be provided and what methodology providers should follow. However, none of the documents distinguishes MOOCs as an alternative way of learning for the aims of the documents to be achieved. The Ministry of Education and Science of the Republic of Lithuania (2015) stresses the importance of paying more attention to e-learning activities as they could become key activities for reaching a larger number of people who are willing to participate in the learning process. In the paper of Ministry of Education and Science it is also noticed that e-learning is not used fully and it is important to initiate more actions related with the financial support.

4 Applied policy options / recommendations

As long as Lithuania has no National policy for MOOCs, the institutions follow policies, recommendations and experiences of other countries. One of the most policies of the kind is UNESCO Guidelines. Those guidelines highlight factors that are important for the quality of an online course. UNESCO remarks that when institutions make good quality courses and materials available online, they can attract new students, increase their institutional reputation and advance their public service role by:

1. Developing institutional strategies for the integration of MOOCs.

2. Providing incentives to support investment in the development, acquisition and adaptation of the high quality learning materials.

3. Recognising the importance of educational resources within the internal quality assurance processes.

4. Considering creating flexible copyright policies.

5. Undertaking institutional advocacy and capacity building.

6. Ensuring ICT access for staff and students.

7. Developing institutional policies and practices to store and access MOOCs.

8. Reviewing institutional MOOCs practices periodically.

Another publication on MOOCs that provides some guidelines on it is "E-learning in European Higher Education Institutions" (2014). The document provides information on the experience of higher education Institutions providing MOOCs from various perspectives: courses provision, platform, language, participation, etc. The document also gives some recommendations for MOOC providers to avoid the challenges, which the European Higher Institutions face, while providing MOOCs.

5 Recommendations

1. To develop National MOOCs Strategy. Since Lithuania has no policy regarding to MOOCs, it is essential to include MOOCs to the State Education Strategy as one of the alternative ways of education. MOOC initiatives would increase the accessibility of education to those people who live in rural areas. In addition, MOOC would help to deepen professional skills on various fields.

2. To include MOOCs as one of the life-long learning options into the National Strategy. As well as e-learning, MOOCs should be included into the National Education Strategy for 2013-2020 as one of flexible ways of learning that helps to reach people in rural areas or those who cannot take other education forms.

3. To create a recognition system for MOOCs. Most of MOOCs providers give diplomas after successful completion of the course. However, the institutions of formal education do not recognize those diplomas and do not give additional benefit to the diploma holder. For this reason, it is important to create a system which would make the recognition process much easier and diploma holders would gain credit points for each of course they complete.

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MOOCs in the Republic of Ireland: A Gap in the Policy Landscape

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1   Summary

In the Republic of Ireland there has been no clear policy direction or nationally co-ordinated approach to the growth of the Massive Open Online Course (MOOC) movement. For example, there is no reference to MOOCs in the *Digital Strategy for Schools: Enhancing Teaching, Learning and Assessment 2015-2020* (Department of Education and Skills, 2015). Similarly, and somewhat surprisingly, MOOCs do not feature in either the higher education *Roadmap for Enhancement in a Digital World 2015-2017* (National Forum for the Enhancement of Teaching and Learning in Higher Education, 2015a) or the *Strategy for Technology-enhanced Learning in Further Education and Training 2016-2019* (Education and Training Boards Ireland | Further Education and Training Authority, 2016). Despite Ireland setting increased participation targets for part-time flexible study in the *National Plan for Equity of Access to Higher Education 2015-2019* (Department of Education and Skills | Higher Education Authority, 2015), and a new National Skills Strategy 2025 (Department of Education and Skills, 2016a), MOOCs and online learning more generally do not figure in these policy documents. Further evidence that MOOCs do not feature prominently on the Irish policy landscape is apparent from the lack of reference to new models of online learning and the wider modernisation agenda for European higher education in a recent comprehensive briefing paper for the new Minister for Education and Skills (Department of Education and Skills, 2016b). Arguably, the policy gap around MOOCs is part of a bigger issue concerning the lack of government funding for online, off-campus, distance students, which in European terms remains a significant barrier to the goal of opening up more flexible modes of delivery to meet the needs of a diverse population. If, as the *National Plan for Equity of Access to Higher Education* states, "As a country we have everything to gain and nothing to lose by increasing levels of participation in higher education among all Irish citizens" (Department of Education and Skills | Higher Education Authority, 2015, p.i), then Ireland would benefit from a more strategic response to the MOOC movement. In this respect, MOOCs are not just about MOOCs but rather provide an opportunity to engage in bigger ideas around equity, innovation and new open delivery models for a more inclusive and sustainable future.

2   Introduction

Ireland offers an interesting case study in response to MOOCs. According to *Forbes* magazine Ireland has the distinction of hosting the world's first MOOC through the ALISON platform (High, 2013). A recent study on ALISON published by the European Commission's Joint Research Centre Science Hub (Souto-Otero, et. al., 2016) reports that the platform first established in 2007 has reached more than six million learners. Although not a formally accredited institution offering official credentials, according to the company by December 2015 there were over 750,000 ALISON graduates worldwide. If this figure is accurate then this makes ALISON one of the largest free online course providers. Data reported in the above case study also notes that 'Aside from the UK (545,001 learners) and Ireland (97,245 learners), European learners make up

the minority of ALISON enrolments (122,944 from other European Countries)', which is partly explained by most courses being delivered in English (Souto-Otero, et. al., 2016, p. 99).

The claim of being the first Irish formally accredited institution to offer a MOOC is shared by Dublin Institute of Technology, Hibernia College, and IT Sligo. On 14th February 2013, IT Sligo was first to issue a press statement announcing their intention to offer a MOOC (Irish Independent, 2013) but this free online course on the topic of *Lean Sigma Quality,* which attracted over 2000 learners, was not taught until November (IT Sligo, 2013). In the meantime, on 10th April 2013 the Minister for Arts, Heritage and the Gaeltacht formally launched at Hibernia College what was described at the time as Ireland's first MOOC (Education Matters, 2013). However, the MOOC on the theme of *Irish Identity* with notably an introductory video from the Taoiseach (Prime Minister), Enda Kenny, did not start until 27th May 2013. Only a few weeks earlier starting on 13th May 2013 the Dublin Institute of Technology, together with GetReskilled, began what appears to be the first MOOC delivered by an Irish institution (PharmaMooc, 2013). This MOOC, called *PharmaMooc,* targeted people interested in working in the Pharmaceutical Industry and is reported to have attracted a global audience of over 800 learners from 71 different countries worldwide.

Despite these early initiatives, the draft *Digital Roadmap: Phase 1* (National Forum for the Enhancement of Teaching and Learning in Higher Education, 2014) released in May 2014 with the aim of building digital capacity in Irish higher education made no explicit reference to MOOCs. It is unclear whether this was a deliberate decision at the time by the development team or simply an oversight due to a very short consultation process. Whatever the reason with the benefit of hindsight the absence of MOOCs from the draft Digital Roadmap is surprising, particularly in light of a review of European and global developments, the stated need for greater vision and leadership in planning the digital future, and adoption of the principles of open education to support future development in higher education.

In May 2014, nevertheless, the National University of Ireland (NUI), a unique overarching body serving the interests of four member universities and several colleges, invited interested groups to tender on the feasibility of a collaborative National online education initiative, encompassing MOOCs, for the Irish university sector. A brief item about this initiative in the *Times Higher Education* states:

> "The new organisation, which would include Irish universities outside the NUI group, may begin by offering a series of MOOCs showcasing Irish education. Depending on the level of public interest, the organisation could then move into profitable accredited programmes" (Powell, 2014, P.6).

Although the tender closed in September 2014, and a written report was expected within three months of the project getting underway, at the time of writing there has yet to be any public statement in response to this initiative. However, before the tender process had closed in June 2014 Trinity College Dublin announced its intention to join the UK-based FutureLearn platform and to offer a MOOC later in the year on the theme of *Irish Lives in War and Revolution: Exploring Ireland's History 1912-1923.* Reportedly almost 14,000 people registered for this MOOC, which started in September (Kenny, 2014).

Another particularly interesting development in 2014 was a high profile visit from a delegation from Tata Consulting Services. Founded by Jamsetji Tata in 1868, the Tata Group 'is part-owned by Pallonji Mistry, the richest Irish citizen alive, and run by his son' (McCabe, 2014, P.1). The Tata Consulting Group is a global enterprise headquartered in India, with operations in more than 100 countries employing over 500,000 people worldwide. In August 2014 a high-level delegation from the Tata Group met with senior Irish politicians and institutional presidents with the objective of making Ireland the centre of the world for online degrees (Brown, 2016). The aim, as reported by the *Independent* newspaper, was to negotiate 'a deal to

transform Ireland into the world's first stop for e-learning and earn millions for the country's floundering universities' (McCabe, 2014, P.1).

Following the Tata delegation's visit, in early December 2014, the Irish Government's *Joint Committee for Education and Social Protection* held a special meeting to discuss the future of online learning. Trinity College Dublin, the UK Open University and Dublin City University were invited to give short presentations to the Joint Committee. The written submission prepared by Professor Mark Brown on behalf of Dublin City University drew on the Porto Declaration on European MOOCs (EADTU, 2014), which was developed as part of the HOME Project, and observed:

> "Arguably, by analogy with the invention of the steam engine, there is a lot of huff, puff, single-track thinking associated with MOOCs as many traditional universities rush to follow early adopters to secure some form of advantage. In many cases the drivers for adopting MOOCs are not well aligned with institutional missions and there is a sense in which the initial head of steam is motivated by fear of missing out" (Brown, 2014, P.2).

A problem not exclusive to Ireland is the lack of detailed literature in the public domain on the formulation and expression of institutional MOOC strategies in higher education. A MOOC survey of European higher education providers conducted in late 2015, which attracted nine Irish institutional responses, confirms that there is no single primary objective for adopting MOOCs (Costello & Brown, 2016). Of the three institutions in this sample already developing MOOCs in Ireland the primary objective was spread between Innovative Pedagogy, Reach New Students and Increase Institution Visibility. Although only a small sample the results suggest that the nature of the institution is an important factor in determining the primary objective for MOOCs.

While IT Sligo deserves credit for its work in developing a MOOC for the transition between school and higher education, funded by the National Forum, and for efforts to promote low-cost MOOCs through the Erasmus+ LoCoMoTion project, at this stage Dublin City University is the only institution to publish its strategic institutional response to MOOCs (Brown, Costello, Donlon & Nic Giolla Mhichil, 2015). The decision to adopt a new MOOC platform called Academy is primarily driven by the goal of fostering a rich culture or ecology of innovation in teaching and learning. The only other published institutional report on the island of Ireland is available from the University of Ulster, which highlights the scale of the challenge facing institutions along with many of the opportunities presented by the MOOC movement (Hamber, Jaffrey & Murphy, 2015). Importantly, the Ulster report identifies MOOCs as part of a much wider movement to open up learning.

With this last point in mind it needs to be noted that a report on *Learning Resources and Open Access in Higher Education Institutions in Ireland*, published last year by the National Forum for the Enhancement of Teaching and Learning in Higher Education (2015b), claims the big headline-grabbing MOOC story has muddied the waters somewhat in relation to the 'open' project'. Therefore, the report deliberately chose to focus on what it describes as 'little OER' rather than literature on 'big OER', which it claims are less relevant in the Irish context at this time. This decision, coupled with no explicit or substantive effort to address the growth of MOOCs in recent policy initiatives, is further evidence of the gap that exists in Ireland between early institutional responses, the national policy response, and wider European and global responses to the MOOC movement.

3   Problem description / challenges

In April 2015, a more complete *Roadmap for Enhancement in a Digital World 2015-2017* was published to help advance a shared vision of 'a [higher education] culture that fully embraces digital learning and digital innovation' (National Forum for the Enhancement of Teaching and Learning, 2015a, p.iv). Given the above discussion it is not surprisingly the updated Roadmap makes very few references to MOOCs, with this term completely absent from the Executive Summary and policy recommendations. Although the Roadmap has other commendable features, the initiative arguably favours more traditional campus-based models of higher education and does little to address a major barrier to the growth of online delivery as a result of Ireland's restrictive funding model. The current model limiting off-campus delivery is at odds with recent European reports from the High Level Group on the Modernisation of Higher Education (2014) for more inclusive funding approaches that help to open up education, develop more flexible modes of delivery, and diversify student populations.

Similarly, MOOCs do not feature in the *Digital Strategy for Schools: Enhancing Teaching, Learning and Assessment 2015-2020* (Department of Education and Skills, 2015) launched in October 2015 by the Minister for Education and Skills. Nevertheless, in January 2016 the same Minister was present to launch Ireland's first MOOC for teachers—a collaborative effort between Dublin City University, H2 Learning and Microsoft—on *21st Century Learning Design*.

Even more recently the *Strategy for Technology-enhanced Learning in Further Education and Training 2016-2019* (Education and Training Boards Ireland | Further Education and Training Authority, 2016) fails to address the challenges and opportunities posed by MOOCs. This oversight is particularly surprising given the strategy has a vision by 2019 of technology-enhanced teaching and learning providing greater access to further education and training and achieving positive outcomes for learners, enterprise, and wider society and economy.

The disconnection between national policy initiatives and wider macro level MOOC developments in Europe and globally is particularly obvious in the *National Plan for Equity of Access to Higher Education 2015-2019* (| Higher Education Authority, 2015) published in December 2015. MOOCs and the potential contribution of new models of higher education do not figure in this plan and nor do they appear in the Ireland's National Skills Strategy 2025 (Department of Education and Skills, 2016a) also launched by the Minister for Education and Skills in January 2016. Despite recognising technology's pervasiveness means that people of all ages increasingly need to be 'technologically literate' in order to participate fully in society, referring to e-health, online banking and online supermarket shopping, there is no acknowledgement of the potential of online learning for improving lives, creating better places to live and work, and driving sustainable economic growth.

The absence of MOOCs and new models of online learning more generally from the above policy documents no doubt explains why they do not feature in a recent comprehensive briefing paper for the new Minister for Education and Skills (Department of Education and Skills, 2016b). Thus, the problem is that currently in the Irish environment MOOCs do not feature prominently in policy level discussions and may even have been dismissed by influential educators and policy-makers as nothing more than a passing fad. There appears to have been a failure to recognise that the MOOC movement is not on an independent trajectory but rather entwined within a complex constellation of social, technological and educational change (Brown, 2016).

On one hand, the MOOC movement symbolizes Silicon Valley values, the growth of the influence of new-liberalism and the ultimate goal of an unrestricted global market for higher education. On the other hand,

MOOCs provide a real opportunity to reduce costs, enhance quality and address increasing demand for higher education. Without engaging in the MOOC debate at a policy level, there is a risk that Ireland may be inadequately prepared to respond to the new global online learning environment, especially as the movement evolves and new types of courses and formal credit earning pathways emerge by reputable institutions.

Set against this wider context the question is how should Ireland strategically respond to the MOOC movement? What lessons can Ireland learn from the policy response in other European countries? Where to next for Ireland?

4 Policy options applied / recommendations

In May 2015, the National Institute for Digital Learning (NIDL) at Dublin City University hosted a National MOOC Symposium to promote greater debate and awareness of the challenges and opportunities within the education community. Also to promote wider discussion and strategic foresight in May 2015 the NIDL in partnership with the Irish Learning Technology Association, and the US based New Media Consortium, launched Ireland's first Horizon Report for higher education (Johnson, et. al., 2015). Apart from these initiatives and the feasibility study commissioned by NUI, there has not been a dedicated effort to develop a national response to MOOCs. In the absence of such a response there have been a handful of institutional initiatives—for example, Dublin City University's full-day workshop in May 2016 on the learning design of MOOCs and their soon to be launched MOOC aimed at supporting the academic readiness of prospective flexible learners. A strong case can now be made for a more strategic and coordinated approach to the rapidly evolving MOOC movement, especially if Ireland wishes to shape and actively contribute to future discussions on new models of higher education—within and beyond Europe.

5 Recommendations

1. That a high-level policy forum takes place in Ireland to engage key stakeholders on the future challenges and opportunities of new models of online teaching and learning, including MOOCs.
2. That current discussion to develop a new funding model for higher education in Ireland recognise the need to support diverse and geographically dispersed online distance learners.
3. That Ireland establishes through a suitable government agency a contestable fund to support the strategic development of fully online programmes for international delivery.

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Shared MOOC services: regional, European or global level?

FUN: The French initiative around MOOC

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MOOC Development Policies: The ECO Project in the European and Spanish Context

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Business Models for MOOCs: recommendations for Joint-initiatives and Institutions

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FUN: The French initiative around MOOC

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1   Summary

The French Ministry of Higher Education launched in 2013 the project "France Université Numérique". The aim of this national project is to support the French universities to develop online education and promote innovative teaching and learning methods using digital and online tools. One major project is this agenda was the development of the <u>FUN</u> MOOC platform, launched in October 2013 and dedicated to French and Francophone universities and their international academic partners. Since September 2015, a public organization (called GIP FUN-MOOC) has been created to carry on the FUN platform. The objectives of this organization are to manage the platform and its evolutions, to develop new partnerships and activities, in the context of life-long learning education and to increase its international visibility especially in the Francophone world.

2   Introduction

In 2012 the new French Minister of Higher Education and Research included a digital strategy for higher education among her top priorities. An ambitious digital agenda has been officially presented in October 2013. Structured with 18 actions, this national project will support the French universities to develop online education and promote innovative teaching and learning methods using digital and online tools. The agenda covers issues from state-of-the art infrastructures, efficient information systems to the innovative use of digital technologies in curricula, the promotion of digital educational contents and the development of online diplomas.

The main objectives of this strategy are both to improve access to higher education and student success, and to encourage academics to transform their teaching using digital and online tools. It is believed that digital technologies will yield major innovation in teaching and learning methods. The transformation in French Universities will stem from enhanced teacher training, strong multidisciplinary teams (from audio-visual, team, web designers to pedagogical engineers) and career incentives for academics to transform their teaching using digital technologies.

One major action of this agenda was to set up a MOOC platform, called FUN (France Université Numérique). The project was lauchned by the Ministry for French universities and their international academic partners. This decision was made in June 2013 and materialized in October 2013.

The Ministry counts on the MOOC initiative to jumpstart wider changes in French universities:

- to Boost the development of new online curricula, both at the bachelor and master levels,
- to drive values of excellence in resources made available to students, to workers, and anyone wishing to engage in lifelong learning,
- to strengthen the worldwide attractiveness of French universities.

The objective is to provide the Higher Education community with a MOOC platform, available 24/24, 7/7 and enough bandwidth to thousands (or tens of thousands) of concurrent connections. To reach this ambitious goal, we chose an Open source solution, Open edX, involved experts from universities through opera-

tional committees and relied on public institutions to install and run the platform. The platform was launched in October 2013 (www.fun-mooc.fr) and the first courses started in January 2014.

3   Presentation and challenges

The FUN platform has been created with strong data policy regulations. The confidentiality of the learners' data is guaranteed: no commercial use of the personal and learning data is allowed; the teachers can only use these data for pedagogical purposes. However, in order to foster research, FUN can provide research labs with anonymized data for research purposes.

In October 2013, the platform was launched with 25 MOOCs from 10 HE institutions. Two years and a half later, FUN provides access to more than 200 MOOCs produced by 75 higher education institutions, among which several francophone universities (mainly in Belgium and Tunisia). Around half of those courses have been run several times (twice, three or four times). These 310 sessions of MOOCs have reached more than 1 920 000 registrations coming from more than 725 000 learners. The learners' profiles are quite similar form most international platform: 64% are in the age group 25-50 years old and 47% hold a Master's degree. In terms of internationalization, the most interesting figure is the 17% of African learners, which shows the impact of FUN in the francophone countries.

In 2014, since more institutions were creating MOOCs and more learners registered, the Ministry considered that it could not manage the platform on the long term basis. It was therefore decided to launch a public consultation in order the create an independent organization in charge of the platform. A call was released in May 2014 and a consortium of 21 French HE institutions set up a proposal by December 2014. The public organization, called FUN-MOOC, was created in September 2015. It has 29 members representing more than 190 HE institutions.

4   Policy options applied

4.1   The FUN community

For the project to be successful and entice the interest and commitment of the HE community, the French HE institutions were required as early as September 2013, to designate representatives to follow the project. The FUN network is composed of 850 people (Vice-president or policy officers, head of ICT teams, instructional designers, …). The FUN team leads this community, provides training sessions, encourages exchange of best practices, organizes seminars and collaborative events such as MOOCcamp or Hackathon.

4.2   Quality insurance

From the start of the project, a quality assurance charter was defined that each institution and course teams must comply. It is based on three main principles: Setting up of a collaborative team with all the required competencies, producing pedagogical contents (videos, texts, images, etc.) in compliance with the pedagogical objectives of the MOOC, providing activities (such as forums, wikis, live events, peer-to-peer evaluation) that are adapted to a large number of participants and guarantee a rich and efficient learning experience.

4.3 Certification

When the platform was launched, each course could deliver honor-code certificates to the successful learners. Since March 2016, verified certificates are available on the platform using a software solution: the learner is proctored through his webcam and computer. For the learners who do not have a good-enough bandwidth or a stable-enough network to take the exam online – specially in developing countries – FUN has signed a partnership with AUF (Agence Universitaire de la Francophonie) and the learners can take their exams in one of the AUF campuses distributed around the world.

4.4 Beyond MOOCs

New usages of MOOCs are currently observed with their reuse in SPOCs. The first one consists in using the courses on campus with a class, as a substitute of the main lecture, thus encouraging flipped classroom and blended/hybrid learning. The second one is the strong development of SPOCs for life-long learning and continuous training, in companies or for unemployed people. To foster those developments, the FUN team provides white labels platforms when needed. The developments are particularly important to build a more sustainable business model.

4.5 Co-conception of MOOCs and capacity building

Based on the strong research cooperation between French HE institutions and their international partners in francophone universities, one observes the development of teaching cooperation through the co-conception and co-animation of MOOCs. The demography in many francophone countries, especially in Africa, is such that the development of digital learning using MOOCs/SPOCs and other online materials is a key issue. Co-creating MOOCs with colleagues from developing French speaking countries will provide bet-ter contextualize courses, allow them to develop local competencies to develop MOOCs/SPOCs for their own usage and therefore have a mean to better teach to the ever-growing number of students.

5 Recommendations

Building a MOOC policy at a state level is strongly related to the country, the way the HE system is build and financed, the relationship between the government and the universities. However, I believe that in any cases, building a strong community willing to share experiences and best practices is important and well as defining strong quality insurance. The financial issues are also crucial to develop a digital strategy for teach-ing and learning for higher education.

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MOOC Development Policies:
The ECO Project in the European and Spanish Context

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1   Summary

ECO "E-learning, Communication and Open-data: Massive Mobile, Ubiquitous and Open Learning" is a European project funded by the Competitiveness and Innovation Framework Programme (CIP) of the European Commission. The project brings together more than 20 European universities and companies in order to develop MOOC courses and merge different MOOC platforms (based on individual platforms and resources provided by individual partners in the project) with the goals of increasing awareness in Europe of the benefits of open educational resources for European citizens and institutions; improving upon MOOC educational strategies for the training of European teachers to be able to create their own MOOCs; and demonstrating the potential of MOOC communities for lowering or removing the technological barriers in learning processes for users with special needs or at risk of exclusion.

This paper briefly reports on the MOOC policies developed by the "ECO project to respond to a series of challenges detected in the Spanish and European context. In light of the work carried out for two and a half years, different policy areas are addressed by realizing the most important challenges and problems that were identified in each of them. A summary of the actions taken is also made in each of these areas and some recommendations for future MOOC policy-makers are layed out. These recommendations are based on the experience and knowledge generated by the project for the various public and private institutions that take part in it.

2   Introduction

During the last few years, Spain has surprisingly climbed to the leading group of countries that are generating more activity around MOOCs, being the leading European country to offer MOOCs during 2013 with more than one hundred courses offered, more than the UK, Germany or France. A look at MOOC demand (i.e. the volume of participation in the global supply of MOOCs) places Spain amongst the five countries with more students who follow this type of training, after USA, UK, Canada and Brazil. It is also worth noting the **strong leadership of Spain on MOOCs at European level**, currently gathering more than 35% of the MOOC market share, which puts the country in the already called G8 world powers on higher education. It should be noted that an increase in the use of MOOCs by large companies is still to be expected, rising from the present 8% to 28% in 2017.

The first initiative of a MOOC course in Spanish was directed by Dr. Jorge Ramió and Alfonso Muñoz: a cryptography course for programmers supported by the Polytechnic University of Madrid. The reference platform on which to develop MOOCs in Spain is MiriadaX, launched by Telefonica and Universia, in which

1,232 universities from 23 countries in Latin America are integrated. Many of the courses available in Spanish have been also offered by the National University of Distance Education in the so-called COMA courses ("Massive Online Open Courses").

More than a third of our universities feature at least one MOOC: 28 of the 80 higher education institutions have already included such courses and 7 of them have already begun their 2nd edition. According to a report, **111 MOOCs have developed their first edition**. The most proactive universities in the field of online higher education are the National University of Distance Education (UNED), which leads the ranking with 39 MOOCs, the Polytechnic University of Valencia (UPV) occupying second place with 23 MOOCs, and the University of Cantabria (UC) with 14 courses in its online training catalogue.

In this context, the European innovation project "**ECO - E-learning, Communication and Open Data: Massive, Mobile, Ubiquitous and Open Learning**" emerged in 2014. Funded under the Competitiveness and Innovation Framework Programme (CIP) of the European Community and led by the National University of Distance Education (UNED), it gathers than 20 partners between universities, research centres and companies, for the development of innovations in MOOCs and MOOC platforms that allow mobile distribution across Europe. These innovations were implemented in a total of 14 pilot courses on topics related to Digital and ICT skills for MOOC design, digital literacy for people at risk of social exclusion, project management, geographic information systems, computer sciences and mathematics, e-learning and educational innovation, creativity, communication and mobile learning, etc. The partners of the project handle a budget of 4,626,005 € of which the EC funds 2,313,000 €. The Project is developed via consortiums that include at least 20 regional actors/hubs of excellence with direct involvement in the technology and supply industries. The pilot objective of the project included seeking to demonstrate ways of lowering or removing technological barriers in learning processes for users with special needs or at risk of exclusion (socially, physically or technologically disadvantaged groups – and of those who consider themselves unsuited for education).

The project is shared with different institutions of our country. Given its open and online characteristics, every person can access the training and the formal and informal exchanges that take place in the course, in relation to the digital literacy of different groups of disadvantaged groups, regardless the place where they live. In that way, the training of the course can be transferred easily to other contexts of Spanish-speaking people, but given that in the project different partners participate (from the United Kingdom, Portugal, the Netherlands, Germany, France, Colombia, etc.), it could also be extrapolated to other sociocultural contexts.

3   Problem description / challenges

Detailed below are some of the main problems and challenges identified at various levels during development of the MOOC policies of the project.

3.1   Challenges in General Policies and Project Management

The biggest challenges in the management of a European project that brings together public and private institutions from the areas of education and technology, at regional, national and European levels, arises from the need to establish coordination strategies to harmonize the history of these institutions, as well as the different economic, political, social, cultural and linguistic thereof, in order to develop MOOCs in

common. Since the European society is a plurilinguistic reality, the use of seven European languages for the MOOCs developed by the project (Spanish, English, French, German, Dutch, Portuguese and Italian) responds to the need to convert these ECO MOOCs in educational artefacts relevant in the European context, but also implies the need to establish valid and operational communication and translation strategies between universities, researchers and companies, which also come from countries with identical linguistic diversity.

The challenge to harmonize the diversity of cultural backgrounds of the project partners is not only educational, but also organizational, being a factor in all strategic decisions and agreements carried out by the Project Management Board and the partners.

3.2   Challenges in MOOC Educational Methodology

3.2.1   *The challenge of a shared MOOC methodology: The ECO sMOOC Pedagogical Model*

Educationally, the project ECO starts from the existence of a growing critical trend in educational research towards questioning the effectiveness of reproductive MOOCs (xMOOCs), which are seen as a rehashing of traditional and failed e-learning models, unable to fully potentiate the capacity of MOOCs in creating learning communities and enhancing quality training. Added to this is the need to establish a standard capable of unifying the pedagogical orientation of ECO MOOCs and of guaranteeing their quality. Therefore, one of the main tasks of the project involved the definition and development of a pedagogical model shared by all participant partners and able to convert the MOOCs of ECO in exemplary experiences of networked learning, exploiting the possibilities of social media: **Social MOOCs or sMOOCs.**

3.2.2   *Training of e-teachers and the diversity of participant profiles*

Once defined, this pedagogical model was tested in 14 pilot courses which, through three of its consecutive editions, have allowed its re-elaboration and strengthening. The will of the project to become a focus of training for e-teachers in the field of MOOC implies addressing strategies for the training of teachers in this particular model.

The diversity of training teachers and participants in our MOOCs (coming mainly from Europe and Latin America) as well as the need to ensure full accessibility and attention to groups at risk of social exclusion, pushes the project to establish a pedagogical framework as strong as broad and flexible.

3.3   Challenges in MOOC Technology

In order to overcome the limitations of traditional teaching models in the design and development of MOOCs, the proposal of innovative educational methodologies necessarily implies the change in the technologies used for the development of the courses.

3.3.1   *Pedagogical Model vs. Technological Model*

One of the great challenges for project ECO has been the need to cover the space between the proposed innovative methodology and the existing technology, designed for significantly less interactive and social models than the sMOOC ECO model. In general, is the existing technology what conditions the educational practices and, in this case, it has become necessary to change the approach to the design of the technological support of sMOOC courses towards the proposed pedagogical model.

3.3.2   Integration of diverse and different MOOC platforms into a shared experience

The analysis of the previously existing technological solutions revealed two models: one of consortia involved in creating unique platforms and other dedicated to the development of MOOCs with common characteristics across different platforms. The construction of the technological substrate of ECO courses has meant the challenge of hybridizing these trends, seamlessly integrating different platforms and existing educational software in a technological experience that is consistent and unified for the user.

3.3.3   The need of new technological solutions for pedagogical innovations

The social network learning model of ECO involves implementing educational practices that are still new in the field of MOOCs, such as group networking, whose needs have not yet been solved by the existing MOOC software. Other needs of management for MOOCs operating in an international environment, such as automatic translation of all kinds of educational materials, the use of AI strategies for the qualitative analysis of online communities, the provision of high quality learning analytics, the development of applications to ensure the ubiquity of learning through Mobile Learning (or compatible with it), have been a constant challenge since they are still very new technologies, under development and featuring technical solutions which are not entirely satisfactory yet.

3.4   Challenges in MOOC Development and Implementation

3.4.1   The multilingual MOOC challenge

An extra coordination effort, both in the design and development of MOOCs, is required to address the implementation of MOOCs courses aimed at a multilingual audience and developed by an equally multilingual teaching staff.

3.4.2   Assessment, Accessibility, Usability and People at Risk of Social Exclusion

The ECO project aims to use its MOOCs as tools to overcome social exclusion. Therefore, the implementation of a standard of accessibility for people with hearing disabilities and presenting different educational pathways in each course that would allow the diversity of participants to access the contents of these through alternative ways is deemed necessary. In this respect, the lack of full development of technological solutions for automatic translation of contents, learning analytics or inability to use AI techniques for qualitative analysis of educational products of the participants were difficulties to overcome.

3.4.3   P2P Assessment

The implementation of peer evaluation models as part of the pedagogical design of ECO Learning, faces the technical and pedagogical limits of this type of assessment. On the one hand, these evaluations are produced in a technological "black box" which is inaccessible to teachers. On the other, it is a final and novel type of evaluation for much of the participants in these MOOCs, having a detectable impact on the drop-out rates of the courses. Finally, existing solutions do not fully allow the implementation of the group-to-group evaluation model proposed by ECO Learning, and its development is still one of the main pedagogical needs of the project.

3.4.4   Challenges in the Accreditation Process

For a European educational project such as ECO, the creation of accreditation systems that are attractive for participants and comparable at inter-regional and international-European levels is particularly difficult. In this regard, the PMB and direction of the project have had to make significant efforts to reach agreements with educational institutions able to formally accredit the courses. Equally difficult is the official recognition of the work of teachers by certifying their time commitment.

3.4.5   Interculturality, Teaching and Learning Roles and Co-Creation

The creation of an innovative paradigm such as the sMOOC of ECO involves the reformulation of the traditional roles of teachers and students in e-learning, establishing the need to create teacher teams capable of performing different functions which often are a hybrid between online teaching, content curation and moderation and promotion of learning communities in forums and social networks.

Education policies should address two fundamental aspects in MOOC training: intercreativity and multiculturalism. By the very nature of massive, online and open education, it is necessary to check the involvement of these two concepts and teacher training to implement them. The sMOOC training model implies educational virtual training scenarios for the joint creation of knowledge from collaborative learning. From this co-creation arises intercreativity, which Osuna and Camarero (2016) define as the participant's ability to create original elements through collaboration and participation within a virtual environment. Ultimately, participants become co-authors of the joint construction of knowledge that takes place in sMOOCs.

Intercreativity is closely related to multiculturalism, understood as the process of cultural exchange between participants in a sMOOC. Intercreativity and multiculturalism become an inseparable pair, because intercreative processes are associated with an intercultural construction. In the interactions made by sMOOC participants, each member always carries his nationality and its institutional and professional culture, because it is inherent in him. This produces a cross-cultural dialogue that permeates the construction of knowledge that is done. The interaction between sMOOC participants empowers intercreativity and promotes multiculturalism, resulting in an exchange between the actors of digital information on gamification, content aggregators, creating multimedia resources and collaborative networks, peer-to-peer coordination, etc. (Jenkins 2009; Frau-Meigs, 2011).

3.5   Challenges in MOOC Dissemination and Communication

This experience has recruited participants by different processes. On the one hand through different websites such as the ECO project main website and other blogs of the teams involved in the project. Likewise, SEO (Search Engine Optimization) strategy has been developed so that these web spaces are presented to people who are part of the target group. As seen in point 3, a SMO strategy that experience has been also developed for the dissemination of the project through Twitter, Facebook, Linkedin, Flickr, Google Plus, Youtube, etc. A newsletter is also published and a mailing list is used to publicize the experience between associations, foundations, organizations, etc.

3.6   Challenges in Exploitation, Commercialization and Marketing

It has been necessary to analyse how to compensate the funding that the assembly of a course requires, the production of audio-visual content, teaching work for creating, energizing, monitoring and evaluating.

This crystallizes in the existence of a specific work package within the project dedicated to analysing the possibilities of economic sustainability for the courses, exploring various business options based on the diverse international markets where ECO courses are. Value returns are made through the payment of certifications and fremium systems. Value returns such as visibility, the reputation of the university and faculty, student recruitment and internationalization, the adoption of innovative methodologies and ICTs, must also be taken into account. Similarly, the choice of content licensing and intellectual property for the content generated by these courses is especially relevant for a project that is based on the Open Educational Resources (OER) philosophy.

4 Policy options applied

4.1 Coordination: from international to regional levels

The need for a global coordination capable of interconnecting the levels of collaboration between European institutions and teams working on the development of MOOCs at the regional level, included the need to opt for a common language for the coordination meetings (English) and an online platform exclusively dedicated to the coordination of the different teams and work packages. A hierarchy of functions has been launched, from the direction of the Project by UNED, the PMB, leaders of work packages and, finally, the teams of the involved institutions.

4.2 The sMOOC model

The ECO Learning project puts the work done by the work package dedicated to design our pedagogical model as the generator node of all MOOC policies applied. Thus, this pedagogical framework has been designed as the root of all educational activities, including the development or implementation of technological solutions to meet the needs of the same. These needs include the need to establish new teaching roles, flexible learning paths for students, self-assessment strategies among peers, including social networking models within the courses, the care for people at risk of exclusion, accessibility and high usability.

The teaching teams of the various educational institutions involved in the project were part of the design of this pedagogical model from the beginning, although its training therein has been reinforced by holding internal seminars. Similarly, the training of external e-teachers (sMOOC participants that subsequently develop their own ECO courses) has been ensured through the creation of a specific MOOC for the training in the pedagogical model of ECO: sMOOC Step by Step.

4.3 Multi-platform integration

The technical solution found for the development of MOOCs designed and implemented by various institutions in different European countries was the "seamless" integration of different platforms and educational software provided by various partners of the project: OpenMOOC from Geographica, ARLearn from OUNL, iMOOC from UAB, etc. While these platforms offer different features that course designers can implement depending on their needs, all of them have had to adapt to the characteristics of the ECO pedagogical model, including social networking functionalities, enabling teamwork, peer-to-peer assessment and introducing gamification strategies. The integration of this diverse technology architecture has been made ensuring that the participant does not perceive "breaks" in their MOOC educational

experience, developing a common entry website and a unified log-in system. Also, we have implemented a satisfaction questionnaire common to all platforms users. Still, the existing technological boundaries have been a constant challenge for the full development of the sMOOC model, because of the need for solutions not yet fully developed in the fields of distance assessment and AI (facial recognition, qualitative analysis of texts), Mobile Learning, learning analytics and automated translation.

4.4 Accessibility and Usability

One of the main concerns of the project, the full accessibility to the course and the high usability of the virtual environments used, has been guaranteed through an internal system of quality assurance. In this regard, it is relevant to note that all textual and audio-visual content of ECO sMOOCs have been adapted according to international accessibility standards, implementing full subtitling of video lectures and providing transcripts for the audio-visual contents.

4.5 Dissemination

The dissemination efforts of the project have been multiple, featuring a specific international work package and involving all regional project teams in the matter:

- European SEO strategy.
- Social Media impact: regional and European levels.
- Mailing lists for impactful and relevant key institutions and individuals.
- Contacts with public European educational institutions at al national and regional levels.

4.6 Sustainability

The work results of the project as well as the contents of the sMOOC courses have been published under a Creative Commons 3.0 license in order to safeguard the OER philosophy of ECO. With the same objective, they business models based on advertising or monetization of data from participants have been avoided, opting for models of income obtaining from payment for official accreditation, considering this strategy valid for the project, after an analysis of the various options in the market.

5 Recommendations

The following table presents several recommendations for policy makers based on the response given by the ECO project to some of the main challenges and problems that were identified:

Table 1: Challenges and Recommendations

Challenges	ECO Actions and Recommendations for MOOC Policy Makers
To identify the criteria that ensure the educational quality of MOOCs	Carrying out work to reach consensus on indicators and criteria for good practices. Analysis of the scientific literature on the analysis of the quality of MOOCs. Analysis of other platforms and MOOCs to identify existing quality practices. Obtaining data on the satisfaction of sMOOC participants. Also see: ECO LEARNING. (2014). "D2.1. Analysis of existing MOOC platforms and services". CRUE. (2015). "Report on MOOCs and Quality Criteria". INNOMOOC. (2015). "Good educational practices in Education-related MOOCs".
Garantizar el acceso de la ciudadanía a los MOOOC	Accessibility measures for people with disabilities (i.e.: Accessible video subtitles). Take action to increase the digital literacy training for people at risk of exclusion (i.e.: "Digital Literacy for People at Risk of Social Exclusion" ECO sMOOC). Training of e-teachers in different scientific and cultural fields. Analysis of user background statistics and user satisfaction data.
To enhance an assessment of user satisfaction that provides information also to improve them.	Using validated questionnaires like the ones developed by ECO: ECO Learning User Satisfaction Questionnaire. ECO LEARNING (2015). "D4.1. General plan, curricular design and strategies for project pilots". ECO LEARNING (2015). "D4.2. Report on User's Satisfaction – Year One". ECO LEARNING (2016). "D4.2. Report on User's Satisfaction – Year Two".
Variety of contexts and decontextualization of usual online training proposals	The significant synergies developed between the participants of the project, at a local level and between participants from very different sociocultural contexts. The contact between people with interest in the field of digital literacy with collectives in risk of exclusion, with people that has already worked with this kind of collectives in this or in other topics, the contact with institutions working on the training of different professionals, the exchanges of experiences and resources have reached a great number, given the high number of participants. Those are aspects that have to be highlighted in this experience, as well as the development of an interdisciplinary and highly coordinated work that has enriched a lot the perspectives of the teachers and mediators.
Technical solutions vs. pedagogical model and	Finally, we think that one of the strategic contributions of the project is the development of a pedagogical model that determines the technological device and not the other way round, and that can be of great use in the initial and continuous training of professionals of the socio-educational

course quality	intervention. The continued presence of teachers in this model has been sought using innovative strategies based on the use of 2.0 web tools (i.e.: "Teaching Innovations in the Training of Digital Literacy for People at Risk of Social Exclusion").

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Business Models for MOOCs: recommendations for Joint-initiatives and Institutions

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1   Summary

MOOCs are there as one of the latest milestones of openness movement in education. Business models mistakenly refer to financial sources and the available ones can be classified into five categories: freemium, openness, corporate training, convenience and marketing. There is a list of essential questions about customer value proposition, infrastructure and finance components of a business model should be answered before launching a MOOC project. Either an institution or a joint-initiative must think of the answers these questions. Institutions should consider offering MOOCs even though they do not have any prior online learning experience. Those distance teaching universities and institutions experienced in MOOCs and online learning should facilitate collaboration opportunities with the on-campus HE institutions on MOOC offerings. Those inexperienced institutions should look for collaboration and outsourcing opportunities to offer MOOCs. Targeting all the groups is an appropriate approach but beginners should prioritize the groups and start with available and easy to reach ones, such as their on-campus students. Adapting one financial source will not be enough for sustainability. So, the institutions and joint-initiatives should work on alternative models. On the national level, decision makers should encourage and facilitate institutions establish alliances or collaboration to offer MOOCs nationally and internationally. They should also easy MOOC offering initiatives by adapting legislations and providing financial support. On the European level, joint-initiatives must be encouraged and supported by EU. In return the joint-initiatives must try to expand their financial sources by adapting various models; to reach different target groups in different regions of the world; provide standards, support, and if needed platform for their partners; encourage collaboration opportunities among its partners; support the use of open education resources and licensing of the MOOC materials as CC-BY and similar.

2   Introduction

Since early 2010s, Massive Open Online Courses (MOOCs) has been one of the major developments discussed among higher education (HE) institutions all over the world. MOOCs refer to the online courses designed for large numbers of participants, that can be accessed by anyone anywhere as long as they have an internet connection, are open to everyone without entry qualifications, and offer a full/complete course experi-ence online for free. MOOC movement is just another milestone in the process of transforming HE into more open, accessible, flexible, affordable, transparent, and accountable entity. In other words, MOOCs should be considered as another stage in the process of opening up education. As can be observed in figure 1, this process has started with open universities and schools moved to online learning, then with the advance-ments in online technologies to online learning, open courseware (OCW) and now MOOCs as well as open education resources (OER).

There are three type of MOOCs: cMOOCs, xMOOCs, and hMOOCs. MOOCs, designed to create a learning envi-ronment that facilitates knowledge generation and networking, is entitled as connectivist MOOCs, or short-ly cMOOCs. These focus on interaction among various stakeholders on predetermined or emerging topics. Those MOOCs that adapt more traditional online learning strategies (e.g. video lectures, readings, assign-ments, peer feedback, short quizzes and testing as the major components of the learning process)

are con-sidered as extended MOOCs, or xMOOCs. Finally, those that consist of cMOOCs and xMOOCs char-acteristics are called as hybrid, or hMOOCs.

3 Business Models for MOOCs

As another technological innovation, MOOCs raised several doubts and questions in the field of education and many discussions have been going on. One of these discussions are about the business models. Differ-ent sources present various models but a big majority of them tend to focus on only how to make financial earn-ings from MOOC offerings. The type is an important factor that affects the adaptation of business model for MOOCs. However, those models in the literature mainly focus on xMOOCs due to the fact that the number of xMOOCs far exceeds the other types. The current business models can be categorized into five major model: freemium, corporate training, openness, marketing, and convenience.

Among all the models, the **freemium** seems the one often adopted. This model consists of free registration and access to course materials and earning some amount of money for added values or services, such as more on-demand/structured interaction with the instructor/facilitator, receiving a formal certificate, join-ing a study group (learner community), and so forth. Institutions adopt this model mainly do not target a specific group, try to reach out as many learners as possible and use various media to marketing including 'superstar faculty' who have a good reputation among academia and can attract learners. In this model, institutions often propose badges or certificates that may be accepted by some institutions.

Another model can be entitled as **corporate training** model. This model is the one growing continually and focuses on design, development, marketing and implementation of MOOCs to meet the training or human resources development needs of corporates. In this model, the costs are paid by the corporation(s). Or, the providers charge the corporations by the number of employees participating the courses. This model does not only target the corporations but other participants who would like to improve their skills. The corpo-rates prefer these MOOCs to reduce to cost of the human resources development; to identify the employ-ees who are qualified for promotion; to identify and recruit talented new employees (head hunt).

A third model that intends to contribute the open up education movement and can be called as **openness** model. In this model, the institutions receive funding from their governments or foundations, such as Wil-liam and Flora Hewlett, Bill & Melinda Gates, etc. to be able to create and offer the courses. These govern-ments or foundations generally aim to provide quality and equal learning opportunities to especially under-served populations. The governments, additionally, often provide support to break the domination of other countries or cultures in education. FutureLearn, for instance, is a joint initiative of the universities in UK sponsored and promoted by the UK government against increasing domination of US MOOC providers.

Another model can be named as **marketing** model, in which providers offer courses to promote an institu-tion (a university or for- or non-profit institution, a book and/or its author), a product or tool, or embed some advertisements into. Increasing need for recognition or visibility of universities in national and inter-national levels is one of the drivers of this model. In this model, those who need to be marketed pay the costs. Also, MOOC providers sometimes sell the participant data to the universities or employers or other institutions.

The final model derived to meet the HE institutions' needs for providing convenient and flexible education, and for reducing costs. So, it can be entitled as **convenience** model. In this model, the providers offer either already available courses or course materials to these universities or create special ones according to their needs. Those HE institutions who would like have special courses for their needs often share the costs but

those who would like to provide this convenient and less expensive learning opportunity to their students do not pay anything, students who take this rote pay for the courses to be able to get certificates. Arizona State University, for instance, recognizes and accepts the credit transfers for entre level course certificates earned in EdX platform.

4   Problem: What kind of a business model

Although there are several business models institutions and joint-initiatives can adapt as summarized above. Many institutions have been either jumping the MOOC movement without developing a solid business model or hesitate to offer MOOCs due to sustainability and similar concerns. As it was indicated in HOME Project meetings there are several major questions about business model should be answered before launching a MOOC project. These questions are classified under three major components of a simplified business model: customer value proposition, infrastructure and finance. Either an institution or a joint-initiative must find the answers of the following questions:

Customer value proposition
- Who are the target groups?
- What can we offer them?

Infrastructure (Resources & Processes)
- Selection of the learners
    - How do we register the learners?
    - From which sources will we receive learners?
    - How do we market?

- Content & Delivery
    - Who will provide the content?
    - Who will produce the learning materials?
    - Where will we deliver the instruction (platform - shared, commercial, or custom)
    - How do we manage the platform operations?

- Guidance
    - Who will run the courses?
    - Who and how will we provide support (technological, pedagogical, managerial) - (students, faculty, staff, administrators)?
    - Who will own the copyrights?

- Assessment & Evaluation
    - Who will assess the achievement? How?
    - How do we assure the validity and reliability of assessment?
    - Who will do evaluation? How?
    - How do we manage the improvement processes?

- Certification
    - How do we assure the value of certificates?
    - Who will provide the quality assurance?

Finance

- What are the costs?
- What can be the sources of finance?

5 Recommended Solutions

Answers of the above questions actually describes your choice of business model for your MOOC offerings. Below several alternative answers of these questions presented for individual institutions and joint-initiatives. These are developed based-on informal conversations among HOME Project Partners as well as literature, available implementations, and the authors' own MOOC project management experiences.

5.1 Joint-Initiatives

Often individual institutions require partners to be able to offer MOOCs due to financial, technical, human resources, experience shortages and/or marketing opportunity shortages. U.S. based Coursera, EdX or Canvas provides some sort of support not collaboration while E.U. based OpenupEd provides this opportunity. We believe that joint-initiatives should be answering the above questions as indicated below:

Who are the target groups?
The joint-initiatives in nature may provide more courses than individual institutions. So, they must target not only a single group but rather a wide range of groups. Lifelong learners, corporate sector workers (including mainly white-collar but also blue too) and students (not only HE but also secondary education students too) seems the groups that have the most interest in MOOCs.

What can we offer them?
The joint-initiatives should also offer wide array of values. However, the most appealing value can be internationally and nationally recognized certificates. Today, especially in Europe mobility of the labour is a fact. In other words, EU citizens easily move to countries where they have job opportunities. Offering a MOOC that leads to an internationally recognized certificate may attract more participants, especially those life-long leaners and employees looking for a new job. Another attractive offer is cross-national and cross-institutional credit transfers. Especially students who are looking for better or different versions of their courses and those who need to complete their required credits in a more flexible way might benefit from cross-national and cross-institutional MOOC offerings.

How do we register the learners?
There are two ways for registration process. A joint-initiative may serve just a mediator between learner and institution and each institution follow their registration process. The second alternative is the joint-initiative develop a unified way to register the students to the MOOCs offered by the partners. Both have pros and cons. For instance, letting each institution deal with their own registration process will easy the duties of the initiative. On the other hand, because the users usually prefer consistence, a unified registration may result registration to more courses from various partner institutions. It may be helpful to conclude that if the initiative has enough funding and human resources a unified registration might be a better alternative.

From which sources will we receive learners?
The joint-initiatives have better chance to access more quantity and variety of learners. First of all, their own full-time and part-time regular students may be a good source for MOOCs. The partners may benefit offering MOOCs to each others students. Second, MOOCs have a grooving interest in corporate settings.

Companies encourage their employees to take MOOCs to improve their skills. The joint-initiatives must work with large companies and offer an array of courses on developing their human resources. Third, the joint-initiatives must focus on international students. Especially, there is tremendous potential in emerging and underdeveloped countries where education is still considered as a way of escaping from poverty. Middle east, former Soviet Union, African, and south American countries are among these countries. However, even in EU, MOOC initiatives may benefit from international mobility of students.

How do we market?

The joint initiatives have again better chance to market MOOCs. Social media are the major channel almost all the providers have been using. So, the joint-initiative must develop a social media marketing strategy and employ at least one social media expert to manage the marketing processes. This function might be outsourced too. Along with social media, reports (trend analysis, top ten MOOCs, etc.), research studies and bulletins kinds of regularly published online materials are also very effective marketing channels.

Who will provide the content?

The content in the joint initiative must come from the partner institutions. In other words, each partner should design and develop its own content by encouraging, supporting, and modelling their professors (content experts). On the other hand, the initiative should have standards, guidelines, templates, and example courses kinds of support materials. Meanwhile, the initiative should encourage (not require) to licence the content as public or Creative Commons BY or similar licences. So, the content would then become open education resource available to be used by other course designers. This might strengthen the usage and visibility of the initiative.

Who will produce the learning materials?

The recommendation provided above is also correspond with this question. Namely, each institution must design and develop its own materials; the initiative should provide support materials, like templates, standards, manuals, etc. Open licencing must also be encouraged.

Where will we deliver the instruction?

This is an ongoing debate and it seems there are two options: the first option is letting each institution use its own platform. This option should be preferred if a joint-initiative does not have enough financial and human resources. In this option, the initiative should also provide collaboration opportunities for those institutions do not have a MOOC platform and financial and/or human resources. The most significant shortcoming in this option is about consistency for users. In general, users especially older ones do not like surprises, cannot learn new environments easily and prefer environments they are used to. In every course, learning a different platform may discourage and create frustration. On the other hand, the second option offers a unified learning environment for each course. Namely, the joint-initiative provide a common platform for every partner institution to offer their MOOCs. This actually strengthen the initiative and easy the management processes. However, the biggest challenge for this option is about financial and human resources. The initiative must have dedicated technical and other staff to be able to operate the managerial and learning processes. In the market there are quite a number of open source platforms (e.g. openEdX) and the initiative can (should) adapt one of them and be a partner to development of this platform. Even social media or open Web 2.0 environments may be used as a common platform. This may decrease some of the costs.

How do we manage the platform operations?

The management of the platform operations are depend-on the platform options chosen above. Those joint-initiatives that prefer the first option, do not have to deal with the management of the platforms. It is the responsibility of each partner institution. However, they have to inform/feed in the initiative about the

progress and status of MOOCs in order to keep the initiative going. The initiative in return should provide several value adds (e.g., marketing and visibility of MOOCs). On the other hand, those initiatives that choose the second must have dedicated staff for marketing, enrolment, learning, assessment, certification, and support services. Depends-on the size of the initiative, there must be at least 10 staff to be able to manage all the operations. Rather than employing all the staff in one location, each partner may provide several staff located in their home institution and funded by both the institution and the initiative.

Who will run the courses?
The guided courses must be run by the course instructors and moderators while self-paced ones can be offered by the platform. Either guided or self-paced, each course should have some automation. A basic automation might be email notifications feel like coming from the staff or the instructor, and automated feedback for the quizzes that consist of multiple-choice type questions. The advance ones might have machine learning or artificial intelligence capacity that offer personal tutoring, grading of essay type questions, providing automated feedback for forum postings, and so forth.

Who and how will we provide support?
There are four major support types: pedagogical, technological, managerial, social. Additionally, there are four major groups that are needing these supports: learners, instructors, staff, administrators. The following matrix summarises the who should provide support to whom and how:

Table 1: Providing support in the joint-initiative

	Pedagogical	Technical	Managerial	Social
Learners	Instructors and moderators of the guided courses and also in self-paced ones. The platform may also provide support in self-paced courses too.	If the platform is provided by the initiative, the initiative should have a dedicated support person but the support must be provided by the partner institution in local language of the learner. The support person in the initiative should support these local staff. If each partner uses its own platform, the support must be provided by the partner institution.	Similar to technical support, it should be provided by the partner with the help of the dedicated staff of the initiative if needed either face-to-face or online. Automated support must be encouraged.	Both the joint-initiative and the partner institutions should provide social support via mainly social media does not matter whether a common platform is used or each institution has its own.
Instructors	The joint-initiative should present ready to use templates, standards, guidelines. It should also provide on-demand face-to-face, and online support too.	Similar to the cases for the learners, it should be provided by partner with the help of the dedicated staff of the initiative if needed either face-to-face or online. Automated support must be encouraged.	Similar to technical support, it should be provided by the partner with the help of the dedicated staff of the initiative if needed either face-to-face or online. Automated support must be encouraged.	Same as learners both the initiative and the institution should provide support for instructors the partner institution may choose not only online (social media) but also face-to-face options too. Meanwhile the initiative should focus on building a community of practice among instructors.
Staff	The joint initiative should provide on-demand support via online structured and unstructured opportunities. The initiative should focus on building a community of practice.			
Administrators	Similar to the staff but the initiative might think of face-to-face meetings too.			

Who will own the copyrights?
The ownership of the copyrights of a MOOC is a tricky and hard to answer question. It really depends on the intent of the initiative and the legislations of the countries partnering in this initiative. Ideally, the copy-

right must belong to the course creators. If it is an institution that created the course and assigned some instructors or moderators, the copyright must belong the institution. If it is an instructor, then the copyrights must be owned by her or him or a group of instructors. The joint-initiative should not claim ownership in any case.

Who will assess the achievement? How?
The assessment strategy must be determined during the design of a MOOC and it should ideally depend on the course content and the opportunities of the institution and the initiative. However, the assessment strategy must be flexible and online too due to the fact that the majority of the learners are well-education, have jobs and family responsibilities. Since the joint-initiative have several partners, it may (must) encourage and facilitate collaboration on providing online, proctored and appointment based exams, portfolio evaluations, and so forth. So, the initiative should not take the responsibility of assessment but rather create a collaboration process among partners to provide assessment services to each other. On the other hand, unfortunately online exams or alternative assessment tools are not considered as reliable as face-to-face proctored ones in some countries. Additionally, there have been significant developments in proctored online assessments, such as exams. Therefore, those MOOCs that provide credit for formal programs may require online proctored exams or portfolio evaluation.

How do we assure the validity and reliability of assessment?
The creator (instructor, content expert, institution, etc.) must be responsible for the validity and reliability of the assessment. The creator should analyse assessment results and take required actions.

Who will do evaluation? How?
This must be the main duty of the joint-initiative. In other words, the initiative must first develop some criteria to evaluate effectiveness, efficiency, engagement and endurance of the courses and share it with all partners. Later, conduct evaluation studies to be able to ensure the quality of MOOCs presented via the joint-initiative. The initiative should share the results of the course evaluations with the creators and partner institutions. The data can be collected from learners via online surveys in local languages as well as learner analytics embedded in the platform or institutions' platforms. The initiative can easily adapt an open source learner analytics software and share it with all the partners. After providing guidelines about how to collect data via this software, and when and how to share it with the initiative, unified data would be collected. These data should be analysed periodically.

How do we manage the improvement processes?
The joint-initiative should provide quality standards (criteria) and try to evaluate each course according to these standards. The results should be shared with the course creators and the institutions along with improvement recommendations.

How do we assure the value of certificates?
The certificates must be issued by the institution but a recognition label by the initiative must be added to these certificates if the course meets the initiative's quality standards. These certificates must also include some details regarding the course, such as credits earned, required time and effort spent to receive this certificate, and so forth. Additionally, the joint-initiative must work on recognition of its label by the major accreditation bodies in Europe.

Who will provide the quality assurance?

The quality assurance must be the responsibility of the course creators. However, the joint-initiative should have some quality standards and procedures to be able to guide and follow a unified quality assurance process.

What are the costs?
Depends on the platform choice, the costs may vary. If the joint-initiative provides a platform and management operations, the major initial costs of building the platform and recruiting staff would be high. Later the major costs would still be the cost of staff, hosting and maintenance of the platform for the initiative. Use of open source platforms definitely decrease these costs. Moreover, accreditation and visibility activities may create some costs, too. For the partner institutions, the costs are design and development of content/learning materials, instructor and moderator, assessment and management (enrolment and support other than pedagogical) costs. The partner institutions should also share the costs of the initiative by providing annual fees. If each partner uses its own platform, the costs for the joint-initiative would be building and maintaining a marketing platform as well as secretariat and marketing costs. On the other hand, the partner institutions must add platform building and maintenance costs as well as others indicated above.

What can be the sources of finance?
The joint-initiative must use variety of sources of finance. Requiring a small amount of money from learners for add-ons, such as proctored exams for formal credit, on-demand more intense support, synchronous or asynchronous interaction with the course instructors or moderators, etc., for instance, must be an alternative (freemium model). Also, getting a finance from corporations to provide MOOCs for their employees with no costs (corporate training model), getting annual fees from partners (marketing model), collaborating with traditional on-campus education providers (convenience model) are among the alternative funding options for the joint-initiatives.

5.2   Institutions

Institutions should also try to answer these questions before launching their MOOC projects. However, some of the answers may not be answered at the beginning and the answers may emerge along the way with experience. Below are recommended answers to these questions:

Who are the target groups?
If an institution who is planning to offer MOOCs and have no prior experience in online teaching should identify one or two primary target groups and then expand their groups after gaining some experience. It would be more beneficial in terms of sustainability if this kind of an institution can find an available target group. For instance, an institution that has good reputation in the field of education may choose to collaborate the Ministry of Education in their country to offer MOOCs primarily for teachers. Such an approach can help the institution establish confidence, infrastructure, processes and develop human resources. Other institutions with an experience in open and distance learning should choose to start with their own students. They, for example, may choose to offer some extra curricular courses as MOOCs for their students. Then they may choose students in institutions (especially on-campus education providers) by transferring some of their regular distance/online courses into MOOCs. But in general after gaining an experience they must target not a wide range of groups like the joint-initiatives.

What can we offer them?
Institutions should also focus on internationally and nationally recognized certificates, cross-institutional credits and an appealing learning experience.

How do we register the learners?

Enrolment process same as all the other operations must be completely online. The learners should use only one platform to be able to register, access the courses learning environment, assessments, etc.

From which sources will we receive learners?
Institutions who are just starting must try to find available targets. So, working with large public or private companies or organizations help the institutions establish infrastructure, processes and develop human resources. Also, starting with their own students (on-campus or distance) is another effective strategy. But after gaining experience, the institutions should have a strategy to expand their sources of learners via different marketing strategies and joining into larger initiatives.

How do we market?
Similar to the joint initiatives social media must be the main marketing channels for the institutions. However, they may choose other channels such as direct marketing via emails to their on-campus/distance students or even flyers and posters. Additionally, starting with well known professors or the most preferred course topics to offer MOOCs might also be effective marketing strategy.

Who will provide the content?
The content must come from the instructors. Institutions should start with instructors who are open to change, willing to offer MOOCs, support openness, and have some experience in online learning. Then they can expand the list of instructors to work with. After a while, institutions should also look for instructors from other educational institutions or experts in other corporations or organizations. Starting with well know professors or experts always helps.

Who will produce the learning materials?
There are two approaches for the production of the learning materials: the first one is an industrial approach in which there is division of labour. Namely, content experts provide the row content, designers transform them into learning materials, audio-visual experts prepare the video, audio and other visual, computer experts use authoring tools to bring different media together and produce the online learning materials, course builders create the courses and embed the learning materials into, assessment experts create the assessment tools, and some other experts check the quality. This approach is an effective but not efficient one because it takes some time and effort to develop materials. However, the end product has usually high quality. The second approach focuses on empowering instructors. In other words, in this approach the institution provides required tools and support to the instructors to design and develop course content and materials. This approach is efficient and often effective one although the quality of the materials may not be as good as previous approach. Institutions should focus on the second approach to be able to produce more learning materials in shorter time.

Where will we deliver the instruction?
If an institution can employ or have some dedicated staff for the MOOC platform, it should easily adapt an online platform and use it to deliver the instruction. However, in many cases it is difficult to find and employ qualified staff so the best alternative for these institutions might be using cloud system or a joint-initiative platform. The commercial ones usually provides better services but the cost, ownership of the content and openness seem a bit problematic.

How do we manage the platform operations?
If the institution uses an available platform they do not have to worry mush about the operations. However, this kind of an institution should have at least one dedicated person to establish communication between the institution and the platform provider. If the institution has its own platform, it needs at least 3 dedicated people to be able to run all the platform operations seamlessly.

Who will run the courses?

Similar to the joint-initiative, the guided courses must be run by the course instructors and moderators while self-paced ones can be offered by the platform. Either guided or self-paced, each course should have some automation. A basic automation might be email notifications feel like coming from the staff or the instructor, and automated feedback for the quizzes that consist of multiple-choice type questions. The advance ones might have machine learning or artificial intelligence capacity that offer personal tutoring, grading of essay type questions, providing automated feedback for forum postings, and so forth.

Who and how will we provide support?

As it has mentioned above, there are four major support types: pedagogical, technological, managerial, social. Additionally, different then the joint-initiatives, the institutions should focus on two major groups: learners and instructors. The following matrix summarises the who should provide support to whom and how:

Table 2: Providing support in an institution

	Pedagogical	Technical	Managerial	Social
Learners	Instructors and moderators of the guided courses and also in self-paced ones. The platform may also provide support in self-paced courses too.	If an institution has its own platform, the institution should have dedicated support staff. At least 2 staff needed for smaller size MOOC offerings. If the institution uses an available one, the provider should offer this service. In either case, online support must be preferred. In any case, automated support must be encouraged.	If an institution has its own platform, the institution should have dedicated support staff. At least 1 staff needed for smaller size MOOC offerings. If the institution uses an available one, the provider should offer this service. In either case, online support must be preferred. In any case, automated support must be encouraged.	Institution must provide social support via mainly social media. Building a community of learners must be encouraged.
Instructors	The institution or the platform provider should present ready to use templates, standards, guidelines. It should also provide on-demand face-to-face, and online support too.	Similar to learners, either the institution should provide with its dedicated staff (at least 2 persons for smaller size offerings) or the platform provider must provide the support with the help of the dedicated staff from the institution. It should be face-to-face and online, and automated support must be encouraged.	Similar to the technical support, either the institution should provide with its dedicated staff (at least 1 persons for smaller size offerings) or the platform provider must provide the support with the help of the dedicated staff from the institution. It should be face-to-face and online, but online and automated support must be encouraged.	Same as learners, institution should provide support for its instructors. It must be both online (social media) and sometimes face-to-face. Meanwhile institution should focus on building a community of practice among its instructors.

Who will own the copyrights?

As it has mentioned above ideally, the copyright must belong to the course creators. However, if an institution puts considerable investment (money, time, effort) to design, produce and implement, the copyright must be cleared to the institution. However, if it provides only enough support and the course instructors

put more effort, the copyright must be owned by the instructor. In any case, open licensing or CC-BY type of a license must be encouraged.

Who will assess the achievement? How?
The assessment strategy must be determined during the design of a MOOC and it should ideally depend on the course content and the opportunities the institution. However, the assessment strategy must be flexible and online too due to the fact that the majority of the learners are well-education, have jobs and family responsibilities. The course instructors should identify the strategies and tools. Often collaboration or out-sourcing might be beneficial for both instructors and the institution. So, the instructors should take the responsibility of assessment but must be aware of the collaboration opportunities and the limitations of the institution. Furthermore, those MOOCs that provide credit for formal programs may require online proctored exams or portfolio evaluation.

How do we assure the validity and reliability of assessment?
The creator (instructor, content expert, institution, etc.) must be responsible for the validity and reliability of the assessment. The creator should analyse assessment results and take required actions.

Who will do evaluation? How?
This must be the main duty of the institution. In other words, the institution must first develop some criteria to evaluate effectiveness, efficiency, engagement and endurance of the courses and share it with all instructors. Later, conduct evaluation studies to be able to ensure the quality of MOOCs presented. The institution should share the results of the course evaluation with the creators. The data can be collected from learners via online surveys as well as learner analytics embedded in the platform.

How do we manage the improvement processes?
The institutions should provide quality standards (criteria) and try to evaluate each course according to these standards. The results should be shared with the course creators along with improvement recommendations.

How do we assure the value of certificates?
The certificates must be issued by the institution. These certificates must also include some details regarding the course, such as credits earned, required time and effort spent to receive this certificate, and so forth. Additionally, the institution must try to get a recognition for its certificates by the major national and international accreditation bodies.

Who will provide the quality assurance?
The quality assurance must be the responsibility of the course creators. However, the institutions should have some quality standards and procedures to be able to guide and follow a unified quality assurance process.

What are the costs?
Similar to the joint-initiative, depends on the platform choice, the costs may vary. If the institution has its own platform, the major costs would be building and maintaining the platform as well as staff. Design and development of content/learning materials, instructor and moderator payments, assessment and management (enrolment and support other than pedagogical) operations, marketing are among the other costs. If the institution uses an available platform, the cost of building and maintaining as well as recruiting dedicated staff will be discarded but annual fees for using the platform will be among the major costs.

What can be the sources of finance?
Institutions must also use variety of sources of finance. However, it seems freemium model seems the easiest they can adapt. However, they should focus on widening their sources of finance via adapting corporate training and convenience models too.

6 Recommendations for Policy Makers

This section of the paper presents several recommendations to the policy makers in institutional, national, and European levels.

Institutional level;
- All institutions should consider offering MOOCs even though they do not have any prior online learning experience
- Those distance teaching universities and institutions experienced in MOOCs and online learning should facilitate collaboration opportunities with the on-campus HE institutions on MOOC offerings.
- Those inexperienced institutions should look for collaboration and outsourcing opportunities to offer MOOCs.
- Targeting all the groups is an appropriate approach but beginners should prioritize the groups and start with available and easy to reach ones, such as their on-campus students.
- Adapting one financial source will not be enough for sustainability. So, the institutions should work on alternative models.

National level;
- Decision makers should encourage and facilitate institutions establish alliances or collaboration to offer MOOCs nationally and internationally.
- Decision makers should easy MOOC offering initiatives by adapting legislations.
- If possible, decision makers may provide financial support (openness model) to those institutions who are planning to offer MOOCs.
- Decision makers should encourage establishment of quality standards for MOOCs.
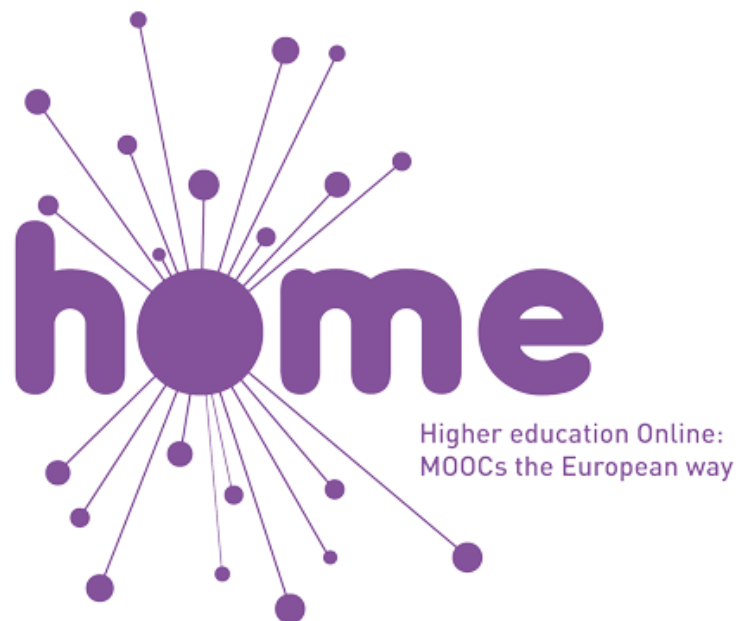
European level;
- Joint-initiatives must be encouraged and supported by EU.
- Joint-initiatives must try to expand their financial sources by adapting various models and not sticking on only one model.
- Joint-initiatives must try to reach different target groups in different regions of the world.
- Joint-initiatives must provide standards, support, and if needed platform.
- Joint-initiatives must encourage collaboration opportunities among its partners.
- Joint-initiatives must support the use of open education resources and licensing of the MOOC materials as CC-BY and similar.

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