MOOC: A DEVELOPMENT CASE FOR PORTUGUESE K12

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Our work focuses on the development of a MOOC (Massive Online Open Course) in a K-12 context.

In the paper we present the actual MOOC typology and tools available as well as the process of developing the course design and implementation.
The purpose
Following the experiences of the OCW (OpenCourseWare) project, launched in 1999, MOOC (Massive Open Online Courses) fully emerged in online education, in 2012, rapidly changing the way we view the access to learning, particularly, in areas such as higher education and specialized training.

Our broad work focuses on the development of a MOOC in a K-12 curricular context, examining the conception, implementation and evaluation process (the complete design process).

For the purpose of this paper we seek to answer the following questions:

*How to design, produce and implement a MOOC for K12? What platform to deliver the MOOC? Which tools and technologies to use for the management of the course?*
Typology

MOOCs differ somewhat in their typology:

- transferMOOC
- madeMOOC
- synchMOOC
- asyncMOOC
- adaptiveMOOC
- groupMOOC
- connectivistMOOC
- miniMOOCS

Certification

Although not yet offering accreditation some MOOC deliver, against payment, a type off certificate confirming the completion of the course. But the paid certification systems are being designed, of course, being a business.

- No certification
- Certificate of completion
- Certificate of mastery
- Certificates of distinction
- University credits
Major Providers

The current largest MOOC providers are Coursera, EDX, Udacity, Udemy, iversity and the Khan Academy. The FutureLearn and OpenUpEdu offered its first courses in the last quarter of 2013.

Meanwhile, other global suppliers also emerged recently as in the case of Open2Study in Australia, EducateMe360 in India and unX in Latin America. All these suppliers are run by entrepreneurs.
Platforms

Regarding the platforms for the implementation of online courses, we can divide them around some concepts:

— The major course providers (e.g. Coursera, Edx, Udacity, etc.), most suited for higher education and with an institutional link to the university where the teacher teaches (closed platforms);

— the use of free online platforms (e.g. CourseSites, Udemy or Canvas);

— or, using a set of tools, sometimes scatte (e.g. Blogs, Wikis, Facebook, Twitter, etc.).
Tools

Depending on the type of MOOC offered and taking into account the two major models — connectivistMOOC and transferMOOC — we can use a variety of tools or platforms.

In a connectivistMOOC the participant learns and bring content to the course, “Facilitators use a variety of tools to help aggregate the experience as most of the content is not located within a specific platform but across a variety of media tools” [8]. We can use several free tools — Hangouts, Wikis, Twitter, Skype, YouTube, Blogs, Facebook, Edmodo, etc. — to watch a video, read a blog, consulting sites, follow Twitter and Facebook pages. The use of various interactive tools can be counterproductive, because it generates some dispersion in students on this teaching level.

On the other hand a transferMOOC is typically used with university traditional course model and linked thru closed aggregation platforms.
Tools

Despite the diverse definitions, it seems important to accept all and try them openly to subsequently provide the best access to knowledge, combat lack of motivation experienced by some younger students with high doses of interactivity and provide the necessary feedback to the success of those attending such courses. In this sense and analyzing the informal adopted typologies...

we can say that we will experiment a kind of ‘mixed’ typology — mixedMOOC — by given a fixed start and end date, taking an existing structure course and experiment in a MOOC format, using video and interactivity tools, peer review, fixed deadlines for assignments and implement on Edmodo in order to try to concentrate the maximum number of useful technologies in the same place.
INSTRUCTIONAL DESIGN

There are some guidelines to facilitate a quality learning experiences. The design in this online format has to ensure lots of interactivity with other students engaged in the course and with the teacher himself.

Deutsch [10] propose six steps to organize a MOOC.

1 Decide on a Topic
2 Recruit a Team of Collaborators
3 Develop a Syllabus
4 Decide on a Platform for the Asynchronous and Synchronous Sessions
5 Recruit Participants
6 Provide Support 24/7

On other hand, Cisel [11], on the guide “Guide du MOOC” (MOOC Guide), propose another six steps to conceive a course, with extra focus on the conception, evaluation and testing of the course.

1 Team organization
2 Course support design
3 Interactions scriptwriting
4 Questionnaire/quizzes design
5 Course Implementation on the platform
6 Testing
Edmodo

Edmodo (www.edmodo.com) is a free online classroom that provides a safe and easy way for students to connect and collaborate, share content, create workgroups, access and place digital resources, access activities, create polls and tags, attribute badges and grades. It looks like Facebook but in a safe and controlled environment appropriate for school. It's an environment managed and controlled by the teacher where students need an access code to join the class.
K-12 MOOCS

There are not yet many scientific papers in this field, and in particular for the elementary school (K-12) level where we can find less motivated students, nevertheless, as regards Ferdig [16], “K-12 courses were on the rise in 2013, which is a trend that will likely continue in 2014”. However, Ferdig [8] said: "We want to collect some research-based facts about what works well and what doesn't." Yet, the integration of K-12 MOOCs in a variety of formats can bring benefits to learning.

According to Ferdig [8] it can be translated into the following:

1) MOOC can be used as supplemental student learning opportunities.
2) MOOC can be used to provide diverse cultural, international, and interdisciplinary perspectives for both teachers and students.
3) MOOC can be used as professional development ways by teachers or professional development leaders.
4) MOOC can be used to improve and increase teacher community.
K-12 MOOCS

Another study states that “On the basis of these students’ answers and assessments, as well as from the supportive reactions from their parents, we can argue that the large majority of students watching the HOOC (High School Open On-Line Courses) in the ODP (Open Dante Project) believe that this optional facility helps them significantly for both: their study and homeworking” [17].

Given the age of the recipients of this content (experiment) and the context of school community, some important issues have to be assessed: the difficulty of reusing materials for basic education in Portuguese language; the use of a secure platform that integrates most of the tools to use in interactions; and the level of technology expertise of the students.
PRODUCING

Although, at present, there are available, free of charge, several online tools that could be used in the production of a MOOC, they are still scattered across different locations, which may be demotivating for students with less technological skills, especially at this level of basic education. It seems important the emergence of platforms, such as mooc.org, a partnership between Google and Edx, that goes live in the first half of 2014 or coursesites.com by BlackBoard, Udemy or Canvas.

The course, *Creating and Editing Video in WMM* (Windows Movie Maker), an optional subdomain in the syllabus of ICT will be addressed to 8th grade students, ages around 13 years old.
PRODUCING

We decided to build the MOOC on the free tool Edmodo that is more inline with social networks and we think it will be more intuitive to students because the interface is almost identical to Facebook and they can participate in a form they are used to.

The tool has the ability to upload several types of files and links, make quizzes, attribute assignments and badges, to create small workgroups and the possibility to manage the students sign in. Are a plus the settings for Portuguese language.
PRODUCING

Videos, exercises and activities will be posted on the wall of Edmodo week by week (Table 1) and enrolled students will be encouraged to participate in the evaluation of the exercises posted by classmates and to put doubts that arise.

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
</tr>
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<tbody>
<tr>
<td>Module 1: Introduction and video concepts. Download and installation of WMM - Introduction video; quiz; worksheet. - Synchronous session to present the course.</td>
<td>Module 3: Recording sound and video from webcam - Video; activity.</td>
<td>Module 5: Manipulating images, video and audio - Video; worksheet; activity - Synchronous session for doubts and to share the activity.</td>
<td>Module 6: Final Project - Synchronous session to present de final project.</td>
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<tr>
<td>Module 2: Adding videos, photos and audio. Save and publish a movie - Video; worksheet and activity to share on the “wall”.</td>
<td>Module 4: Inserting and editing text, animation and visual effects - Video; activity to share on the “wall” (build a video to explain to others participants a task of WMM).</td>
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Final remarks

There is not much research on developing MOOCS, in particularly for the K-12 level. There are many questions on the effectiveness of this online format of teaching and learning or of the participation and motivation of students. Although currently not yet being possible to present final results of the implementation we can conclude, in this stage, that there are several free tools to implement a MOOC without the need of any institutional link. The current overall project is undergoing testing and implementation and at the end of the course, filled the questionnaires and assessed participation, it will be possible to see how and in what format MOOCs may be used in K-12: to support the study and homework, to make course lectures online, to be used as supplemental learning opportunities, to blended learning or flipped classroom.

It is certainly the case to say that dematerialization is taking shape: we do need to understand the MOOC phenomenon so it can serve a more fair society.
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