# MOOC 2014: should universities enter the competition?

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## 1. Abstract

No one university can ignore the MOOC phenomenon. Although it is rapidly falling down along the Gartner Hype curve it will definitively influence the ways of teaching. But before jumping into the development of costly resources universities should define their objectives and thoroughly consider what does means going in this direction.

We will categorize the possible interests of a MOOC, for an institution, and then consider the needed resources, which must be, assemble before making the decision. A MOOC is a project for a full team, not for a single academic and this means coordination, human resources as well as a technical environment. A thorough investigation of all the requirements is mandatory before making any decision.

## 2. MOOC: a strategic choice

Universities and, more generally, Higher Education Institutions cannot ignore the MOOC phenomenon. Although the word "revolution" seems exaggerated, MOOCs introduce a new approach in the education landscape. MOOCs allow anybody to learn a large variety of topics. It is up to any participant to evaluate his/her basic knowledge of the topics and decide if he/she has the required level of knowledge to follow the course. This is the meaning of "Open". MOOCs can be used in various contexts: initial or life long education or simply for personal development. The list of possible motivations is infinite.

In the classical framework of universities, MOOCs permit to innovate by offering alternative methods of teaching and learning, complementary or substitute of the traditional methods. The MOOC approach is not really new since traditional Learning Management Systems (LMS) already permit this approach for a limited number of students. But it has been seldom used. MOOCs add the new Web 2.0 popular social aspects, and are a unique opportunity to generalize initiatives, which, in the past, have had difficulties to go beyond the prototype stage and were kept in a niche.

In a globalized world, where it would be necessary to open a university every day to educate the young generation, MOOC are the only realistic substitute to educate large masses of students. This is true in Africa and Asia, but also in a number of other countries

The economic dimension of the MOOC cannot be ignored. Creating a MOOC is expensive, its building requires assembling teams with complementary talents. A course, through a MOOC, is very different from the traditional model with autonomous teacher as transmitter of knowledge. The funding is crucial at a time when finances are constrained.

HE Institutions must think about their motivations to decide why and how to engage in the production of MOOCs. Some never will because it does not match their goals, others have already made their choice. This must result from a reflection and not from an ignorance or unfounded fear. While a neoliberal approach was dreaming about a means to reduce the cost of education in traditional universities, the first experiments and studies have shown that the classical lecture, in the theater, remains the most economical [1] approach. "Big universities", in developed countries, are not at risk, as demonstrated by the change in policy of Udacity [2], which has left the Higher Education sector and is now oriented towards continuous professional education. "Small

universities", not having all the human resources in all the fields, may be in danger and may consider purchasing some courses from the shelf from a MOOC vendor, substituting graduate students (doctoral or post -doc) to qualified personnel but reactions occur already against this vision [3]. Moreover economic considerations, valid for North America, might be different for Europe, where the States provides most of the funding. Developing countries are also a different subject since the cost of building new campuses must be taken into account.

Denying the MOOC innovative approach will not stop it in its good aspects as well as in its bad ones.

HE Institutions (HEI) must define their objectives:

- Local objectives: MOOC may be embedded in their teaching, as an alternative method, *together with regular face-to-face exchange* with the students who will not longer attend traditional lectures in a theater. This is the approach used at EPFL in Lausanne [4]. Such MOOC are called SPOC (Small Private Online Course) and almost the systematic approach in most European universities [5]. SPOC involve the same technical solutions and use the same content. They are distinguished by their methods of animation where face-to-face remains.
- External objectives: being opened to a wide public, real interaction becomes impossible due to the large number of participants, and MOOC employ Web 2.0 communication techniques such as community managers, peer-to-peers support ... Teachers stay in the back.

MOOCs and SPOCs challenge many aspects of the pedagogy:

- The teaching methods by means of flipped learning.
- The learning because students are the actors of their learning by virtue of this pedagogy.
- The need of support teams [6], from video to instructional designers, necessary for screenwriting and Web developments. Not all HEI dispose of the necessary work force and, when it exists, it might be already used.
- The need of a project leader, whose responsibility is to coordinate the work of many people. Most teachers are not accustomed to work with such processes.

This requires new means that will be discussed below. This is possible only if there is strong governance. American universities that have decided to engage in MOOCs have set up an organization under the supervision of a steering committee, directly under the direct authority of the President and with special funding directly provisioned by him.

## 3. What MOOC: for what purpose?

Before proposing a strategy, it is necessary to clearly define the goals. An institution must consider its priorities and choose its objectives. The following list summarizes possible orientations. The order of presentation has no meaning.

1. *As a support for an educational transformation*
   SPOCs might be an important constituent of a change in education, including the first year in university. This is one of the major objectives of the EPFL in Lausanne. Flipped pedagogy through MOOCs aims to make the students involved in their training. Students' presence on the campus is reduced, since they may work from a distance but it is necessary to establish a regular face-to-face tutoring. This approach is being thought mainly for newcomers, in the first year of bachelor. One of the concerns is to train the students to be autonomous. This approach has some limitation since the campus social life, at least in Western societies, is an important aspect of the culture for young people and it is necessary to offer spaces where they may work together, watch courses videos together and, more generally, mix. In other words it is necessary to create learning spaces and learning centers.

2. *For students who missed an examination*
   When a student does not succeed in a module for the first semester, at least in France, he/she has to wait until June to pass again the examination. In the mean time he/she no longer addresses the matter. This is also relevant for students who have been allowed to go into the next year without completely acquiring the previous year.

3. *At the entrance of the University*
   Many students engage in Higher Education without having the level and/or without really knowing the discipline they have chosen. Specialized short MOOCs could help them to realize

the direction in which they undertake studies, what does it means and also and to assess themselves their skills in order to avoid disappointment.

4. *For life long learning, specialization, improvement of professional skills.*
   Some kinds of SPOCs are the modern approach to services already provided by a number of HEI. Face-to-face exchange is not necessary and may be replaced by any exchange tool, from videoconference (Skype for instance) to simple chat but each student must be able to interact with a teacher who knows him/her. This is why we call them SPOCs and not of MOOCs. They may require some adaptation according to the local law about professional training. Means of evaluation should be provided.

5. *For all international students who cannot access higher education.*
   Universities from less developed countries, Africa and Asia first, would appreciate a help from more developed countries. Not all countries speak English and there is a place for other European languages. Moreover the approach to teaching and learning is strongly related to the national culture and a number of countries might be interested in a different approach from the dominant US one. The best approach would certainly be to help these countries to develop their own MOOCs, taking into account their own culture.

   Culture dissemination being one of the HE mission, such MOOCs are a good means to fill it.

6. *To share an expertise or learning on any topic with anyone.*
   The scientific reputation of excellence of a university must be based on two legs: research and teaching. Letting know what research does, through education, is one of our goals. Laboratories must be involved in such MOOCs and could build their own MOOCs in their own field.

7. *To attract good students from all around the world at bachelor or master level.*
   Students from abroad as well as students who have been following other curriculums would be better prepared to attend our curriculums, especially at higher level, when using MOOCs before arriving. Prestige courses, either in English or in national language, can also attract the best students.

MOOCs and/or SPOCs may be used to achieve any of these goals. It is up to the University to decide.

The following table summarizes the possible uses.

|   | Objective | MOOC | SPOC | Level | Remark |
|---|---|---|---|---|---|
| 1 | Educational transformation, | opt | X | B1, minors | All levels. Priority for larges groups of students |
| 2 | Remediation | opt | X | B1, B2, B3 | Failed modules from past semesters |
| 3 | Entrance in university | X | _ | B1, High School | Evaluation and initiation courses |
| 4 | Long life learning | _ | X | All levels | |
| 5 | Foreign students | X | opt | All levels | |
| 6 | Knowledge sharing | X | opt | All levels | |
| 7 | Recruiting students | X | opt | Master or bachelor | |

Opt: optional

B1, B2, B3: bachelor levels

Objectives 1 and 2 are intended primarily for undergraduates and for internal use, thus as SPOCs. However for or a small additional cost, mainly recruiting community managers for the duration of the course, they may be deliver as MOOCs. Such courses generally deliver general concepts, so they may be of interest for a large public who will never attend a course in a university (category 5). Depending on the discipline, the audience may strongly vary, certainly larger for medicine or management than for physics or mathematics! The openness and easiness of registration to a MOOC attracts a number of people who would never cross the barrier of a formal registration into a university [7]. A significant risk is to compete at the same time on the same platform with other

universities that publish a MOOC on the same subject, or at least a very similar one. Besides the loss of time, the risk of presenting a confused international offering is high. This is especially true for less demanded languages such as French, where the audience beats English in Black Africa only [8].

Category 3 covers several purposes: the first one is to offer to the students the possibility to test their level before entering the university. The second one is to help them to discover a discipline before they engage and to understand what lectures must be followed: dreaming about astronomy and discovering the need to pursue courses of higher mathematics may convince young people to think about their motivation! The University of Freiburg successfully uses this online approach. Each entering student must follow a short introductory course about the discipline he/she wants to study.

Some MOOCs may also be useful for students who miss their first examinations to acquire the fundamental knowledge that they were supposed to know from the High School.

MOOCs for category 5 (foreign students) are the same, to a certain extends, to the ones for categories 1 and 2. Additional ones require additional funding if they are not also intended for internal use. We will come back to the funding problem later.

Category 6 may be called prestige MOOCs. Their aim is to promote the excellence of the institution. They must correspond to areas of excellence in Research and must involve the laboratories. This category also includes peculiar courses, which may attract a large number of students, such as Scala programming at EPFL. This is the only case where cost is not a discriminating factor, although internal use is not forbidden!

Category 7 aims at recruiting new students at master and PhD level. One can find all the courses from category 6 as well as top-level remediary courses for students engaging in a new curriculum without all the specific knowledge.

## 4. Defining the priorities

Which MOOCs for which purposes? Each university must debates and decides about its choices. The number of MOOCs that the institution can produce each year is necessarily limited. The institution must evaluate its means, its strengths and weaknesses before committing itself.

The choice of priorities is also influenced by the proposals of the volunteers. Everywhere MOOCs have started with enthusiastic teachers but it cannot become a method. This is fully justified:

1. For a beginning, volunteers better accept the inevitable difficulties and obstacles in the construction of a MOOC and overcome them, even at the cost of a greater effort
2. The introduction of MOOCs, as SPOCs, will not be internally accepted without a great shaking of teaching habits. Only motivated teachers are ready to start without any preliminary thought.
3. Without a strong involvement of the teachers towards the students it will be difficult to convince the students to change their routine and work continuously throughout the week. The first experiments show, unanimously, that, if the students are enthusiast during the first few weeks, they are quickly reluctant when understanding the weekly-required personal work that it means.

Universities are strongly encouraged to take special care at newcomers, at bachelor level. Therefore SPOCs, for the first year of study, may be the highest priority. However one must be cautious. It requires changes in the organization of the academic schedule reducing the weekly schedule and attendance [9]. This change can only succeed with a strong management support involving both teachers and students and it will not be easy. There is noting new: people involved in ICT for teaching and learning have always have difficulties in generalizing niche initiatives and are convinced that all the institutional bodies from the university must be involved. What is new is that the social pressure induced by MOOCs on students as well as on teachers and universities High Executives make these initiatives ripe today for a generalization.

The choice of the first MOOCs, to be opened, must be guided by the enthusiasm of volunteer teachers and the acceptance by the community. Any other criterion is secondary.

## 5. Implementing MOOCs: what is needed?

The first step is to know whether the institution possesses the necessary skills to build a MOOC. It must be emphasized that building a MOOC does not only requires teachers but also a number of very different skills. When the answer is yes, then the second step is to estimate if these human resources are available. They are often overburdened, which means that the university has two choices: recruiting new staff (or outsourcing the work) or change the priorities for these people. This is a political decision.

Enthusiastic pioneers have produced MOOCs as volunteers but this cannot become a business strategy. MOOCs require high quality documents because they are visible from the entire world. What was acceptable when delivered to a limited community of students is no more acceptable when delivering to the world. Quality does not just happen: it requires professionals. In the near future MOOCs will be judged equally on their professional aspect as well as on their educational contents. Moreover, remember that the copyright exception, that is valid in a theater, does not apply when delivering a course to the whole world.

### 5.1. Building a MOOC

### 5.2. Video

The quality of the videos is a very sensitive aspect, maybe more than the contents itself. All universities do not possess the required expertise and the fact that the price of semi- professional cameras has dramatically decreased does not suffice for a production of high quality: professional, men and women of great skill, are needed as well as dedicated equipment. EPFL, for example, has built several sophisticated studios for this purpose.

When the skills exist, they are mostly already highly stressed. Devoting part of their time to a new activity such as MOOCs will be at the expense of other activities. The alternative is either to hire additional personnel and invest in equipment [10] or to outsource, which is extremely expensive. Universities have an interest in pooling their human and material resources to provide quality facilities and skilled personnel.

### 5.3. Scripting

Designing a MOOC is very different from a classroom course: sequences of work (videos, reading material, searching the web, exercise or quiz...) must be designed in advance, week by week. There is only a very limited space for real time initiatives and adjustments. It means that everything must be thought in advance: it requires the prior construction of a pedagogical scenario. Only teachers specialized in distance learning, posses the necessary competency today. A team of teachers, in charge of developing a MOOC, must incorporate a pedagogical engineer (or e-learning coordinator) i.e. a specialist, able to help in designing the pedagogical organization of the course. This person will also have the responsibility of adapting the scenario to the constraints and limitations of the delivery platform.

### 5.4. Integration, illustration and formatting documents

All specialists insist on the quality of the imagery and documents needed for a MOOC. A handout, acceptable for an internal use, is no acceptable for a wider audience. Often it is necessary to redraw a number of documents because of copyrights restrictions. This requires graphic designers. Again, the issue is manpower. Once again, the copyright law must be taken into consideration.

### 5.5. Community managers

Monitoring the activity during the session is an important task. In the case of a SPOC face-to-face tutoring is also part of the job. For a MOOC, monitoring can be the responsibility of graduate students (PhD or Master) paid as student jobs, under the supervision of teachers. It should not be difficult to find volunteers but it has a cost. The support for a SPOC fails into the normal responsibilities of a teacher and should be included in the roster. Monitoring and support are

required to ensure that students do not drop out, to guide them in their work, to solve problems and raise alerts when appropriate. This is a very innovative part of the MOOC activity.

## 5.6. Project management

Building a MOOC therefore brings many talents together and their work must be coordinated. The project requires new skills that few teachers possess. It is the role of a project manager.

To summarize, deciding to start a MOOC cannot be the simple decision of a single teacher. It requires so many human and material resources that it is an institution decision and it should be managed at the highest level, i.e. at presidential level.

# 6. Financial aspects

A MOOC does not permit any saving on staff expenses [11]. We estimate the cost of a MOOC of eight weeks between 20 000 € and 60 000 €, depending on its complexity and this is confirmed by many authors [12-13]. There are only two methods to recover the cost: seeking additional funding and, for a SPOC, saving on the infrastructure (building and maintenance) since students are less present on the campus.

SPOC might be required to solve the challenge posed by the implementation of complex schedules with minors and majors when the space is scarce and the time limited to permit to the students a rich variety of combination of lectures to attend.

We must fight the legend that MOOCs and SPOCs will reduce the staff expense. It is rather the opposite. American universities, at least part of them, interested in this business model, are dropping it out.

## 6.1. Expenses

1. *Recruitment and assignment of support staff.*
   We have already described the required skills. Talented students, fans of video, can support the video staff, as at EPFL. However it means that well-defined processes must be established, under the supervision of the professional, and automatized studios are strongly recommended. The students assist the teachers and supervise the recording. Web integrators and graphics are especially necessary in specialized fields such as Sciences and Medicine where complex graphics and images are needed. A project manager is absolutely needed: recently the University of Geneva has launched a call for applications for this purpose.

2. *Audio-visual equipment*
   The investment may be estimated between 20 000 € and 60 000 € and beyond depending on the desired degree of sophistication (if skilled staff is available). This also depends on the disciplines. For purely oral communication less is required than when the discourse is illustrated through graphics, images and equations.

3. *Teachers for each MOOC*
   The work required for each MOOC must be taken into account in the total teaching time. Community managers and tutors must be paid.

All details and explanations about the total expense are explained in another presentation [11,19].

## 6.2. Revenues

A MOOC may be a small source of income through a diplomation that only universities have the right to deliver: in Europe it means to issue ECTS, provided that the student's environment may be seriously controlled during the examination. This is the business model chosen by Coursera.

Some technical solutions emerge to control the students at home: keyboard signature, watching from a distance through the student's webcam… otherwise one must find locations where to organize a classical examination under the supervision of human beings. This is what the University of Lorraine does for a MOOC [14], but with a small number of students. The MOOC "Project

Management" from Ecole Centrale de Lille [15] opens examination centers in Africa with the help of the AUF (Association Universitaire pour la Francophonie).

Students, who will accumulate ECTS through MOOC, will not, in most cases, obtain a diploma. We must be very clear on this point and warn the MOOC's participants: an accumulation of ECTS is neither a Bachelor nor a Master, which is organized around a clear defined path of acquired knowledge. However additional ECTS worth more than just a certification: a student with a given diploma may acquire additional skills through MOOCs. This will definitively be an advantage in the search for a job.

Neither ECTS nor any kind of certification will cover the cost of a MOOC for a European university. This is especially true when addressing to students of less developed countries, with very limited revenue, who cannot be charged to the same level than people from European countries. Regarding the South, being able to cover the price of the organization of examinations is already an achievement. The only sources of external income are distance learning and continuing education.

External income sources depend on the country. Some will come, maybe, from Brussels (OpenUpEd [16]), other from sponsoring. The greatest source of saving may be joint projects among universities. The Virtual university from Bayern is a good example of such organization [17].

Nowhere universities have succeeded in developing MOOC without internal investment or additional resources. The business model, for private companies, is not yet fully established. Coursera is looking at selling certifications; Udacity does not believe anymore in Higher Education [3] and looks at continuous education. Selling students data is absolutely inconceivable (and this business model is strongly discussed). Selling courses from the shelf to other universities could hardly be imagined Europe.

## 7. First decisions

A successful strategy may be summarized in three points:

1. Install a steering Committee
It is mandatory to establish a Steering Committee, under the direct authority of the President of the university. All universities, leaders for MOOCs, emphasize this important strategic point. This Committee must involve all concerned bodies: academic staff as well as support staff and students, when concerned, as well as representatives from the bodies in charge of learning.

2. Allocate a special budget for MOOCs
The Steering Committee must be financed, directly from the highest level of the institution, i.e. from the Presidential office, to support selected MOOCs. A call for MOOCs and a jury

3. Build a communication strategy
The first appropriate action must be to communicate with the teachers as well as the students concerned by future MOOCs and SPOCs. Every body has eared about MOOCs but, most of the time, has a very partial knowledge. It is necessary to explain what they are, what they can do, for which purpose and to convince the community that they will not jeopardize the jobs and the quality of learning but rather are an extraordinary opportunity to modernize the way of teaching and learning. As for the students, they must be convinced that MOOCs are not a means of education of less value and that the aim of the project is to build a new dynamic by placing them at the center of their training and enabling them to support themselves.

A communication campaign will be effective only, if it is organized from the Presidency. It should lead to interventions in the various university bodies: councils, departments… and should be accompanied by information available on the site. The direction of the Communication has to be associated.

Simultaneously the Steering Committee will start to support the creation of the first MOOCs, selecting the first ones to be implemented. It must oversee the beginning of the first initiatives and more generally respond to any questions that arise from these first experiments. The MOOC are too new to already fix all aspects of a local strategy.

The choice of the delivery platform is another strategic decision. Do not forget that all platform operators are concerned about the quality and need to be kept abreast of progress steps of a

project. Thus the Steering Committee shall seriously control the exchanges between the operator and the teachers: project management is quite new in education.

Only after a first campaign will it be possible to set up an organization and specific procedures to develop MOOCs of quality for the future.

## 8. Conclusion

Going into MOOCs is a strategic decision to be taken at the highest level of an institution. There are many good reasons to go or not to go [18] but they must be justified in the perspective of the institution.

If the answer is positive, a number of conditions must be preliminary filled: available resources and staff, volunteers, concerns from the staff and the students. It is not a decision to be taken solely since it engages all the institution and its results will be visible from all around the world. A bad or unsuccessful MOOC can damage very badly the reputation of the institution.

Education, in the 21$^{st}$ century, is deeply affected by emerging technologies. MOOC are one of the possible answers to the great challenges HEI face today and it would be very sad to miss new opportunities to renew our role in today society, without forgetting our belief in our mission.

## 9. Bibliography

[1] Sharples, M., McAndrew, P., Weller, M., Ferguson, R., FitzGerald, E., Hirst, T., and Gaved, M. :"Innovating Pedagogy 2013: Open University Innovation Report 2". http://www.open.ac.uk/personalpages/mike.sharples/Reports/Innovating_Pedagogy_report_2013.pdf

[2] J.K. Waters, « Breaking the MOOC Model », Campus technology, January 2014, http://online.qmags.com/CPT0114?sessionID=56D4E974BEF0C8ABAFEEFA5FA&cid=2732174&eid=18574#pg18&mode1

[3] M. Perry « A Star MOOC Professor Defects—at Least for Now »,The Chronicle of Higher Education, September 2013, http://chronicle.com/article/A-MOOC-Star-Defects-at-Least/141331/

[4] MOOCS factory, EPFL, 2013, http://moocs.epfl.ch/page-92639-fr.html

[5] Y. Epelboin « MOOC, a European view », December 2012, http://wiki.upmc.fr/x/RICP

[6] "L'organisation d'un MOOC : un travail d'équipe", M. Cisel , April 2013, (in French) http://blog.educpros.fr/matthieu-cisel/2013/04/28/60/

[7] France Université Numérique: personal communication about registered students

[8] P. Haebisher, eMOOCs 2014, "20 MOOCs later, what have been learned?", EPFL, Lausanne, Switzerland, February 2014

[9] S. Combéfis, A. Bibal and P. Van Roy « Recasting a Traditional Course into a MOOC by Means of a SPOC », EPFL, Lausanne, Switzerland, February 2014

[10] MOOC studio, EPFL, Suisse, http://moocs.epfl.ch/page-85490-fr.html

[11] "MOOC: the European perspective", Y. Epelboin, EUNIS Rectors seminar, Helsinki, April 2014, http://www.slideshare.net/slideshow/embed_code/34199884

[12] "Monter un MOOC : combine ça coûte ?" M. Cisel, November 2013, (in French)http://blog.educpros.fr/matthieu-cisel/2013/11/12/monter-un-mooc-combien-ca-coute/

[13] Private communication, UCSD (San Diego California) estimation: 300 000 $, all includes for 16 weeks.

[14] MOOC Courlis, université de Lorraine, 2013, http://courlis-pf.univ-lorraine.fr/

[15] MOOC Gestion de Projet, R. Bachelet, Ecole Centrale de Lille 2013, , https://unow-mooc.org/gestiondeprojet/

[16] OpenUpEd

[17] Virtuelle Hochschule Bayern, http://www.vhb.org/en/homepage/

[18] See for instance "Learning in digital, connected world", D. Humphris, eMOOCs 20014, February 2014, http://fr.scribd.com/doc/207959444/EMOOCs-2014-Keynote-S2-Debra-Humphris

[19] "Les MOOC, enseignement en ligne et formation tout au long de la vie" JC Pomerol, Y. Epelboin & C. Thoury, 1974, Dunod ed.

## 10. Authors' Biography

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