

*The Joy of Learning*  
*Enhancing Learning Experience - Improving Learning Quality*  
Proceedings of the European Distance and E-Learning Network 2013 Annual Conference  
Oslo, 12-15 June, 2013  
ISBN 978-963-89559-3-7



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## **INNOVATION AND OPENNESS THROUGH MOOCS: UNIVERSIDADE ABERTA'S PEDAGOGIC MODEL FOR NON- FORMAL ONLINE COURSES**

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### **Abstract**

In face of the recent but fast growing worldwide interest on Massive Open Online Courses (MOOC), many universities, both open and traditional, have been discussing strategies to implement this new format of educational delivery. The huge successes of the experiences from the top universities in the United States have been an inspiration, especially to European higher education institutions. Universidade Aberta, the open university of Portugal, has been the first educational institution to develop an institutional pedagogic model for open online courses, thus issuing an institutional standard practice model for MOOCs. This paper details the institutional rationale behind this initiative, describes the pedagogical approach used and discusses the main features of the model. Finally, the authors reflect on the possible characteristics of a European-style response to the challenge of massive open online higher education.

### **Introduction to Universidade Aberta's Virtual Pedagogical Model**

Since 2007, Universidade Aberta (UAb) has in place a Virtual Pedagogical Model (Pereira et al, 2007) which establishes the standards for all its educational offering. The design and implementation of this model was part of UAb's institutional strategy for innovation in distance education, having played an inducer role of institutional transformation in the framework of UAb's transition process towards becoming a fully online university. This tool came to embody and represent a new organizational culture within the university, promoting the dissemination of the notion of networked education.

UAb's pedagogic model was developed in house by a multidisciplinary team of expert academics, mainly from the Education Department, and validated by an external International Advisory Board, chaired by Tony Bates and including some of the leading pioneers in the field of online education: Linda Harasim, Robin Mason, Ulrich Bernath and Albert Sangrà Morer.

The model is patented and consists on a cluster of institutional-wide pedagogical standard practices each dedicated to a specific type of educational programme or course. In fact, the model has different versions for undergraduate and graduate programmes, as well as lifelong learning courses. Although each version presents different characteristics, all share a common pedagogical identity based on the programmatic articulation of four principles: learner-centeredness, flexibility, interaction and digital inclusion. Additionally, the model states no teacher or tutor can teach without first being subject to a fully online immersive learning experience. The same applies to students who must take a two-week preparatory module, designed as a “familiarization” experience, the first time they enrol for a course at Universidade Aberta.

Being an institutional regulator of educational practices and at first a tool for radical innovation, the model itself was not designed as a fixed framework. On the contrary, it was intended from the start to be open and to constantly evolve in face of new pedagogical research and technological developments. The consistency of UAb's Virtual Pedagogic Model is based on its ability to respond to the changing needs and challenges of the community of its users, continuously improving.

In face of the most recent developments, most especially the development of social networking, mobile learning and open educational practices, UAb decided to review more extensively its virtual pedagogical model. A special in house expert team has been appointed to conduct the operation. As a part of that process, a new variant of the model specifically dedicated to open online courses was designed and is now under testing. This initiative marks the pioneering design of the first institutional pedagogical model for MOOCs.

### **Codifying Institutional Open Educational Practices: Why regulating innovation?**

Do open educational practices (OEP) need to be regulated? Can it be done? In fact, many would argue that the culture of openly sharing educational resources is somehow contradictory with the imposition of standards and regulations that will necessarily limit the ability to freely use resources in innovative ways. However, this represents a misconception. From a technological point of view, universal accessibility depends on the compliance with common rules, a shared language. The same applies to the pedagogical approach. This means a process of standardization is compatible with open innovation processes such as the production and sharing of OER. We'll just need to use a form of open standards. This is a similar thing to what happens with licensing. The fact that an educational resource is openly accessible does not imply its intellectual property is not defended. Open licensing still is a form of licensing.

Currently, the most accepted definition of OEP describes them as practices supporting the production, use and reuse of high quality OER through institutional policies which promote innovative pedagogical models, and respect and empower learners as co-producers on their

lifelong learning path. By defining OEP in such terms, some form of regulation has to be imposed. Because by using OER in institutional formal settings, the resources have to be subject to processes of quality assurance. This same conclusion was anticipated by Teixeira (2007) at the time of the debate in Portugal on distance learning legislation.

The decision that led UAb to try to regulate OEP is therefore a consequence of the strategy to coherently implement them across the institution. Innovation isn't limited by codifying practices, but this is the best possible way in our view to rapidly disseminate it.

## **Way finding through MOOC Territory**

For someone recently arrived at the field, it would appear that MOOCs – Massive Open Online Courses – were the creation of some high profile professors (Sebastian Thrun, Peter Norvig, Daphne Koller or Andrew Ng) from Stanford University. When Sebastian Thrun and Peter Norvig opened their “An Introduction to AI” course at Stanford, in the fall of 2011, to anyone who wanted to take it for free, an impressive 160000 plus people registered for the course. This unexpected event, coupled with the reputation of the professors and the institution involved, set in motion what would become the educational phenomenon of 2012 (Daniel, 2012). Soon after Sebastian Thrun created Udacity, a for-profit organization through which MOOCs can be offered, and Daphne Koller and Andrew Ng created a similar company, Coursera. By late 2012, Coursera had managed to partner with more than 30 top-tier American universities (and some from outside the US) to offer MOOCs, and the two companies combined accounted for more than 1 million participants registered to take their courses. Also in 2012, MIT announced a partnership with Harvard (they were later join by UC Berkeley) to develop EDx – a non-profit initiative to offer open online courses (Daniel, 2012). With venture capital supporting fast iteration and development and the media attention focussing on these high profile players, MOOCs became the hot topic of 2012 and are still going strong in 2013 in Higher Education.

MOOCs, however, existed before the Ivy League and Silicon Valley investors took an interest in them. The first MOOC bearing that designation was offered by George Siemens, Stephen Downes and Dave Cormier at the University of Manitoba, Canada, in 2008 (Downes, 2012; Daniel, 2012; Watters, 2012). The term MOOC was coined by Dave Cormier, after registrations for the course went past 2000 participants (Cormier, 2008; Siemens, 2012a). The “Connectivism and Connective Knowledge” course (CCK08) drew on the recent experiences by Alec Couros<sup>1</sup> and David Wiley<sup>2</sup> who, in 2007, decided to open the formal, for-credit courses they were teaching at their institutions to anyone who wanted to take part in them in a not-for-credit, informal way (Downes, 2012). So, in a sense, this first MOOC set itself in the larger context of Open Education and Open Educational Resources, following a practice of opening up to the world what were the results of regular academic work.

CCK08 was designed according to the connectivist principles of learning (Downes, 2012; Siemens, 2012c, Cormier, 2010). There was not a fixed body of content to be learned,

“professors” teaching “students” or a single location where the course took place. Content resulted from the production of artifacts by participants, following their interaction with and their reflection upon a given set of resources (and other resources shared by them or by others), as well as the dialogue among participants around these artifacts; the organizers acted more as facilitators and providers of some necessary structure, with the “teaching” role being assigned to the learning community itself; and, while there was a course site, with the relevant information (weekly topics, list of suggested resources, synchronous session schedule, etc.) and Moodle forums where people could interact, the conversation was distributed by the participants’ own spaces (mostly individual blogs) and several social spaces (Twitter, Facebook, Second Life, etc.).

Several other MOOCs were offered afterwards that followed this approach – CCK09, CCK11, CCK12, Plenk10, Critical Literacies 2010, Change11, LAK11, LAK12, Future of Education 2012, to name a few (Siemens, 2012c) – and consequently MOOCs came to be associated with a connectivist (or connectivist inspired) view on learning, based on a participatory pedagogy and on networked learning.

The pedagogical principles and practices followed by these MOOCs and by those offered through Udacity, Coursera or EDx are quite different (Daniel, 2012; Siemens, 2012c; Watters, 2012). So different, in fact, that using the same name to designate them is confusing (Hill, 2012). Downes proposed a useful distinction, calling the former cMOOCs and the latter xMOOCs (Watters, 2012), which has since been widely adopted. While cMOOCs are connectivist in nature and understand “open” as it has been defined in the open education field (OERs, OEPs), xMOOCs follow a more traditional approach to learning and see “open” mostly as a synonym for “free of charge” (although even this might change in the near future). As George Siemens (2012b) puts it:

*Our MOOC model emphasizes creation, creativity, autonomy, and social networked learning. The Coursera model emphasizes a more traditional learning approach through video presentations and short quizzes and testing. Put another way, cMOOCs focus on knowledge creation and generation whereas xMOOCs focus on knowledge duplication.*

Lisa M. Lane (2012) proposes another interesting distinction aimed at accommodating other MOOCs, like ds106 – Digital Storytelling, that do not fit either “c” or “x” models – network-based (the cMOOCs), content-based (the xMOOCs) and task-based MOOCs (like ds106). Common to all types of MOOCs is that they are a developing field, with a lot of experimentation going on and many relevant questions to be answered (Watters, 2012). Completion rates are low in all of them (Jordan, 2013; Daniel, 2012; Hill, 2012; Holton, 2012;) and problems related with student satisfaction, learning support, technological environment and the quality of the learning experience are yet to be fully addressed (Daniel, 2012; Holton, 2012; Kop, Fournier & Mak, 2011; Siemens, 2010).

## **UAb's Pedagogical Model for Open Courses: Principles of best practice**

When setting out to devise a model for open courses, in particular MOOCs, at UAb, we build upon the aforementioned four main pillars of the university's pedagogical model: learner-centeredness, flexibility, interaction and digital inclusion. We want to combine autonomous and self-directed learning with a strong social dimension and that make learning experiences richer and more rewarding. We also want to articulate the flexibility that distance online learners need, especially those who are typical of our student population – adults with demanding professional and personal lives – with the pacing necessary to help them get things done and avoid the constant postponing of the learning activities in face of the always pressing everyday demands. We want to make learning available to as many people as possible, but also to bring these people into the digital online environment, where a crucial part of modern life happens, thus helping curb the digital divide.

At the same time, we look at the experiences that have been carried out by others in developing and deploying MOOCs. There are elements in all types of MOOCs that we deem interesting and useful, but none of them fit exactly our current pedagogical model or what we believe online learning should be like. Our model for MOOCs incorporates elements from existing MOOCs but adds other relevant aspects that derive from our experience with online learning and its integration in the larger context of UAb's pedagogical model, as well as the work that has been done regarding open educational resources and open educational practices. The most relevant principles are:

- Courses are open to everyone who wants to participate.
- Registration is required for publishing in the institutional spaces but all content is open access, i.e. anyone can read it.
- The two first weeks of the course are meant for participants to get acquainted with the spaces, tools and services, as well as with the processes of work and communication that will be used in the course. This “familiarization” process, already present in Universidade Aberta's Pedagogical Model as a standalone module that all students have to take when they start their learning at UAb, has proved to be an essential component in student success and satisfaction regarding their online learning experience.
- Resources provided as a starting point for the realization of the activities are licensed as Open Educational Resources or freely available on the Internet. Content produced by participants is licensed according to the individual preference of the authors.
- Learning is learner-centred and based on the realization of activities.
- Learning should be evidenced through the creation of artifacts (texts, videos, presentations, slide casts, mind maps, mash-ups, etc.) that demonstrate the learner's knowledge and competencies regarding the material studied. These artifacts are published online.
- The learning process combines autonomous self-study and reflection with interaction with other participants in an open social context. Participants are expected to take an

active role in and be responsible for their own learning, but also to actively engage in helping build a supporting learning community.

- There should be a central place for the course – website of any kind (webpage, wiki, blog, etc.), LMS (Moodle, for example), etc. where all relevant information is provided (content, resources, schedule, instructions, etc.) – but most of the work and interaction should benefit from a networked learning perspective, whereby students use their own personal learning environments to manage their learning, publish their artifacts and engage in the conversation with other participants. Where it seems more adequate, an institutionally supported PLE may be used, i.e. a platform that emulates the experience of using a PLE by offering several web 2.0 tools and a social networked environment but in an integrated platform supported by the institution.
- Individual support or tutoring is impossible in a massive course. While there should be suggested activities and guidance from the course organizers, these can be carried out only at a more general level. Learning support has to rest in the learning community, through collaboration, dialogue, peer feedback and active engagement from participants in the learning process.
- A small team of collaborators can be used to support the implementation of the course – gather relevant information to be used to monitor and perfect the ongoing process, serve as community facilitators, monitor social or information networks for course related content, elaborate weekly summaries, etc. This may prove very helpful for the professor or professors leading the course to plan their intervention where necessary.
- Formative assessment can take the form of self-correction tests and also of peer feedback regarding the artifacts produced in the learning activities. Other strategies can be used to provide feedback of participants' activity – different recommender systems or badges for the completion of tasks or for relevant contributions to the community are two possible examples.
- Graded assessments are included for participants who want to receive a certificate of completion of the course. In this case, at least two of the artifacts produced as evidence of learning by participants will be assessed and graded through a peer-review system – those who wish to participate in the peer-review assessment will grade the artifacts produced by 3 other participants and have their artifact graded by three other participants. The final grade will be the average obtained in the 3 grades given. E-portfolios can also be used for grading purposes where they are considered adequate. The assessment follows the same peer-review procedure. Every assessment will be based on a detailed rubric provided by the professor or professors leading the course.

MOOCs in this pedagogical model, following the current terminology, can be labelled iMOOCs, with their focus on individual responsibility, interaction, interpersonal relationships, innovation and inclusion.

## **A Pilot iMOOC on Climate Change: Design, results and analysis**

The pilot iMOOC on Climate Change to be offered by UAb follows the principles stated above. Moodle (version 2.4) will be used to centralize the main information regarding contents, resources, suggested activities, schedule, etc. It will also harbour the discussion forums, one of the places where participants can interact and debate on relevant aspects of their learning process. Instead of relying on the participants' personal learning environments for the social, collaborative context, we chose to use Elgg, an open source social networking platform that has a great potential to be used as an institutionally supported PLE. It has a variety of web 2.0 tools and social networking functionalities, like rich profiles, micro blogging, blogs, social bookmarking, photo and video publishing, recommender system, wiki-like pages, etc., with the advantage of providing these tools and services in an integrated, user-friendly platform supported by the institution. There will be a single sign-on system implemented between Elgg and Moodle, and the two platforms will be further integrated by allowing students to access content in Moodle from within Elgg.

The course will run for a total of eight weeks, with the first one week dedicated to the familiarization process – a sort of boot camp to prepare participants for the technologies and processes to be used throughout the course. The remaining eight weeks are organized around topics, with a 5-minute introductory video to each topic. Resources are provided – mostly OERs produced in the framework of Lech-e<sup>3</sup>, a European-funded project led by the Open University where UAb was a partner, coupled with other material that has either an open license or is freely available online – along with suggested activities to serve as a starting point for participants' own exploration, reflection and production.

Participants are expected to study independently, exploring the resources, searching and exploring other relevant material on their own, doing the activities and reflecting on their learning experience, producing artifacts that demonstrate their understanding of the topics and their competences in applying that knowledge. They are also expected to engage in the interaction with other participants and to take an active role in the dialogue around the topics being dealt with, contributing in relevant ways for the knowledge being created. They are responsible for their own learning and for contributing to a dynamic, supporting learning community as well. Formative assessment with self-correction will be made available, but participants are also encouraged and expected to discuss and give feedback to one another throughout the learning activities. Two of the artifacts produced by the participants will be peer-assessed and graded by three different peers, based on a rubric provided by the professors leading the course. This is mandatory only for those participants who wish to get a certificate of completion.

For a fee, participants can obtain formal credits for their work in the course. Those credits will be awarded following an evaluation by a professor or tutor comprising the two graded artifacts and an e-portfolio presented by the participants with the most relevant elements of their work in the course, combined with a final, face to face exam.

A small team of volunteers will collaborate with the professors leading the course helping out with gathering information that may be relevant to better run the course and acting as “community animators” or “community helpers” whenever necessary or possible.

### **Conclusions and Implications: Towards a European approach on MOOCs?**

Most of the response from European higher education institutions and politicians to the MOOC phenomena has been characterized as a need to react to the tremendous success of the top US universities. This is clearly a wrong choice. The success of the North-American MOOCs relates to their specific regional and national contexts. In the case of the US, we cannot forget how OER can be a most valuable tool for the consolidation of the community colleges higher education sub-system. In other regions, the growing demands for quality higher education calls for wide access to reliable and highly scalable distribution of learning materials.

What is the specific role of MOOCs in the European regional context or what can be their role in realizing the mission of European universities? The dramatic social implications of the current economic crisis clearly put a challenge to institutions and represent a major opportunity for massive open online forms of education in the old continent. But, do European institutions, or at least European open universities, share a common approach to MOOCs? Reality shows pedagogical models and traditions vary significantly across the continent. Although European open universities share some common values regarding how they value student support and the quality and integrity of the learning experience, there are also important different interpretations on how to implement them. Even so, there's clearly ground for cooperation in the continent by sharing resources and joining institutional initiatives, up scaling their impact.

UAb's pioneering initiative demonstrates this possibility, by developing a specific institutional approach, highly embedded in its own pedagogical and organizational culture, but also closely articulating it with a network of European partner institutions, namely open universities, thus aiming at a much larger audience.



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<sup>1</sup> EC&I 831: Social Media & Open Education – <http://eci831.wikispaces.com>

<sup>2</sup> INST 7150 Introduction to Open Education – [http://opencontent.org/wiki/index.php?title=Intro\\_Open\\_Ed\\_Syllabus](http://opencontent.org/wiki/index.php?title=Intro_Open_Ed_Syllabus)

<sup>3</sup> LECH-e – Lived Experience of Climate Change E-Learning – <http://www.leche.open.ac.uk>