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Abstract
This document presents a first revision of the main aspects and the core concept of the ECO sMOOC pedagogical model. This model is an alternative model to existent approaches, namely the xMOOC and the cMOOC. The ECO sMOOC pedagogical model and its additional conceptual tool - pedagogical framework - makes possible a flexible implementation adjusting its features to diverse institutional scenarios and personas. In this document we report on the need for further improvement of the model and its tool based on the experience of the first iteration of the ECO courses.

Keywords
ECO sMOOC, pedagogical model, pedagogical framework, scenarios, personas
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Executive Summary

In this report we reflect on the state of the adoption, degree of appropriation and implementation of the pedagogical model by ECO sMOOC partners based on the first iteration of the courses provided by the partnership, discuss the strengths and weaknesses of the model and suggest possible strategies for enrichment and improvement for the second iteration of the ECO courses.

Based on the available reports and monitoring of implementation carried out in WP4, it was possible to verify that a significant number of hubs didn’t applied the full features of the ECO sMOOC, in particular the bootcamp module, all the social media tools and the gamification elements. As such, there isn't enough data from the experimentation phase to let us conclude the model needs substantial improvement. Apart from the further development of the gamification strategy, the main conclusion at this point is that the model needs to be fully implemented by the hubs which implies a change in the organizational culture of the implementing institutions.

Following this conclusion, the report suggest a number of more elaborated implementation strategies of the ECO sMOOC in order to support the 2nd iteration of the partnership courses. We believe the results of this will allow for a more substantial evaluation of the model features in the 2nd revision.

An additional conclusion which can draw from the analysis of the process of implementation of the ECO sMOOC model so far is that the communication between WP 2, 3 and 4 and the strategic coordination of those specific efforts needs still to be perfected. Our analysis basically confirms the recommendation issued on this regard by the project reviewers at the Luxembourg meeting.

1 Introduction

As stated in the DOW, this document reports on the state of the adoption, degree of appropriation and implementation of the pedagogical model by ECO sMOOC partners based on the first iteration of the courses provided by the partnership. In addition, it also discusses the strengths and weaknesses of the model and suggests possible strategies for enrichment and improvement for the second iteration of the ECO courses.

In fact, a lot of attention has been given by the European Commission in recent years, as well as the European open, distance and digital education community, to the development of an alternative, more collaborative approach to MOOC concept and design that has the potential to represent a solid qualitative alternative to the most commonly used models today. These models, which basically follow a trend originated at the top US universities that is broadly identified in the literature as xMOOCs, are being seen as inconsistent with the European standards for formal higher education and, most importantly, with the European legacy of research and best practices
of online education. This is due to their low-level of learner support and lack of an enriched pedagogical approach.

Within the framework of the EU-funded project *Elearning, Communication and Open-data: Massive Mobile, Ubiquitous and Open Learning* (ECO), a team of experts from multiple universities with large and consolidated experience in open and distance education delivery conceived a pedagogical model that attempts to meet the above-referred challenge. In this report we present a short description of the model and its most innovative features, its theoretical foundations and context of development, as well as scenarios of implementation. Through our definition of MOOCs and assumptions, principles and characteristics of the pedagogical framework it should become clear why a networked learning framework for effective MOOC design will be able to meet the ambition of European higher education institutions to develop an alternative, more quality-oriented and effective approach to a massive open online form of education delivery.

Completed the first iteration of the courses delivered by the ECO partnership, the team has analyzed the data collected from the implementation of the ECO sMOOC and reflected on the eventual need to introduce clarifications and improvements in the model.

This document presents the results of this effort and is structured as follows. Section 2 describes the main features of the sMOOC pedagogical model and pedagogical framework design for ECO sMOOCs. In Section 3 we identify the weak points of the implementation experience as far as detected in the first iteration of the ECO partnership courses, organized in a general assessment report and in examples of what should be avoided. Section 4 illustrates some improvements in sMOOC pedagogical model and pedagogical framework based on first iteration of the courses and finally, general guidelines are given, for further implementation for the 2nd and 3rd iterations, in order to ensure that the pedagogical model proposed is followed by all the courses implemented, as recommended in the 1st ECO project review in Luxembourg (23 March 2015).

### 1.1 Purpose and Objectives

The DOW (Description of Work) of the ECO project establishes the general purpose of the WP2 as follows:

- “[...] setting up a framework for designing and implementing MOOCs. The objective is to give input to both work package 3 and 4” (cf. p. 8).

In accordance to this broader aim, the concrete objectives of task 2.2 are:

- “to design a “methodological framework (...) focus on designing, authoring and implementation of a MOOC. This includes educational foundations, instructional principles, and empirical evidence available to facilitate the creation of a MOOC”.
“this new model will be complemented with guidelines, materials, templates and instructional design”.

“The core assumption of this new educational design model for MOOCs is that mobile and pervasive MOOCs (sMOOCs) will on the one hand be better suited for the large diversity of students in Europe”.

Based on these goals, the team has focused on the design and development of a conceptual architecture and the creation of an alternative pedagogical model - more social learning based - that guides and supports the practice of creating and designing ECO sMOOCs by all partners. We reinforce the idea that the teaching model of sMOOC can contribute to constitute an alternative - the “s” in sMOOC stands for social - since it creates the possibility for each participant of a learning experience based on social interaction and participation, accessible from different platforms and incorporating the real life of the participants - contextual based.

2 Main Features of the ECO sMOOC Pedagogical Model Design

2.1 ECO sMOOC concept

The ECO sMOOC model draws from an initial definition and clarification of the MOOC concept. This led to the design of a pedagogical model which was conceived as a framework to be implemented by the hubs, using scenarios and personas for designing each specific MOOC. The concept underlining the ECO sMOOC approach provides added value compared to other approaches to MOOCs. As we have described earlier, this added value stems from concentrating on concepts like equity, social inclusion, quality, diversity, autonomy and openness, among others. Equity can be defined as reaching out to all who need or want to learn, accounting for their circumstances and competencies. As such, ECO sMOOC should be:

- open
- affordable
- ‘do-able’
- stimulating and beneficial

ECO sMOOCs offer added value by providing additional services to the MOOC participant that bring real opportunities to participate in higher education. These MOOCs provide an access route to credit-bearing curriculum. Next to certificates of participation or a 'badge' (as evidence of task
completion), ECO partners offer MOOCs with the possibility to obtain a formal certificate (to be paid for), i.e. official credits that can count towards obtaining a degree (in units of ECTS).

The definition of what is a MOOC was improved during the last year. We worked on this definition together with other EU-funded MOOC projects like OpenupEd and HOME, signed The Porto Declaration on European MOOCs and published the following common agreed definition between European Projects dedicated to MOOCs that was validated with a survey:

“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 experience online for free”.

2.2 Pedagogical Model as a Framework

The pedagogical model and the pedagogical principles that guide it are aligned with the definition of the ECO sMOOCs presented above. In fact, we understand a Massive Open Online Course as a non-formal learning experience providing free certification based on peer-assessment and with possible formal accreditation obtainable for a fee, after the course, but not a part of the course itself. Also, a MOOC should not replicate a Classroom approach. On the opposite, a MOOC represents an opportunity for participants to develop their learning experience by being part of online communities and networks. Participants are not students, but more like members of a community of interests/ community of practice.

The ECO sMOOC pedagogical approach draws from connectivism, situated learning and social constructivism - reflect, practice, learn how to (not about), and social contextualized learning. The model intends to provide a flexible pedagogical framework with a focus on networked and ubiquitous learning.

This is due to the fact MOOC provision targets a wide variety of populations, and also a large diversity of purposes and local, contextual implementations. Therefore, it's not possible to design a one-solution-fits-all model. It needs to be a framework model, with local and contextual choices which make the courses adequate and effective.

2.3 Learning Process in ECO sMOOC Model

The ECO sMOOC instructional design suggests a variety of authentic tasks and involves the creation of artifacts (for example, texts, videos, presentations, audio podcasts, slidecasts, mind maps, mash-ups, etc.), that demonstrate the learner’s reflection, knowledge or competences in each MOOC, moving from a “passive and consumer” role of learning and knowledge to an active
role of “producer of learning”, in the sense of individual production and user generated content in online courses - which is called, for the networked learner, the “prosumer” perspective (not confounded with any kind of commercial attitude). Participants are expected to take an active role in their own learning and the learning design (instructional design of the activities should promote the engagement of the participants, it should actively engage them in helping to build a supporting learning community).

2.4 Gamification of the Learning Experience in ECO sMOOC Model

One of the core elements of the design of the learning experience in the ECO sMOOC model proposed was gamification. The element of gamification is a recent trend that is being used to promote the engagement, motivation and participation on various types of formal, non-formal and informal education and also in online education. Gamification is the application of “elements” derived from “games” in a non-game context, to promote the engagement and motivation of the users and to enhance their experience. Almost any activity can be gamified and can improve communication and interaction among participants, collaboration/cooperation, motivation, the feeling of belonging and social presence in the learning network or community, but also reward the meaningful learning experience of participants.

The gamification proposal for the ECO sMOOCs is an open and flexible approach and has “higher or lower levels of implementation and complexity, depending on the needs and intent of course organizers”. But it is important to highlight that our approach on gamification is different from game-based-learning. The following systems have been proposed: a) Badges, Levels and Points; b) Karma System c) Bank of Challenges.

We believe that this attribute of the ECO sMOOCs instructional design (the entire course or some activities) will improve the indicators of retention and dropout rates as part of success criteria, as promised in the DOW, and will also reinforce the recognition of the pedagogical “brand” of ECO sMOOCs.

2.5 Scenarios and Personas

These two variables emphasize the adaptation of ECO sMOOCs pedagogical model, and of its instructional design, to different circumstances and to situated practices, using personas and scenarios, and thus, enabling connections to specific contexts. The diversity of participants that
ECO sMOOCs can attract (different cultural, economic, academic, linguistic or professional backgrounds, for example), their personal objectives and the skills they have to follow an ECO sMOOC, or part of it, have led us to equate the existence of typified personas to support organizers and instructional designers when developing the ECO sMOOCs:

- different kind of motives and motivation from people enrolled in ECO sMOOCs;
- outcomes and competences differ largely among participants;
- instructional design components (course design, learning materials and learning activities, peer-assessment) should address this diversity of participants’ profiles and the possibility of change in outcomes during the sMOOC;
- intentional instructional design for multiple outcomes and competences;
- the offer of a diversity of learning activities and tasks to support and scaffold participants’ exploration, reflection, production and dialogues, and the possibility of choosing different levels of difficulty or complexity to account for the expected broad spectrum in participants’ knowledge and skills.

With this in mind, we have proposed the consideration of different profiles related with the target group of ECO project and defined in the DOW: teachers, tutors, learners, institutions and industrial players.

- Persona for ECO MOOC designer/teacher;
- Persona for a MOOC teacher with high risk of exclusion from technology adaptation due to special needs;
- Persona for a MOOC teacher with high barriers to technology adaptation;
- Persona for a MOOC participant;
- Persona for a group / sub-network;

On the other hand, considering the diversity of partners and hubs involved in the project, and the variety of pedagogical cultures, traditions and practices regarding online education and MOOCs, several scenarios were designed to accommodate some variations in the implementation of the pedagogical model. These ECO sMOOC scenarios supported and guided possible routes of implementations and presented concrete, detailed examples of implementation within the framework of the pedagogical model, depending on the specific nature, needs and intents of these courses. We have proposed two scenarios: A) more focused on groups and group learning; B) More focused on extensive use of video and audio.
2.6 “Must Have” Menu in ECO sMOOC Model

A set of guidelines, or "must haves", was provided for the ECO sMOOCs partners to implement, as they constitute the core of the pedagogical framework. In the case of the virtual learning environments (platforms) it indicates the fundamental characteristics and functionalities they should address to interpret the ecology of the pedagogical model, embedding them in the technological environment. These are:

<table>
<thead>
<tr>
<th>Openness</th>
<th>Courses are open to everyone who wants to participate. Registration is required for publishing in the institutional space but all course contents are accessible to anyone.</th>
</tr>
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<tbody>
<tr>
<td>Facilitators Team</td>
<td>Small team of volunteers (Master’s and/or PhD students, enthusiasts, etc.) should be recruited in order to collaborate with the teacher or teachers leading the course</td>
</tr>
<tr>
<td>Duration</td>
<td>The course should run for about six weeks.</td>
</tr>
<tr>
<td>Boot Camp</td>
<td>The first week should be dedicated to the familiarization process.</td>
</tr>
<tr>
<td>Resources and Learning Materials</td>
<td>Provided as a starting point for the realization of the activities, are licensed as Open Educational Resources or freely available on the web.</td>
</tr>
<tr>
<td>Supporting Learning</td>
<td>Two key elements to support and scaffold learning are the Learning guide and the detailed guidelines for the suggested tasks.</td>
</tr>
<tr>
<td>Activities and Tasks</td>
<td>Diversity of activities and tasks to support and scaffold participants’ exploration, reflection, production and dialogues. Participants should ideally have a fair amount of choice concerning the process of performing the task and its output – the artifact they will produce to demonstrate their understanding of the topic and their competences in applying that knowledge. At least some of the tasks should also be designed in such a way that they can be performed at different levels of difficulty or complexity, to account for the expected broad spectrum in participants’ knowledge and skills.</td>
</tr>
</tbody>
</table>
Gamification

Badges, Bank of Challenges and Karma are used in order to motivate, reduce drop-out rate, and allow participants to make their reputation grow.

ECO sMOOC Learning Virtual Environment

If a VLE/LMS is used, it needs to be enhanced with social features, to make it like a network/community environment: Activity Stream, Rich Profiles, Personal Writing Space, User Dashboard to aggregate their publications or those of the people that they follow, Microblogging (like Twitter) or updates (like Facebook or Google plus); If not possible, a good integration with at least one of these networks is desirable; possibility for group creation by participants; social connections - follow (like Twitter), OR friend (like Facebook), OR circle (like Google+).

Non formal certificate of completion

Possibility of obtaining a non-formal certificate of completion according to the requirements defined for each particular course.

Formal creditation

After the completion of the ECO sMOOC, participants must have the possibility of obtaining formal credits, for a fee.

Unfortunately, evidence shows that many partners haven't yet applied these guidelines in the instructional design of their ECO MOOC provision.

3 Week Points of the Implementation Experience

3.1 General Assessment

As previously mentioned, some features of the pedagogical model, including some of the “must-haves”, have not been implemented by some of the hubs. This is due to a set of related situations mainly linked to the pedagogical culture of institutions and teams involved, to the instructional design models they were familiar with, and to a conceptual proximity on their part to more traditional MOOC models. There seems to be a need to reinforce among some partners and hubs the importance of the social components of ECO sMOOCs, which embody the networked learning approach adopted, and design the different learning environments for the proper implementation of the pedagogical framework of ECO sMOOC.
Some of the key aspects to implement or improve in the next iteration include:

- Peer-assessment and peer feedback
- Some degree of Gamification
- Integration of social features that support networked learning.

We believe the full implementation of the ECO sMOOC approach implies a change in the organizational/academic culture of partner institutions, especially teacher staff, which need time, dedicated training and appropriate incentives.

### 3.2 Examples of What Should be Avoid

In this section we summarize a number of typical wrong approaches that should be avoided by partners when applying the ECO sMOOC model and contributing for a common culture about sMOOC model. These are the following:

<table>
<thead>
<tr>
<th>Classroom Approach</th>
<th>The context of reference is not a classroom (face to face or virtual). This model is for open courses, online, with an unlimited number of participants</th>
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<tbody>
<tr>
<td>Not Students</td>
<td>Participants are not students because this term defines a role in formal education: we may refer to them as participants, individuals or learners</td>
</tr>
<tr>
<td>Not formal approach</td>
<td>The approach is non-formal education</td>
</tr>
<tr>
<td>Video Lectures</td>
<td>Cannot be too long (over 15 minutes); cannot be the only source of content for participants to learn from.</td>
</tr>
<tr>
<td>Absence of social features</td>
<td>Courses cannot rest on an isolated learning experience; they must have social features that support interaction and networked learning (see Must-Haves/ECO sMOOC Virtual Learning Environment- Platforms)</td>
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</table>
4 Improvements in the Pedagogical Model

Based on the available data and information we believe some improvements to the model, however, could already be adopted, as follows:

a) **Boot Camp**

This component is very important for a MOOC model that is based in social learning. The Massive Open Online Courses (MOOCs) imply, for the educational institutions and the target public, i.e. the participants, the formulation of new goals and addressing of unique challenges. Hence, the meaning and importance, as a differentiating factor in the participants’ perspective, of a familiarization module (Boot Camp Module) within a ECO sMOOCs. This module intends to be an introduction to the sMOOC model, promoting the social interaction between participants and providing information about structure and outcomes suggested, as well as features of the supportive social and learning platform and involvement in sMOOCs. This phase of sMOOCs could represent a clear indication of the importance of the learning experience, and establish in the early setting a sense of belonging of the learning community or network.

b) **Scenarios and Personas**

It’s also important to develop new scenarios of implementation and personas for the ECO sMOOCs, namely:

- **Trans-continental scenarios**

This type of scenarios involve dispersed communities in other continents that speak some of the languages from sMOOC partners and course providers (Spanish, Portuguese, English, French). From the pedagogical design perspective, it is important to consider that these are communities that, while sharing the language with the course provider, have their own communication habits and cultural traditions, typical of their countries of origin, which can create some barriers. It is suggested, for example, that course designers, instructional designers and content teams develop proposals for activities and additional tasks based on the cultural contexts of these communities (photos, videos, etc).

- **Multicultural scenarios**

Multicultural scenarios should be considered insofar as it is intended to reach the scalability and to ensure the commitment established with the numbers to achieve with the project. These
scenarios can be specific to certain programs implemented by the partners, and therefore, of interest to develop.

- **Gender aware scenarios**

  A “gender-aware” scenario refers to contexts in which it may be considered important to raise awareness concerning the role, status and needs of women in work, education and family environments. From countries and areas of the world where laws still discriminate women (arab, asian and african communities are obvious examples), to those where, despite the law, cultural traditions still result in sustained inequality for women in all areas of life, educational and learning processes, such as MOOCs, this may be a powerful tool for change. Teachers, parents, cultural agents and other individuals whose actions impact the perception and the values regarding the role of women in society may benefit greatly from developing a deeper awareness of this issue and become active agents of change in their communities and work environments.

- **Engagement profiles**

  The creation of new persona inspired, for example, in the MOOCs engagement taxonomy (Anderson et al, 2014) which, based on recent research data about participants’ behaviour in MOOCs and the possibilities of Learning Analytics, proposes the following categories:

  a. Bystanders - register, but don’t engage much or may never login at all, or they may poke around, but then disappear;
  b. Collectors - just download the learning materials, but don’t participate in the course;
  c. Viewers - don’t do many of the assignments;
  d. Solvers - do the assigned work, but don’t necessarily read/work in learning resources;
  e. All-rounders - achieve a balance of study the learning resources and doing assignments.

  An adaptation of such a taxonomy might prove fruitful in terms of course design, activities/tasks suggested, gamification elements/strategies, etc., as it may interpret well the idea of the diversity of participants’ profiles and engagement levels in ECO sMOOCs. From the instructional designer and course designer perspective, it is a set of guidelines that can support their work.
c) Gamification

In order to support the development of this component in the pedagogical model, some aspects related with the technical features (but also with the design of the gamification strategies by each MOOC provider), some guidelines have to be developed.

d) Facilitation Team

This “facilitation team” is a small team of volunteers that collaborated with the content experts (authors) and the instructional designers of the sMOOCs, interacting in the network or community. The role of the team ensures a smooth start of the course, acting in the first week as facilitators and community coach, supporting the use of ICT skills, monitoring the social aspects, providing answers for technical issues, setting and announcing polls, peer assessment activities, and supporting the teachers’ feedbacks on the thematic of the sMOOC. Their role and their actions will promote participants engagement in the courses, an effective learning experience in ECO sMOOCs and also a sustainability in terms of teacher presence and workload.

5 General Guidelines for Further Implementation

Regarding the next year, and further implementation of the pedagogical model, we believe that some adjustments should be introduced:

- a more close relation with WP3 and WP4: the technological environments (platforms) adopted in implementations by Hubs should be consistent and coherent with the pedagogical framework and make possible the didactic and pedagogical methodology defined;

- to organize a support system of ECO project for the Hubs in order to facilitate the implementation of the pedagogical model;

- to create a portfolio of activities, online tasks (good examples) and micro-tasks (to implement seamless encompassing personalized and social learning and mobile learning) that demonstrates the type of learning that we are promoting with this pedagogical model - networked learning and seamless learning;

- DOW deliverables dates are not compliant with this interactive - support mechanism and not related in even selection (if we want to) - for example, this deliverable is coincident with the beginning of the 2nd iteration for some Hubs and partners.
6 Conclusions

As stated along this document, the available reports and monitoring of implementation carried out in WP4 allow us to conclude a significant number of Hubs didn't apply the full features of the ECO sMOOC, in particular the bootcamp module, all the social media tools and the gamification elements. Given this situation, there isn't enough data from the experimentation phase to let us conclude the model needs substantial improvement or not. Apart from the further development of the gamification strategy, the main conclusion at this point is that the model needs to be fully implemented by the hubs, which implies a change in the organizational culture of the implementing institutions.

In any case, we suggest a number of more elaborated implementation strategies of the ECO sMOOC in order to support the 2nd iteration of the partnership courses related to the bootcamp module, how the facilitation team operates and the scenarios and personas as indicated.

Basically, we believe the next iteration (2nd iteration) could provide more elements as long as all the hubs apply in full the ECO sMOOC features. If this occurs, we'll be able to assess in more depth the pedagogical model's implementation and determine whether a substantial evaluation of the model is needed for its 3rd revision.

We also recommend the develop and implementation of a more effective communication and constant feedback between the WPs 2, 3 and 4, thus assuring a better coordination of efforts and the alignment of development strategies. In short, the online environments used should reflect the concept and features of the pedagogical model and the implementation should make full use of that potential. On the reverse, the features of the model can be better adjusted to the technological constraints and organizational cultures.
7 References


Porto Declaration on European MOOCs, facilitated by the HOME project, Retrieved from http://www.eadtu.eu/images/News/Porto_Declaration_on_European_MOOCs_Final.pdf