Abstract

The present deliverable contains the second revision of the main aspects of the ECO sMOOC pedagogical model. This model is an alternative to existing approaches (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, and based on the implementation process by pilot courses we propose further improvements and new solutions for the pedagogical model based on the experience of the second and third iteration of the ECO courses and the needs of the project.

Keywords

ECO sMOOC, pedagogical model, pedagogical framework, improvements, scenarios, personas
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1. Executive Summary

This document is organized to report how the Pedagogical sMOOC Model can be improved taking into account the implementation process carried out by different HUBs, the nuclear features that were not applied, good practices and other pedagogical variables that were considered taking into account the observation and analysis on the MOOCs territory in Europe in general and in particular, on the ECO sMOOC ecology.

1. It focuses on the basic characteristics and necessary must-haves’s implementation defined as state of the art ECO sMOOC Pedagogical Model Design;

2. The impact of the implementation made by the partners in the defined model and in its architecture;


2. State of Art of the ECO sMOOC Pedagogical Model Design

The creation for the ECO project of an innovative teaching model that was an alternative to the already existing ones was an important step in the affirmation of the ECO MOOCs’ approach and contributed to a greater consistency in the creation and development of MOOCs with the ECO sMOOC brand. One of its strengths is the orientation of the various work teams involved in their construction through a set of principles and basic must haves for sustainability as a coherent pedagogical architecture that defines the ECO sMOOC’s identity.

2.1 Pedagogical Model and Pedagogical Framework

With regard to its educational characteristics, ECO sMOOC courses are built through a dedicated design and instructional design, with an approach based on network learning of the individuals with a social constructivist bias based on situated practices.

It is stressed that this pedagogical approach supports independent and learner centered learning but integrated in a community and / or learning network, enabling the creation of opportunities for collaborative learning. This model also enables the development of ubiquitous, pervasive and contextualized learning strategies, making possible a great adaptation to the characteristics of the participants and their mobility through context and real life situation.

The model ECO sMOOC differs from other MOOC models particularly for its "Social" characteristics as both its design and its pedagogical architecture create the conditions for participants (learners) to live the learning experience based on participation and social interaction. On the other hand, its "Seamless" characteristic implies that it is a model independent of the platforms, i.e. it is adaptable to various types of platforms, including the mobile platforms, and...
integrates experiences marked by the context - real life experiences - through the use of apps or other interaction strategies. The pedagogical principles of ECO sMOOC are established and based on five principles that are interrelated and balanced between each other: Learner-centred, committed with Digital Inclusion and Digital Literacy, Design of diversified Interaction, Flexibility and Ubiquitous Learning (Fig. 1).

Fig. 1. Pedagogical principles

The pedagogical principles are organic allowing adaptation to various scenarios and personas, giving emphasis to all the principles in a balanced mode or emphasizing a set of them. For example, Figure 2, although it meets all the principles, gives special emphasis to three of them: Interaction, Flexibility and Ubiquitous Learning.

Fig. 2. Example of an ECO sMOOC
With regard to its educational characteristics, ECO sMOOC courses are built through a dedicated design and instructional design, with an approach based on network learning of the individuals with a social constructivist bias based on situated practices. It is stressed that this pedagogical approach supports independent and learner centred learning but integrated in a community and / or learning network, enabling the creation of opportunities for collaborative learning. This model also enables the development of ubiquitous, pervasive and contextualized learning strategies, making possible a great adaptation to the characteristics of the participants and their mobility through context and situation in real life.

2.2 Implementation Impact on the defined Model

2.2.1 Best Practices: examples

The experience gained as course designers, teachers and facilitators in the MOOCs created following the sMOOC pedagogical model has led us to draft some best practice tips:

- Digital literacy issues should not be overlooked. Participants may be ICT savvy, but each platform has its nuances and it is essential to include in the first module an explanation related to the methodology followed, types of tasks and expected learning outcomes.

- There should be a clear structure regarding the different agents that are involved in coordinating the sMOOC, facilitating it and monitoring participants’ engagement and progress. For example in the sMOOC “How to succeed in the English B1 level exam” a template has been devised which includes roles, tasks, frequency of online intervention and interaction, and scheduling. The HUB have also created an instructor role which is post-MOOC, encouraging participants to complete the course and ask for accreditation.

- There should be a stronger focus on collaborative work and gamification elements (e.g. badges), which enhance the positive aspects of online learning experiences.

- Although the sMOOC model proposes all the modules to be accessible from the beginning of the course, these past editions seem to show that participants are not used to such freedom of choice and they haste to finish the modules. Maybe this sequencing should be reconsidered and a suggested learning pathway could be devised.

3. Improvements in ECO sMOOC Pedagogical Model Design

Some aspects of the ECO sMOOC Pedagogical model deserve our special attention in order to improve or deepen, taking into account the implementation reports and other developed WP by partners.
3.1. Improvements

3.1.1 Bootcamp

Bootcamp module is important in ECO sMOOC model and constitutes a differentiator element regarding other MOOC model. It is also an enabler of interaction among the participants. Its goals should be defined to explain the ECO sMOOC pedagogical model and its "ingredients" and not so much to explain the technology or platform. Its design should be focused on creating MOOC community or network, capitalizing from the beginning the need for investment in communication, sharing and collaboration between participants, and therefore it is recommended that the design uses the features of the social supportive and learning platform. This can also be achieved with the specific Bootcamp involvement elements of gamification.

In a phase of the project which aims to diversify the profiles of target groups beyond the teachers and participants with educational background, the importance of the Bootcamp should be even more strengthened. Its importance is also revealed as a ECO sMOOC element that favours digital inclusion of participants and the creation of their Personal Learning Environment (PLE) through necessary personal profiles to interact / communicate on the platforms of the various HUBs. Finally, it is important because it is the training module on the ECO sMOOC online learning model.

Although one of the Bootcamp components are the platform features, all the other goals should engage the model’s characteristics and the involvement in the community and network of that particular course. Another possibility is the creation of a meta-community or meta-network of all the existing courses on a specific platform and thus function as a meta-Bootcamp of all iterations and all Hubs that use this platform.
3.1.2 Design of a Gamification Strategy

Gamification is a recent trend that is being used to promote the engagement, motivation and participation in various types of activities, including learning. Gamification is the application of Elements derived from Games in a non-Game context, to promote the engagement and motivation of the users and enhance its experience. Almost any activity can be Gamified to improve the collaboration, cooperation, and motivation of its users. This Elements can be isolated and used in many different configurations. Gamification can help achieving this. Gamification can also harness the feeling of belonging to a community or project (APM, 2014) improve participation and collaboration and is able to stimulate the metacognition of its members, making them aware of what and how they learn (Tang & Kay, 2014).

The gamification elements are important in ECO sMOOC model as an involving creating element in online learning and community or in learning networks. The results of implementation of the Gamification for the hubs is variable and dependent on the design of higher or lower levels of complexity of gamification. However, the introduction of gamification elements can be further deepen and explored directing not only to cognitive and performance issues related to learning, but also with the design of a gamification strategy related to the ECO sMOOC pedagogical model and its social elements, in particular to stimulate communication, involvement and interaction in the
community or learning network providing a stimulating and meaningful learning experience. The behaviourist model of gamification should be avoided.

One of the proposals is the creation of a Badges’ System transversal to all courses offered on the same platform or by the same Hub, where the participant adds to his/her "backpack" the badges achieved in each MOOC.

On the other hand, the design of the gamification strategy to be implemented should be developed by instructional designers working together with teachers and experts platform technicians. For this it is recommended that the future e-teachers or instructional designers have training on gamification to assure they are sensitive to this feature of the ECO sMOOC as an implementation need.

3.1.3 The Assessment System of ECO sMOOCs
The evaluation system of the ECO sMOOC should be consistent with the teaching model. In the first version of the model it was considered to focus the courses designed evaluation strategy in a two-way evaluation: the formative evaluation and the way of formal certification. This should be clarified. The continuation and deepening of the courses of the investment in designing strategies involving digital evaluation should now pursue as it seems to be showing good results.

3.1.3.1 Formative Assessment and General Feedback
Formative assessment with integration of self-correction must be made available. A more general and regular feedback on the work done in each activity or task with the presentation of evidence produced by the learning community must be provided by faculty teams, based on information collection carried out by the facilitators teams using diverse devices: video, audio, polls, etc. This formative assessment can be developed and deepened also with the Badges System designed for the MOOC course or by the MOOC providers (platform).

3.1.3.2 The Assignment Bank: A Challenges’ Bank
As proposed in D.2.2 Instructional design and scenarios for MOOCs, version 1, it is recommended the creation of a Challenges’ Bank placed at the participant's disposal for each MOOC. This is a pedagogical device in which the participant is free to choose some challenges (assignments) to complete if they have the time or want to do extra work. This Challenges’ Bank may be “gamified”: the participant can get badges by completing these challenges and include them in their eportfolio.

Instead of specifying the work or assessment tasks that everyone should do (same for all), the participants can choose from the menu that is available at the Bank. Each challenge (assignment) or task should have a different degree of difficulty or other feature (for example, 1 to 10 points). A special assessment may involve points of different nature: for example, total 20 points collected from Writing, Video and Mobile assignment/Challenges. This model customizes, gives responsibility and engages the course participants collectively to do the course assignments,
constituting an innovative assessment approach in MOOCs and in the educational innovation territory.

This feature enables participants profiles with greater diversity, adds flexibility to the learning pathways of design and a more customizable and richer learning experience that enables the generation of a sense of group or a sense of community within the MOOC. Finally allow participants more freedom of choice, personalization and reward engagement and contribution.

3.1.3.3 The Peer-Peer Assessment

The option for peer-assessment should be developed or further developed in the pedagogical strategy of MOOCs. This possibility is not restricted only to the peer to peer by groups as described in Scenario A: Focus on Groups (1st edition) but also to a peer-to-peer individual assessment. It was concluded that there are a number of good practices in the implementation of individual peer-assessment (blind) automated or semi-automated, and a very positive degree of satisfaction of participants (learners) for participating in this type of action to the community itself. However, the development of this assessment strategy involves teaching methodology (how to do for participants, detailed assessment rubric, training for e-teachers, among others considered necessary) and the adaptation of the platforms of this possibility since the system must be prepared to a) randomly assign the work to others and b) at the end, automatically generate the final grade. It could be interesting, the development of the mobile ECO sMOOC dimension through an app dedicated to peer-assessment.
3.1.3.4 Teachers and Course Designers for ECO sMOOC Pedagogical Model

One aspect that comes highlighted from the implementation of the 2nd and 3rd iteration is the role of the e-teacher. In non-formal, open and massive courses (MOOCs), the role of the e-teacher does not match the role of teachers in formal and non-massive courses. One of the variables that differentiates them is the teacher's time and teacher's presence. Since the teacher can not be in these massive environments the teacher should be represented by the learning design. Research has shown that there are many ways to represent and mediate the presence of the teacher. Thus we resume the need for clarification of the ECO sMOOC teacher in each MOOC offered by the partners: teachers do not interact directly with the participants. Support for learning is not ensured through direct and ongoing intervention, nor through direct and systematic intervention of the facilitators. It is ensured by 1) creation of content, documentation and learning resources prepared by the teacher (or instructional designers in cooperation with teachers) and available in the courses; 2) interventions / communications from teachers when there are needed and strategically scheduled.

The “teacher” is a team effort and is manifested by teaching presence defined as the work of teaching that is done before and during the course: includes all the preparatory work in designing and developing the course, the facilitation and supporting the learners. Teaching presence is manifested in the course materials — in the Learning guide/syllabus, assignments, choices of readings and discussions and also manifested in guiding, supporting and shaping the learners’ experiences (Tomkin, & Charlevoix, 2014, Koseoglu & Koutropoulos, 2016). This research says that teacher presence had no significant relation to course completion, most badges awarded, intent to register in subsequent MOOCs or course satisfaction. Like Anderson (2014) says, if one of the three forms of student interaction (student-student, student-teacher, student-content) is at a high level, the other two can be reduced or even eliminated. That is created by the learning materials and resources or communication and strategic interventions through multimedia and social media (videos / audios web conferences to increase teaching presence):

- ECO sMOOC Learning Guide
- Detailed Instructions of each e-Activity or Task
- Multimedia Resources created: video / audio presentation, web conferences
- Feedback Message (based on information collected by facilitators team)
- A few web conferences with relevant guests in strategic stages of the course.

Taking into account the existing resources, and the fact that during the 3rd year if you want to attract a large number of participants to develop ECO sMOOCs but do not have the educational background (about 4000), a possible methodology is to create the MOOC Designer profile (instructional designer) and independent of MOOC e-teacher profile. This MOOC Designer (instructional designer) would have a more specific training in this field focus on creating MOOCs.
3.1.3.5 Training Modules and Support System for Teachers

A support system could be developed to assist e-teachers and other MOOC developers profiles. In addition to the running training course sMOOC Step by Step, other training modules should be developed more specific to certain topics or teachers needs for the pedagogical model and pedagogical framework: peer-assessment, gamification, designing online e-activities, assignments, challenges etc. In addition for the new needs with teachers and MOOC Designers without background in educational field, it would be interesting to develop a prototype training module - a ECO sMOOC DEMO - embedded itself in the pedagogical model or by designed by each provider of MOOCs.

A further proposal is the creation of a ECO sMOOC Support System (a kind of e-teacher Online Help Forum) dedicated to e-teachers, MOOC Designers and Facilitation Teams through dedicated Forums or other asynchronous devices considered relevant and appropriate for each HUB but also to share best practices and good solutions on implementation and course design.

3.2. New Scenarios for Implementations

As previously shown in D. 2.2 Document on Scenarios for Possible Implementations creating scenarios makes possible a more concrete and target implementation with more detailed examples as specific MOOCs, or particular strategies can be designed and developed (Scenario A: Focus on Groups and Scenario B: Focus on Extensive use of Video and Audio). At this phase of the ECO project, taking into consideration the implementation done and new providers consider it necessary to explain a scenario dedicated to self-learning and a fourth scenario centred on the integration of social media.

3.2.1. Scenario C. Focus on Self-Paced Learning

A collective of different EU-funded projects defined “MOOCs as 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” (Brouns et al., 2014). This definition was recently validated amongst European institutions (Jansen, Schuwer, Teixeira & Aydin, 2015).

The ECO project was part of the development of this definition (Brouns et al., 2014). In addition several criteria were developed to characterise the different elements as part of this definition (see explanation at OpenupEd). Related to the Openness as in freedom of place, pace and time it was already stated that a fixed starting and end date and a fixed pace are not criteria to be imposed on courses to define them as MOOCs. The criteria preferred is that it must be a complete/full course
experience including (non-formal) recognition option. I.e. the course should have a start and end date but that these dates doesn’t have to be set beforehand by the MOOC provider / higher educational institution. As such the ECO project already in Deliverable 2.2 recognised that MOOCs may have fixed dates or not, depending on the institution's choice for a particular course.

Mulder and Jansen (2015) examined the different general dimensions that are important for MOOCs to be instrumental to open up education. They state that the pedagogical approach is very essential such that learners/participants are facilitated with appropriate incentives to make progress and to succeed in their learning efforts. Pedagogical models must include for example a learner centered approach, i.e. it is the learner who is put central. In those pedagogical models the learner decides what to learn, when, how and what pace.

**Pros and cons of self-paced MOOCs**

Classroom Central declared 2015 as the year of self-paced MOOCs. More and more MOOC providers are offering self-paced MOOCs and Class Central reported more than 800 self-paced courses (20% of all MOOCs on Class Central),

The most used argument for self-paced MOOCs are related to the freedom of time and pace for participants. Mulder & Jansen (2015) examine whether MOOCs can be instrumental in opening up education. Their main conclusion is that MOOCs cannot remove all barriers to learning. However, self-paced MOOCs might overcome the barrier of scheduling if participants can start any time and can choose their own scheme. This flexibility might increase the success rate as MOOC participants can be plan their study more flexible according to their needs. Another hand it is known that some people need deadlines to work with and to complete the whole course and as such to much flexibility in end date might increase dropout rates. An argument used against self-paced MOOCs is that community and forum activities are not that synchronised anymore and as such makes it harder to get help and discuss tasks and content. However, this seems more a design issue then a real obstacle especially in courses with mass participation (like MOOCs).

**Are self-paced MOOCs compatible with sMOOC model?**

In principle self-paced MOOCs are very compatible with the sMOOC model. Firstly as embracing the social dimension the freedom to start and finish anytime favours the personal and regional conditions and schedule for study. Secondly, the non-formal and informal networked learning and social learning have a place. For example learning communities in which people come, take what they want and go, but still have an active community. This kind of social interaction and collective knowledge construction is done asynchronous with participants in different phases of expertise and with different background. Moreover this strengthen the inter creativity and interculturality so characteristic of ECO sMOOCs.
However, the effectiveness of self-paced MOOCs are strongly related to the design and make use of the massive dimension of MOOCs. Indeed regular courses with limited student have troubles in creating communities if courses are self-paced. But in MOOCs we have many-many participants and community building can be organised very effective in self-paced MOOCs.

**Designing self-paced sMOOCs**

The main challenges in designing self-paced MOOCs are related to both pedagogical and logistic aspects. And both can be interrelated of efficiency reasons. For example assignments might be personalised to the needs of a participant and/or targeted in re-using the work of a person already completed the course. This enhances the collective knowledge building of the community related to the MOOC. As such the assignments and tasks are only repetitious on a general level. The details of content to be used might differ (like in project based studies). As such a design of self-paced sMOOCs can strongly differ from xMOOCs where all participants are asked to do exactly the same. This also counteracts the potential flaws of self-paced MOOCs with less interaction and less deadline.

Moreover, another design aspect can be related to setting these deadlines for the participants itself. I.e. whenever a MOOC participants start with the MOOC, (s)he is asked to compose a personal planning document related to the overall structure/assignments of the course. In addition one could ask to elaborate on this, choose a specific topic related to the course making use of existing knowledge in the community and as such construct a planning document of the different tasks to do. This planning document can be reviewed by another MOOC participants just starting or even almost finishing. I.e. reviewing each other works in different stages of course progress can be made mandatory for such a (personal) planning document.

This could be extended to group work as well. One might ask participants to form cohorts clustered by same starting date and same pace. This can be more easily done with massive participation and can even be regionalised / clustered to same native languages groups (or contrary to stimulate interculturality) As such the course logistics can become imbricated, group of participants just starting will meet other groups, and interaction in an overlapping manner occurs. As such one group already almost finishing the course could be asked to review initial work of a group just starting. And constructive knowledge building can be part of such group work as well.

Ideally the learning has to be organised bottom-up and this requires a well thought out design of both pedagogics and logistics. Moreover learners can (partly) be involved in this design process and for example also take on the role of co-producers and even as coach. This increases their responsibilities to the continuous activities of the sMOOC and related communities.
3.2.2. Scenario D. Focus on Social Media Design

The use of these integrated tools and systems enables in ECO sMOOC model a strong interaction between participants and high levels of engagement, which proved to be an essential component in participants learning experience in a MOOC.

Social media have been a powerful source of social and cultural change in the past few years, reframing the ways in which we communicate, interact with information and build knowledge. In a higher education context, they have had a significant impact in breaking down the walls of traditional classrooms and closed online environments (LMSs). By combining formal and informal contexts and interactions, and enabling the dialogue with wider audiences, they bring affordances such as transparency, real-life communication, meaningful tasks and conversations, that result in a stronger engagement on the part of the participants in ECO sMOOCs and a better, more diversified learning experience. There are several ways in which we have been using social media in an effort to move towards a kind of networked class. Tools and services used could include Microblogging (Twitter, Tumblr, Vine), Social Networks (Facebook, Google + Elgg), Social Bookmarking (Delicious and Diigo) content and collaboration platforms (blogs, wikis, curating content), among many others that MOOC participants have been using to perform their tasks and publish their work.

The use of social media inside the ECO sMOOC platforms or outside the ECO sMOOC platforms seems to be a suitable environment to offer MOOCs.

Social media and Web 2.0 tools should be integrated into the pedagogical design of course activities as the fact that the addition of this media type do not ensure nor the appropriation by the participants nor that the interactions and communication takes place (Dron & Anderson, 2014). The integration of social media in the design of the e-activities, increases the production of content by the participants and enhances the sense of community or learning networks created in the MOOC. This aspect is supported by evidence of the investigation that a high degree of use of social media contributes to arrival at end of path (Alario-Hoyos et al., 2014).

Currently, the concept of Personal Learning Environment (PLE) and PLN enables the creation of personal environments by aggregating the social media and other tools as well as the content and by connecting with peers for personal learning process.

The use of these integrated and dedicated tools and systems enables in ECO sMOOC model a strong interaction between participants and high levels of engagement and the emergence of social presence in learning community or social networks which proved to be an essential
component in participants learning. The use of social media inside the ECO sMOOC platforms or outside the ECO sMOOC platforms seems to be a suitable environment to offer MOOCs.

5. Conclusions and Future Actions

The implementation of the ECOs MOOC model has proven the appropriateness of the approach followed and of its basic pedagogical architecture. This has been demonstrated in the high levels of satisfaction of participants who responded the surveys. Moreover, results show the satisfaction is higher in the cases that the MOOCs apply in a more comprehensive way the model features and design recommendations.

Based on the data gathered and acquired experience by course designers, teachers and facilitators, a number of best practice tips has been collected, including the following:

- Digital literacy issues should not be overlooked.
- There should be a clear structure regarding the different agents that are involved in coordinating the sMOOC, facilitating it and monitoring participants’ engagement and progress.
- There should be a stronger focus on collaborative work and gamification elements (e.g. badges), which enhance the positive aspects of online learning experiences.
- Suggested learning pathways should be made available.

Nevertheless, pilot implementation has also led to the identification of potential improvements to the model. One of them deals with the increased awareness by designers and of the importance of the Bootcamp. It should be even more strengthened. For this goal, we've suggested the introduction of elements of gamification. Actually, the further development of gamification strategies which go beyond the «behaviourist» approach is also an aspect which we've stressed and for which we have proposed a number of possibilities.

Another critical element is the assessment system. In fact, as we've pointed out, the evaluation system of the ECO sMOOC should be consistent with the teaching model. In the second version of the model we've clarified how the digital evaluation strategy should be designed in a two-way evaluation: the formative evaluation and the way of formal certification. This included notably the integration of self-correction in formative assessment, a more general and regular feedback on the work done in each activity or task with the presentation of evidence produced by the learning community and the suggestion to use embedded badging possibilities.

In addition, it was also highlighted the implementation of Challenges’ Banks which could include gamification elements. Regarding peer-assessment, we also recommend the development of a mobile app dedicated to peer-assessment.
It seems though that a major concern in terms of the model development and improvement deals with the support to the hub providers. In particular, this support should be directed at training the course designers and teachers to appropriately use the model. Given that this task overlaps the action being carried out by WP4, it implies the design of coordinated actions across the two WPs. However, some elements regarding how teachers should perform and use the model have been embedded into the model itself.

We also recommend to set the MOOC Designer profile (instructional designer) and independent of MOOC e-teacher profile. This MOOC Designer (instructional designer) would have a more specific training in this field focus on creating MOOCs. In addition, we also consider relevant the development of a support system designed to assist e-teachers and other MOOC developers profiles. This could be complemented by the delivery of additional training courses to the sMOOC Step by Step, including certain topics or teachers needs for the pedagogical model and pedagogical framework as peer-assessment, gamification, designing online e-activities, assignments, challenges etc.

Finally, we've also further developed the model component on Scenarios for Possible Implementations by adding new scenarios dedicated to self-learning and the integration of social media.

4. References


ECO: Elearning, Communication and Open-data: Massive Mobile, Ubiquitous and Open Learning
D. 2.4 Instructional design and scenarios for ECO sMOOC (second revision)


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