MOOCS IN LOCAL YOUNG TERTIARY UNIVERSITIES: STRATEGY AND METRICS

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Abstract

This paper exposes a use case concerning a policy for developing Massive Open Online Courses (MOOCs). This document presents the strategy adopted by the University of Applied Sciences, Western Switzerland (quoted in this document as HES-SO), a 20-year-old tertiary university based in Switzerland. After a description of the strategy, the paper details the means implemented, namely the local hosting platform stemming from a "Moocization" of Moodle, the methodology used for production and the MOOCs developed. The metrics obtained since 2014, are consolidated, presented and analysed in the conclusion part of the paper.

Context

Since 2011, distance education has been reshaped by the onset of a new type of teaching, the MOOCs. These courses are considered as a disruptive innovation to bring reform in higher education.

MOOCs enable a mostly free access to higher-level education for many self-motivated people worldwide (Jordan, 2014). Hundreds of such courses are nowadays developed by universities from all over the world, particularly by prestigious American universities, such as Stanford or Harvard, while more than 35 million people worldwide attended a MOOC in 2015 and more than 2 million among those have successfully completed a course with certification (Hollands & Tirthali, 2014).

The University of Applied Sciences Western Switzerland (HES-SO) decided in 2013 to develop a MOOC project to evaluate the potential of these courses.

21,000 students (27% of the 8 Swiss UAS students) enrol every year in the different curricula proposed by the HES-SO. This 20-year-old university offers students strong references to the real professional world, either by linking the teaching laboratories with real experiments or by developing projects with professionals in action and has become a great source of skills, ideas, innovation, creativity and knowledge. With its six faculties (Design and Fine Arts, Business, Management and Services, Engineering and Architecture, Music and Performing Arts, Health and Social Work), HES-SO plays a preeminent role in the seven cantons of Western Switzerland where its faculties stand.

The HES-SO has created an e-learning Centre, called Cyberlearn, in 2004. The Centre is in charge of developing and conducting research in blended learning, comprising the pedagogical use and implementation of new innovative and disruptive technologies.

A two phase strategy

The HES-SO Board of Education designed a MOOC strategy in two phases. The first phase (2013-2015), when a pilot project was launched and assessed, has been followed by a second phase lasting from 2016 to 2020, during which MOOCs are developed to become fully-fledged in this field. After completion of the second phase, a global appraisal of the MOOCs mission will help define if this type of educational method should be officially embedded in the institution's development policy.

First phase (2013-2015)

The objective of this phase consisted in the development of two types of MOOCs and their launching in order to measure their impact.

The first MOOC is supported by the faculty of Health, and deals with how to manage hypertension via a method of motivational consultations. The seven-week MOOC involves more than 40 contributors and provides an inter-professional eye on the topic. It is targeted for health professionals as on-going education, and for students attending courses in Health. The second MOOC proposes an oral communication method aiming at training the oral capabilities of the participants. Lasting four weeks, it involves only one professor and is targeted at the general public and students. Both MOOCs are provided in French with English subtitles. By developing these two formats, the goal was to measure the needed workload for each MOOC, the former rather wide and complex to implement, and the latter simpler and rapid to develop.

The MOOCs do not officially grant credits, but participants obtain a certificate of achievement. However, they are already designed to meet the credit requirement of the ECTS (European Credit Transfer System), so as to resume with validation in case the Board decides to officially integrate them into the educational system in Phase 2.

Hosting platform

An institution such as the HES-SO lacks sufficient funds for the MOOCs project to appear on a worldwide reaching platform like Coursera (http://www.coursera.org), the main actor in this market. Neither was it realistic to deploy an edX platform (https://www.edx.org) in spite of a more open and non-profitable solution provided by the Massachusetts Institute of Technology and Harvard University since May 2012. This solution requires a heavy technical infrastructure, and would have duplicated the Learning Management System (LMS) Moodle in use at the HES-SO since 2005. When the decision to begin with the pilot phase was taken, other platforms such as France Université Numérique (https://www.fun-mooc.fr), did not yet provide hosting for external courses. Iversity (https://iversity.org) a European platform, claimed a waiting deadline for MOOCs publication of over one year. The HES-SO learning centre Cyberlearn, in agreement with the administrative teaching order, therefore decided to "moocize" the LMS

Moodle. The procedure consisted in simplifying Moodle and developing-strengthening some dedicated functionalities in order to ensure the management of the MOOCs, such as pre-registration, group management or management of certificates of achievement. After completion, this Moodle customisation will be shared with the Moodle community. In this way, other institutions using Moodle and wishing to embed MOOCs in their teaching strategy, can do it easily by relying on the expertise of the local team in charge of Moodle. Moreover, using a clean platform, implemented in Switzerland, solved the thorny issue of data ownership and copyright.

The e-learning Centre, therefore, concurrently developed the MOOCs platform under the name MOODEC (https://moocs.hes-so.ch) and designed the two courses.

Video infrastructure

As on-line training involves mainly video produced specifically for a given course, the first step consisted in acquiring the right equipment for this type of resources. The HES-SO is spread over Western Switzerland in more than 28 schools, so video recording was to be produced in the schools as well as on the e-learning Centre's premises. The resources involving a professor speaking and facing a camera were filmed in the recording studio, whereas the recordings on site (patient simulation, interviews with specialists, etc.) were filmed in the concerned organizations. The Centre set up a premise dedicated to video recording, but the equipment could be easily transported to transform it into a mobile studio. After hiring a part-time producer, a premise was rented and equipped with three cameras, a prompter, microphones and a computer dedicated to video editing.

Specifics of the HES-SO

Beyond attention dedicated to producing quality didactic and distance pedagogic resources, much thought was given to simulate the presence of the student in the pedagogic scenario. Therefore, a recurrent character was invented who appears in each MOOC, representing the student, and so enabling to place the participant in a meta-cognitive position while facing knowledge. The tone used in the MOOCs is relaxed and catchy to maintain an engaging communicative freshness. A health professional, amateur actress, accepted to act out the scripted scenes, and so brought added value to the courses, while becoming the living face of the MOOCs produced by the HES-SO.

Figure 1. Extract of a "Sophie" video

Results

Unlike professors at universities, most HES professors are not provided with their own Ra&d team and depend on the e-learning Centre to develop a MOOC. Most professors also lack the competencies required to transform a face-to-face course into an on-line course, and often are unfamiliar with the production of distance didactic scenarii. Thus, the Centre designs courses, working on both narration and production.

Figure 2. Extract of the course about oral communication

The oral communication MOOC was produced in a short time, both because it was simple and short, and because the professor involved manages the Cyberlearn Centre, and thus, had the required experience to design and produce such a course. In all, from the starting idea to the technical production, the course which is worth 1 ECTS credit, required 50 working hours. The production itself required 400 working hours.

The MOOC on hypertension required more than 600 hours for production and more than 400 hours from professors. A significant effort was required to coordinate the various departments involved in the project, the health professionals from the university hospitals, and the e-learning Centre.
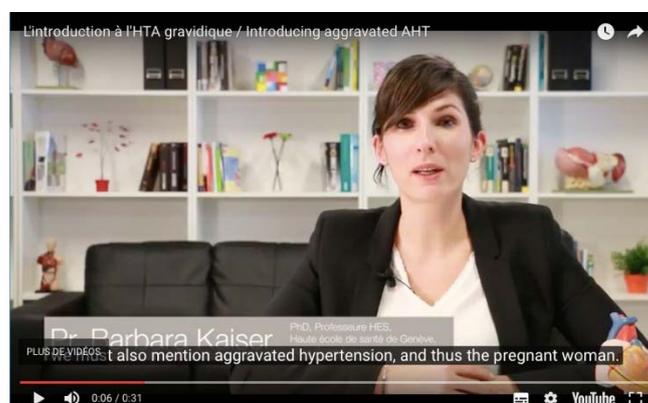

Figure 3. Extract of the course about oral communication

Its scope and complexity points out three specific issues. Firstly, concerning the academic involvement in the project, a person is needed to supervise the project and be responsible for

an efficient communication between the production team and the teaching team, in order to ensure full coordination among the contributors and the availability of the resources.

Secondly, it was noted that none of the professors involved, neither the professionals with a hospital background, had the required competencies to design a distance learning course. Often the professors focused on fears about technology, and felt awkward about thinking in a distance learning context. To schematize, rather than imagining how a future participant in the MOOC could understand, learn, be interested by an educational resource, professors tended to focus on how to design a video, a game, a simulation, regardless of how knowledge to be transmitted and student mobilization at a distance should meet.

Finally, it was noticed that more than 80% of the professors felt uneasy to improvise when facing a camera. They produced texts to be read on the prompter, more suitable for a written delivery. Texts needed rewriting, simplifying, to give them a pace closer to an oral delivery, but without distortion, all of which represented a mass of unexpected workload, as the professors facing students in a classroom are normally capable of such improvisation. A camera capturing a specific moment, the fear of delivering imperfect information paralyzed the participants. Professors needed some training first to speak in front of a camera: suitable clothes, make up, posture. Some universities choose to hire professional actors to simulate the professor, but the Centre decided against this: however incomplete the media performance, it is essential that the professor guarantees knowledge and assumes his own role.

Communication

The launching of the HES-SO MOOCs was covered by a press conference, various newspapers and a TV program by the Swiss French TV channel. Concurrently, the educational department involved in the project activated its network, while the HES-SO activated its own communication service. The Centre concentrated more on social networks and targeted advertising on Facebook, LinkedIn and Twitter and published relevant information on the Moodle platform, accessed daily by more than 21,000 HES-SO users.

Costs

Globally, developing an average HES-SO MOOC cost 100,000 Euros, comprising the technical infrastructure costs, the cost of the development team and the professor workload. The average worldwide MOOC production costs vary between 150,000 and 240,000 Euros (Holland & Tirthali, 2014) thus, the HES-SO costs turn out to be less expensive, in spite of the high cost of labour in Switzerland.

Metrics

From 2014 to 2016, more than 3,000 people signed up on the platform, for 1,000 people actually having attended the two MOOCs. These were run several times (3 for hypertension and 6 for oral communication). It is interesting to compare these figures with the average number of participants per field in the traditional courses at the HES-SO. The oral communication MOOC has included 700 participants so far, and delivered 8 certificates of achievement. This course is

taught at the faculty of Management and Services, largest in size at the HES-SO, comprising 6,686 (rounded) students and provides 5 Bachelor and Master programs, for an average of 1,337 (rounded) students. Concerning the Hypertension MOOC, which is part of the faculty of Health Professions, ranks 3rd in size at the HES-SO, comprises 3,576 students and provides 5 Bachelor and Master programs. Traditional educational courses count 715 students per program, where the MOOC had gathered 309 participants and delivered 51 certificates of achievement. The number of participants in the MOOCs stemming directly from the HES-SO amounts to 250. The number of participants in the MOOCs corresponds to about half the total number of students per program, which is an encouraging figure.

Findings

The findings of this pilot phase are globally positive. If the number of participants was not massive, strictly speaking, it was possible to demonstrate that the audience shows a true interest in this type of educational approach. It must be noted that if the figure of 50,000 learners per MOOC is often highlighted, the number of participants per MOOC, worldwide, actually amounts closer to 846 (Shah, 2016). The HES-SO MOOCs are therefore very close to this average rate. The dropout rate in this phase reaches 67%. This rate is lower than the world average reaching 96%. The difference can be explained by the proximity between the public using the HES-SO MOOCs and the HES-SO. Additionally, these courses were designed to be narratively attractive and involving a less heavy workload for compulsory workshops, which may cause some discouragement among participants enrolled in this type of course.

Embedding a MOOC in presential curriculum

With regard to the financial and human effort placed into developing MOOCs, we decided to interface the MOOC on oral communication with that of the face-to-face class. Therefore, we replicated the MOOC so that only regular students could subscribe, because we wanted to ensure coherence between distance and regular courses. Physical attendance to the course was downsized from 3hrs/week to 2hrs/week. As attending the MOOC required completion outside face-to-face class, it was made compulsory in order to validate the teaching hour shifted to the MOOC. In case a student had never accessed the MOOC, he would obtain grade 1 out of 6; when the MOOC was attended and the activities completed without obtaining validation, he would be graded 3 out of 6, and if validation was successfully obtained he would be graded 6 out 6. This grade counts for half of the mid-module assessment grading. We believe that the experiment was successful, namely because all students showed some independence in their working approach. Although facing the MOOC by themselves, they completed all activities without reminders. Students were only reminded once, one week before the end of the module, that the MOOC had to be completed. The fact that the MOOC is graded directly affects the successful completion of the communication module and obviously accounts for part of the students' involvement. We feared that having to face the same professor during classroom sessions and also in the MOOC videos would be perceived as unnecessary or boring, but no student mentioned such a thing, neither orally nor in the evaluation. It is interesting to note that the hour of the distance course was attended during face-to-face courses in other courses or on Sundays. Students revealed higher competencies than other years at the end of the

module. It is, however, impossible at this stage, to check whether this is due to the integration of the MOOC or to this year's students' inherent capabilities (Salamin, 2017).

Second phase (2016-2020)

Following the positive assessment of the first phase, the HES-SO has decided to launch a yearly call for the creation of a MOOC called "Moocs.Fab". Only one project proposed by the professors is accepted at the end of the evaluation process. With this setting, a new MOOC lasting 7 weeks was produced. The faculty of Design and Fine Arts proposed this project, dealing with an initiation to Cartoon creation for beginners. Launched in 2017, 12 certificates of achievement were delivered for 574 participants. In the last week, 100 participants were still active in the course. Most participants were Swiss and French.

With the 10 sessions of the three current MOOCs of the HES-SO, a profile of the average participant can be defined. It is a woman between 25 and 36, living in Western Switzerland, with a teaching diploma in higher education, attending the MOOC on a mobile, which is consistent with the HES-SO gender distribution of the regular students, which represents 52% of women (rounded) and 48% of men (rounded).

At the end of each session, the participants of the Oral Communication and the Cartoon MOOCs were asked to fill in a questionnaire OUT to measure the satisfaction level. Concerning Oral Communication, 33 out of 34 having filled in the questionnaire felt totally and rather satisfied by the course; for the Cartoon, 39 out of 44 participants having taken part in the survey felt totally and rather satisfied. This positive rate needs to be put into perspective, as those willing to fill in this type of questionnaire are generally the most and the least satisfied participants. Nevertheless, no participant claimed deep discontentment, which leads towards a positive assessment of the provided courses and, may explain partly the relatively low dropout rate.

A new project call was launched in 2017 and a MOOC on mental health was selected. Concurrently, two other requests were made directly to the Centre and were accepted. In 2019, three new MOOCs will therefore be launched on the platform.

Conclusion

At a federal level, universities and EPF develop numerous MOOCs whereas the Universities of Applied Sciences are still pondering. The HES-SO plays a leading role in this field compared to its peers. A project aiming at implementing an edX platform at the Swiss level has recently started. By mid-2018, this platform will enable institutions such as the HES-SO to set free from local constraints, and reach a wider national and international exposure. The Swiss Higher Education Schools currently developing MOOCs claim that more than 65 MOOCs will be registered on the platform "Swiss MOOCs Service", which should boost the other UAS to invest in this field.

Since the MOOC project was positively assessed, this type of course is now included in the Board's intention plan 2015-2020 (Hes-so, 2015): "The development of Massive Online Open

Courses, MOOCs and by-product models encourage pedagogical thinking towards a new step in the use of information technology and communication in teaching." (p.23)

Digitalizing higher education has become a main concern for the European and Swiss Higher Level Education Boards, and strongly implies that professors change their teaching practices and fully seize innovative educational tools. Professors having produced a MOOC with the effort required to breakdown knowledge, question their practice, analyse how they provide educational contents, globally show better efficiency when integrating technology into their classroom. Moreover, educational methods such as flipped classes can rely on MOOCs, whether produced internally or externally, to help students integrate knowledge more nimbly, in order to adapt them flexibly to their professional future whose outlines remain unclear in a 5 to 10-year perspective.

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