Designing Massive Open Online Learning Processes: The importance of the social element

Chapter # - will be assigend by editors

DESIGNING MASSIVE OPEN ONLINE LEARNING PROCESSES: THE IMPORTANCE OF THE SOCIAL ELEMENT

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Abstract: MOOCs as provision of open and online education have become phenomena in higher education that can't be dismissed. While MOOCs might have originated in the US, the model used there does not fit well with the European take on education. In this chapter we describe an alternative more collaborative approach of MOOC design. This approach is based on a model already tested in practice and has been further elaborated and evaluated in the ECO project. The pedagogical framework is based on the notion that MOOCs should be designed to accommodate the specific context of open online education with its heterogeneity of learner needs. It differs very much from a traditional classroom approach and needs to put the learner center-stage in a social networked learning environment. We describe the characteristics of such a pedagogical framework and explain how digital inclusion, ubiquitous learning and gamification can provide affordances for active participation of learners that meet the learners' needs. We illustrate how these aspects have been implemented in ECO sMOOCs and provide the first, positive, user evaluations of this approach.

Key words: open online education, sMOOC, European MOOC design, - social, connectivist, collaborative model

1. INTRODUCTION

The significant public awareness and media impact of the phenomena of MOOCs - the massive open online courses, has caught everyone by surprise,

not only in the research community but in the higher education community in general. Moreover, the phenomena soon became a political driver for higher education policy and institutional strategy throughout the world. In Europe, MOOCs have activated the discussion on open and online education in universities and in national ministries (e.g. in the Netherlands, Norway, France and the UK). This paved the way to the development of a specific program of the European Commission that aims to enhance the adoption of open education in Europe (European Commission, 2013). This Opening Up Education program addresses two major goals, namely: (1) to innovate teaching and learning for all through ICT, and (2) to reshape and modernize EU education through OER.

However, in spite of the support of the political support and also the fact that Europe concentrates the largest community of users, MOOCs were not invented in the old continent nor were they widespread by of European providers. Pedagogical issues, strategic and cost questions are seen as factors that have delayed European institutions from entering into this movement (e.g., (Yuan, Powell, & Olivier, 2014)). However, this has changed the last two years. Three independent studies report that MOOC involvement in Europe is still increasing (Gaebel, Kupriyanova, Morais, & Colucci, 2014; Jansen & Schuwer, 2015; JRC-IPTS, 2015). These studies state that over 40% of high educational institutions in Europe has a MOOC or is planning to develop one. In a further analysis Jansen, Schuwer, Teixeira, and Aydin (in press) stated that this relates to the social-inclusive dimension of higher education in continental Europe, such that European institutions have more or less equal resources to be involved in MOOCs.

MOOCs originally started as proof of concept of the connectivist educational theory and obtain worldwide recognition because of its use as a content distribution tool by the leading US universities. This mixed origin lead to the establishment of two basic very different pedagogical approaches, so-called cMOOCs and xMOOCs (Roscorla, 2012; Siemens, 2012). The connectivist-inspired approach, cMOOC, highlighted the disruptive and networked nature of the learning experience (Bates, 2015). However, this model clashes with institutional organizational culture, making it difficult to implement in formal environments. The second approach, identified as the xMOOC, focuses on the massive scale outreach and the potential for popularizing star professors and top institutions. Clark (2013) identified eight types of MOOC based on different pedagogies. Conole (2013) highlighted around dozen dimensions on which a course could vary, for example its scale of participation, use of multimedia, and amount of communication.

In this context, European researchers have attempted at developing alternative, more collaborative approaches to MOOC design that have the

potential to represent a solid qualitative alternative to the most commonly used models today. In comparing the results of U.S. surveys (e.g., Allen and Seaman (2014), with European surveys Jansen et al. (in press) conclude that, in contrast to U.S., a large majority of European high education institutions agree that "MOOCs are important to learn about online pedagogy". They also conclude that in Europe using MOOCs for student recruitment is not considered as important as in U.S., but rather to reach new students and creating flexible learning opportunities (for those new students).

In Europe many of such collaborative, social pedagogic models are developed (e.g., iMOOC model by Teixeira and Mota (2013)). Following this trend and building from the pilot experience of the iMOOC model, a research team from the EU-funded project *Elearning, Communication and Open-data: Massive Mobile, Ubiquitous and Open Learning* (ECO) conceived a new model that attempts to meet in a more comprehensive way the above-referred challenge. In this chapter we present a description of the ECO sMOOC model and its most innovative features, its theoretical foundations and context of development, as well as scenarios of implementation.

2. LEARNING IN MOOCS

2.1 Defining MOOCs

The MOOC territory is still very much a space of innovation and experimentation. It is therefore understandable why researchers in this emerging new field of online education practice have not reached yet a standard definition for massive open online courses. Important differences can be identified in how this phenomena is perceived by the various communities of practitioners. This is due to the fact that ongoing pedagogical trends in MOOC design do not agree on the basic elements that constitute this learning experience. For instance, the collaborative definition proposed by Wikipedia[1] has been referred to by many. According to this definition, a MOOC is: "*an online course aimed at unlimited participation and open access via the web. In addition to traditional course materials such as videos, readings, and problem sets, MOOCs provide interactive user forums that help build a community for students, professors, and teaching assistants"*.

[1] http://en.wikipedia.org/wiki/Massive_Open_Online_Course

However, this definition is not strict and can be disputed. In the framework of the pedagogical research developed as a collaboration with different EU-funded MOOC projects[2], a more comprehensive definition was adopted that integrates a perspective more akin to the traditional conceptual elements used in open education, as ubiquity of access and social inclusion. In fact, it describes a MOOC as "*an online course designed for large number of participants that can be accessed by anyone anywhere, as long as they have an internet connection, is open to everyone without entry qualifications and offers a full/complete course experience online for free*" (Brouns et al., 2014). This definition is recently validated amongst European institutions (Jansen et al., in press).

In this context, it is also important to use an enriched understanding of how MOOCs can be designed. Based on the definition above, different criteria for MOOC development were defined as well[2], for example related to massive dimension and scalability[3]. In addition MOOC as a full/complete course not only includes educational content but also should facilitate interaction among peers (including some but limited interaction with academic staff), provide authentic activities and tests, including feedback (with well-designed rubrics for peer-assessment and AI engines for the integration of massive qualitative assessment), have some kind of (non-formal) recognition options and provide a study guide or syllabus.

2.2 The ECO sMOOCs

In this sense, our proposal for MOOC pedagogical design, we call the ECO sMOOC model, brings a new differentiated and more holistic understanding of the phenomena which differs from other current approaches. It is strongly related to the social dimension of education related education for all, inclusion, equity, equality, etc. 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.

The bottom line of the sMOOC approach is that this type of online learning experience should be inclusive and provide access to a wide diversity of citizens. They should be designed therefore to accommodate a wide spectrum of approaches and contexts, accounting for a variety of

[2] http://www.openuped.eu/images/docs/Definition_Massive_Open_Online_Courses.pdf

[3] The pedagogical model of the course is such that the efforts of all services (including of academic staff on tutoring, tests, etc.) does not increase significantly as the number of participants increases.

languages, cultures, settings, pedagogies and technologies. Following the traditional principles of open education, this sMOOC model pays special attention to inclusion, both for social or economic reasons and for physical disabilities.

Consequently, the presence of the traditional pillars of open education theory is mixed with elements from socio-constructivism. As a result, sMOOCs are designed to provide a learning experience marked by social interactions and participation. This aspect is complemented by seamless and ubiquitous learning (Wong, Milrad, & Specht, 2015). As the concept implies the courses should be accessible from different platforms and through mobile devices and integrate with participants' real life experiences through contextualisation of content via mobile apps and gamifications.

As mentioned above, the current provision of MOOCs is still very much differentiated and an important part of it fails to meet all the dimensions of the concept. In fact, MOOCs should combine large scale participation with openness and quality learning. Openness cannot be mistaken with simply free access. For instance, open licensing of the resources used is a key part of the concept. In accordance, our ECO sMOOC approach implies the use of an open licensing policy, not just for the educational resources used (OER), but also for the platforms (open source) and for the data produced in the courses (open data). The aim is to improve the learning experience and to contribute to the sustainability of the knowledge lifecycle.

A major element of discussion regarding MOOCs is how these typical informal learning experiences are being increasingly used in formal learning contexts. Having that in consideration, the approach used by the sMOOC model favors full access to the full course content at all times (always accessible by anyone anywhere), although allowing some flexibility. Depending on the institution's decision, sMOOCs may have fixed starting and ending dates. In a similar way, the model also allows the possibility of some limitation of the number of participants enrolled, due to availability of resources, as long as there is no enforced selection of participation. The model also foresees an access route to credit-bearing curriculum as an additional service (to be paid for) next to other free recognition options, such as badges and/or a certificate of completion.

Another very important point of discussion regarding the MOOC phenomena is language domination and its implication for cultural diversity in cross-border higher education provision. How can this challenge be addressed? The ECO sMOOCs (and their platforms) are by definition multilingual, providing access in different languages, and offer the possibility of contextualized learning through mobile technologies and gamification.

In short, the pedagogical approach suggested in the ECO sMOOC model supports independent learning and is learner-centred. In fact, the courses designed in such a framework will create collaborative learning opportunities through a networked learning strategy. The model also supports adaptive learning strategies and ubiquitous, pervasive and contextualized learning. As a result of this, ECO sMOOCs have the potential to adapt to the changing intentions of participants during the course.

3. AFFORDANCES FOR ACTIVE PARTICIPATION

In the previous sections we indicated the European view on MOOCs and the need for a more collaborative approach that ensures a wide inclusion of people and learners catering for their needs. In the sMOOC pedagogical framework the social dimension is paramount. Therefore the pedagogical approach is based on socio-constructivism, social and networked learning. In the following section we elaborate how digital inclusion, ubiquitous learning and gamification can provide further affordances to stimulate the social dimension and illustrates how the ECO sMOOC pedagogical framework accommodates these concepts.

3.1 Digital inclusion

The development of modern societies, of globalized economies and information and communications technologies, mark the early twenty-first century as a time of profound social challenges. Indeed, there are new opportunities for personal and collective development, but also new challenges and social gaps that require us to provide ourselves with useful strategies to address them. Today, access to information technology and communication, as well as their management and learning how to use them critically and responsibly, are key elements in the life experience of everyone. Therefore, the absence of the ability to access and use of info-communication environments becomes an important factor of inequality and exclusion for many people and collectives. Thus, the development of technology can be a tool for the democratization of knowledge and knowledge or, rather, configured as an exclusion factor that would deepen the creation of a divided society, unable to cope with social inequalities, including those derived from the access -or lack of access- to the digital world (Andreason, 2013; European Commision, 2014).

Disabled people, seniors, immigrants, women, prisoners and ex-prisoners and various social groups face a new reality of exclusion and social inequality in permanent risk of being excluded from the access to

"normalized" ICT: they are in a situation of danger of "digital exclusion". To address digital literacy as a tool for social inclusion means to understand that *literacy* is not an exclusively instrumental training but that it includes critical training that enables the use of digital tools and devices to empower the transformation of the lives of people at risk exclusion. Therefore, digital inclusion encompasses dimensions aimed at improving the quality of life of individuals, including their ability to use new technologies to transform their social, labor, political and personal reality.

The ECO project has proposed different ways to promote digital inclusion through and in sMOOCs. One of them should be highlighted, and that is the development of specific and innovative training proposals for the training of professionals who are involved in working with the various groups affected by the digital divide. This route has crystallized in the pilot sMOOC "Digital Literacy for Groups at Risk of Social Exclusion. Strategies for Social and Educational Intervention." [4] This is a proposal for open massive education, aimed at creating online communities of practice that are focused in an ubiquitous, collaborative and reflection-based learning, able to critically analyze the existing professional practices for social-digital inclusion, as well as to build alternatives to them. In order to do this, the sMOOC aims to build a community of practice in which different types of professionals are invited to think critically and creatively about the existing practices in the field of exclusion, gaps and digital literacy, with the objective of engaging participants in a social learning network that allows them to independently, sensibly and critically address the design of their own experiences. To achieve this, the designed methodology incorporates social networking and Web 2.0 tools in order to integrate the experiences that the participants have in their personal and professional lives, thus creating a collective and collaborative intelligence that has produced excellent contributions which have continuity beyond the course itself.

The objectives, materials, resources and content of the course are designed to help professionals to analyze, design, implement and disseminate their own digital inclusion educational experiences that contribute to the development of digital skills for individuals and groups at risk of social exclusion.

Among the main strengths of this initiative are the original and critical perspective from which the issue of literacy for people at risk of social exclusion is addressed; its ability to generate and sustain social networking among the professionals involved in the course; the actuality of their materials, which are also continuously evolving and whose usefulness is permanently contrasted with other users; the use of different languages and

[4] http://hub8.ecolearning.eu/course/alfabetizacion-digital-para-personas-en-riesgo-de/

learning resources, facilitating the participation and success of a greater number of participants and the mainly practical approach aimed at designing and sharing critical experiences of social-digital literacy.

This sMOOC opens a wide field of possibilities of digital literacy as a tool for social inclusion and is an invitation to critically and creatively reflect on numerous experiences that already exist and which allow a design proposal of digital literacy courses that are shared through the different social networks in which we operate. The course methodology incorporates both web 2.0 tools such as social media in which these experiences and designs are integrated with the contributions of the teaching, and a specific sMOOC platform.

Additionally, the synergies between participants created by the project, both locally and between participants from very different cultural contexts, should also be highlighted. The contact between people who are interested in the field of digital literacy with groups at risk of exclusion, with people who had worked with such groups in this or other topics, the contact with institutions dedicated to the training of different professionals, the constant flow of exchanges of experiences and resources -very high given the large number of participants- are things to note about this experience. Likewise, the development of an interdisciplinary and coordinated work that has greatly enriched the perspectives of teaching staff, mediators and participants, can be considered a success. Finally, we believe that one of the strategic contributions of the project is the development of an educational model that determines the technological device used -and not the other way around-, and that can be very useful in both the initial and continuous training of educational intervention professionals.

3.2 Ubiquitous learning

The term *ubiquitous learning* refers to the innovative educational paradigm made possible in part by the emergence of new media and their possibilities of interaction and multimedia communication. The pervasiveness of the Internet, social networks and mobile communication technologies not only enhance the access and exchange of information in a massive scale but also the emergence of social structures and relational strategies that seamlessly happen in both physical and the so-called virtual environments.

In this context, the simplest definition of ubiquitous learning proposes it is that which happens anytime, anywhere (physical or virtual). That is, in our technologically interconnected society, ubiquitous learning transcends traditional boundaries of learning and the divisions between formal and informal learning. Learning does not happen only in classrooms, schools or

virtual campus: it appears where a learner has (technological) access to educational opportunities (Cope & Kalantzis, 2007).

For the design of ubiquitous learning strategies, ECO sMOOCs follow a complex paradigm that understands this concept from a wide point of view.

Ubiquity of the access to information: The physical dimension is no longer a determinant of learning, as it not only happens in academic and classroom environments. This implies a change in the cognitive processes that are considered "learning": the internalization of information and other memoristic processes are no longer important in a context in which the learner can look elsewhere for the information he needs when he needs it. Thus, ECO sMOOCs are designed as a hub where the information can be stored, shared as well as critically discussed or modified.

Ubiquity as the portability of technology: Mobile and portable devices promote the integration of communication technologies in the daily lives of people. However, these technologies favor a type of interactive communication where the user not only receives but also issues and shares information. Porting communication technology equals having opportunities to exchange information anywhere, anytime, knowing that others also are taking advantage of this possibility. ECO sMOOCs software provides users with the opportunity to access all the learning possibilities of sMOOCs in any type of portable device.

Ubiquity as interconnectivity: In the sense of the preceding points, the interconnectivity that is enabled by technology generates a social "expanded intelligence": Knowledge, memory and the cognitive processing capabilities of a person are steadily supplemented and supported by the technologies that are used. Thus, the learner is always able to be in constant contact with other people with different backgrounds who know or are able to do things the learner does not know. The social interaction model of ECO sMOOCs integrates social media-like interactions in order to provide this kind of ubiquitous interconnectivity.

Ubiquity as mainstreaming: This social approach blurs the traditional divisions between activities and spheres of life traditionally conceived as separate: work / play, learning / entertainment, access / creation of information, public / private, etc. In ECO sMOOCs, the learner is autonomous to decide when and how to take advantage of the learning ecosystem of the sMOOC.

Temporary Ubiquity: In ECO sMOOCs there are no fixed learning schedules, so learning can happen at any time of everyday activity. Information consultation, transmission and exchange of knowledge occur transversely to other daily activities. The interactions between users can be

synchronous (live) or asynchronous (at different times) and learning expands throughout life, not limited to specific periods of training.

Ubiquity as globalized knowledge: ECO sMOOC model proposes that learning does happen in closed environments, virtual or not, but in a globalized way and in multimedia and multiplatform spaces. ECO sMOOCs integrate different platforms (OpenMOOC, ARLearn, Polimi OpenEdX, iMOOC, Logi-Assist, WeMOOC) and permeate other virtual spaces (such as social media) so that the relational networks of learners occur simultaneously on different platforms and media. This way, knowledge flows, emerges and overlaps in complex networks of social interaction.

It should be noted that like the use of educational technology does not equal learning, the ubiquity of technology does not equal the ubiquity of teaching-learning processes. We can use modern technology to implement traditional teaching practices, transactional and memoristic, not exploiting their potential to promote new interactive, collaborative and ubiquitous learning paradigms. That is why ECO sMOOCs ubiquitous learning oriented design takes into account the following principles.

Institutional, spatial and temporal boundaries of traditional education must be blurred: A heritage of the educational institutions of our recent past is to consider that all learners need to be doing the same thing at the same time and that teaching and learning is a unidirectional transmission (one-to-many) of knowledge. In the era of communication technologies and information, these limits are not needed: learning can happen anywhere and anytime; apprentices learn collectively by sharing and interconnecting. The learning environment provided by sMOOCs is built around this concept and most learning activities can be discussed or carried out in a collaborative way.

Traditional teacher-learner roles must be blurred: In the traditional classroom, the teacher and his board were placed in front of students; the "lateral" communication from student to student was penalized. Under ECO sMOOCs ubiquitous learning paradigm, the teacher is a facilitator of learning experiences that the learner is able to self-manage: the teacher team has neither the information nor all the best information, which can be reached by other means. Students are not passive recipients of learning, but participate independently and collectively, together with the teachers, in the collaborative construction of knowledge.

Recognize personal diversity as a potential: The traditional pedagogical designs assume an ideal "apprentice type", a "standard knowledge" that everyone, regardless of their personal characteristics, must achieve by the same means. ECO sMOOCs ubiquitous design assumes the need to empower learners to implement their personal characteristics when autonomously choosing the route they want to follow: the media and format; interaction

tools and their use, etc. The multiplicity of resources ensures that every learner can adapt their learning style towards building their own knowledge.

Expanding and mixing media for the representation of information: In the digital age, information may have multiple formats. A fully developed ubiquitous learning environment, such as ECO sMOOCs, will be able to incorporate video, audio, text and hypertext integrated social learning environments, not only as elements for the transmission of information, but as tool for creating it.

Promoting the development of conceptualization strategies: As the importance of memoristic learning decays, ubiquitous learning requires a range of metacognitive skills in the use of technological and educational media such as Internet media languages, semantics of sites and their structure, mechanisms of social interaction in social networks, the development of critical skills in selecting relevant information, etc.

Connecting individual knowledge to social knowledge: In the age of ubiquitous technology, learning is not about what you know but about what you can learn. When knowledge is just a few clicks away, learning and assessment strategies in sMOOCs include the ability to access it, to select critically, remix, rework, build and share new knowledge from it.

Building collaborative knowledge communities: The ubiquity of learning allows forms of social interaction and reflection that can become true "learning communities". sMOOCs teaching staff collaborates in facilitating the enormous energies that emerge from the interaction and construction of knowledge between equals, between apprentices who work in social networks, involving individuals and groups apparently not part of the same learning context (family, friends, experts, social circles). Ultimately, sMOOCs use the potentials of ubiquitous learning and social networking for the construction of collaborative knowledge communities.

3.3 Gamification

Considering *gamification* as the use of game mechanics to enhance learning by strengthening learners' engagement in learning experiences, research has shown that game mechanics provide learners the ability to experience tasks within a meaningful and story-like safe environment to explore, stimulating motivation, reinforcing progress, allowing for non-coercive failing and encouraging out-of-the-box thinking.

Game mechanics share some relevant structural similarities with instructional and learning design, while being able to enhance the interactive and emotional aspects of the present pedagogical model. In this sense, gamification scholar (Kapp, 2012) defines game as "A system in which

players engage in an abstract challenge, defined by rules, interactivity, and feedback, that results in a quantifiable outcome often eliciting an emotional reaction". Gamification, at higher or lower levels of implementation and complexity, depending on the needs and intent of course organizers, is used in ECO sMOOCs as a way to enhance communication and interaction in the learning community and provide a more rewarding and meaningful learning experience.

ECO sMOOCs currently feature the following gamification strategies:

Badges, Levels and Points: Badges are awarded to participants when completing special course actions, such as the mandatory assignments defined to obtain an informal certificate of completion. Additionally, a point system in which participants earn points with each task or activity they have completed help them monitor their own course progress.

Karma System: Karma is intended to be a numeric indicator of the participants' level and quality of course engagement. It is developed in two ways:

- *Forum Karma*: An "upvote-downvote" system could be implemented to the forums in order to encourage interactivity and high quality submissions. Participants could be able to "upvote" (give 1 point) a good forum submission and "downvote" (-1 point) those which are not helpful. This way, helpful and rich submissions would earn karma points to those who submit them.
- *General Karma*: An additional algorithm that includes forum karma, badges/points and achievements is created to provide a user's general karma. Karma points or the General karma gained by a participant can then be combined with other elements (peer-assessed artifacts, eportfolio, etc.) to obtain a certificate of completion, when considered adequate.

Additionally, the ECO sMOOC pedagogical model proposes to expand these strategies by allowing the use of advanced styles of gamification.

Story Mode / Bank of Challenges: When basing a course on this perspective, instructional design must go beyond "structural gamification" (the superficial addition of "points" and "badges") and reach "content gamification": the stage where all course elements are conceived under game thinking, adding story-like elements from the beginning of the course (for instance, starting with a challenge instead of a list of objectives). Under this perspective, contents and objectives are structured under a story-like narrative that encourages emotional engagement to the course material: the course's syllabus and all weekly learning materials could follow the same game-like structure, proposing meaningful challenges to the participants in

order to progress through the course's story narrative. Besides the designed weekly activities/tasks, a collection of "challenges" should be made available. Participants can choose some challenges from the bank to complete if they have the time or want to do some extra work. They can obtain badges for successfully completing these challenges and later include them in their e-portfolios. This adds flexibility and diversity to the learning experience, creates more objects/"events" around which dialogue can develop, and provides an interesting focus / common ground for people participating in courses without a fixed start and end date. Suggestions for challenges can be contributed by participants and those reaching a defined point of agreement by the community –either using polls or other voting systems– could be included in the bank.

Achievement System: "Achievements" are a very popular award and reinforcement system in computer and console gaming which has proved equally useful when motivating action in learning environments. Game designers (or instructional designers) can specify an extensive list of participant actions that will be rewarded as special accomplishments. While "Badges" are focused on special learning challenges, achievements are mainly designed to encourage interactivity and engagement in the course. For instance, posting in a forum thread, publishing a blog post or sharing an artifact could be considered some initial achievements.

4. FIRST FINDINGS: USER SATISFACTION

The pedagogical framework was used by the MOOC providers in the ECO project to design various MOOCs on subjects such as digital literacy, math and computing, arts and creativity, while dealing with pedagogical uses of digital tools, or covering e-learning and innovative pedagogies (flipped classroom, creative uses of video, 'do it yourself' strategies as well as pedagogies for people with disabilities. The MOOC providers ensured a variety of learning resources, provided both individual and collaborative learning activities, favored collaborative approaches and provided quizzes and peer-assessment. As part of the evaluation of the pedagogical framework a user satisfaction questionnaire had been set out among all MOOC participants.

4.1 User satisfaction questionnaire design and methodology

A specific questionnaire has been developed in order to obtain a more complete understanding of the needs of the participants in the ECO sMOOCs and to improve user experience. The evaluation has been conducted on all 15 courses in 6 languages (English, German, French, Italian, Portuguese or Spanish).

The questionnaire consisted of 5 sociodemographic questions, 2 on the student profile and 24 questions aimed to evaluate the design, content and course development, as well as overall dimensions of the sMOOCs.

4.2 Overall user satisfaction

The responses were analyzed and reported to provide an overview over all courses as well as for individual courses. In total 289 questionnaires were analyzed. Here we only report part of the aggregated results. The full report is available from the ECO project website (Fueyo et al., 2015).

The majority, 57% are women, while 38% are men. The majority of respondents are Spanish, Italian and Portuguese. Only a minority of respondents are from countries not participating in the project. Most respondents, 73.6% have higher education, mainly bachelor or masters, only 8% have a PhD. The majority of learners (57%) are working full-time. Most respondents (70%) come from the educational field.

Respondents learned about the sMOOCs mainly through friends and social networks (28%) and university websites (25%). This confirms the strong relation between educational background and working field.

Most respondents (87%) consider that the course contents were adjusted to the proposed instruction topic, and only 10% are critical about adjustment of the course contents. Table 1 indicates that all dimensions of MOOC contents have been assessed mostly positively. Still, a quarter of respondents have been critical about the accessibility to the course contents by all people with different abilities and learning experiences.

Table 1: Assessment on the content of the courses

Content assessment	**Favorably assessment**	**Negative assessment**
Suit the course topic	87%	10%
Are interesting	87%	10%
Are rigorous	82,5%	14%
Are up-to-date	88%	9%
Are accessible to all people	72%	24%

Table 2 shows that of the set of dimensions related to the design of the courses, the highest user satisfaction can be found in the materials –videos, documents and other- provided by the courses, while more critical opinions are directed to what can be considered the technical infrastructure, as in the platform. The assessment of the technical support, along with the appropriateness of test and *online games*, show an important percentage of users that choose not to answer: they do not have the experience in these dimensions. In between remains the core or didactic design nucleus, as well as the design of the learning tasks or the distribution of the workload during the course, which receives a largely favorable assessment.

Table 2: Assessment on resources and support

	Good or very good	**Suitable**	**Poor or very poor**	**N/A**
Videos and video lectures	72%	18%	7%	4%
Documents provided	70%	17%	7%	6%
Audiovisual materials	67%	17%	10%	7%
Load distribution during the course	65%	24%	4%	7%
Design of individual tasks	65%	24%	5%	6%
Support given by the teaching staff	62%	20%	7%	11%
Video subtitles	57%	22%	7%	14%
Design of collaborative tasks	54%	27%	8%	11%
Platform usability	48%	24%	21%	7%
Suitability of tasks and online games	47%	20%	12%	22%
Technical support	44%	20%	15%	21%

Respondents clearly valued the support given by the teaching staff as two out of three respondents considered it *excellent* or *good*.

One of the aspects that has reached a wide spread in the design of the sMOOCs is the assessment of tasks, works and even exams done by other partners or by other participants that are taking the same MOOC (peer-to-peer assessment). The response to this assessment strategy has been positive (see table 3). The fact that 60% has pointed out to agree much or very much

with the fairness of this kind of assessment is an important basis to be taken in account when looking forward to the future.

Table 3: Proportion of respondents scoring peer assessment feedback satisfaction as "completely"or "to a large extent"

This method of assessment is interesting	72.32%
This is a fair method of assessment	60,37%

In the ECO sMOOCs concept participation and collaboration is an important dimension (see table 4). Therefore it is to be highlighted that 63% of the users consider the performance of other participants in posts and comments as *excellent* or *good*.

Table 4: Assessment of the interaction with other users as "Excellent or "Good"

Social interaction and support given by other learners	59%
Posts and comments made by other learners	63%
Posts, educational artifacts and resources shared by the community of learners	58%
Other users' feedback and comments on my personal works	56%

It should be noted that 61.5% of learners considers the courses to be absolutely or highly well designed in order to enhance communication between participants and that ECO sMOOCs were considered to be participative courses.

Overall, the general user satisfaction with the ECO sMOOC model was highly positive: 28.3% respondents have rated their experience as "very good" and 56.3% as "satisfactory". That is, most (85%) are satisfied with the experience. Anyway, only 8% rated their overall experience as unsatisfactory or highly unsatisfactory.

It is important to note that four out of every five respondents consider that the sMOOCs have been correctly designed to achieve their proposed objectives (see table 5). Almost the same proportion considers that the courses promote learner creativity. The aspect that is less positively assessed by the respondents, in this dimension, is the interaction amongst learners, although still two-thirds consider that the design of the courses actively promoted such interaction.

Table 5: Completely or to a high extent user satisfaction on expectations, creativity, discussion, engagement and interaction

Designed to achieve the proposed objectives	81%
Promotes learner creativity	78%

Promotes discussion and personal reflection	76%
Promotes learner engagement	75%
Promotes interaction amongst participants	65%

The sMOOCs seem to have met the expectations: 12% indicate that the course completely met their expectations and 49% that the courses have met their expectations to a large extent. One third expected to learn new things, 14% expected to receive a certificate, 13% to improve their training and their professional opportunities and, lastly, a similar percentage pointed out that they enrolled in the courses in order to experiment and know about MOOCs. It should be taken into account that half of the respondents informed that they have never taken a MOOC before.

From a career standpoint, 54% of the respondents confirmed that our sMOOCs are of great relevance for their professional fields. Furthermore, 56% of respondents consider that they have learned a lot in the courses. These dimensions are without doubt the basis of the highly positive overall assessment of the courses.

Perhaps one of the best indirect indicators of overall user satisfaction on the first edition of our sMOOCs is the response to the question about their will to take another ECO sMOOC again: 78% says that they are willing to take an ECO sMOOC in the future. That is, almost four in every 5 participants would engage in future ECO sMOOCs.

5. CONCLUSION

As referred in the beginning of this chapter, MOOCs have become a viral phenomenon in higher education. However, this explosion of interest and also of provision of courses was also followed by a lack of theoretical preparation or pedagogical experience. This has led to many failures and a generalized pessimism on the capability of this new format of online education to assure quality learning experiences and student success. Research needs therefore to develop new practice models built upon appropriate foundations that respect the principles of open education and take the most out of the new networked social environments. Similarly, in order for practice to be really effective, these new models must be embedded in a new educational and institutional culture.

The framework model developed by the pedagogical research team in the ECO partnership recognizes this challenge and has embraced it. We have designed a solution which relies heavily on a compromise between actual innovative practices of the partners involved, who have a relevant experience

in networked learning and/or have been providing MOOCs based on the same pedagogical principles, so there is some evidence as to their validity.

We believe the scope and scale of the experimentation conducted so far has proven the validity of our assumptions; notably, the importance of the introduction of the social element in order to assure success of massive open network learning experiences. However, findings of this experimentation are being used to improve the pedagogical framework even further.

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