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MOOCs and the Participatory Challenge

From Revolution to Reality

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Introduction:

MOOCs: Learning from Disruption

The full dimension of the MOOC contribution to e-learning needed some reflection and intellectual distance in a moment as the one we are living nowadays. So the covid-19 pandemic and its attendant e-confinement and “teaching at home conditions” have brought a revived sense of the crucial importance of a chosen distance learning in contrast to an imposed distance learning.

This book focuses on ECO learning project (2014–2017) that intended to provide teachers and educators with the digital competences needed to master online teaching. It benefited from EU funding of the Competitiveness and Innovation Framework Programme (CIP) under Theme 2: “Digital content, open data and creativity”. It aimed at designing MOOCs with European values, around participation and social cognition, not just connectivism. It provided a portal for existing platforms and added an OPENMOOC platform for experimental developments. It provided 40 pilot MOOCs and a meta-MOOC, the MOOC Step by Step, in six languages (Spanish, English, Portuguese, French, Italian and German) that helped e-teachers to produce an extra 350 MOOCs. The various chapters assess some of the specificities of the project in terms of the learning environment at large, and then in terms of the strengths and weaknesses of the whole process around issues of agility, interactions, gamification, engagement, transfer and evaluation, with a final section focusing on sensible practices around community-building.

The work carried out during the 3 years continues through the technological spin-off ECO DIGITAL LEARNING which, among its general functions, aims to give continuity to this new way of educating through MOOC courses, and optimize the possibilities of this type of ubiquitous, open and accessible learning, in line with the paradigm of Media and Information Education of citizenship, considering no discrimination on the grounds of disability, distance, age, social vulnerability or any other circumstance that prevents access to education and citizen integration. As a social demand of today’s post-digital society, ECO DIGITAL LEARNING develops actions aimed at promoting social and educational inclusion of citizens at a global level, promoting the growth of open knowledge and learning with edutech communication methodologies. Among its missions, it is important to provide advisory services to educational institutions, social and governmental agents, as well as pri-

vate companies, related to the creation, development, implementation and promotion of mass, online and open teaching/learning.

Beyond the experiment, and beyond the currently hailed solutionism around e-learning, the book underlines the need for teacher-training and community-building as untrained teachers may find themselves underprepared and in overdrive mode. It emphasizes the fact that e-learning cannot be improvized and that universities and other institutions of learning would profit by creating effective environments for e-learning, not just letting it to specialized online universities as all trends point to at least a modicum of hybrid-flex in the years to come.

This research-based book emphasizes the design process, the logistics of agile methods and the transfer process in innovative manners. It draws attention at ways of creating e-presence despite distance and underlines the specific stakes and obstacles to overcome in order to produce successful online communities that engage with learning and teaching using the digital artefacts and online affordances.

By contrast with early North American MOOCs (launched by Georges Siemens and Stephen Downes in Canada, and Sebastian Thrun in the USA), the European project aimed at being less connectivist and keep a human mediation in relation to digital artefacts. In contrast to early North American platforms, such as MIT's edX, led by Anant Agarwal, or Coursera, founded by Daphne Koller and Andrew Ng at Stanford University, the European project aimed at creating a portal representing the diversity of national initiatives, responding to public education universities and Open Educational Resources principles. In all cases, MOOCs were hailed as a means of further deploying democratic access to knowledge and digital culture.

In this European context of emergence, MOOCs tend to put the emphasis on multi-lingualism and cultural as well as pedagogical diversity. They are conceived by the EU Division on the Digital Agenda (ex-Information Society) as a means to facilitate the digital transition and European integration, via the transnational audience that MOOCs can summon. They rely on the new initiative "Opening-up Education, Rethinking Education" to stimulate innovation and digital competences in higher education. Such actions are supported by supranational events and conferences such as eMOOCs, EDEN and OEC3 that allowed the scientific community and the practitioners to come together and intensify their supply of training and learning opportunities.

Consequently, many European-wide projects emerged from 2014 onwards. The most prominent show the large scope of the agenda: HOME (building a network of experts), SCORE2020 (regional support centres), BizMOOC (potential of e-learning for commerce), MOONLITE (language and entrepreneurial skills for migrants) and EMMA (translating MOOCs). Among them, arguably, ECO was probably the most ambitious in terms of pedagogical design thinking and agile methodology, as it promoted participatory strategies, mentoring by participants and peers as well as constant exchanges between the developers and the educators. ECO's pedagogical design is adapted, by means of a participatory distribution, to the different profiles of the participants, among them the intermediate leaders or "influencers", who act as guides so the rest may follow in order to achieve all the initial objectives. It contributed to the increasing typologies of MOOCs, adding sMOOCs (social MOOCs)

and tMOOCs (transfer MOOCs) to the diversification of the field in the post-MOOC era. Specifically, the tMOOC model connects citizenship education throughout life with the requirements and demands of the society where it lives, on the one hand, and with the 10 T's taxonomy, on the other. In short, tMOOC represents the finding of a new modality based on pedagogical transformation, learning transference and intercreative talent. We propose ten dimensions which support tMOOCs in their different modalities, as a prospective model based on empowerment towards professional practice and social empowerment: Authentic Tasks, Transfer of Learning towards Profession, Pedagogical Transformation, ICRT, Transmediality, Open Temporality, Collaborative Teamwork, Transnationalism and Tolerance.

Besides the deployment stakes, the research stakes were crucial and went well beyond the project itself, at the methodological level as well as the theoretical level. Research questions related to the design of participatory learning, the management of digital artefacts combined with human agents, the intercultural collectives as well as transfer and replication for sustainability. These questions were linked to learning processes of appropriation and acquisition of competences in a heterogeneous context. Complexity became a keyword to address as ECO evolved into a full-fledged ecosystem. These stakes are familiar and important to all researchers in the field and the results can be seen a contribution to the international conversation in this fast-evolving domain.

Among the main notions summoned are the concepts of agility, interoperability, gamification, engagement, intercreativity, relational factor and evaluation, to name a few. The larger frame of MOOC production also needs to be summoned as MOOCs can be seen in the perspective of the digital transition and thus as part and parcel of economic models and cultural models of knowledge construction and transmission. Notions of co-construction, co-design and co-presence are often tested in MOOCs due to the relational and experiential nature of such industrial and institutional initiatives, with extended collectives and communities of practice. Moreover, all MOOCs agree on a methodological approach close to the functioning of social networks, which should be protagonists in the process of teaching and learning democratic and global citizenship.

In terms of methodology, several disciplinary fields are brought together in MOOCs, from the socio-technical dimensions of computing to the information and communication sciences as well as education sciences and systems management sciences. They relate to the emerging field of digital humanities in their interdisciplinary dimension that breaks the borders of long established disciplines. Inductive and experimental strategies are facilitated by the iterative process as MOOCs tend to be offered several times, over a period of 6–8 weeks. For ECO, all in all, 135 iterations were made for a total of 40 pilot MOOCs (with 3 iterations on average) and 350 e-teacher MOOCs (1 iteration on average, during the last year of the project).

Making sense of such undertakings and sharing the experience is what this book is about. Opening new possibilities, new paradigms for the transformative change that is needed so that the e-confinement does not repeat the errors of the world before. This changing paradigm is about making individuals and collectives be the

active participants in their embracing of learning. Connectedness is key in such cases and the increasing smartness of digital devices can be an asset in enabling communities of practice to exchange experiences and transfer designs and practices online and offline. MOOCs are not the panacea, the all-fitting solution to the democratization of knowledge but their contribution, disruptive as it may be, sheds light on the current reality that digital technologies are here to stay, and they have to be used in a people-centred manner for them to be adopted in a creative way. Education remains a fertile frustration that leads to moments of confusion and moments of fusion and MOOCs stay true to this challenge of the mind.

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Part I
Fundamentals Revisited

Chapter 1

MOOCs as Creative Industries and Vectors of Transliteracy



Divina Frau-Meigs

Massive Open Online Courses (MOOCs) emerged at a specific time in the evolution of education *and* media while durably reshaping e-learning. Evolving from Open Educational Resources (OER), they first appeared in 2008 but have attracted public attention as a new mode of learning in 2012 as they took on characteristics of social media to become increasingly participatory. Within this context to which it contributed, the ECO project (E-learning, Communication, and Open-data) is a unique example of a European macro-project for MOOCs, supported by the Competitiveness and Innovation Framework Programme (CIP-ICT-PSP.2013).¹ The project aggregated a large consortium of 20 institutions, in seven European countries (France, Germany, Italy, the Netherlands, Spain, Portugal, and UK). Its main objective was to help teachers acquire digital competences so that they could feel empowered to use them in their own professional development.

ECO proposed Social MOOCs (sMOOCs), characterized by the creation of learning shared among the members of the community, with different tools connected to social media, the commercial ones such as Facebook and Twitter but also internal tools for microblogging and holding forums. To the joint-construction of learning, ECO added the transfer of knowledge as it encouraged participants to become e-teachers with their own choice of themes. To facilitate such transfer, the meta-MOOC “Step by Step” was taught transversally, in all countries by all teams, using the best practices of the 17 pilot sMOOCs aggregated in the first year of the project.

This analysis is based on data collected and observations conducted while elaborating the three French-speaking MOOCs of project ECO, the MOOC “DIY Education aux Médias et à l’Information,” the MOOC “Ma pédagogie à la sauce

¹<https://ecolearning.eu>.

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Web 2.0,” and the meta-MOOC “Pas à Pas.” It aims at showing how MOOCs are supporting the transition to “creative industries” within the university. It also purports to examine how they contribute to twenty-first century soft skills. It then focuses on some characteristics that point to the evolution of participatory cultures.

1.1 MOOCs as Experiential and Relational Goods Within Creative Industries

Associating MOOCs with the emergence of “creative industries” may seem incongruous but not irrelevant to understand their radical difference from earlier versions of OER. The term appeared officially in 1997, with the *Creative Industries Taskforce* of the British government and aimed at defining “those activities which have their origin in individual creativity, skill and talent and which have the potential for wealth and job creation through the generation and exploitation of intellectual property” (Creative Industries Taskforce, 1997). UNESCO (2006) provided a definition in 2006 that extends beyond mere economics and lays the emphasis on expression and identity in various sectors of human creativity.

Both definitions were made before the “social turn” (Lovink, 2012) of the social media and their capacity to harness the agency of users and to augment social participation. The social turn of 2006 emanated from the joint commercial emergence of Facebook (2006), Twitter (2006), and YouTube (created in 2005/bought by Google in 2006). Since then, this capacity has been expanded, to funding means and digital practices mastered by the user and not by public or private sponsorship only. The diversity of funding means and the modified interactions between producers and users suggests that, in many respects, it is the notion of participation, as empowered by digital media that is at stake in the creative industries. This digital participation differentiates them from pre-digital “cultural industries,” even though they occupy the same sectors, be it film, games, or design because it does not depend on heavy industrial resources but rather on human cognitive capital. This paradoxical situation is due to the two sides of cultural goods in the digital era, in the shape of relational goods and experience goods, in an environment where social networks sustain a notion of culture as “cognitive distributed network” according to Merlin Donald (1991).

Within this evolution, education and its institutions had been rather spared and had maintained a relative status quo that seemed to preserve them from the intrusive and disruptive pressures of digital innovations. However, creative industries are impinging on new sectors in search for a creative workforce and they are looking at innovative training methods. MOOCs can be seen as part of this evolution, as they do not necessarily come from institutions such as “universities” (as in the case of corporate MOOCs or COOCs), with differences in terms of production values, credibility, and levels of shareability. They rely on videos on YouTube and exchanges in social media such as Twitter, Facebook, or WhatsApp. They can build on the computer-based measurement of consumption and use, in the shape of learning analytics that facilitates tailored educational services, a trend reinforced by the human-based recommendations emanating from online communities.

1.1.1 Relational and Experiential Goods

From the perspective of the users, MOOCs seem to involve two complementary economic sides that place participation in their core: relational goods and experiential goods. Relational goods foster enduring interpersonal relationships and are local public goods or commons, not necessarily related to market exchanges, maintained through noncontractual, coordinated actions (Anderson, 2006; Uhlaner, 1989). Their value is predicated upon the interaction between people, especially the reciprocity in the pursuit of intimacy and mutual perceptions of understanding and caring, as evidenced in social networks where time spent “friending,” “liking,” playing, and curating about relationships and emotional involvement seems unlimited. They affect socialization as they are strong on autonomy, self-esteem, self-actualization, reciprocity and limited on material issues such as ownership or property rights.

Experiential goods must be tested before purchase is considered; they are predicated on use rather than on ownership, contrary to consumer goods that must be bought before they are tried. They rely on free trials, updates, freemium/premium alternatives, and constant benchmarking buttressed by recommendation algorithms (provided by social media and search engines). They rest on social learning that creates habits of use. Media contents such as music, video games, or software applications lend themselves to such tailored needs. A number of intermediary services before (consumer trials) and after sales (consumer satisfaction) are necessary before the transaction is finalized and user-friendliness is key, reinforcing the proximity with relational goods. They benefit from network effects, that is the possibility of being tested and improved thanks to the contributive efforts of many participants, with quality augmenting as the number of participants increases.

To many users, social networks like Twitter or YouTube feel like a relational good though they rely on advertising and information brokerage models like many experiential goods. In fact, both relational and experiential goods buttress each other in the digital world as they rotate around the active participation of users. These dynamics are at work with MOOCs, especially social MOOCs that can function as experiential goods and relational goods, the emphasis being sometimes on the economics side, sometimes on the user-centered side.

1.1.2 MOOCs from the Corporate Perspective

MOOCs have the characteristics of creative industries as experiential goods, according to the five criteria defined by Richard Caves (2000), to distinguish them from cultural industries:

1. The nature of the product: it is an experiential good, whose value is tested as it is used, not prior to usage by paying for it.
2. The nature of the production process: the creation of the prototype is very costly at the start (time, human resources...) but the reproduction, storage, and distribu-

tion costs are very low. The return on investment is made with the traffic generated.

3. The nature of consumption: the prototype is never depleted (it is on digital devices) and the consumer attributes value to the experience, not the material form of the product.
4. The difficulty of prevision: the value of the product on the market is difficult to predict, which creates uncertainties and important risk-taking.
5. The relation to the consumer: each product is unique and irreplaceable, and does not compete against other pre-digital products. It builds on the time spent by the user and relies on the attention economy (Caves, 2000).

MOOCs comply with these characteristics, from the corporate perspective:

1. They feel like experience goods as they are not bought before use (badges and certificates arrive at the end).
2. They are expensive to create at the start but easy to manage later; they do not need much storage space and not even teacher/student space.
3. The prototype is available and open, with several iterations to facilitate the experience of the users who are encouraged to provide feedback, comments, and recommendations.
4. Their value is difficult to predict, as attendance is public and massive, and the high rate of attrition is not the only measure of success.
5. Their relation to users is unique, and they have various levels of engagement with them, to keep them connected and to manage their time according to their needs (when universities are closed) including on mobile devices.

These corporate criteria are further sustained by the fact that creative industries function with knowledge workers, a highly qualified workforce with specific and rare competences, often in relation with ICTs. Their business model, though not yet fully stabilized, resembles the one prevailing in the media world, as it is project-based: a team is created for a specific MOOC and then the team is dispersed again. Most workers are not fully employed by the institution, which is particularly the case for the video and animation dimension of MOOCs. Consequently, there is a lot of resistance on the part of well-established universities to provide MOOCs, as they feel displaced in their missions and prerogatives as institutions that deliver knowledge and certification. Conversely, cMOOCs have become extensively used by the private sector as a means to skill up their workforce, with digital competences that are not always offered at university.²

²See for instance the MOOCs provided by the French media Rue89 for the in-service training of journalists. Available at formation.rue89.com/index.php/formations-item/mooc-informer-et-communiquer-sur-les-reseaux-sociaux/.

1.1.3 MOOCs from the User/Learner Perspective

But MOOCs can also be seen as relational goods as they support a vision of knowledge sharing and open massive distribution. From the perspective of the learner, they enhance the whole process of information and communication, as described by Divina Frau-Meigs (2008):

1. The nature of the communication process: it is a relational good as it aims at participation, expression, and creativity (rather than ownership).
2. The nature of information: the data exchanged are about the individual and his/her networks and affinities; as a result, they are intrusive and relying on media and tools that aim at profiling habits and tastes.
3. The nature of cognitive processes: the uses that the product taps are based on web 2.0 strategies of mix, remix, aggregation, curation, sampling, etc. They require personalization and localization, to make sense locally, in a situated environment.
4. The tools for prevision: they are based on nonrational and nonlinear uses as in all network effects models, and risks are compensated by values of social responsibility and sustainability, with well-being in mind rather than profit.
5. The relation to the consumer: each product gets value for its potential for exchange, doubled with the symbolic construction of reputation and recognition. It can include funding methods that are related to crowd-funding and crowd-sourcing in their collaborative dimension (Frau-Meigs, 2008).

MOOCs also comply with these characteristics, from the noncommercial, user-generated perspective:

1. They rely on participation from all kinds of participants, not only teachers, and encourage users to express themselves on the social networks, some of which are integrated into the MOOC platform.
2. The relation to information and to knowledge is related to self-actualization, curiosity, even serendipity and reflects people's affinities and projects while social network analysis and learning analytics are used to know their knowledge levels.
3. They fully use web 2.0 strategies (mixing, sampling, curating) and encourage tutorials as well as all sorts of personal means of acquiring knowledge and contacts.
4. They rely heavily on communities of practice as networks and aims at comforting these communities in their know-how and their use and reuse in the teaching and learning environment.
5. They are open and often free (the fee for certification tends to be very small); those who follow MOOCs tend to value their experience with badges or by communicating about their experience on their own websites or social networks.

These noncommercial criteria are further sustained by the fact that MOOCs, like other creative industries, tend to be bottom-up, with innovative personalities and social entrepreneurs capable of bringing together service providers, specialized

workers, and funding (be it foundations, public or private institutions, etc.). They favor horizontal relationships, including in the logics of production. They blur the borders between technical and intellectual processes. They encourage individual creativity and they externalize tasks if necessary to tap on the opportunities of globalization. In their social dimension, they relate to what Ulrich Beck calls the paradoxical collectivity of “*reciprocal individualization*” (Beck & Beck-Gernsheim, 2002) and what Barry Wellman considers to be “*personal communities*” (Wellman, 2001).

These evolutions and tensions show how creative industries try to overcome pre-digital oppositions inherited from the nineteenth century to operate the transition to twenty-first century industrial needs, around knowledge industries. They are a “pro-am mix” of heavy professional content products on the supply side (based on institutions like universities) and light amateur contents closer to users on the demand side. They ride on the double dimension of goods in the digital era, the economic, experiential goods side and the participatory, relational goods side. In doing so, MOOCs question durably the role of the teacher, of the university, the value of work, and of knowledge. As cultural artifacts, such courses contribute to the abundance of knowledge, with agile adjustments, rather than to scarcity of knowledge associated with closed and inert content.

1.2 MOOCs as they Affect Institutions of Knowledge

Participants in MOOCs look like pro-ams, these amateurs who show professional online competence using strategies such as curating, sampling, mixing, and pooling outside the contractual rights and obligations of universities and other pre-digital institutions of knowledge, they build their own relationships to media and information. Such participants have emancipated themselves from the dominant figures of the author and teacher as detainer of all sources of knowledge, often by producing collaborative pieces for which no authorship is claimed.

1.2.1 *Social Entrepreneurship*

The rise of social entrepreneurship is visible in creative industries and education is not spared as exemplified by the Khan Academy, the first MOOC factory as it were. It fits with development economist Amartya Sen’s notions of “functionings” and “capabilities” (Sen, 1999), that associate communication and learning to real freedoms (self-respect, participation in community life, etc.). They have given credibility to the idea that social entrepreneurship can bring social change, via innovation and sustainable management of local resources (McAnany, 2012). If combined with crowdsourcing, social entrepreneurship of this kind can both serve communities and allow some creative individuals to make a contribution. MOOCs can be seen as creative crowdsourcing platforms, as many contributors tend to bring in their

resources and to aggregate them to the provided content, as experimented during the ECO project. The internal social media and forums of the portal have been used to send links, rate resources, and get together to create new ones.

Such creative industries affect the future of schools as some individuals can become social entrepreneurs of local courses or develop open-source content online, etc. Some “pure players” in the industry relate to this budding model, such as “le site du zero” in France, founded by social entrepreneur Mathieu Nebra in 2000 that has become “OpenClassroom” in order to produce MOOCs. Based on contributions, it was one of the first portals to edit and publish MOOCs from its freelance teachers.³ Another example showing a combination of crowdsourcing, curation, and online publishing is ITyPA (Internet: tout y est pour apprendre), a collaborative MOOC about learning about the Internet environment. Such creative industries currently show a double tendency: they can foster new e-teaching strategies as ITyPA; individual practices can be recuperated into the fold of institutionalized public or market practices, as in the case of OpenClassroom in France or Coursera in the USA.

The MOOC DIY EMI, available in French and in English, was used within the Master AIGEME, at Sorbonne Nouvelle University, a diploma exclusively delivered online. It led to other activities by social entrepreneurs such as courses in classes on how to debunk fakes, taught in primary schools.⁴ It also encouraged doctoral students to help each other in their quests for training, by creating an association PhDooc around the MOOC “PhD and career development,” available in French and in English.⁵ These approaches follow the tenets of *savoir devenir* (*forwardance*) as developed by Divina Frau-Meigs, that is to say not just knowing how to do and how to be but also how to project oneself into one’s digital lifestreams (Frau-Meigs, 2015).

1.2.2 MOOCs as Facilitators of Transliteracy

Because of these evolutions and characteristics, MOOCs can be seen as vectors of twenty-first century skills, much of them requiring ease with the various applications and platforms that exist online while allowing for editorial and organizational competences. Since the advent of Web 2.0 and its social turn, there is a necessary transition of media education to digital information cultures, to take advantage of digital affordances as they affect information under its various definitions (data, document, news).

³ www.openclassroom.fr.

⁴ See the work of Marie-Jose Farinella, participant in MOOC DIY EMI, a teacher of the academy of Grenoble, who created an 8 section course plan for primary school students to debunk fake news, and delivered a certificate of “hoaxbuster apprentice” <http://www.ac-grenoble.fr/ien.cluses/spip.php?article583>.

⁵ see the work of Adeline Bossu, cocreator of MOOC Step by Step who created a MOOC on doctoral careers and an association to sustain it https://phdooc.moocit.fr/assets/courseware/v1/eb2c52e03cea474fad2f11bb28a997b8/asset-v1:PHDOOC+PHDOOC-001+3+type@asset+block/enattendant_Saison5_Page_Presentation_EN.pdf.

1.2.2.1 Transliteracy Vectors

Digital models for literacy hold the potential to revert the order of dominance among the pre-digital models, controlled by transmission in the pedagogical design. They tend to facilitate creativity by a hands-on approach and by a blurring of the partition between school and out of school activities. In the pedagogical design of MOOCs, creativity takes center-stage, with an additional discursive model, the participation model that can lead to inter-creativity (Osuna-Acedo, Frau-Meigs, Camarero-Cano, Pedrosa, & Jensen, 2016). The participation model supports cooperation, as media and IC technologies have become easy to implement, with reduced costs and increased functionalities (memory, editing, broadcasting, microblogging...). It draws on the strength of social networking and on codesign and co-construction of knowledge (Aparici, 2004; Jenkins et al., 2009).

This reversal is supported by a paradigm shift, due to the transformation of the notion of “information.” This paradigmatic change requires researchers to revisit the territories of information cultures as computation (computer literacy), communication (media literacy), and documentation (information literacy) converge around the layered meanings of the term “transliteracy” defined as:

1. The ability to embrace the multimedia layout that encompasses skills for reading, writing, and counting with all the available tools (from paper to image, from book to wiki);
2. The capacity to navigate through multiple domains that include the ability to search, to evaluate, to test, to validate, and to modify information according to its relevant contexts of use (as data, news, and document). (Delamotte, Liquète, & Frau-Meigs, 2013; Frau-Meigs, 2013).

In this augmented perspective, the digital competences required for transliteracy are operational (compute, mine, process), editorial (curate, evaluate, publish) and organizational (search, filter, navigate) (Frau-Meigs, 2016). Though they can be mastered by an individual, they are more likely to be “distributed competences” spread among several complementary persons, to take into account the participatory model, where people work in groups around projects where they are both in DIY (Do-It-Yourself) mode and SIWO (Share-It-With-Others) mode (See Fig. 1.1 Transliteracy: the three info-cultures).⁶

These distributed competences were activated in the MOOC DIY MIL, Ma Pédagogie à la sauce web, and Step by Step.

⁶See the MOOC DIY Education aux Médias et à l’information, hub5.ecolearning.eu/course/diy-do-it-yourself/.

1.2.2.2 Digital Mediation and Pedagogical Design

Such advances in cognition as well as in technology need to be integrated within schools and within the training of trainers. Training needs to shift from the dominant transmission model to the participation model, with a strong emphasis on e-skills for transliteracy and socio-constructivist outcomes for the learners, whatever their age. Besides the need for modeling of the learning processes with transliteracy, there is also the need for a better understanding of digital mediation as it affects digital humanities.

These digital humanities seem to have stabilized around three pillars that are useful for education and present in MOOCs: Natural Language Processing (text analysis), Social Networks Analysis (interactions), and Geographic Information Systems (time-space positioning). The methods of computation are necessary (probability, statistics, data aggregation, and visualization) but they are applied not per se but for a new scope and unexpected perspectives on classic fields, which in turn affect deeply such fields. Computational methods have become augmented by better integration of software tools that are ubiquitous, light, often open-source (or “free”), with user-friendliness that does not require specific training or else can rely on available ready-to-apply tutorials or crowdsourcing.

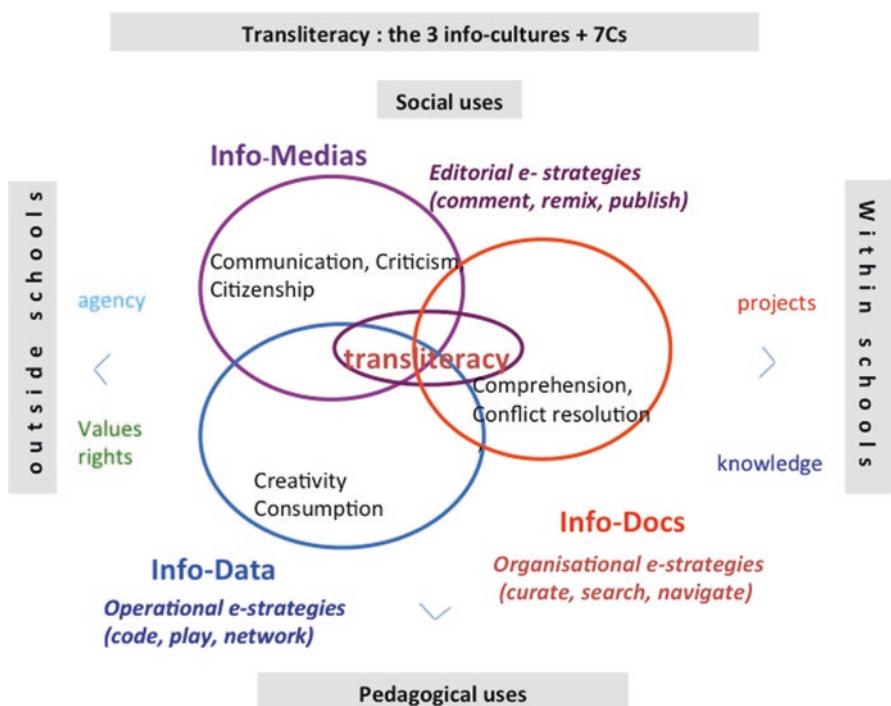


Fig. 1.1 Transliteracy: Spheres of continuity between the three information cultures and their attendant competences

Innovative forms of pedagogy, with different types of models that tend to recombine media and social construction, were tested in MOOC DIY MIL, Ma pédagogie à la sauce web, and MOOC Step by Step. Social construction and socialization took place with learning models that recombined with e-strategies and with media types, as exemplified by Nishikant Sonwalkar’s “learning cube pedagogical model” applied to MOOCs (Sonwalkar, 2013). This was put in practice with the French MOOCs that produced their own model, integrating the role of media formats and the repertoire of e-strategies available online (See Fig. 1.2: socialization by media).

Pedagogical mediation can be articulated with digital humanities tools such as social network analysis, spatiotemporal positioning, or natural language analysis. They can bring together a number of cognitive structures, modes of representations, and socialized frames of action that were disjointed in the pre-digital era. This articulation impacts the design of interfaces, tools, and outputs according to the space and time allocated to communities of practices, experts, pro-ams. This articulation also augments and impacts digital pedagogies, especially if they are project-based and use cognitive scaffolding, as done in DIY MIL (see Fig. 1.3: cognitive scaffolding) (Narcy Combes, 2005; Yelland & Masters, 2007).⁷

This articulation points to the need for improvement of a lot of MOOC portals as they have not reached yet this level of pedagogical design in their functionalities.

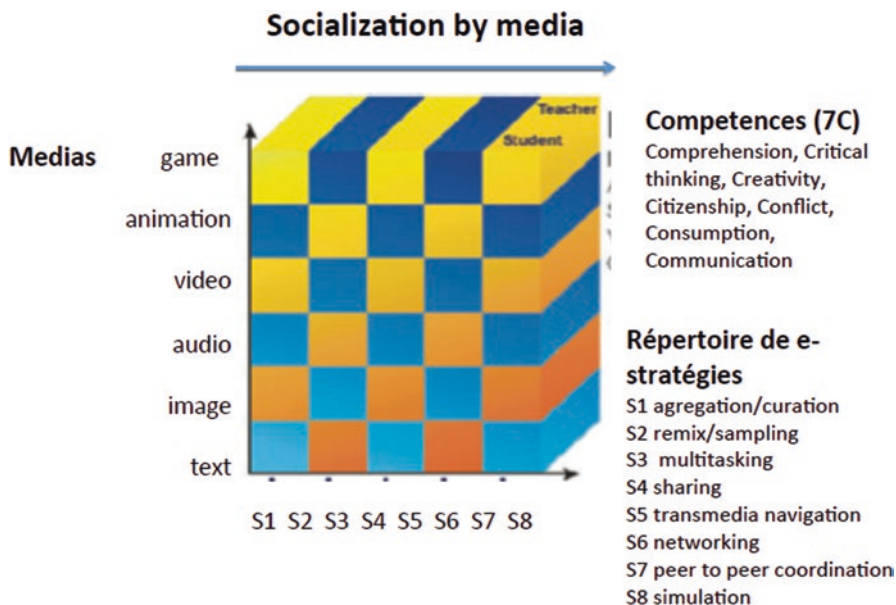


Fig. 1.2 Socialization by media

⁷See the MOOC DIY Education aux Médias et à l’Information.

1.3 ECO, A Step Further for Creative Industries of Knowledge

As the sMOOCs developed over several iterations (for over a period of 3 years), some salient characteristics emerged that exhibit the full use of the social turn by MOOCs. The social turn augmented the digital affordances of MOOCs by fostering socially engaged productions that are collaborative and participatory, with insights on the transformative impact on participants. These insights consist of the rise of reflexivity, be it via epistemic maturity, e-presence or interculturality. They make it possible to consider the capacity for transferring such insights to other sMOOC experiments.

1.3.1 Epistemic Maturity

The MOOC “Step by Step” showed that one of the most important outcomes of MOOCs is not so much the change in the nature of knowledge as the rise in “epistemic maturity” (Bouchard, 2011; Frau-Meigs & Bossu, 2018) among the participants, that is to say, a reflexive and distanced posture on the learning processes. The benefits of interactions among users create openness and flux in the relationship to learning and teaching and emphasize the process of learning to learn. However, this is not due only to the presence of social media but to the various modalities offered (resources, peer-to-peer exchanges, tutoring...), which calls attention to the social constructivist model rather than the merely connectivist one initially proposed by

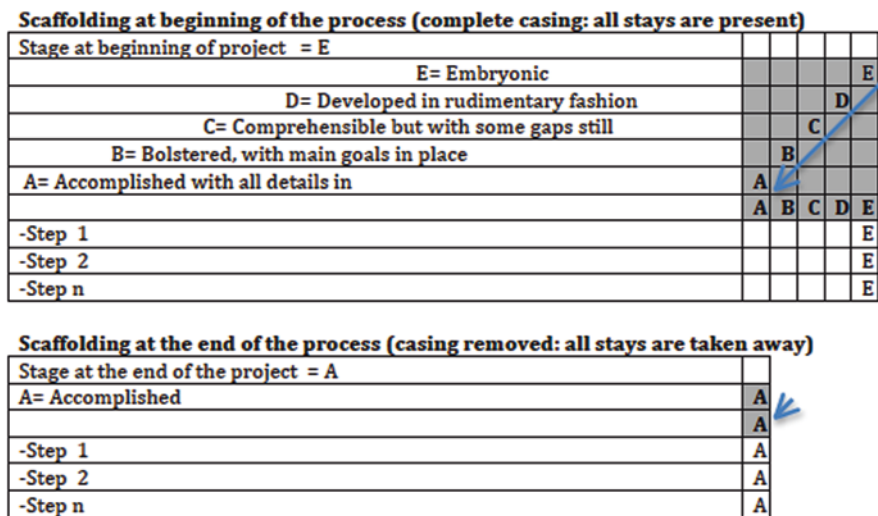


Fig. 1.3 Cognitive scaffolding

Downes (2004) and Siemens (2005). The sMOOC model recombines both as epistemic maturity needs to be facilitated by mentors and other human intermediaries as well as human-produced artifacts. In the MOOC DIY EMI and Ma Pédagogie Web.2.0, these mediators were called “é-claireurs” and “é-veilleurs” so as to emphasize their horizontal level with the other peers, all the more so as they emanated from their ranks. The mentoring and mediation via peers were privileged over the one by teachers.

This resulted in a double epistemic maturity, as teachers enhanced theirs prior to the iterations of the sMOOCs and as learners enhanced theirs during the iteration. The mediation was such that to the epistemic maturity of the teachers (but also e-claireurs and e-veilleurs) corresponded the epistemic maturity of the learners. This mediation set the favorable conditions for the learning situation if not for the construction of knowledge per se. The cognitive independence of the learners seemed thus dependent on their social and technological interdependence (Frau-Meigs & Bossu, 2017).

The analysis of these aspects has implied more horizontal and participatory dynamics based on multidirectional communication between various actors. Such dynamics have a significant impact on the empowerment of the learners in their own process of education and learning, fostering their epistemic maturity, besides contributing to the formation of social and collaborative groups of learning, and inciting learners to create their own sMOOCs as e-teachers. These e-teacher sMOOCs in turn show that the innovative pedagogical design has been adopted by the learners.

The additional activity of the e-teachers points to an epistemic continuum, from teachers to mediators to learners and back as the iteration took advantage of the feedback provided by participants (Frau-Meigs & Bossu, 2017). It points to one of the advantages of social MOOCs, that is the dual epistemic maturity of teachers and learners. The constant agile updating and adding of learning artifacts such as the ones developed by the meta-MOOC Step by Step for transversal use by all participants (Learning Lab, Checklist, ...) are essential to the process of autonomization and interdependence.

1.3.2 *E-presence*

MOOCs foster maturity, reflexivity (looking back at diverse traces), collaboration (mixing and remixing traces with others), and creativity (from learning by imitating to learning by doing and simulating). This process also nurtures online presence, no longer experienced as long-distance but proximity, composed of different layers.

In the various MOOCs such as DIY MIL, Ma Pédagogie Web. 2.0 or Step by Step, cognitive presence, and social presence were defined following Garrison and Anderson (2006). Cognitive presence was defined as “the extent to which learners are able to construct and confirm meaning through sustained reflection and discourse in a critical community of inquiry.” Social presence was defined as “the ability of participants in a community of inquiry to project themselves

socially and emotionally, as ‘real’ people (i.e., their full personality), through the medium of communication being used” (Garrison & Anderson, 2006: 28-29).

But Frau-Meigs added “designed” presence to their equation as “the extent to which learners are aware of the constraints and the affordances made available to them by the medium of communication being used. This implies full recognition that many of the tools that are available for information aggregation, curation, and creation are designed by others with their own finalities (often commercial) that in turn can affect the performance” (Frau-Meigs, 2015).

As a result, e-presence in sMOOCs is complex and composite. Besides the platform affordances, it aggregates the “designers” (engineers and project managers who oversaw the global pedagogical design), the “pilots” (trainers and intermediary cocreators of the 17 pilot sMOOCs and the “Step by Step”), and the participants who are split into two categories, the “learners at large” and the future “e-teachers” (the cocreators of their own sMOOCs) (Frau-Meigs & Bossu, 2017; Osuna-Acedo et al., 2016).

This composite structure brings the online participants to a certain level of group dynamics as the de facto e-learning situation of isolation is compensated by the felt presence of the e-community. They provide many affordances for establishing online presence or “e-presence.” Far from discourses on digital identity, e-presence brings the learners’ attention on issues of reflexivity and self-knowledge rather than e-reputation and self-branding (Osuna-Acedo et al., 2016). But the issue is not often looked into with MOOCs even though the discussion about the best strategy for e-learning becomes more and more centered on the learner experience. This implies the necessity to postulate that the presence of the learner has to be determined during the early design of the project. ECO sMOOCs seem like a good test because of their iterative process and their agile methodology.

Another implication of this postulate is that e-presence needs to be related to e-quality as a multifaceted “process of co-production between the learner and the learning-environment” (Ehlers, 2004: 2). E-presence needs to be taken more into account in the design of MOOCs and also in their quality assurance as it is an empowering process that enables the learner. Besides its potential contribution to (self) learning, e-presence embraces the learner’s perspective while not ignoring the technological design embedded in the learning platform. If e-quality is posited at the end of the learning service, e-presence needs to be ensured all through, to ascertain that quality is not just an outcome of the e-learning platform.

The conditions for ascertaining such e-presence require (1) pathways that foster reflexivity (2) interactions and expressions of proximity, and (3) awareness of constraints and attendant solutions proposed. The interesting dimension of the French sMOOCs is that they proposed several pathways to the participants, not mutually exclusive, with incremental levels of involvement. At a minimal level of involvement, they could be “explorers” (curious but not engaged), then they could be “analysts” (engaged with a modicum of participation) to the highest level of involvement, “creators” (not only participating but also contributing). The higher the level of contribution, the higher the level of e-presence. This was buttressed and sustained using the cognitive scaffolding (see Fig. 1.3) (Frau-Meigs, 2018/2019; Frau-Meigs & Bossu, 2019).

1.3.3 Transfer and Replication

ECO engineered the transition to a new generation of MOOCs, the tMOOC (“transfer” MOOC) (Marta-Lazo, Frau-Meigs, & Osuna-Acedo, 2019). The meta-MOOC Step by Step confirmed its capacity as a replicator MOOC as it generated more than 50 new MOOCs by e-teachers in the last year of the project. These additional MOOCs confirm the possibility of transfer by replication, that is the duplication of formats, methodologies, competences, and evaluations as fostered by the “Step by Step” set of resources and processes. They were proposed by teams that mobilized about 700 e-teachers as replicators who learned to develop their epistemic maturity and their e-presence by attending the Step by Step and very often participating in other MOOCs offered on the ECO portal.

The choices of themes reflect a double tendency: about half the themes were aligned on the issues of digital competences that were dominant in the pilot MOOCs, and about half the themes were very heterogeneous, reflecting autonomy. But all respected the pedagogical design, in particular the interaction and exchanges among peers (Osuna-Acedo, Frau-Meigs, & Marta-Lazo, 2018; Marta-Lazo, & Frau-Meigs, 2018). This was the case for instance in the e-teacher MOOC “Career Development” where the peer-to-peer evaluation laid the stress on interactions rather than sanctions and motivated new participants to do the same. The teachers and learners were both exposed to similar constraints and processes, the only difference being the scale and the level of reflexivity. In this process, the same person finds herself/himself rotating around several roles, which increases reflexivity, maturity, awareness of representations of authority, and attention to others.

This snowball strategy produces a multiplier effect that can use the benefits of heavy prototype investment at the beginning of the MOOC platform process by ensuring some sustainability over time. This strategy confirms that MOOCs are part of the creative industry, as the nature of the production process is costly for the creation of the prototype but becomes much lighter for the reproduction and distribution. It also confirms the relational good and experiential nature of MOOCs, as they rely on participation from all kinds of participants while also reflecting people’s affinities and projects. The transformational leaders in ECO relate to the influencers of the digital world, using their relational competences to transfer experience and information. They are not in a rival situation but in a mentor situation, as they contribute to extending the e-presence of the whole community.

1.4 Conclusion

MOOCs present the double-edged opportunity to democratize learning with the opening of access and to merchandise knowledge with a corporate logic. Their potential needs to be harnessed and recognized as they redefine E-learning, Open

Educational Resources (OER), and digital humanities. Future developments in the field of cognition and connectivism are likely forces to count with. Teaching via the ICT-driven media about the media can be part of a long-term strategy for lifelong learning and “savoir devenir” (*forwardance*).

MOOCs and transliteracy can lead to empowerment and forwardance if set within a framework of good governance where the benefits of the new cognitive ways of learning are shared, people-centered and not simply machine-induced. MOOCs hold the potential of reducing the disconnects between old and new media, high and low culture, proprietary and non-proprietary systems, cultural and commercial conflicts, etc. They offer a scenario for sustainability, especially with shared resources and open source initiatives. But some minimal conditions for articulation are required as they expand beyond the stage of experimentation into a larger scale of intervention:

- State provisions that support change of attitude among teachers, particularly in the way they are trained and evaluated and that maintain the open-ended value of MOOCs even in private context;
- Industry and self-regulatory bodies that supply materials, projects, and financial resources to maintain connection between schools and real-life situations facilitated by MOOCs;
- School curricula that allow for the plasticity of cognitive development, at the intersection between content- and process-competences without turning MOOCs into automatized artificial intelligence vehicles;
- Communities of teachers and learners that relate to communities of practice outside the schools, be it media labs, CMCs, or other localized offers for testing, practicing, and implementing all sorts of MOOCs as creative industries for culture....

At this stage of their evolution MOOCs also need to be accompanied by an ethical reflection on the “Internet of objects” and on the “Internet of subjects” to be attached to human rights such as the right to education, to participation, and to privacy. They should be incorporated in global partnerships for media education and information literacy, such as the ones supported by UNESCO, as expressed in the “Paris Declaration on Media and Information Literacy in the Digital Era” (2014).

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Chapter 2

Communication and Dissemination Strategies for MOOCs



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2.1 The New Educational Context

The philosophy of the European Higher Education Area (EHEA) redefines the role of the university institution in a globalised, hyper-mediatised, and super-technologised society and creates a space for “rethinking” the university (Marta-Lazo, 2009). This is resulting in a reformulation of teaching methods by university faculty and a constant reassessment of the work expected of students outside the classroom. The objective of these changes is to adapt the courses offered to a more interactive system, with a focus on placing students at the centre of the learning process and ensuring their full participation, as well as the integration of digital tools and the promotion of international mobility.

The ideal university of the twenty-first century is oriented towards the preparation of students for the workforce, prioritising the practical side of course work and promoting a methodology based on learning how to learn for professional development. This has had the effect of bringing the higher education sector closer to the business world, inspired by the concept of lifelong learning,¹ defined as “an approach demanded by the new expectations of the Knowledge Society, requiring constant updating of knowledge that will allow adaptation to the rapid changes and transformations that are taking place” (Pérez Martínez, Vadillo Bengoa, & McMahon, 2011, pp. 68–69).

¹The concept of Lifelong Learning (LLL) was promoted by UNESCO following the presentation in Delors (1998) “Learning: The Treasure Within” (1998), which advocated educational reforms and new pedagogical policies oriented towards lifelong education, based around four pillars: learning to know, learning to do, learning to live together, and learning to be.

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The new teaching models are centred on autonomous student learning based on competencies for a specific professional profile, overseen by teachers with a cooperative approach to the teaching-learning process (Fernández, 2005). The skills and abilities fostered by these competencies and the commitment to Information and Communication Technology (ICT) in the teaching-learning process make it possible for students to “learn by doing,” and thus traditional teaching methods are giving way to what are known as active methodologies, in which the student plays an active, leading role in knowledge acquisition.

In this context, the professional profile of the university professor of the twenty-first century is complex and, according to Rodríguez Espinar (2003), should include the following competencies:

- Proficiency in terms of both knowledge and management of their discipline.
- Innovation in their own teaching practice, entailing reflection and research, integrating disciplinary and pedagogical knowledge as a means of continuous improvement.
- Proficiency with curriculum-related tools (curriculum design, planning, and management).
- The ability to foster an atmosphere that motivates students to engage in quality learning experiences.
- The ability to work in collaboration with colleagues and promote collaborative learning experiences among students.
- Possession of the communication and people skills required in any teaching role.
- Commitment to the ethical dimension of the teaching profession.

This is why teachers are driven to explore ICTs to meet the new challenges they are faced with. García (2010) stresses the principles of creativity, quality, competency, and collaboration in the search for new teaching strategies, and for alternative initiatives to support a new model of society. Teachers need to make significant changes on various levels: pedagogical, epistemological, and psychosocial. At the same time, students need to change from passive subjects or receivers of knowledge transmitted vertically into active subjects who participate in the classroom with their teachers to take maximum advantage of classes and activities to develop new competencies and skills appropriate to their professional sector (Fanjul Peyró & González Oñate, 2009; Zabalza, 2003).

2.2 From ICT to ICRT

To encourage autonomous learning, continuing education, and skills building among students, the use of ICTs in the classroom—as a support mechanism for class sessions, and especially for elearning models—plays an important role in the teaching-learning process (Ruiz Muñoz, 2010). Education is enhanced by the strategies offered by media convergence for carrying out teaching-learning activities (García, 2006). The education sector has followed these technological, social, and cultural transformations.

thanks to administrative initiatives in some cases, but also often due to the interest of many teachers and researchers who have viewed these technologies as a force for changing the educational system and the activities of those who work in it. It is the response, in any case, to an inescapable need to adapt teaching/learning processes to twenty-first-century society, to its processes, to its new habits, to the essential requirements of the world that frames its way of understanding, and to take control of the new reality through the expansion of these technological resources (Gértrudix, 2006, p. 4).

The inclusion of ICTs in education opens up numerous opportunities for the development of innovative experiences, increasing convergence between different areas of knowledge (Rubio-Tamayo, Gértrudix & García, 2016: 556). Some of the advantages of ICT are (Benito & Cruz, 2005: 103–104):

- It represents new possibilities in communication, collaboration, and distribution of knowledge; it is not only an information resource but a resource for constructivist and collaborative learning.
- It facilitates personalised attention and student monitoring through virtual tutorials.
- It allows students and groups to conduct self-assessments and co-assessments of their learning.
- It can be fully integrated and used both inside and outside the classroom.
- It encourages leadership, originality, and creativity.
- It boosts skills in information collection, selection, assessment, and organisation.
- It encourages autonomous learning and develops self-learning strategies.
- It contributes to an individualised learning experience that allows learners to take different pathways, thereby establishing branched learning and personalised learning.
- It allows direct communication and exchanges of ideas, with knowledge being shared via communication resources.
- It prepares students for the effective use of these new technologies both now and in the future.
- It allows fast and updated access to information.
- It adapts to the demands of the new generation of students who value the interactivity offered by the new digital media.
- It is an efficient way of formally establishing objectives, content, activities, assessment criteria and systems from the outset, and even providing the questions to be asked to make forums and chats more dynamic, thereby offering a genuine guide for students.

On a more general level, technological convergence should be understood as a metaphor for communicative and social convergence: “it is based on sharing the best functions of both, seeking out compatible expressive structures and organisations that enhance collaboration, and it consists in reducing the negative effects of convergence” (García, 2006: 17).

This dimension is also highlighted by Marta-Lazo and Gabelas (2016) when they argue for the evolution of ICT discourse towards the ICRT model (Information, Communication, and Relation Technology), which allows for new contexts and

mediations derived from the rise of relational technology, and overcomes any notion of technological determinism. To this end, the authors place relational (R) factor concepts at the heart of educommunication, and propose *inteRmethodology* as a process that triggers a transdisciplinary approach, two ideas that are ideally suited to the current context of educommunicational convergence. From a positive and holistic perspective, “the R factor in ICT questions, modifies and proposes changes, establishing a different type of relationship between its components by introducing the ‘R’ that revitalises and configures the other three components” (Marta-Lazo & Gabelas, 2016, p. 83).

ICRTs are understood as cultural and digital practices experienced by users in technological environments, which entail a different approach to education and communication based on social, cognitive, and emotional relationships. Collective intelligence and a participatory culture humanise technology and reclaim spaces for collective creation and production in collaborative communities of learning and open, dynamic, and fluid thinking.

In this context, as will be shown below, the massive open online training offered by MOOCs represent a challenge for university institutions and their teaching staff, who are faced with the need to design highly interactive, collaborative, and omnipresent educational material, along with more dynamic and self-managed forms of assessment (López Meneses, Vázquez Cano, & Gómez Galán, 2014).

2.3 Social Networks in MOOCs as a Space for the Relational (r) Factor

In MOOCs—especially in their sMOOC version—social networks, understood as learning communities, are employed to expand knowledge related to course content, vesting it with a *transmedia* quality. Camarero-Cano and Cantillo-Valero (2016) add a nuance to the definition of certain varieties of sMOOC in the ECO project² by adding another “s” to the acronym (sMOOCs). The first “s” alludes to the social character of the participation and interaction fostered in the learning context of the course, while the second “s” refers to the seamless nature of the course experience thanks to its accessibility on different devices at any time and place.

In her analysis of the social interaction that occurs in a MOOC course, Sosa and Maria (2014) highlights the collaborative culture fostered among participants through the use of forums and social networks as a knowledge feedback strategy. Social networks are also generally viewed as a way of breaking traditional communication barriers for students with disabilities or with different abilities (Lewthwaite, 2011).

Social networks like Twitter are used as a complement to the MOOC’s original platform, with the purpose of encouraging communication, interaction, and motiva-

²European Elearning, Communication and Open-Data (ECO) Project: European Commission [Grant Number: 621127].

tion among MOOC participants (Pacheco-González & Álvarez-Olivas, 2016) and also to counteract feelings of isolation, apathy, or low motivation among students (Brady, Fisher, & Narasimham, 2016; Reed, 2013; Zheng, Han, Rosson, & Carroll, 2016). In the case of the MOOC analysed by Pacheco-González & Álvarez-Olivas (2016: 2829), Twitter was used for the following purposes:

- (a) Before the start of the course, as part of the promotional campaign.
- (b) During the course, to post announcements, distribute course resources, post introductory videos on new topics, and inform students of any relevant news stories related to the subject. In addition, it was used as a channel for alternative, informal communication for contact and interaction with the MOOC community, with the objectives of boosting motivation and contributing to the reduction of course drop-outs.
- (c) After the end of the course, to obtain participation metrics on the MOOC via Twitter.

According to Fischer (2011), participation is based on intrinsic motivation. The benefits offered by the use of social networks as expansive platforms for a MOOC include group support, the sense of a shared purpose, and collaborative creativity. These elements can trigger intrinsic motivation. In fact, findings in experimental studies like the research of Imlawi, Gregg, and Karimi (2015) suggest that the use of platforms like Facebook in online courses as a space for communication between teacher and student enhances their participation, motivation, and satisfaction.

There is certainly evidence that links the posting of messages based on amusing personal anecdotes related to the course to greater effectiveness in boosting student participation and enhancing students' perceptions of their educational outcomes (Pacheco-González & Álvarez-Olivas, 2016).

But there are also studies that dispute whether social networks actually help students to integrate personal and social spaces with formal learning contexts (Hall, 2009). Zheng et al. (2016) analysed the role of social media in the context of a MOOC, concluding that students are more interested in and engaged with a social network than the forums of MOOCs because they consider it a more real community. They also identified the motivations of teachers for using Facebook: to enhance student engagement and interest, to create a sense of community, to be creative, and to publicise the MOOCs.

Reed proposes the use of Twitter as a potential solution for promoting communication among students, providing a secondary channel during teaching activities, and facilitating channels of communication between students and teachers: "The data show that the use of social media (and Twitter in particular) can positively impact upon various elements of teaching, learning and the student experience" (Reed, 2013, p. 18). This study has aligned the use of Twitter with the three Cs: Communication, Community, and Casual (informal) learning.

In general, the use of social networks in the development of a MOOC has been rated positively by participants (Castaño Garrido, Maiz Olazabalaga, & Garay Ruiz, 2015a) and confirms a direct relationship between interaction among students and the usefulness of the network as a learning enhancer. This reality reflects the need to use tools external to the platform of the MOOC itself.

Collaboration among equals and the creation of networks in MOOC courses, although done in a more hybrid and tiered manner in cooperative massive open online courses, opens up new horizons of development for learning and sharing knowledge in university teaching environments (Castaño Garrido, Maiz Olazabalaga, & Garay Ruiz, 2015b: 134).

This points to the need for studies examining whether the platforms designed for MOOCs have tools that are powerful enough to facilitate interaction, apart from forums.

Social networks offer an excellent opportunity to create educommunicative meeting points (Hergueta-Covacho, Marta-Lazo, & Gabelas-Barroso, 2016). These virtual environments encourage collaboration with others and the construction of a community with the aim of achieving a shared goal (Enríquez Vázquez, Bucio García, Bras Ruiz, & Rodríguez Velázquez, 2017). In many cases, participation in forums is viewed as a learning activity in itself in addition to being a channel of communication. This approach reveals new opportunities for education in a relational environment. And it has the benefit of exploiting an activity that is already engaged in spontaneously by students in their leisure time when they participate on social networks. The challenge for teachers is to orient the activity towards learning in addition to entertainment.

The essential aspect of a virtual community (VC) is not that it is online but that it is made up of people; therefore, a VC will be successful to the extent that the people who form part of it come together to perform collaborative tasks; in other words, if they pursue common interests. It is important to remember that when speaking of VCs we are referring directly to aspects of sociability and social interaction among their participants, not to isolation but to collaboration (Cabero & Llorente, 2010, p. 4).

In view of the above, the social and relational nature of MOOCs, and especially of sMOOCs, is undeniable. In addition, these courses also contribute to the development of “intercreativity,” a term proposed by Tim Berners-Lee (1996) that fuses the individual ability to create original content as a personal contribution in collaboration- and participation-based environments (Mackness, Waite, Roberts, & Lovegrove, 2013; Osuna-Acedo et al., 2017). The social tools for courses thus become creative spaces for personal expression by participants with the objective of sharing within a community, with closely related interests, where opinion and feedback have credibility and importance because they are knowledge-based.

2.4 The Importance of Communication Management in MOOCs

The recent diversification of MOOCs underscores the need to move from the “massive” to the “personalisable,” catering to user groups in specific contexts with particular educational objectives. The design of a communication strategy in the teaching-learning process is necessary at every step, and especially in the personalising stage, to meet the needs of such user groups.

Escudero Nahón and Núñez Urbina (2017) suggest that the educational consumption and use of a MOOC involve four stages:

1. *Indiscriminate consumption*: initial consumption triggered by free online access available at any time.
2. *Intelligent discrimination*: as the group identifies various courses, they select the ones they consider most useful to meet the educational needs of their context.
3. *Tropicalisation*: consumers are able to adapt the MOOC to their needs, incorporating and mixing in local teaching resources and strategies, like Moodle, social networks, etc.
4. *Personalisation*: consumers feel the need to process the digital content of MOOCs to apply them in specific contexts, with particular educational objectives.

Communication management in MOOCs is essential because “virtual contexts require students to be much more active in the teaching-learning process and sometimes they do not feel prepared, resulting in the expression of negative emotions” (López de La Serna & Castaño Garrido, 2016, p. 1705).

It is thus necessary to enhance the current communication tools, such as the use of social networks, to shape the social layer of the MOOC, in the interest of developing a horizontal, two-way communication model with an open structure.

The communicative and pedagogical foundations of educommunication can constitute an excellent opportunity to exploit the endless possibilities offered by sMOOC platforms to generate a new educational paradigm, an innovative alternative in the construction of collective knowledge through two-way, horizontal and interactive communication (Gil-Quintana, 2016, p. 66).

Social participation plays a fundamental role in the MOOC learning process, as it contributes to collaboration among students, an activity that is viewed very positively by those who achieve the best outcomes (Castaño Garrido, Garay Ruiz, & Maiz Olazabalaga, 2017). This makes it clear that we need to include communication management among the aspects related to the pedagogical quality of MOOCs.

According to Wenger (1998), there are three basic elements in the construction of a community: a shared understanding (which is constantly renegotiated by its members), mutual engagement that unites its members in a cohesive group, and a shared repertoire of common resources resulting from a shared practice. Analysing what these three elements represent in more detail, Enríquez Vázquez et al. (2017) add that communication should be constant and effective, a genuine construction of dialogues that include the exchange of opinions and questions and the proposal of actions, so that the agreements made by the community or group in question are truly consensual.

The strategic nature of managing communication about MOOCs may thus prove key to mitigating high drop-out rates and enriching the educational experience. In addition, the training offered by MOOCs constitutes an opportunity to create professional communities that share and use the same open online training strategies for their own professional development (Marta-Lazo, Frau-Meigs, & Osuna-Acedo,

2018). With this in mind, a strategic communication management model should address both aspects: communication in/within the MOOCs, taking into account the heterogeneity of audiences and the needs mentioned above; and communication about the MOOCs and their platforms.

In relation to the aspects to consider for effective communication about MOOCs, in their study Marta-Lazo et al. (2018) confirm the identification of three types of participants in sMOOCs—based on Nielsen’s 90–91 Rule—that prove extremely useful in the first strategic step in any communication plan: the identification of the participating audiences. These audiences would be:

- *Participants with a critical profile* (1%), intermediate leaders, who complete the sMOOC, actively offer opinions in sessions, co-build their knowledge with others, and participate in the co-authorship of all course material.
- *Participants who respond* (9%) to the activity of participants with a critical profile.
- Observer participants (90%) with no involvement or commitment.
- Each group will need a different communication strategy aimed at increasing participation in the MOOC.

2.5 Communication About MOOCs and Their Platforms: Case Studies

In view of the above, the strategic nature of managing communication about MOOCs may thus prove key to mitigating high drop-out rates and enriching the educational experience. In addition, the training offered by MOOCs constitutes an opportunity to create professional communities that share and use the same open online training strategies for their own professional development (Marta-Lazo et al., 2018). With this in mind, a strategic communication management model should address both aspects: communication in/within the MOOCs, taking into account the heterogeneity of the audiences and the needs mentioned above; and communication about the MOOCs and of their platforms. In the following pages, we will consider the second dimension.

Communication mechanisms for MOOCs and their platforms should not be understood merely as a one-way strategy between platform/institution and user, as they have more profound implications, such as the aforementioned communication in/within the MOOC and the regular management of reminders to users in order to ensure their ongoing participation in the educational service in the interests of preventing the high drop-out rates mentioned above.

We have conducted a content analysis of the websites and the presence on social networks of a convenience sample of platforms for massive open online courses: Udacity, Coursera, EdX, and ECO. We have chosen ECO and the three top-rated platforms by Related Education Reviews (2018). The main features of each institution are identified, both in the management of their intangibles and in the inference

of a possible audience type profile. The variables considered are graphic development; the website in its different language versions; the public descriptor; the mission stated; the volume of interest triggered (Google Trends); and the digital spectrum based on the presence of the MOOCs on the social network Instagram according to the Deep Social database.

On the **graphic level** (see Table 2.1), all four MOOC platforms have opted for a typographic version of their logos, accompanied by unique graphic techniques that could function on their own only in the case of Udacity. The other platforms include the graphic touches on the text itself, without this having any apparent effect on the reading and comprehension of their names.

All of the websites of the educational platforms adapt to the local **language**, in accordance with the location of the user, except for Udacity, which appears only in English. This fact, along with the use of the isotype separately on different applications examined, suggests that Udacity aims more for symbolism with a brand that is rich with meaning to a wide, geographically dispersed audience.

The above observations are further supported by the **graphic representation of each website** on its home page. Udacity is the MOOC platform that has the most consistent page in relation to its graphic mark, not only for its application in colour terms but also for the development of an iconography of its own, in keeping with its content. Coursera has a website with a more complex and less user-friendly design, making it more difficult to find information. Although it provides graphic information on its collaborating educational institutions, there are not many other strategies observable to provide information on their courses and educational services. It is thus a website with a sterile sheen, seemingly far removed from the precepts that the brand might have established. The EdX website is simpler to use than Coursera's and accessing the information is more intuitive: any content can be accessed easily from the home page. Finally, the ECO website is positioned differently from the rest of the sample because it is the product of a research project with various partners from around Europe. This situation creates two needs: on the one hand, to show the courses offered; and on the other, to offer corporate information in keeping with the

Table 2.1 Positioning by descriptor

| Graphic representation | Website | University | Descriptor |
|--|--|--|---|
|  UDACITY | www.udacity.com | Stanford University | Free online classes and nanodegrees |
|  coursera | www.coursera.org | 138 associated institutions | Online courses and credentials by top educators Join for free |
|  edX | www.edx.org/es | Harvard University | Accelerate your future. Learn anytime, anywhere. |
|  ECO Elearning Communication Open-Data | www.project.ecolearning.eu | Universidad Nacional a Distancia (UNED, Spain) | Elearning Communication Open-Data |

Source: Prepared by authors, based on information collected from websites

institutions participating in the project. Eco’s website is notable for the wealth of information it contains and the use of its corporate colour patterns. However, like Coursera, it suffers from a certain weakness of brand personality, both verbally and graphically.

Our analysis of the **descriptors** used by the different MOOC platforms in the presentation of their websites found notable differences, despite the fact that they are all offering the same type of educational service. In this case, it is not possible to speak of a single set of criteria for the whole sample, other than the fact that they all belong to the field of education.





There is a certain similarity between Udacity and Coursera in some of their descriptive elements with the use of classifications like “online” and “free,” but the terminology used to describe the service is different, as Udacity refers to classes and “nanodegrees,” while Coursera makes reference to courses and to the benefit of all this online education: to obtain a credential that confirms successful completion of the course in question. However, Coursera does posit a sales argument that alludes to the benefit of the service—to obtain accreditation for the course—and also adds a guarantee that none of the other MOOC platforms includes: teaching quality.

EdX presents a similar focus to Coursera’s, straddling the line between the descriptive (“Learn anytime, anywhere”) and the advantage offered (“Accelerate your future”), inverting what we would expect to be the natural order of things in advertising, where a product is described first and then the benefits it offers are explained.

ECO is the most descriptive MOOC in terms of verbal expression, as it makes no explicit reference to the educational formats it offers, offering only a generic description of the project and explaining the origin of its name as an acronym: *Elearning Communication Open-Data*.

Although we could already infer a number of conclusions from the differences between the platforms outlined above, we will consider their **corporate missions** in order to identify some keywords that will help us to locate each educational platform in a related competitive space. In this respect, we observe a certain consistency, not only on each MOOC platform’s website but also in their social network presence, between their corporate discourse and the image they project to their target audience (see Table 2.2).

Table 2.2 Elements of the sample and corporate mission

| | Graphic representation | Mission | Assessment of positioning |
|----------|---|---|-------------------------------|
| Udacity |  | Bring accessible, affordable, engaging, and highly effective higher education to the world | Reliability and assurance |
| Coursera |  | Universal access to the world’s best education | Academic rigour and assurance |
| EdX |  | Increase access to high-quality education for everyone, everywhere | Improve your future |
| ECO |  | Widen access to education and to improve the quality and cost-efficiency of teaching and learning in Europe | European platform |

Source: Prepared by authors, based on information collected from websites

All four MOOC platforms are positioned as a bridge between education and an audience interested in access to that education, but it is in certain nuances that we can glimpse certain aspects of their positioning that can shed some light on the nature of each one. It should be noted that this is essentially a preliminary assessment, as we would also need to explore the perception that the image of each platform projects for its different target audiences in order to establish a reliable and accurate measurement of its actual positioning.

ECO is the MOOC that has the most markedly distinct features, as it is a European project still in its infancy, although its educational programmes can be accessed by anyone who is interested in them.

The proposals offered by Udacity, Coursera, and EdX are all more similar; having reviewed vectors like brand and product, we identify Udacity as a brand that projects a certain image of reliability and assurance that instils confidence in its training programmes. Moreover, Udacity backs up this image with the presentation of important companies that it collaborates with. Coursera appears to take a similar approach by associating itself with the solid reputations of the universities that offer its training programmes, to project a certain rigour and assurance through these institutions. EdX seems to adopt a positioning that is the most differentiated from the others; although it exhibits some of the features of the other platforms studied, it does not allow these incentives to overshadow its brand or services. Given the descriptor it uses, it appears to place an emphasis on the student who chooses to study with them. This is an interesting approach, with the user at the centre and the benefits offered to that user as the starting point.

To assess the level of interest enjoyed by each platform, we used Google’s search analysis tool Google Trends, which provided us with results on the **volume of interest** generated by each institution online. Local (Spain) and global (worldwide) searches were conducted for the period of the last 10 years, with the aim of identifying possible differences.

The appearance of the MOOCs at the beginning of the decade is clearly reflected in Figure 2.1 starting in 2011, EdX being the only institution that existed prior to that time.

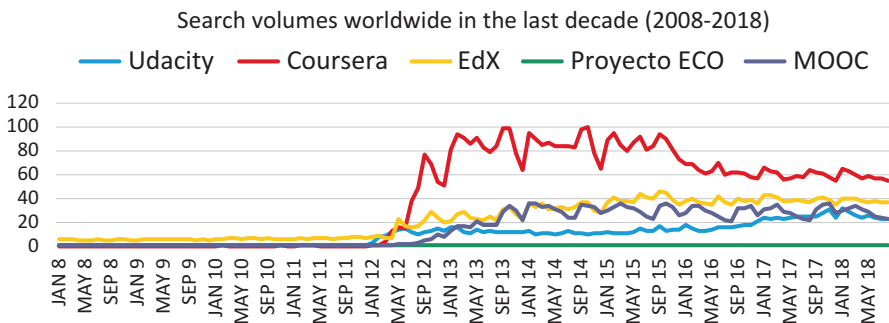


Fig. 2.1 Search volumes generated by the MOOCs worldwide (2008–2018). Source: prepared by authors, using Google Trends

If we analyse the direction and vectors of each result, we find that we have now entered a stage of a certain normalisation of the concept, following its initial dissemination. In this sense, the graph presents a rough image of the pattern we described earlier. The case of Coursera appears to be the most representative in this respect, beginning with a clear upward trend which, following a drop, has stabilised over time.

It is interesting to include the term “MOOC” itself in this search, as it appears to bear a certain relationship with Udacity and EdX with respect to their search volumes; in this respect, it should be noted that these platforms have used the term “MOOC” as one of the recurring semantic fields in their communications, but this does not appear to be the case for Coursera, which does not need to make use of this category descriptor.

At the local level (search volumes in Spain in the last decade, 2008–2018), we find some results (see Fig. 2.2) that replicate the data for worldwide searches, with Coursera predominating over the other platforms.

It is worth highlighting the bigger volume of term searches for “MOOC” compared to the other terms, especially since the middle of the decade, reflecting some interest from an audience that might have turned into a generalist audience, at one point even exceeding the level of interest in the leading platform: Coursera. In any case, all of the platforms are currently in a valley period, with a downward trend in their search volumes, as reflected in the table. In both tables, the ECO project has very low search levels. This may be due to the heterogeneous nature of the project and the degree of precision of the Google Trends tool in relation to the management of keyword searches that could prove confusing due to their polysemic nature.

This analysis confirms the interest that exists in MOOCs, both worldwide and in Spain, as well as the predominance of Coursera over the other platforms based on its positioning as assessed above, and the evolution of its educational services in response to the interests of its audience.

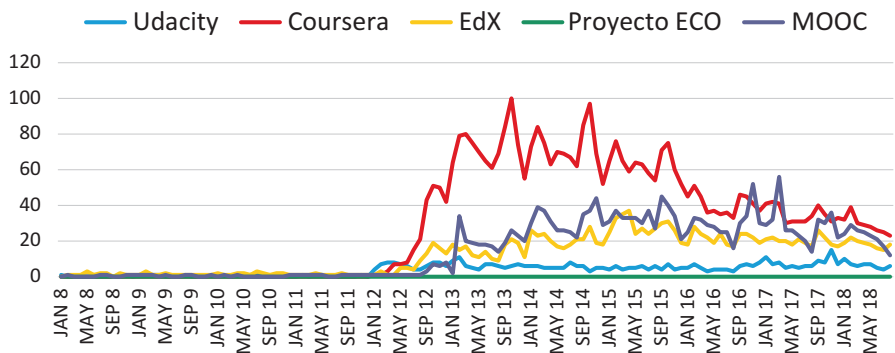


Fig. 2.2 Search volumes in Spain generated by MOOCs (2008–2018). Source: prepared by authors based on Google Trends data

In relation to communication mechanisms, we will analyse **the digital spectrum through the presence of the MOOCs on the social network Instagram using the Deep Social database** (see Table 2.3). ECO is excluded from this communication analysis because it does not have a presence on this social network and its most recent update on other social networks was in 2017.

While none of the MOOC platforms has a significant engagement ratio through interaction with its audience on this social network, the differences between platforms are notable in each metric chosen, with a number of paradoxical findings, such as the fact that EdX, which is the oldest account with the fewest followers, nevertheless has the highest engagement ratio. The fact that other platforms have higher numbers of followers but fail to achieve the same engagement levels supports the hypothesis that the natural pattern for each platform begins with an initial rush of student interest and then suffers a high drop-off rate. As a result, we have communities that are large in number, but ultimately more passive.

It is also interesting to compare the nature of the target audience, in terms of both gender and age, as Udacity has a larger proportion of males, compared to the practical gender parity of the other two platforms. At the same time, the bulk of Coursera's community covers a wider age cluster than the usual range, which may explain its predominance in terms of search volumes, as noted above.

With respect to audience types, both in terms of origin and motivations, we can see certain elements common to all the platforms (see Table 2.4), such as the predominance of the United States as the biggest audience source, the same position of Spain in all the platforms, and the appearance of two main lines of motivation and interest for MOOC consumers, namely: photography and catering.

It is clear, based on the data gathered, that the audience profile is quite diverse as far as the country of origin is concerned, including, in addition to the United States, countries that have been considered leaders in development in recent years, such as Brazil and India. The presence of Spain, although a constant, is essentially nominal, corroborating the results of the relevant analysis outlined above.

The audience motivations appear to point to certain clusters of complementary interests. Both photography and catering and food services convey a dual message in terms of the profile of the audience for these MOOCs: they are people who invest in areas of knowledge (technology and gastronomy) for which training, although regulated, has been complemented by the appearance of unofficial training content

Table 2.3 Analysis of Instagram accounts on the platforms

| Instagram | Account creation date | Number of followers | Engagement | Audience | | |
|------------|-----------------------|---------------------|------------|----------|--------|----------------|
| | | | | Male | Female | Main age range |
| @udacity | 02/2016 | 30,563 | 1.46% | 70.08% | 29.92% | 25–34 |
| @coursera | 07/2017 | 4307 | 0.88% | 47.66% | 52.34% | 18–34 |
| @edxonline | 09/2014 | 2340 | 2.08% | 56.41% | 43.59% | 25–34% |

Source: prepared by authors based on Deep Social data

Table 2.4 Analysis of Instagram audiences on the platforms

| Instagram | Audience origin | | | | Audience motivations | | |
|------------|------------------------|-----------------|-------------------|-------|-------------------------------------|-------------------------------------|-------------------------------------|
| | 1 | 2 | 3 | Spain | 1 | 2 | 3 |
| @udacity | United States (20.9%) | Brazil (17.5%) | India (13.3%) | 1.12% | Electronics and computing (42.03%) | Photography (39.05%) | Catering and food services (38.18%) |
| @coursera | United States (18.97%) | Brazil (11.21%) | Russia (8.62%) | 1.72% | Photography (41.59%) | Catering and food services (41.12%) | Travel and tourism (38.79%) |
| @edxonline | United States (26.19%) | India (21.43%) | Indonesia (3.17%) | 1.59% | Catering and food services (53.60%) | Photography (53.60%) | Electronics and computing (46.40%) |

Source: prepared by authors based on Deep Social data

Table 2.5 Analysis of type and nature of communication about the MOOCs in the sample

| Instagram | Type of communication | | | | | Nature of communication | | | | |
|------------|-----------------------|---------|----------|---------|---------|-------------------------|---------|---------|----------|-----|
| | Product | Brand | Audience | Partner | Other | Image | Text | Video | Carousel | Gif |
| @udacity | 8 (40%) | 3 (15%) | 1 (5%) | 5 (25%) | 3 (15%) | 7 (35%) | 4 (20%) | 2 (10%) | 7 (35%) | – |
| @coursera* | 1 (20%) | 1 (20%) | 1 (20%) | 2 (40%) | – | 3 (60%) | – | – | 2 (40%) | – |
| @edxonline | 4 (20%) | 5 (25%) | 7 (35%) | 4 (20%) | – | 15 (75%) | 5 (25%) | – | – | – |

*In the case of Coursera, the five existing posts were analysed, making up the total percentage

Source: prepared by authors, according to their estimates

on social platforms like YouTube: tutorials, tips, tricks, opinions, and recipes feed the interests of the MOOC audience.

It is thus a young profile of online content consumers, around 25–34 years of age, of diverse places of origin, who are aware of the need to complement their training, combining both personal and professional motivations.

Our analysis of the communication of the MOOCs in this online environment has revealed, significantly, that none of these platforms has developed a reinforcement or reminder strategy in the interests of preventing students from dropping out of courses once enrolled. At the beginning of this section, we noted the need to establish strategic plans on this front, but we have not found any evidence of such plans, at least not on the digital spectrum analysed (Table 2.5).

Our analysis of the last 20 Instagram posts on each of these accounts yielded some interesting data, due both to the type of communication (when the communication is about an educational product, the brand, the consumer, a partner, or other elements) and to the nature of the communication (image, text, video, image carousel, or gif).

Generally, the communication is markedly commercial. We have observed that it is unnecessary to promote the educational products offered on each platform directly,

as the appearance of partners (professionals, academics, and collaborations with other institutions) can convey the benefits of each training product. Specifically, it is worth noting the preponderance of the role that the audience plays in EdX, through student testimonies and certificates of academic achievement; in this sense, it is a platform with a more consistent approach in terms of communication strategies.

The types of formats used reflect the heterogeneity of graphic resources employed. The one exception is that images are the most widely used element, especially in the form of image carousels as one of the most common formats. The result presented here is not significant, and thus a more detailed analysis is required.

This review of the brand spectrum of each platform, and the specific approach to communication, especially given the characteristics of MOOCs as a product, offers us a holistic view of this educational reality. Notwithstanding the potential biases identified, this analysis sets out the general parameters for exploring each platform, its particular idiosyncrasies, its communication needs, and the potential tools to be used, in the interests of closing the gap between the institution, existing students, and potential students.

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Chapter 3

Digital Platforms, Participation, and Learning Environments Within MOOCs



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3.1 MOOCs: A New Paradigm for Learning

Bosom Nieto and Fernández Recio (2008) state that in recent years there has been a change in the *online* training educational model, incorporating a series of technological tools that offer the possibility of contributing to the production of collective knowledge. According to these authors, knowledge is no longer on the Web, as it used to be in books and libraries, but rather the Web itself has become a source of knowledge and a tool for developing educational content collaboratively. These two researchers argue that MOOCs content and training activities are designed to learn by doing, stimulating the creativity and curiosity of the student in his or her role as an active member. In such a way that each person is the protagonist of their training and transforms the process of listening, viewing, and reading the contents of the course into informal conversations, games, and simulations, which then become tools to build collaborative knowledge.

The new learning paradigm represented by MOOCs in the last decade has been the subject of scientific literature. Aguayo Franco (2017) explains that in recent years different studies have been focused on analyzing scientific production in this learning environment. Among them are the bibliometric studies by, Aguaded,

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Vázquez-Cano, and López Meneses (2016), Mengual-Andrés, Vázquez-Cano, and López Meneses (2017), Sangrà, González-Sanmamed, and Anderson (2015), Zancanaro and Carvalho de Souza (2018); along the same lines, the work of Arnol and Sangrà Morer (2018) on the potential of ICTs in learning is noteworthy. MOOCs have also been the subject of European research projects, such as that of Valle Casanova (2015). As antecedents to this state of the art, there are works that go back to the previous decade, such as Siemens (2005) and Atkins, Seely, and Hammon (2007) among others. However, scientific production has not ceased in recent years as evidenced, for example, in the work of Siemens, Downes, and Cormier (2012), Vinader and Abuín (2013), Cabero, Llorente-Cejudo, and Vázquez-Martínez (2014), Rivera (2014), Castañón and Ziegler (2016), Gértrudix Barrio, Rajas Fernández, and Álvarez García (2017), Ramírez-Donoso, Rojas-Riethmuller, Pérez Sanagustín, Neyem, and Alario-Hoyos (2017), Morado (2018), Osuna-Acedo, Marta-Lazo, and Frau-Meig (2018), Gil Quintana and Martínez Pérez (2018), Roura-Redondo and Osuna-Acedo (2018) and Arnol and Sangrà Morer (2018).

3.1.1 A Virtual Learning Community

MOOCs are conceived as a virtual learning community that is characterized precisely by its collaborative nature. Poy and González-Aguilar (2014) state that this virtual space is defined as a social network that gathers people with common interests, whether at work, in academia, or in any other field. In this learning environment, students can contribute to collective knowledge by sharing ideas that they construct and share based on the responses of other students, through an *online* learning model based on the double interaction between students or between teachers and students. Suárez-Guerrero (2010) argues that, in order to be cooperative, this virtual interaction requires as a necessary condition the existence of a common goal for all participants. From this common goal emanate the needs for joint action technologically mediated by asynchrony. Meanwhile, Raposo-Rivas, Martínez-Figueira, and Sarmiento Campos (2015), based on the theses of Siemens (2005), have shown that cooperation and collaboration activities that are proposed as pedagogical content for this type of training actions have a direct impact on how students perceive and process information, which generates an alternative way of building knowledge.

3.1.2 Culture of Participation and Learning in MOOCs

Roura-Redondo and Osuna-Acedo (2018) claim that the most defining characteristic of our era is a culture of participation. The concept of participatory culture, previously coined by Jenkins (2006), is related to values such as diversity, inclusion, horizontality, democracy, and the relative absence of barriers to any form of civic

expression and commitment. In this sense, a participatory culture would be one in which members feel some degree of social connection or, at least, think that their contributions are significant to others. Roura-Redondo and Osuna-Acedo also point to media convergence, social networks, and virtual platforms as fundamental elements of the knowledge society, as they all generate spaces that facilitate participation, interaction, and collaboration. Both authors consider that digital technologies, as virtual spaces for participation, foster collaborative spaces in which it is possible to collectively build collective intelligence. In a previous contribution by Aparici and Osuna-Acedo (2013), they already realized that the last decade has seen the emergence of collaborative and participatory culture on a global scale. According to these researchers, participation can occur spontaneously—like a tide of ideas, without clear objectives—but it acquires special importance when it has its own identity, intentional degrees of visibility, a reputation and—in addition—can be positioned on the web. It is in this second case, when participation can become a cultural strategy of different social groups to reinvent digital citizen power.

The researcher Gil Quintana (2017), echoing the contributions of Castells (2008), has defined participation as a new communicative model open to horizontality and democratic citizenship that has given way to a type of innovative user who seeks to interact in this great space that is the Network Society, taking part in it and collaborating actively in its construction. This scenario is certainly a fertile ground for the implementation of MOOCs as a learning model.

In general terms, the culture of participation implies horizontal communication models where power relations give people the possibility to exchange viewpoints, to express ideas and comments, and also to work collaboratively. Undoubtedly, Web 2.0, social networks and the remaining ICTs currently constitute an ecosystem that encourages participation and interactivity. It is precisely within this social and technological framework that MOOC learning communities cannot be conceived without taking into account the participation of students and teachers. Nor can they be conceived without taking into account the existence of an effective interactivity between both groups and without a shared vision of collaborative work. From there, it is convenient to look at the dimension of MOOCs as virtual learning communities and to identify their main characters, their interrelationship modes, and the instruments used for the construction of collaborative contents.

3.2 MOOCs: An Evolving Educational Model, Subject to the Technological Impact and Dynamism of Social Media

One of the first educational experiences to be given the name MOOC was the *Connectivism and Connective Knowledge* course, organized in 2008 by Siemens and Downes at the University of Manitoba (Canada). Since then, the dynamism of

this training modality has been permanent, mainly as a result of the evolution of ICT and social networks. Osuna-Acedo et al. (2018) have discussed the constant and dynamic evolution of MOOCs in the last decade. In this sense, they point to the first models called cMOOCs and xMOOCs as antecedents of the current MOOCs. Bernal González, Prendes, and Sánchez Vera (2016) qualify the former as courses based on constructivist models, while the latter is situated within the behavioral model. cMOOCs are based on the connectivist current and seek to stimulate the exchange of information in a joint learning environment where technology-facilitated interaction is fundamental. For their part, xMOOCs tend to reproduce what happens in the classroom and have a pedagogical system that is not far removed from the one normally used by the teacher in a regular face-to-face classroom. These are standardized courses that often lead to certifications supported by educational institutions (Conole, 2013).

These two training models have evolved towards pedagogical formats that enhance student interaction by combining it with the participation model implemented by existing social networks. These are the so-called postMOOCs and sMOOCs. Osuna-Acedo et al. (2018) have pointed out that sMOOCs (*Social Massive Open Online Courses*) introduce a greater degree of social interaction and participation, are accessible from different platforms, and can be integrated into real-life experiences. Parallel to this model, tMOOCs (*Transfer Massive Open Online Course*) are based on the transfer of learning towards a profession, pedagogical transformation, transmediality, open temporality, intercreative talent, and collaborative work and tolerance. Osuna-Acedo et al. claim that, in so doing, a new dimension is reached in this type of courses—the tMOOCs or transferMOOCs—which provide students with the necessary skills to put into practice all the learning tools and methods, as well as peer co-evaluation systems.

3.2.1 MOOC Actors and Main Characters

Today, the Internet and social networks allow everyone who participates in a MOOC to teach others, informally. Now, this teaching model is multidirectional: from student to student, from teacher to student, and from teacher to teacher. Researchers such as Poy and González-Aguilar (2014) and Sosa, López, and Díaz (2014) have referred to the key characters and the role that each of them plays in this virtual teaching model. In relation to the role played, these researchers have identified the course professors and students as the main actors. However, the participation of some representatives of the institution who intervene in logistics, technical support, or in the student's relationship with the MOOC's teaching institution is also fundamental.

3.2.1.1 The New Role of the Teacher in MOOCs

Under the MOOC methodology, teachers have become organizers of the teaching process, coordinating collaborative work and adapting the design of activities to group dynamics. According to Sosa et al. (2014), platform administrators/teachers are responsible for coordinating the course, planning activities, and solving difficulties. Another fundamental mission of the teacher is the supervision of the tools available to achieve student motivation and follow-through.

Recently, Muñiz (2017) interviewed the Director of the UOC's eLearn Center, who expressed his conviction that currently, in MOOCs and in new online training, the teacher should not transmit information because it is already included in manuals, articles, and websites. In the new paradigm, the teacher is a coach who follows each student, helps them in their learning, and evaluates them, not with exams but with tasks that demonstrate their know-how. To such an extent that, now, the teacher has become a coordinator of teams with key competences for the new workplace and social environment, such as entrepreneurship and leadership, as opposed to the old teacher who transferred his or her knowledge to the students. From this same perspective, Marta-Lazo, Frau-Meigs, and Osuna-Acedo (2018) stress the importance of the training of e-professors and the transfer of knowledge from a professional point of view.

3.2.2 MOOC as a Personal Learning Environment

In MOOC, the student's role is fully active and students are partly responsible for their own learning. Sosa et al. (2014) state that their participation and involvement through programmed activities are fundamental. In fact, they maintain that the success of MOOC platforms is conditioned on student participation through contributions in forums, chats, and other collaborative instruments offered by the course platform, in order to be able to build social knowledge through interaction with other users. This creates what Bosom Nieto and Fernández Recio (2008) call a personal learning environment, conceived as a way of using the tools offered by the Internet to self-manage the educational process itself. In this space, the role of the student is active and has the support of all members of the community participating in the training action. In short, learning is now self-directed, as opposed to the old educational system offered by the educational institutions of the twentieth century.

It is difficult to delimit and measure the term *participation*. Dahlgren (2012) has said that it is possible to speak, on the one hand, of interaction for the production and exchange of information and, on the other, of the different degrees of participation intensity. From this perspective, Sánchez Vera and Prendes Espinosa (2014) classify the participating students into three categories, according to their degree of involvement in MOOC courses. Thus, they differentiate between *active participants*, which defines those students who update their blogs and *Twitter* accounts, interacting with other students in the course; *voyeurs*, which includes students who

actively participate in the course but do not follow the members of the group, focusing exclusively on the content and not on other students; finally, they refer to the so-called *passive participants*, who throughout the course did not interact with either the information offered in the course or with other participants in the training process.

3.2.3 A new Student–School Relationship

The change in the pedagogical model has also transformed the educational environment and the contents of instruction. Now schools can be everywhere—at school, at home, at work, in places of leisure, etc.—and their contents are multimedia, open, accessible to students and, in many cases, improved and even created by them. In addition, it is necessary to highlight the importance of the work of other collaborators of the educational center—such as the Student Clerk’s Office or the Informatics Department, for example—that allow a student-educational institution interaction that makes it possible for the student to feel integrated and have a feeling of belonging to the institution, as opposed to the sensation of being just a number among the participants of a specific MOOC.

3.3 Open Source Pedagogical Platforms

There have been several authors who have conducted research on the path followed by technological platforms to become strategic tools for training that allow integrating social and collaborative tools in the technological environment of *Web 2.0* and *Web 3.0*. At the beginning of this decade, Checa García (2010) already gave an account of this journey. Previously, the researcher Boneu (2007) stated that, from a diachronic point of view, the evolution of *e-learning* has been implemented in three technological support models, whose characteristics are determined by the possibilities of collaboration and self-management of contents offered to users. In the first place, this author mentioned the so-called *Content Manager System* or *Course Management System (CMS)* which, among the *e-learning* platforms, are the most basic because they hardly have any collaboration tools among the participants; in the second place, there would be the *Learning Management System (LMS)* which provides an environment that allows the updating, maintenance and expansion of the web in collaboration with many other users; finally, it would be necessary to mention the *Learning Content Management System (LCMS)* which groups together the functionalities and utilities of the two previous ones, adding content management to personalize the resources of each student. The new learning platforms implemented in current MOOCs have been incorporated on this foundation.

Bravo-Agapito, Centellas-Rodrigo, and Aguayo-Sarasa (2018) point out that there are now different types of platforms used in the MOOC environment. The same

applies to Roig-Vila and Lorenzo-Lledó (2017) who, due to their level of implementation and success in the market, highlight the following among others: *edX*, *Udacity*, *Coursera*, *Future-Learn*, *MiriadaX*, and *Iversity*. The *edX* platform, created by the Massachusetts Institute of Technology and Harvard University, offers nearly 2000 courses using the cMOOC methodology; *Udacity*, promoted by Stanford University, has open courses related to research projects; *Coursera*, from Stanford University, collaborates with more than 150 educational institutions around the world; *Future-Learn*, an Open University initiative, offers language courses; *MiriadaX* is a Spanish platform that stemmed from the initiative of Universia and Telefónica Educación Digital that offers courses, mainly in Spanish; and finally, *Iversity*, which is a virtual European platform for hosting and delivering MOOC courses aimed at higher education and business training. According to Gil Quintana (2017), the number of platforms for MOOCs has been increasing at an international level, with the *Redun* platform in Latin America as an example of success.

3.3.1 *The Virtual Environment as an Added Value for Learning*

The idea that the MOOC model provides certain added values to training actions has been reflected in the scientific literature. Researchers such as Osuna-Acedo et al. (2018) argue that the most relevant characteristics of the so-called tMOOCs are tasks, the transfer of learning towards the profession, pedagogical transformation, the relational factor, transmediality, open temporality, transnationalism, inter-creative talent, collaborative work, and tolerance. It is evident that some of them clearly connect with traditional pedagogy, while others—such as the relational factor or tolerance—can be considered as an added value and a sign of identity for this type of teaching.

Along similar lines, Morado (2018) has asserted that the virtual environment created on the platforms used in MOOCs generates the possibility of constructing a learning environment in which people interact with each other, bringing emotions and knowledge into play, while at the same time making it possible to elaborate contents in an active and collaborative manner alongside other students and teachers. In this sense, the researcher highlights a series of aspects that influence the success of these virtual learning environments: interactivity, multidimensionality, the creation of socialization spaces, and the possibility of collaborative, flexible, and multisensory learning.

However, there is criticism of MOOCs in terms of their instructional design and practice because teachers sometimes lack the necessary skills to harness the power of technologies, which sometimes leads to high dropout rates (Conole, 2013). Similarly, researchers such as Gil Quintana and Martínez Pérez (2018) believe that MOOCs continue to present technological difficulties because there is still no clear interest among companies in perfecting the tools of these virtual platforms and

spaces. They point out, in this sense, the need to create a more user-friendly *interface* model, similar to that of social networks where millions of users interact every day.

3.4 Collective Knowledge and ICT

The use of virtual environments to develop personal interactions is evidently revolutionizing the educative landscape on a global scale. Today, the technological structures of learning communities are more socially powerful and innovative for networking and more conducive to the creation of learning communities and knowledge networks (Santamaría, 2009; Abdul and Ramírez 2009). Participation on the Web is no longer based on a unitary and uniform dynamic, but it displays different approaches and asymmetries. Thus, *bottom-up* dynamics (collaborative environments, horizontal regime, inclusion, transparency) and *top-down* dynamics linked to institutional practices that sometimes restrict the forms of participation coexist. In this sense, the great change that is taking place in learning communities denotes a shift from a world of decentralized power to one of distributed power where students are the managers and creators of content themselves (Ugarte, 2007a, 2007b). None of this would be possible without the competition between technology and digital convergence.

3.4.1 Tools and Formats for Interaction, Participation, and Collaboration in the MOOC Learning Community

The new educational paradigm of MOOCs is characterized by the omnipresence of digital tools for learning. Scientific literature has reported the emergence of tools and new strategies to improve the learning experience and results in this type of training. These are instruments that have evolved as technology has provided new possibilities for participation and interaction in the courses. Researchers such as Rivera (2014), Sánchez-Acosta and Escribano-Otero (2014), Bernal González et al. (2016), and Vivar et al. (2011) have pointed out some of the most common tools and formats in MOOCs that allow participation, communication, and the collective construction of knowledge. They point out, among others, some of the first ones used in this training format, such as the *portfolio*, *surveys* and *questionnaires*, *projects*, *workshops*, *tasks* and *activities*, or *anecdotal evidence*. They also mention other second-generation ones, such as discussion forums, blogs and wikis, collaborative games, video games, and specific content for social networks. Finally, we must allude to the gamification-based tools and the latest narrative techniques applied to ICT: machine learning, chatbots, and others mentioned below.

These tools enable collaborative content creation, peer review, and individual and group reflection on learning experiences. In short, they enable users to collaborate intuitively in digital environments and easily access the wide range of knowledge created in these environments and pedagogical formats. This is the case, for example, with the methodology used in the so-called *wiki*. What distinguishes *wiki* from *blogs*, discussion forums, or other content management systems is that there is no inherent coded structure: *wiki* pages can be interconnected and organized as needed, enabling a better construction of collaborative knowledge. Forums are also considered a support and information exchange channel between peers. Along the same lines, *gamification*, video games, virtual worlds, and social networks are tools that help increase student performance and encourage interaction with the teacher and other students (Vivar et al., 2011).

All these tools and formats have evolved over the years. Thus, for example, there has been a shift from instant messaging to remote-access videoconferencing or the creation of mindmaps for the exchange of knowledge (Rivera, 2014). Clearly, the use of some of these resources and tools began with the implementation of Web 2.0 in MOOCs—as in the case of collaborative *wiki*—while others, such as social networks, are tools that emerged starting in 2006—and are therefore relatively recent—although they have evolved in terms of interaction and the format of their contents. As Sotelo (2009) pointed out, *e-learning* brought networking, multidirectional communication flows, and the socialization of knowledge closer to teaching. But technology is advancing and now Web 3.0 contributes, through mobile learning, to give more autonomy to the user and to better adapt to their needs, as Mira-Jiménez (2017) argues.

3.4.2 *The Relevant Role of Social Networks in MOOCs*

In today's MOOC landscape, the role of networks is particularly relevant. The technology on which they are based allows users to share various types of data and information in multiple formats: audio, text, and video. This feature makes social networks an ideal means of exchanging communication and knowledge.

Unlike traditional unidirectional media, social networks enable a bidirectional dialog in which control is decentralized and open to a large number of users. Within social media, teachers play an important role in guiding productivity to achieve certain goals, activating the network and revolutionizing the learning process. As a consequence, teachers today assume the role of facilitators seeking solutions to problems, rather than maintaining the old role of the teacher authorizing and supplying knowledge.

Authors such as Sánchez-Acosta and Escribano-Otero (2014) have tackled the typology of social networks used for social action in massive *online* courses. Firstly, they mention the strict social networks, which allow any specialization and adapt freely to any type of educational action. Among them they distinguish two types: on the one hand, horizontal social networks, which can accommodate millions of users without a specific theme, as is the case of Facebook; on the other hand, vertical

social networks, more closed and controlled, allowing only people authorized by the administrators to join them, the use of which is one of the strengths of MOOC platforms. Secondly, these authors also refer to the so-called complete social networks, which make it possible to distinguish between groups of friends or followers and control shared content, as is the case with *Google +* and its so-called circles. According to Sánchez-Acosta and Escribano-Otero, the latter is not suitable for MOOCs because it is difficult to control outgoing and incoming information in the course. Finally, these authors mention another social network—with short messages where the information shared is minimal and it is not necessary to add other types of resources—as is the case of *Twitter*.

Social networking sites, such as *Facebook*, facilitate informal communication in a virtual setting where students can work in a cultural participatory community and learn through a process involving their collective intelligence. Its special condition to promote the dissemination of relevant information on a specific topic and to encourage the participation of the members that make up the educational community makes it an ideal tool to consolidate the learning communities created around MOOCs. *Twitter* is also one of the social networks that are available in most courses. Like other social media, this social network enables a very complete conversation, as it allows the insertion of links and a series of other resources that help, among other things, to classify the information through *hashtags* that define the keywords. Due to numerous network planning programs, such as *Hootsuite*, information can be connected to this social network and produce a lot of topics and news in real-time.

3.5 The Path of Transmediality, Virtuality, and Gamification in MOOCs

In scientific literature, authors such as Gértrudix Barrio et al. (2017) are already talking about the importance of incorporating audiovisual, interactive, and *transmedia* content into MOOCs. The same is true for the professional sector, as Sánchez (2018), Director of *Vértice eLearning*, has pointed out. This expert explains that some of the latest trends and tools are undoubtedly improving the participation and effectiveness of online training and therefore of MOOCs. Among them, Sánchez highlights the following:

- *Adaptive Learning*.
- This is a methodology that aims to adapt the instructional material to the student's pace and needs. Tools such as machine learning and chatbots, based on artificial intelligence, are available for this purpose. Its aim is to detect users' needs in order to anticipate and provide effective solutions.
- *Storytelling and gamification*.
Storytelling is a narrative technique used to create stories and transmit knowledge that connects with the most emotional part of the student. As a complementary trend to storytelling, gamification has become an instrument of internalization of knowledge through play, to generate a positive experience in the student.

- *Virtual Reality.*

This is a tool that transports the user to a different space where we can interact with all its elements. An environment where the student stops being just a spectator to become part of a new context that offers possibilities to design, create, and share knowledge.

- *Crowdlearning.*

It is a term used to describe the arrival of instructional tools, such as online videos, *webinars*, or free MOOCs, among others, that promote collaborative work towards achieving specialization through active and dynamic training using *microlearning* or training pills that should not exceed 30 min in length.

The communities that make these digital tools possible in the MOOCs constitute an extraordinary scenario to enrich the *transmedia* approach, by adding new educational realities. Researchers such as Torres Macera and Gago Saldaña (2014) pointed out that its multichannel character is the main feature of the multimedia vision applied to *online* learning.

3.6 Some Considerations for Improving MOOC Participation Procedures

Sánchez Vera and Prendes Espinosa (2014) suggest two aspects that require special attention for the sake of greater MOOC engagement. In this sense, the following points are addressed: firstly, improving the platforms to ensure a better usability; secondly, knowing the type of students that the course has. As the content becomes more specialized, the more homogeneous the group of students and therefore the higher the success rate.

As for Kiberly (2015), in his MOOCs study, he lists some findings that may serve as a reference to improve student follow-up and participation. Specifically, the focus is on two aspects: the certification of courses and their subject matter. It is evident that a certified course can always have the added value of interest to be used as a professional merit of the student; moreover, if the subject is specialized and reinforces the student's competence level, it will also result in a special value for his/her Curriculum Vitae. Finally, Kiberly makes a paradoxical observation: students who opt for courses with certification are more motivated and—this is the paradox—bear the cost and payment of the course with less difficulty.

Finally, it is worth mentioning content improvement. Despite the fact that social spaces in MOOCs are usually available for the student, many of them need help becoming actively involved *online* and demand content created by teachers. It is therefore recommended that, without losing sight of the collaborative learning community, the teacher develop his or her own content proposals. Marta-Lazo et al. (2018) also suggest taking into account the importance of multicultural coexistence and the perspective of tMOOCs as an instrument for social empowerment.

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Part II
Strengths and Weaknesses of Participatory
Social MOOCs

Chapter 4

Relational Factor and Intermethodology in the ECO Project



Carmen Marta-Lazo

4.1 Review of Learning Models Through MOOC Turning into tMOOC

The ecosystem of digital learning has been modified in the last decade in an extraordinary way due to the considerable Deployment of MOOC (Massive Online Open Courses) with its consequent modalities, due to its dynamic and multifaceted nature. In the scientific literature, we find a wide variety of taxonomies on MOOC. The most traditional and widely extended classification differs between the cMOOC models (Wenqiang, 2012; Yeager, Hurley-Dasgupta, & Bliss, 2013) and xMOOC (Daniel, 2012; Yousef, Chatti, Wosnitza, & Schroeder, 2015). First, the cMOOC is based on the theory of connectivism from which it picks up the initial that gives it its name, while the xMOOC is characterized by its unidirectional formula, based on behaviorism and cognitivism.

The initial bipartite typology leads to multiple variants with unique characteristics and compositions. Thus, we attend a wide range of classifications, such as the one proposed by Clark (2013), with eight modalities, baptized with different prefixes, some of which start from the established chronogram of the course thus differentiates between synchMOOCs (with established dates); asynchMOOCs (without fixed dates, flexible in the delivery terms), and miniMOOCs (brief in terms of duration). To them, the factor of participation in the typologies is added: group MOOCs (collaborative learning for specific groups); connectivist MOOCs (promote the relationship between students); and madeMOOCs (enhance interaction and co-evaluation). MOOC transfer completes the classification, which is characterized by a

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reconversion of previous e-learning courses; and the adaptiveMOOCs, with a follow-up and personalized evaluations for each participant, following a pattern of adaptive algorithms.

Also configured by variations of letters in its initial or final composition, Sánchez-Gordon and Luján-Mora (2015) extend the modalities, reaching the following distribution: BOOC (*Big Open Online Course*), with student registration is limited to 500 participants; COOC (*Community Open Online Course*), a small-scale project open to communities that want to develop their own way of learning; DOCC (*Distributed Open Collaborative Course*), without a predetermined curriculum; MOOR (*Massive Open Online Research*) allows students to work together to improve learning outcomes; POOC (*Personalized Open Online Courses*) focuses on the learning characteristics of the students and on the feedback throughout the process; SMOC (*Synchronous Massive Online Course*), simultaneously join face-to-face courses, with students of both modalities at the same time, who connect through interactive chat rooms; S-POC (*Self-Paced Online Course*) are flexible courses where students can register and advance at any time, and work independently; and SPOC (*Small Private Online Course*), restricted access to a few students, carrying out a personalized follow-up in order to avoid the high dropout rate.

On the other hand, as Conole (2016, 10) points out that a better classification of MOOCs is in terms of a set of 12 dimensions: the degree of openness, the scale of participation (massification), the amount of use of multimedia, the amount of communication, the extent to which collaboration is included, the type of learner pathway (from learner to teacher-centered and highly structured), the level of quality assurance, the extent to which reflection is encouraged, the level of assessment, how informal formal it is, autonomy, and diversity.

We still find more classifications with different variants and options, such as that set by Altinpulluk and Kesim (2016): COOC (*Classically Offered Online Classes*) increase quality by focusing on reducing educational costs; DOCS (*Digital Open Courses at Scale*), the online term is replaced by digital, and mass is replaced by scale, by the possibility that they can be offered through mobile applications and by the quality of the community, instead of the large number of participants; gMOOC (*Game-based Massive Open Online Course*), through virtual games solve problems, through the use of gamification; HOOC (*Hybrid Open Online Course*) offers both online and face-to-face courses, simultaneously, iMOOC (*Innovative Massive Open Online Course*), hybrid model in which the Moodle and Elgg learning platforms are integrated, guarantee a high level of transparency; LAPs (*Local Access Points*) increase interaction by physically connecting students and instructors at local points; LOOC (*Little Open Online Course*) are anti-massive and are based on a high level of feedback from the instructor to help get the credits; LOOC (*Local Open Online Course*) are courses directed to students and professors of local universities, who can meet; mOOC (*Micro Open Online Course*) are courses of few students based on the connectivist theories; qMOOC (*Quality/Qualification Massive Open Online Course*), educational framework based on quality, in order to achieve three paradigms: deep learning experiences, problem-based learning, and immersive 3D virtual environments; SOOC (*Selective Open Online Course*), they are more selective, enrollment is limited; SMOC (*Synchronous Massive Open Online Courses*), online

focus in real time, to strengthen the sense of community and the feeling in the classroom; VOOC (*Vocational Open Online Courses*), with vocational pedagogies, cheap, easily usable, scalable, and low cost.

In this post-MOOC era, new forms emerge and hybridize, mixing different features in their composition, such as bMOOC (Yousef et al., 2015) or mMOOC (Dubosson & Emad, 2015). They are exchanging for new formats, increasingly versatile and flexible, depending on the adaptation to the new realities of the recipients, the suppliers, and the platforms on which they are offered. In this way, the environments, the pedagogical models, and the objectives that each typology proposes change, reaching increasingly creative and innovative versions. We have left for the end another modality set up also by Altinpulluk & Kesim: ECO sMOOC (*Social Massive Open Online Course*), for being the one centered in this study, in which we have applied the Relational Factor, as one of the distinguishing features of this new modality. In addition to other characteristics of this typology, that we will be dealing with throughout this chapter, the prefix “s” also refers to the term “continuous”, by which the courses must be ubiquitous and accessible from different platforms and supports, being able to be integrated into real-life experiences. They are based on “the principles of equity, social inclusion, accessibility, autonomy and openness, the empowerment of students becomes reality with this proposal for an innovative training, breaking the barriers of the digital space of the course MOOC to affect the social layer from the interaction in social networks “(Gil-Quintana, 2015: 299).

4.2 Relational Pedagogy in Environments E-Learning sMOOC

The open learning environments in which MOOCs are developed have been modifying their characteristics, as the models have been changing the ways of understanding the pedagogical model in each case. As background, as we have seen, the first ones were the cMOOC and xMOOC (“extension MOOCs”). Siemens and Downes were the first to create, in 2008 at the University of Manitoba, a MOOC, which got more than 2200 registered worldwide, with the title “Connectivism and Connective Knowledge (CCK08)”, based on activities and open forums for the construction of knowledge, as the connectivist theory, named after one of its promoters, George Siemens (2004) sustains. This type of courses are characterized by applying constructivist learning approach, in which the student becomes the protagonist, and learns in connection with other participants, so they promote the collective construction of knowledge, in this way responds to a model based on the “culture of participation” (Jenkins, 2007).

The other initial modality was the xMOOC, whose pioneering course was “Artificial Intelligence”, taught by Thrun and Norvig at the Stanford University, in 2011, which was especially significant for the large number of students who got, reaching more than 16,000 enrolled. This was a significant success, and from that point on, the main academic institutions of the United States, Stanford, Harvard, and MIT began to offer numerous “extension MOOCs.” These are characterized by

being led by the teacher and by being based on unidirectional and guided learning of the contents, without the possibility of dialog, exchange, or interaction with other students.

After the cited antecedents, the sMOOC or Social MOOC arises as a different proposal, regarding the pedagogical model.

The first experience was entitled “Social Media Tools and Supporting Your Professional Learning (AUSMT)” (Ostashewski & Reid, 2012), whose main feature is the use of social networks for interaction between participants and their use to perform different learning activities. Another feature is the figure of the guide who guides the participants and sends them to explore the proposed itineraries, being the student who also carries out his own learning and travels through the networks.

One year later, in 2013, the E-teaching.org consortium created another sMOOC course among various partners in Germany and Austria (Yousef et al., 2015). It is a collaborative course on open resources (COER13), with a very small number of participants, just over a thousand. This model hybridizes the two previous ones, on the one hand the interactions through the networks, equal the cMOOC, with the mixture with the use of typical structures of xMOOCs, through weekly video lectures, readings, and web resources in each unit. The interactions in the COER13 course took place in discussion forums (673 posts), as well as in social networks: Twitter (2247 tweets, by 363 people), blogs (316 posts, 71 blogs added), a Facebook group, and a Google+ group. Ten online events attracted 134 live participants each and 2953 recordings visits. This is another example of how the sMOOC go a step further regarding the possibilities of interaction and feedback, being able to choose different virtual spaces to exchange dialogs, conversations, and points of view, with other students who do the course and with the academic staff. To a large extent, they are based on the contributions of the participants (ideas, reflections, questions, and solutions of tasks) and in the fact that the organizers act as facilitators of learning, as well as experts in the subject of the course (Arnold, Kumar, Thillozen, & Ebner, 2014).

One of the main contributions of the sMOOC lies in the “inter-creativity” (Osuna-Acedo & Frau-Meigs, 2017), term coined in 1996 by Tim Berners-Lee, which combines interactivity and creativity. In the words of Osuna Acedo and Camarero Cano (2016), it refers to the capacity of individuals to create original and more productive elements within a virtual environment through collaboration and participation. The idea goes deeper into the creation process, from the birth of an idea, its development, and even its completion. In short, it is a social process of creative exchange and a way of collectively building knowledge.

Knowledge transfer facet is added to the construction of joint learning; knowledge transfer in the sense given by Delors (1996), of long life learning, of learning for life, from the four pillars: learning to know, learning to do, learning to live together, and learning to be.

In this way, sMOOC encourages active and collaborative learning not only from a pedagogical perspective but also as a commitment to the citizen’s commitment to motivate the social and civic contribution. This supposes the true transfer of knowledge, through opportunities for personal, professional, and collective development.

The sMOOC can create different forms of e-participation and e-government, based on collaboration and joint reflection, which serve to “extract useful proposals

that help to shape the decision-making processes in business and public policy areas. These pioneering forms of participation, with common interest groups, well established and globally connected, have arrived with MOOCs and will revolutionize our way of building a society” (Torres Mancera & Gago Saldaña, 2014, 16).

In the field of entrepreneurship, sMOOCs can also serve to build new forms of entrepreneurial or academic productivity. For example, the sMOOC “Step by Step,” integrated within the ECO project (E-learning, Communication, and Open Data) (ECOLEARNING, 2015), trains participants to become e-teachers, so that they know all the tools, learning methods, peer evaluation system, etc., to know how to create their own online mass learning course on the subject chosen by them. In this sense, the sMOOCs characterized by their starting line towards professional transfer, with prospective contributions towards entrepreneurship, make the students get hooked and interact to a greater extent, having the incentive to finish the course to create their own MOOC.

In addition to the transfer of learning towards entrepreneurship, the sMOOC also aims at social transformation, by promoting citizen interaction. After considering that double dimension Osuna-Acedo, Marta-Lazo, and Frau-Meigs (2018), rescue the modality of tMOOC, which some researchers (Cabero Almenara, Llorente Cejudo, & Vázquez Martínez, 2014; Vázquez, López, & Sarasola, 2013) had only related with the resolution of tasks by students and come to create a complete taxonomy that is based on the known as 10 T's, which adds to the authentic tasks the following characteristics: transfer of learning to the profession, pedagogical transformation, transmediality, open temporality, transnationalism, intercreative talent, collaborative work, tolerance, and TRIC (Relationship, Information, and Communication Technologies) (Marta-Lazo & Gabelas Barroso, 2016). We will especially highlight this last dimension because it is based on the inclusion of the Relational Factor in the learning process and motivates students to “acquire and generate knowledge, thanks to active participation, interaction with peers and conversation” (Hergueta-Covacho, Marta-Lazo, & Gabelas-Barroso, 2016, 51). In this way, “the tMOOCs are based on a relational, active and interactive participation based on the use of social networks, which are fundamental in critical and social pedagogy. The leading role given to students through social networks provides the ability to empower themselves” (Osuna-Acedo et al., 2018).

4.3 The Relational Factor of the TRICs in ECO sMOOC element

The Relational Factor plays a key role to establish digital humanism, since it advocates fostering critical reading and creation as a means towards social transformation, pursuing a more inclusive and participative society. Hence, the importance of enhancing the Relational Factor in the sMOOC as a framework for “horizontal, collaborative and ethical learning” (Marta-Lazo, Marfil-Carmona, & Hergueta-Covacho, 2016).

The concept of TRIC “exceeds mere technological determinism, the term ‘relationship’ overlaps the full potential of multiliteracy that occurs in the interactions on the creative level and in the receptive dimension of each of the co-authors or mediators” (Gabelas, Marta-Lazo, & Aranda Juárez, 2012).

Models based on the Relational Factor, such as sMOOC, promote active learning and motivate participants to become involved through interactions in virtual environments, which leads to empowerment, on the one hand, and as a consequence, to learning. They are focused to enhance the relational aspect that is created in social structures and environments, making the immersion of network participants become the cornerstone to acquire and generate knowledge, thanks to dialog, active participation, and interaction with peers.

Furthermore, the relationships generated within these processes between the interconnectedness of individuals, the social environment, and the various types of media at their disposal, enable students to acquire fundamental competences for media literacy. These relationships and processes are intimately correlated: the creation of nodes and endogenous and exogenous connections, and interaction and participation are also closely related and allow to be generated. Literacy and learning go hand-in-hand, support the acquisition of competences and promote learning through empowerment (Marta-Lazo, Hergueta-Covacho, & Gabelas-Barroso, 2016).

In this sense, UNESCO has determined that it is necessary that this scenario “empowers people in all walks of life to seek, use and create information effectively to achieve their personal, social, occupational and educational goals. It is a basic human right in a digital world and promotes social inclusion of all nations” (Wilson, Grizzle, Tuazon, Akiempong, & Cheung, 2011).

From the sMOOC, the e-teachers share and contribute through social *software* knowledge, ideas, conversations, their ability to learn and share, developing a social learning process (Gil-Quintana, 2015, 320–321). From here, the sense of “T” is born as a proposal for collaborative learning, in a humanistic sense, based on the Relational Factor for the empowerment towards social transformation.

From the sMOOC, the e-teachers share and DELIVER THEIR IDEAS, CONVERSATIONS, ABILITY TO LEARN AND SHARE, THROUGH SOCIAL *software*, developing a social learning process (Gil-Quintana, 2015, 320–321). From here, the sense of “T” is born as a proposal for collaborative learning, in a humanistic sense, based on the Relational Factor for the empowerment towards social transformation.

4.4 Intermethodology at the Service of Collaborative Learning Collaborative

Collaborative Learning is defined as a philosophy that involves the exchange of knowledge and experiences, through which students teach and learn from each other and develop a positive interdependence (Panitz, 1999).

In the e-learning contexts and, specifically in the cMOOC or sMOOC, interaction is fundamental as a source of collaborative learning that promotes feedback, motivation, and performance.

The interaction formulas can be synchronous or asynchronous, allowing the exchange in simultaneous time or being able to respond at the time that best suits the participant, through the different means available, such as the forums of one's own MOOC platform, blogs, social networks, apps.

The interaction in the learning process can be developed through different intervening agents:

- The interaction between the students. In MOOCs, we find different profiles of participating students. For example, Hill (2013) establishes five archetypes of no-shows, observers, drop-ins, passive participants, and active participants. To these, Alario-Hoyos, Pérez-San Agustín, Delgado-Kloos, Parada, and Muñoz-Organero (2014) add two others: latecomers and drop-in latecomers and point out that the most active and committed participants are those who opt for interaction, so it is interesting to include rewards to act as motors of the incentive towards participation by the rest of less active profiles.
- The interaction between students and teachers. The motivation of teachers in MOOCs depends, to a large extent, on the development of activities that are meaningful and rewarding. Some authors such as Garrison, Anderson, and Archer (2010) propose an online learning model that encourages interaction between teachers and students, with the aim of facilitating the understanding of contents and activities, to develop projected competences towards continuity of the process of training, enhancing, at the same time, cognitive independence and social interdependence.
- Interaction with intermediate leaders. The figure of the leaders that arise in the MOOCs is an outstanding piece to link out teachers and students and achieve the drag carry-over effect in the motivation towards the follow-up of the course, to avoid the abandonment, which is one of the main problems that arise in this type of courses (Cabero Almenara, 2015). Precisely, in the design of some MOOCs, formulas have already been designed to optimize the strength of opinion leaders, as enhancers of learning, understanding, and sociability, through constant interaction (Pei & Shen, 2016).

However, the interconnections that are established in the virtual classroom, among all the participating agents, go beyond the relationships that occur between teachers, leaders, and students. From the perspective of the learner itself, the learning process understood in its essence as lifelong learning or “learning for life” (*LongLifeLearning*, LLL)¹ should be seen within a framework of relations with what is already known (meaningful learning), what is learned (immediate learning),

¹This concept was promoted by UNESCO after the presentation in 1996 of the Delors Report, “Learning: The Treasure Within,” which calls for educational reforms and new pedagogical policies to be oriented towards “education along the life,” centered on four pillars: “learn to know, learn to do, learn to live together, and learn to be.”

and what will be learned prospectively (applied learning). These three temporal spheres (past, present, and future) are combined and interrelated in an integral way tending to a global learning, “for all life.”

From this approach, MOOCs will serve to put the “emphasis on the process” (Freire, 1969) and focus on the person, on their vital learning process for empowerment in a democratic society. This way of involving the learners and, by extension, the citizens is essential to reach the subject’s autonomy. In this sense, as Kaplún points out (1998, 47), “only by participating, by getting involved, by researching, by asking questions and by looking for answers, by problematizing and been problematized, is knowledge acquired. You really learn what is lived, what is recreated, what is reinvented and not what is simply read and heard.”

The active participation of each student in the learning process must be applied from the active use of different methods, in which there is a constant flow towards a transfer of their acquisitions, their creations, and their exchanges. This constant Relational Factor between what has been learned, what is already known, and what is discovered is a rich global experience, in which everything is part of the dynamic, fluid, and permanent learning process. In this sense, if only traditional techniques related to “knowledge” or the mere cognitive dimension to rote learning are used, such as the master lesson, the textual taking of notes or the linear reading, the process of “self-management” of learning is hardly encouraged. As some research has shown, it is clear that traditional learning methods can hamper classroom interactions (Cotner, Fall, Wick, Walker, & Baepler, 2008). Therefore, other techniques more related to “knowing how to do” and “knowing how to share” are needed, which are more active and flexible.

The convergence between different active learning techniques, that allow interaction in the acquisition of different competencies is what we call “intermethodology” (Marta-Lazo, Gabelas Barroso, & Hernández Díaz, 2014, 185–223), which is related to the application of the “relational factor” to the confluence, exchange, and transfer of different types of activity, using different methods, platforms, and tools through digital media. The interrelation that takes place between the different techniques allows a joint and integral practice of complementary, summative, and amplifying activities of the learning process itself, getting to develop the actions and competences related to the analysis-synthesis-reflection-action, which are retaken, alternately, again and again, depending on the type of technique that is programmed for each activity and is proposed to the student or that arises from it, giving opening to their suggestions and interests.

The innovative techniques proposed by the teachers are enriched as they are activated, worked, and exchanged collaboratively by the students. “The first premise is to generate spaces that facilitate individual and collective exploration, participation, critical analysis and production, all with a prominent component of Recreation. Thus, reflection and creation are linked in an interconnected way, taking into account also the search for playful learning” (Marta-Lazo & Gabelas Barroso, 2016, 144). Based on these authors, the true educative sense lies in the extent to which the student and the teacher learn, in such a way that both advance in the project of lifelong learning. Each of the agents that are part of the learning construction

process, in the form of cells, are organized in a dense and powerful synaptic network. The flow of positive energy generated by the advances themselves, as occurs with neurons, produce a more meaningful and useful synapse in their fields of application, in the areas of communication and education, or in their convergent nature: in the field of educommunication in which the MOOCs are projected.

The intermetology or convergence of learning methods, based on the “Relational Factor”, in relation to collaborative learning, will lead to the development of each and every one of the competence dimensions:

- Instrumental dimension: from an approach centered on the perspective of the techno-competence, different *software* can be used for the elaboration of mental maps, that serve to elaborate content scripts using an informational literacy perspective, that facilitate the co-realization, through conceptual and illustrative use of the most outstanding aspects of the thematic that is addressed in each case. The objective is to combine all the aspects of a specific topic in a general overview so that the capacity for synthesis, structure, and arrangement in an arboreal format is applied. This is an interesting technique because of its similarity with the way of structuring the messages in the networks, with their nodal structures and convergence of communicative flows. “Brain processing works with various information simultaneously, contained in different types of registers and expressive systems, with different links and connections. This hyperconnected nodal architecture is closely related to the way of working on Internet navigation maps” (Marta-Lazo, 2011: 331).
- Cognitive dimension: To achieve knowledge, it is interesting to process the information in order to access the data that has been used to create it, using, for example, programs such as *Online Analytical Processing (OLAP)* or *Analysis of Microsoft SQL Server and Reporting Services*, which allow you to consult, insert, delete, extract data from a relational database.
- Attitudinal dimension: attending to the teamwork collaborative competence, different practices of construction of a common discourse can be carried out, developing attitudes of respect and empathy. As an example, a “Twitter dialectic” can be proposed, consisting of the use of *hashtags* to carry out an online conversation that allows the exchange of messages with the inclusion of arguments for and against a topic. Once the activity has been done for a previously established period, it is interesting to analyze the shared and joint discourse, to reflect on whether it has worked as a correct dynamic or there are aspects that should be worked on more deeply, and also to define which are the main conclusions reached. As some authors warn, Twitter is a powerful tool to promote Personal Learning Networks (PLN), which lead to the so-called connected learning or network learning (Dirckinck-Holmfeld, Hodgson, & McConnell, 2012; Tur & Marin, 2015).
- Axiological dimension: TRICs are not neutral, they have an impact on the development of our environment and society. The same theme can be developed under positive or negative parameters, with a very different approach. Citizens must know what are the ins and outs of the information that is administered and what

are the values or counter-values that are tried from different sources to feed. For this reason, it is important to get to own the way they offer us the messages and we must know who are the “owners” of the information. One option is the search through *Google Scholar*; to make a contrast of sources on the same topic, to outline what information is common, which is different, and which are the main conclusions.

- Entrepreneurial dimension: for example, through market analysis practices to search the Network for a channel towards employability. In this way, we propose intermethodology towards entrepreneurial activism, in order to respond to social needs, for example, through the use of a SWOT report. This marketing technique allows the summary and synopsis in a fragmentary framework of positive and negative aspects, being able to analyze in the most succinct way possible, the situation and possibilities of application of a project in a specific context. The SWOT uses² a matrix that includes information on the following aspects of the subject: weaknesses, threats, strengths, and opportunities. This is a very interesting technique that is applied in the choice of the theme of the pilot MOOC that the e-teachers will develop, in order to warn the advantages and disadvantages of the planned approach.

The MOOCs based on the construction of internal and external connections allow the participants not only to solve problems but also to improve their own self-learning capacities, thanks to the continuous management to find solutions that adapt to each situation, in a collaborative way, in which interactions through environments such as Twitter or other social networks are based on the so-called Relational Factor.

This concept was promoted by UNESCO after the presentation in 1996 of the Delors Report, “Learning: The Treasure Within”, which calls for educational reforms and new pedagogical policies to be oriented towards “education along the life”, centered on four pillars: “learn to know, learn to learn, learn to live together, and learn to be.”

4.5 By Way of Conclusion

After multiple MOOC variants that have been developed in recent years, we come to the ECO sMOOC model (Social Massive Open Online Course), characterized by the application of the Relational Factor, within a pedagogical model based on col-

²It is a method of analysis that studies the internal environment of the company through strengths and weaknesses. The first are capacities that allow the organization a high degree of competitiveness, weaknesses are shortcomings and limitations that harm the achievement of objectives. Externally, opportunities and threats are explored, their present and future impact are weighted, observing trends that may harm the company and that may facilitate their development.

laborative learning, which especially enhances accessibility, self-management, and the empowerment of students.

The innovative nature of the use of active learning techniques, using convergent methods based on the Relational Factor, which we call “intermethodology”, makes the student an inspiring axis of his learning process, in which he exchanges, promotes, projects, and proposes different possibilities, ways to make or share their suggestions, reflections, and contents through social networks.

The initiative, the ability to solve problems in a collaborative way, the common narrative, the creation of new proposals and projects are some of the complementary activities that manage to develop competences based on analysis, synthesis, reflection, and action, not just individual, but also in a collective sense, which is important in a pedagogical model based on the essence of the development of citizen empowerment for social transformation, as is the main contribution of the new tMOOC that have been developed from the ECO platform (Ecolearning, Communication, and Open Data).

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Chapter 5

Interculturality and Agility in MOOC Design: The MOOC Step by Step Project



Adeline Bossu

Massive Open Online Courses (MOOC) are one of the innovations resulting from the prominent place that information, communication, and knowledge management is taking in societies with the rise of the Internet and applications. Connectivity and the digital economy are pushing spatial and temporal barriers, and practices benefit from the communication possibilities offered by social-digital networks. The World Wide Web promotes access but also individual and collective participation and contribution to information and knowledge. Often presented as a techno-pedagogical device (Peraya, 2019), the MOOC is a result of the development of e-learning and a part of “the open up the knowledge and practices movement” of Open Education generated by Open Data and Open Educational Resources (OER) (Hylén, 2005).

Considering the massive dimension, interactive and connective approach, MOOCs are challenged by their position between local and global logics. An agile management seems to be required to produce a MOOC that caters both to globalized trans-border participants and to individualized learning pathways and experiences. In addition, the multiple iterations generally planned for a MOOC allow participants’ experience integration as well as new digital practices, for improving the design. The collaborative and iterative MOOC conception gives MOOC attributes similar to creative industries projects (Frau-Meigs, 2019; Wilhelm, 2014). Indeed, MOOCs are facing intercultural situations to manage design teams, characterized by their actors’ heterogeneity as they can come together from many different horizons.

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5.1 Interculturality and Agility as Major Online Management Stakes

In the E-learning Communication Open Data (ECO) project, interculturality and agility are considered not as constraints to management but as levers of creativity and adaptability for creating innovative and efficient social MOOCs (Osuna-Acedo et al., 2017). The ECO project, financed within the Competitiveness and Innovation (CIP) European Framework Programme, aimed at creating sMOOCs (social MOOCs) and connected universities and ICT companies of different cultural origins and seven European countries (See Fig. 5.1).

The ECO Project main goals were: to make participants aware of these new device by creating pilot MOOCs with social and participative pedagogical approach; to empower them to create their own sMOOCs. Thus, over a period of 3 years, 25 MOOC Pilots were proposed by the ECO teams and 56 by the participants or e-teachers (see Fig. 5.2).

The intercultural and agile management could be seen as one of MOOC ECO characteristics, both for codesign and learners participation. Studying them together to reveal their (positive) influences on the collaborative design system was a main research goal in the project, in an attempt to apprehend: (1) the interculturality and agility management actions and (2) their organizational and relational influences for designing intercultural and agile MOOCs.



Fig. 5.1 ECO project partners

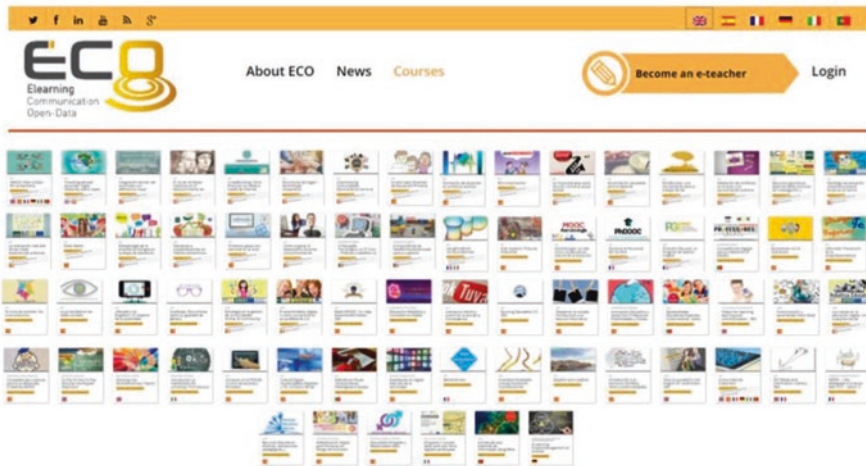


Fig. 5.2 ECO MOOCs catalog

5.2 The Unit of Analysis: The MOOC Step by Step

The sMOOC Step by Step of the ECO project was crucial and pivotal as a meta-MOOC, that is to say a MOOC to make MOOCs. Elaborated by the pilot teams to teach “how to make a MOOC,” it was created for MOOCs production training and networking. Upon finalizing it, other participants were allowed to submit their own MOOC on the project portal, and if accepted, they were supported by pilot teams and became ECO e-teachers. The various characteristics of the “Step by Step” make it a pertinent case study for research in the field of e-learning. It is innovative in many ways: the targeted intercultural public; the theme almost never done, especially in the sMOOC format; the combined socio-constructivist and connectivist approach, and the multi-lingual interactions (it was offered in six languages). With its intercultural design and animation team, it is a good illustration of an intercultural collaborative innovation project based on a techno-pedagogical device. The skills mobilized were distributed among partners of several countries and among communities of practice. Its many iterations (4 in total, over 18 months) are conducive to observations of interactions and action framework evolution and so to the focus on organizational dynamics. The designers of this innovative device design chose a methodology aimed at improving on a uniquely new and complex process and at facilitating the appropriation of a global educational design by local teams.

The connective MOOC approach refers to the first theoretical and practical reflections on MOOCs initiated by George Siemens and Stephen Downes in 2008, in a disruptive connectivist approach developing interaction between learners and all kinds of heterogeneous actors (human and nonhuman), inside and outside their institution (learners, search engines, social networks, teachers, tutors, ...) (Downes, 2007; Downes, 2012; Siemens, 2005). Then reflections mainly focused on the

downstream side of the system and particularly on the effectiveness of the practices at work. However, taking an interest in the MOOC design itself offers the possibility of studying organizational dynamics upstream, while opening new perspectives for observing downstream.

In this chapter Agility refers to the agile method initially used by IT (Manifesto for Agile Software Development, 2001). It assumes a certain number of evolutionary (or agile) principles so that solutions are developed through the codesign and self-organization of multifunctional teams. It advocates four core values for instilling flexibility and agility: people and interactions rather than processes and tools, operational functionality rather than exhaustive documentation, collaboration with the client rather than contractualization of relationships, and acceptance of change rather than compliance with plans. In the context of digital project management, and particularly MOOCs, the notion of iteration is very important. It is about improving a product or service, focusing on the design of tasks and collective work. This makes it possible to integrate user feedback into a prototype logic. This process allows the specifications to be refined as they are developed, and radically modified if necessary, leading to the validation of the deliverables. Agility represents a cultural and structural transformation of organizations that involves taking into account agile concepts such as interactions, self-organization, and codesign (Larman, 2004; Moran, 2016). These notions support collaborative innovation, change, and intercreativity.

Interculturality refers to changes that result from the interaction of different cultures (Chevrier, 2019; Clanet, 1993; Meier, 2010). Culture is approached in this research according to the Philippe d'Iribarne proposal, assimilated to a system of sense-making values (Iribarne, 1989). In a European project and in particular in a MOOC device, studying interculturality means observing and analyzing the interactions between people from different cultures and especially those related to collective and individual goals that must negotiate the needs and constraints of different contexts.

5.3 Methodology

This analysis was conducted on the basis of online and offline participatory observation (Hine 2000) and interdisciplinary research (Hardwig, 1985). The participation was focused on the management and service deployment activities (Work Package 4) of all ECO MOOCs and particularly for the MOOC "Step by Step" that was designed 1 year after the pilot MOOCs, on the basis of their best cumulated best practices. The observation scope covered all the stages of the process, from the coordination of the first iteration, that involved bi-cultural teams to produce the 6 units of the Step by Step, to the production of resources and the mentoring of participants during all four iterations. This made it possible to analyze the iterative process of the MOOC and the agile design (Allard-Poesi & Perret, 2003; Baldamus, 1961; Morrisette & Desgagné, 2009; Reason & Bradbury, 2001).

This research was based on the action-research uses of qualitative data (Coutelle, 2005), collected from the interactions and situations that occurred in all four iterations. The various spaces for exchanges were also monitored, from the initial formal management platform (Alf from UNED partner) to the collaborative Google Documents and up to social networks and the artifacts produced for the Step by Step.

The results were obtained through qualitative observation in immersion, focused on interactions, organizational and relational choices, and managerial orientations. Data logs were collected with observation grids that were used for the four iterations as well as for the e-teacher MOOCs generated by Step By Step.

The risk of bias was reduced using a mix methodology, several disciplinary approaches, and several focuses (Adler & Adler, 1987; Denzin & Lincoln, 2005; Devereux, 1985). Moreover, throughout the iterations, the MOOC Step by Step coordination and animation were dispatched and distributed among partners (See Fig. 5.3).

The analysis aimed at tracing the interactions and management influences phenomena that make a successful design for a transferable MOOC system. It was based on a systemic approach (Agostinelli, 2009; Donnadiou, Durand, Neel, Nunez, & Saint-Paul, 2003) in order to apprehend the interculturality and agility goals management reciprocal influences. This systemic approach was combined with a situated approach for observing the action systems at each iteration, before the MOOC and during its running time.

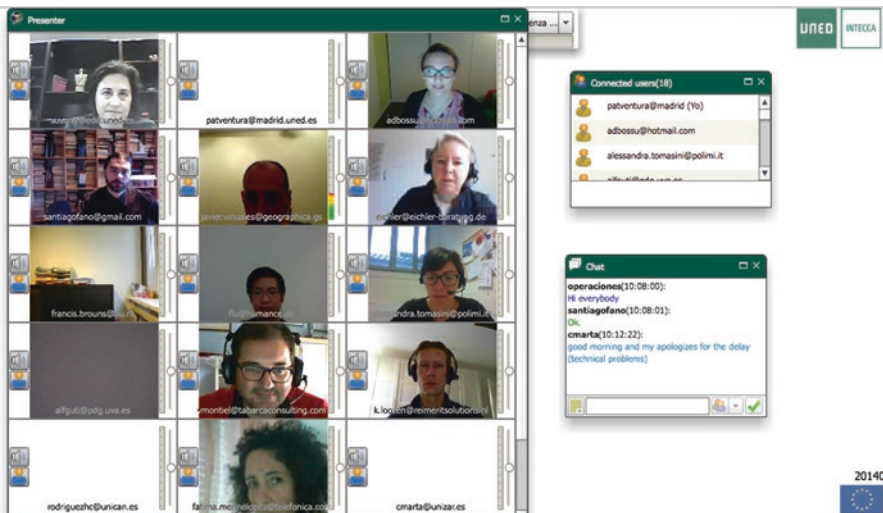


Fig. 5.3 Communication and management ECO project platform

5.4 Results

5.4.1 Designing Interculturality

In the ECO project and particularly in the MOOC Step by Step, the intercultural context is very much alive with the different meaning systems in contact and interactions at several levels, from the designers to the participants and back, as well as over several dimensions: (1) geographical (seven partner country teams, six languages, participants from all over the world) (2) professional (IT specialists, teachers, community managers, educational engineers, ...), and (3) scientific (education and/or computer science, and/or digital technology, and/or e-learning) (See Fig. 5.4).

In order to promote interculturality, the project of the MOOC started with a standardized global design, but ended up with a design adapted to local contexts. The initial iteration was codesigned by bi-cultural teams, each of them in charge of one of the six MOOC units, and then translated into six languages. For the second iteration, the MOOC was enhanced by integrating the local teams' practices of their own MOOCs and the participation feedback. Finally, in the next iterations, the MOOC was locally adapted with specific activities for each context of use and with participants' feedback. This created a looped cycle of intercultural design (See Fig. 5.5).

The MOOC was thus improved throughout iterations, taking more and more into account local needs and practices and so promoting an intercultural and

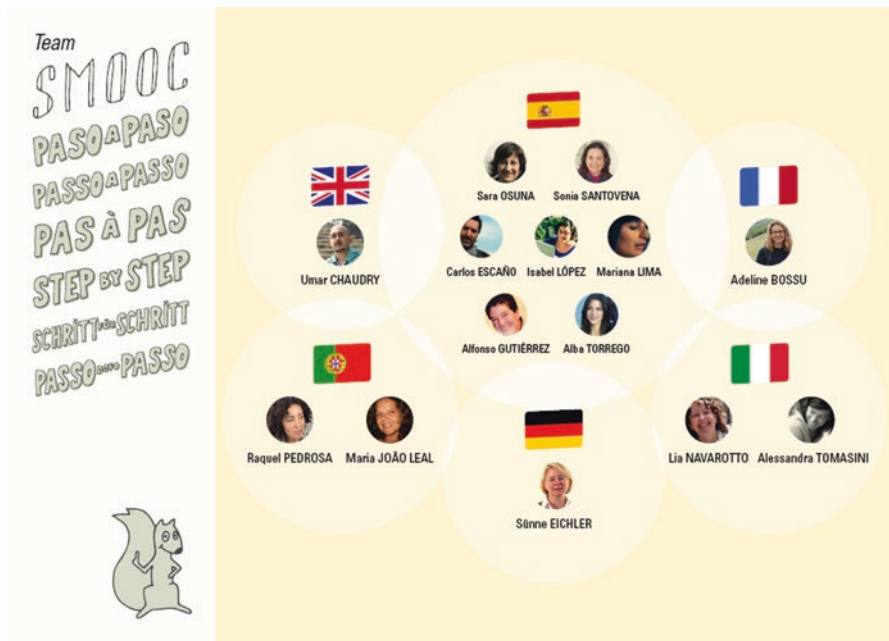


Fig. 5.4 MOOC Step by Step pedagogical team

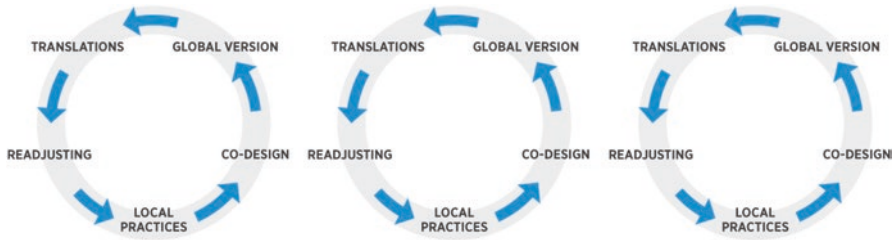


Fig. 5.5 MOOC Step by Step intercultural design loop

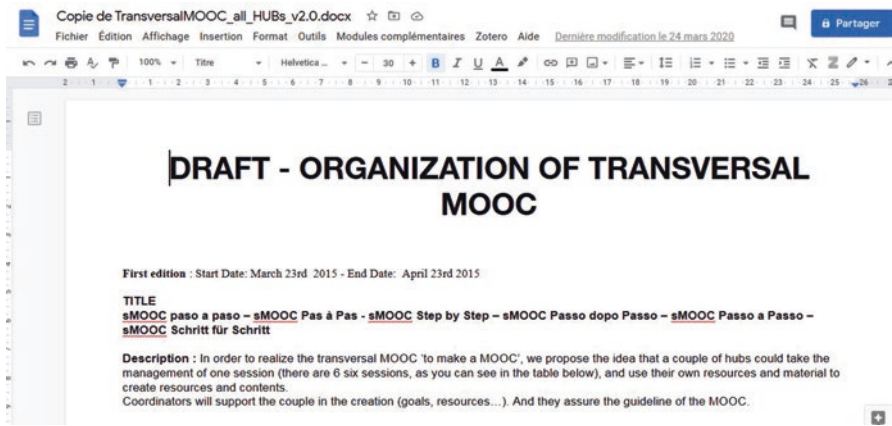


Fig. 5.6 Collaborative document of the MOOC Step by Step organization

inter-creative design. Acculturation and intercultural interaction processes took place, first with the ECO global culture influence and secondly with the creation of the Step By Step' own culture. This special culture was amended by team actors and by the interactions among participants throughout the four iterations. The actors' arrangements and artifacts were the results and the proofs of a common creation which capitalized on and integrated the local practices and the cognitive and social strategies. For example, all the units, contents, resources, and activities of the Step by Step were the results of negotiation between two pilot teams. Also the FAQ and e-teachers online application were produced by codesign with several partners from different domains (IT, pedagogical engineer, e-teachers).

The process of negotiation and codesign was visible on the different exchange devices (Google Doc, Webinar, Forum...) where interactions were numerous. For the Step by Step pedagogical design, for example, one collaborative document was proposed to allow partners to share ideas, proposals, or ask questions (See Figs. 5.6 and 5.7).

The results confirmed that, unlike power relationships or common culture adoption, interaction and intercultural design favored "intercultural interaction." The collaborative conception with different sense-making systems produced an original culture

Next steps :

to be done at the end of this week : Agreement for propositions 20th (ok for each hub)
 20th feb - 6th March : creation of the unit (one session = one unit)

| | Promotion | Session 1 | Session 2 | Session 3 | Session 4 | Session 5 | Session 6 |
|-------------------------------|---|---|---|--|---|--|--|
| Main goals | Make spectators want to register, to follow the MOOC, and make a MOOC | Welcome and introduce the MOOC, (objectives, way of work, levels) | sMOOC ingredients : methodology, MOOC pedagogy , Actors | Conception and project management | Resources and supports (videos, animations, .) Technical support (platform) Communities | Communication and dissemination plan Accessibility | Participants evaluation – MOOC project evaluation |
| Questions for the participant | WPS How to register in portal elearning eu? WPS | Why to make a sMOOC? | How to make a MOOC? | How to manage the building of a sMOOC? | How to use technology to support my sMOOC? | How to communicate on my sMOOC and make it accessible? | How to evaluate a MOOC and use data? Have I built a sMOOC? |

ALE TOMASINI
19 Nov. 2015

Are there some more detailed indications about nr. of videos/prezi to be produced? How many hours per Affiche plus

Afficher les 2 réponses

ALE TOMASINI
20 Nov. 2015

How many study hours should cover each session?

Affiche plus

Les commentaires ci-dessous ont été copiés depuis le document Origine.

Fig. 5.7 Table of the collaborative document of the MOOC Step by Step organization

Again the gmail account is used. I never check that account. Please use ONLY my official account for this ECO-project [redacted]
 [redacted] I Thank you!

Vor [redacted]
 Ges [redacted]
 An: [redacted]

Betreff: Fwd: StepBYStep Documents - Invitación para colaborar

Hi again, [redacted]

I am forwarding to you the message we received when the Step by Step (2nd edition) Google Drive folder was shared with us. Our Gmail accounts were used probably because they are needed to edit and manage the shared documents. Perhaps that's why you did not know about this? :-/

Best regards, [redacted]

Fig. 5.8 Mail to share reluctance on use of Gmail accounts

(Wilhelm, 2010), sustained by mediating artifacts and human actors that had the capacity to evolve and to be adapted according to needs and interactions among participants. The e-teachers MOOC confirmed this intercultural interaction, as some of the new MOOCs either used identical artifacts, tutorials, and activities while others personalized them and even created new ones.

5.4.2 Limitations

This phenomenon of intercultural interaction faced some limitations. According to their sense-making systems, some of the actors joined effortlessly the common culture choices of communication but some others resisted these choices (see Fig. 5.8).

Also, some cultural confrontations took place between teams. These were visible in the divergent choices of pedagogical activities, in the hesitations to integrate some functionalities, in the delays to plan the meetings or to meet the deadlines to

produce some units or translations. Acculturation frustrations were all the more apparent in those who did not engage themselves in the common culture development. Some of them left the project, some others isolated themselves, others verbally expressed their dissatisfaction or declined to participate in some tasks and tried to spread mistrust. The results of the first iteration were also a proof of the acculturation limits. The MOOC was so homogenized that it was not adapted to the local contexts and needs and its use was limited. But as the next iterations integrated more heterogeneous contributions from local situations, the collaboration and participation increased, to the point that the final MOOC iterations were very well attended.

5.4.3 Incrementing Agility

Before the Step by Step, the ECO project was informally running in agile mode, loosely defined as an interdependent set of tasks and work packages, from the project specifications to the results evaluation, and the planned iterations of the pilot MOOCs (see Fig. 5.9).

Some tasks of the project were based on self-regulation, collaboration, and the integration of the feedback from collaborators and participants. But other kinds of

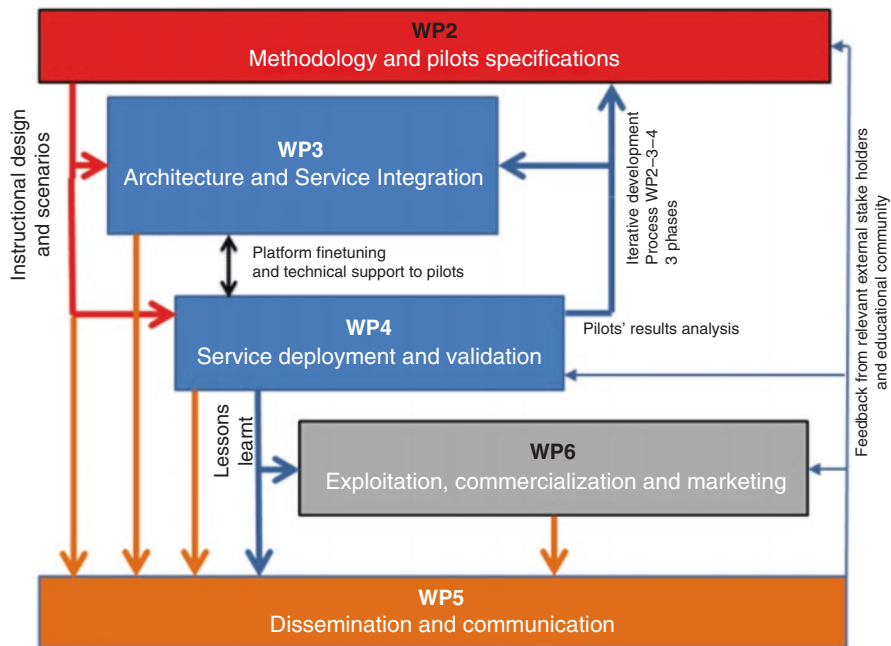


Fig. 5.9 Diagram of the ECO WPs dependency logics

management were also present in the ECO project, like, for example, the directive management used for some tasks from the project manager, the delegative one used in the case of the pilot MOOCs design under the responsibility of each partner, the participative one for collective decision concerning dates and deliverables (Likert 1987).

Taking advantage of this early organizational framework, the Step by Step project negotiated the complexity with agility taking into account the previous kinds of management. Using an experimental approach, the management was first more delegative to become more and more participative. This was buttressed by the management artifacts that evolved, for instance, from a simple schedule proposed by one partner to allow other partners to react summarily to a collaborative table based on self-regulation and automatization to which all partners contributed (see Figs. 5.8 and 5.10).

Between the two artifacts, more and more partners made proposals and various mediations took place with webinars, brainstorming, training, and helping sessions. This evolution shows the horizontalization of the relationships and the development of the codesign. This is also illustrated by the local practices of integration into the MOOC and the improvement of each iteration by considering the partners and participants experiences. For each iteration, proposals were done by all the teams involved in the MOOC, including requests for some technical evolution, pedagogical analyses, and communication support from the other partners and across Work Packages.

Finally, the sMOOC Step by Step organization had tried to capitalize on internal interactions (exchanges with pilot teams) and external interactions (with external experts and participants), self-organization (developers action in concert with designers), and codesign (experiences integration, activities adaptation, participants commitment, sensible practices usage, etc.). Improvements between and during each iteration have been done (see Fig. 5.11) and self-regulation has increased supported by mediating artifacts.

| | A | B | C | D | E | F | G | H | I | |
|----|-----------|---|------------------|--|------------------------|-------------------------|-------------------------|----------------------------|------------------------|--------|
| | | | Ready in English | Revised by Umar and ready to be translated | Translated into French | Translated into Italian | Translated into Spanish | Translated into Portuguese | Translated into German | |
| 1 | | | | | | | | | | cc |
| 2 | MOOC | General info | YES | YES | yes | yes | yes | yes | yes | Ready! |
| 3 | | FAQ | YES | YES | yes | yes | yes | yes | yes | Ready! |
| 4 | | Calendar for participants | YES | YES | yes | yes | yes | yes | yes | Ready! |
| 5 | | Session 1 Structure | YES | YES | yes | yes | yes | yes | yes | Ready! |
| 6 | Session 1 | Subtitles video MOOC | YES | YES | yes | yes | yes | yes | yes | Ready! |
| 7 | | Video Introduction | YES | YES | yes | yes | yes | yes | yes | Ready! |
| 8 | | Video 1 subtitles | YES | YES | YES | yes | yes | yes | yes | Ready! |
| 9 | | Video 2 subtitles | YES | YES | YES | yes | yes | yes | yes | Ready! |
| 10 | | Session 2 structure | YES | YES | YES | yes | yes | yes | yes | Ready! |
| 11 | Session 2 | Session 2 - template project definition | YES | YES | YES | yes | yes | yes | yes | Ready! |
| 12 | | Session 2 - template workshop | YES | YES | YES | yes | yes | yes | yes | Ready! |
| 13 | | Session 2 - workshop tips | YES | YES | YES | yes | yes | yes | yes | Ready! |
| 14 | | Session 3 structure | YES | YES | YES | yes | yes | yes | yes | Ready! |
| 15 | | Content | YES | YES | YES | yes | yes | yes | yes | Ready! |
| 16 | | ppt Video 1 | YES | YES | YES | yes | yes | yes | yes | Ready! |
| 17 | | ppt Video 2 | YES | YES | YES | yes | yes | yes | yes | Ready! |
| 18 | | not Video 3 | VFR | VFR | VFR | uxx | uxx | uxx | uxx | Ready! |

Fig. 5.10 Table of the collaborative document of the MOOC Step by Step organization, last iterations

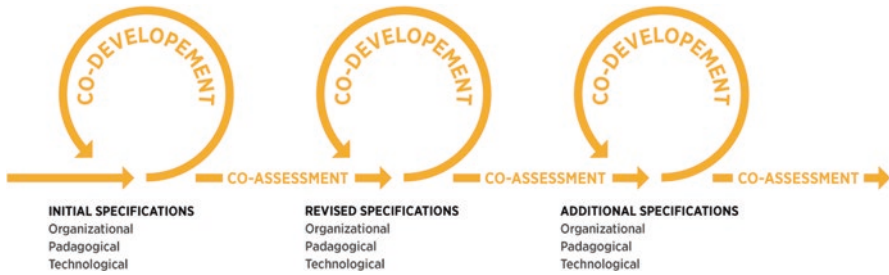


Fig. 5.11 MOOC Step by Step agile design

Creative industries management similarities are particularly apparent in the need to get agility in the MOOC Step by Step design. Organizational, pedagogical, and technological features have been added as iterations moved along. These features, which were not planned at the beginning of the project, were codesigned with the stakeholders' experimentations to meet the felt needs rather than to meet a pre-defined set of specifications.

At the end of the three iterations, the system was flexible and agile, each team being able to develop independently the system while ensuring a coherent, but also adaptable and flexible whole. This was efficiently confirmed in not mandatory additional iterations that some partners chose to propose individually but in agreement and in coordination with the others.

The MOOC was deemed agile because it reconfigured itself with each iteration according to new participants and their participation. The team was self-organizing while making the MOOC evolve according to its needs and the needs of the users integrated at each improvement stage. Interaction and collaboration were essential to these reconfigurations. The management, and particularly its mediation, were key factors for the success of agility.

5.4.4 *Limitations*

The reluctance of some teams to use the agile method was noticed, for example, with the nonacceptance of experimental versions, both in the functional and pedagogical aspects. For some users, pilots, and e-teachers it was difficult to appreciate the unfinished look and use of the design and some of the tools. Agility was not apprehended by all, especially as it added a certain uncertainty. The delay to adapt pedagogical design and IT specifications was sometimes too long and the teams found themselves having to find last-minute alternatives, which was not always appreciated by IT teams or users.

Some quality criteria were dropped, with the experimental excuse, as for instance the return to an instructivist approach as a fall-back plan. Autonomy and self-regulation also created random participation in the Step by Step animation, as in the

case of the Hub2 partners that kept changing too fast for stability. The lack of agile method knowledge and lack of innovation and experimental sensibility have sometimes hindered the actors' adhesion and participation. But one of the solutions was to use this same method to stay attuned to these actors' needs and propose to them some good experimental practices, using mediation, training, and integrating them incrementally in the process.

5.4.5 The Interculturality Search in the Agility Quest and Vice Versa

Observations of the action system have shown that the MOOC action system did change, as seen in the evolutions from the MOOC Step by Step first iteration to the e-teachers MOOCs (see Fig. 5.12a, b).

The horizontalization of the organization showed its relevance. The team coordination went from two partners up to all the pilot teams involved and even up to other WP partners. Also, the local adaptations and the scalability of the system became visible with the new e-teachers teams and the formation of local communities of practice.

The results showed that the actions to develop interculturality supported the actions to develop agility. Interculturality actions aimed to create an adapted and adaptable interaction framework for/by all, creating a "complex system culture" in favor of intercultural interactions, essential for codesign. Interculturality actions have also promoted internal and external cultures contributions integration in the MOOC and so codesign by considering new contributions and new practices. The different local practices' feedbacks have led to changes and creations.

Through intercultural interaction, valorization of multiplicity and otherness have indeed brought openness, co-conception, and coevolution, which are also agility key concepts. In the MOOC Step by Step system, interculturality boosted agility, allowing sustainability (2 years, four iterations) and among all the countries (no partner failed, the teams remained stable). Transfer to new contexts was also ensured.

The results indicated that the agility quest supported the interculturality one throughout the project. The codesign tested the different meaning systems collaboration, to find solutions and arrangements, especially on how to interact. Intercomprehension and intercultural interaction phenomena have been elicited thanks to codesign. Agility puts the actors on the same level, giving them the possibility of meaningful system interaction with confidence and without power relationship.

Understanding and integrating the different sense-making systems have been essential to ensure the MOOC sustainability and scalability with codesign. Experiences and feedback of internal and external, local and global practices, could be integrated. The MOOC experimental and trial-errors approaches were typical of agile innovation and tested the tolerance and openness of individuals and teams as well.

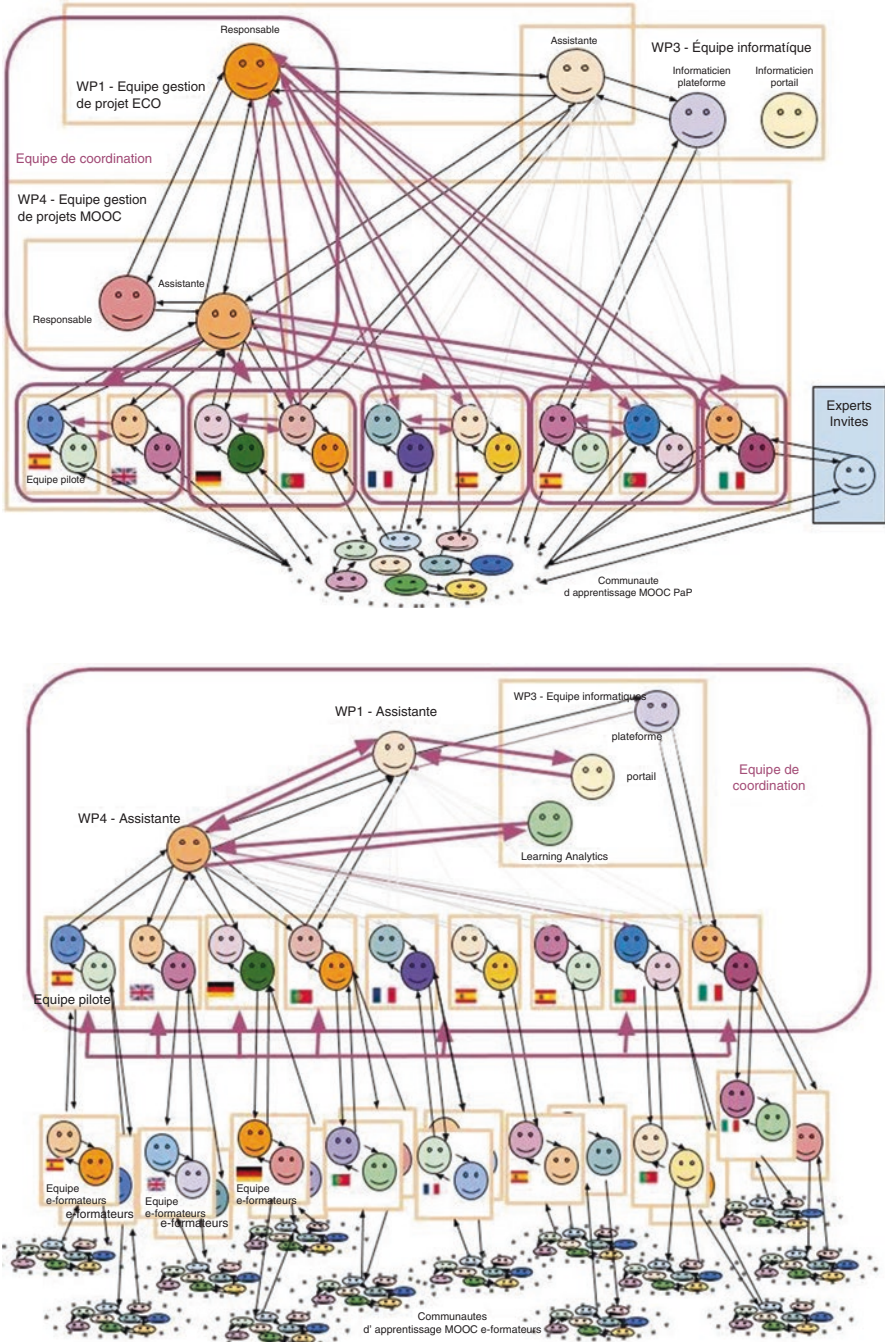


Fig. 5.12 (a) MOOC Step by Step action system iteration 1. (b) MOOC Step by Step, last iteration, and e-teachers action systems

The iterative and coevolution agility characteristics were beneficial to cross-cultural synergy. As it went along, interculturality became more effective, accepted and recognized, and created value for the people involved. The open mindedness and the adaptation caused by agility confirmed the willingness to rely on the multiplicity and otherness that are characteristic of interculturaction.

5.5 Moving Towards Agile Interculturaction

The dual dynamics of agility and interculturality created interaction, as a fluid feedback phenomenon in the MOOC project. This mutual increase can be characterized as “agile interculturaction” (Bossu, 2020) supporting collaborative innovation, change, and intercreativity in an intercultural context (See Fig. 5.13). Agile interculturaction can be observed through the design of additional and not required devices, features, and iterations. New mediating artifacts, based on negotiated needs, were freely designed, to make available to others operating modes and to allow ephemeral agreements. These mediating artifacts were the checklist system, various templates, a FAQ section, a sMOOC guide, new spaces for exchange (with an extra hub added specially dedicated to Step by Step) and even a collaborative app. These unplanned artifacts contributed to self-regulation and to the automation of the system so that the last iterations of the MOOC could be run with minimal human animation.

The initial goals were thus surpassed and augmented. The interactions were the cornerstone of agile interculturaction and they nurtured the intercreativity at all the steps of the project. Collective intelligence benefited from the agile interculturaction synergy and was driven by a kind of reciprocity, as participants transferred them to their own MOOCs. The codesign of the innovative MOOC Step by Step, both homogeneous and multiple, was clearly visible in the e-teachers productions. So were the frameworks and interactions that resulted from it.

The specific co-development loop of agility was enriched by the interculturality loop (local practices, codesign, translations, readaptations). The iterative process

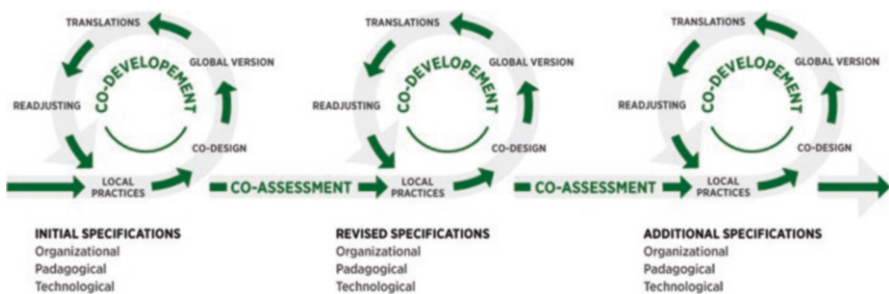


Fig. 5.13 Agile interculturaction

became more complex and went from initial specifications (iteration 1) to revised specifications (iteration 2) to stabilized additional specifications (iterations 3 and 4). The partner teams, with their own cultures and cultures in contact, and the interactions dynamics, created a “dispositive culture,” driven by mediating artifacts and devices where human and nonhuman agents coexisted. They also reappropriated this culture for their own MOOC, locally, but keeping their specificity. The iterative mode, from its design to its appropriation, through four iterations in 2 years, was part of a continuous improvement process in which time was also an asset.

5.6 Revisiting the Action System in Light of Agile Interculturation: “Systemic Interactional Management”

The interaction between agility and interculturality promoted exchanges, collaborative design in person and remotely, synchronously and asynchronously, and fostered the integration of feedback (Bossu, 2020). These factors all contributed to the success of the experiment. Giving participants the possibility to get in contact with other sense-making systems, such an interaction encouraged inter-person/inter-team knowledge and supported the appropriation of new practices that in turn generated creativity. Interactions promoted access to others’ needs and facilitated the expression of one’s own. Supporting collaborative design interaction made it possible to watch others and oneself as opportunities and not as constraints. Intercultural and agile skills were bolstered by such an interactive process.

The action system framework played a role in mediating cultures, especially with the mediating persons and artifacts. It ensured the personal and collective gains. The entire system promoted agility and interculturality. The action system was based on “systemic interactional management” (see Fig. 5.14). It is characterized by its being scalable and adaptable to the personal needs and possibilities of participants, and it is based on people and mediating artifacts, rather than managers.

These mediating artifacts are essential in the “systemic interactional management”: they are impacting the global system device and impact the local system in return. They promote the adoption of an agile and intercultural behavior with specific added values: sharing, especially in responsibilities; trust and transparency in relation to interdependence; benevolence, open mindedness, tolerance, solidarity, with collaboration; availability to others, and nonjudgmental behavior; empowerment and autonomy with initiatives and innovations. Such added values ensure the smooth functioning of complexity management in e-learning situations.

This case study demonstrated that management should strive to upgrade actors and empower them in order to enable them to engage in flexible inter-creative arrangements with respect for diverse cultures and goals. Orienting people and groups with this compass should get them to adopt without reluctance agile interculturation, while following their own needs as these vary according to the context. Building the capacity of individuals and groups to collaborate, by promoting



Fig. 5.14 Systemic interactional management compass

participation, commitment and trust, and more generally “empowerment,” ensures the synergy between creative and collaborative interactions and intercultural innovations. The systemic interactional management provides upgradeable and participatory management and self-regulation based on short-lived arrangements, experimental practices, and mediating artifacts. These proofs of relational and organizational strategies set up the commons of the system, which are themselves useful for agile and intercultural competences and appropriation and transfer to new projects.

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Chapter 6

Gamification and MOOCs



Sara Osuna-Acedo

6.1 Introduction

Gamification is gaining supporters in areas such as business, marketing, and education. It is an emerging field in which an increasing number of scientific research is focusing. The main aspects taken into account in research works are the principles of gamification design, game mechanics, the specific context and technological support, and the assessment and implementation of gamification strategies.

For much too long, it was a general perception among all social agents that games were basically the antithesis of anything considered useful learning. In particular, digital games were invariably associated to negative terms such as ludopathy and asocial behavior. However, recent research works have demonstrated that social skills can be developed, and motivation towards learning can be increased, by playing games (Contreras Espinosa, 2016). It was Malone (1982) who, for the first time, challenged the teaching community with the idea of learning with games. It was the dawning of the post-digital society, which features a number of traits related to Netmodernity (Osuna Acedo, 2009), where citizens live online and hyperconnected. Moreover, the search for connectivity increases our eagerness toward the openness to coauthoring, the creation of collective organizations and the generation of collective representations that aim to be critical, free, and solidary.

Focusing on education, New Media Consortium (NMC) considered gamification one of the most important e-learning trends. Giessen's studies (2015) provide a turning point within the scientific framework by featuring the state-of-the-art concerning all that can be expected of "serious games," according to previous research works. Most studies show promising results regarding the practical implementation

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of gamified actions in education. Overall, socially significant behaviors such as health promotion, reduction of energy consumption, and increase of academic performance are enhanced in those educational environments resembling serious games. Therefore, it can be stated that human behavior may benefit from the addition of successful elements of game design.

Hamari et al. (2016) studied the effects of engagement and game immersion on learning. The results obtained demonstrate that the participation in the game has a positive impact on the learning process, by increasing students' engagement. Immersion in the game however had no significant effect on learning. The authors concluded that "the challenge of the game should be able to keep up with the learners growing abilities and learning in order to endorse continued learning in game-based learning environments." (Hamari et al., 2016, 170).

Gamification in MOOCs (massive, online, open courses) refers to the addition of game design elements and game mechanics (Domínguez et al., 2013) in these massive, open educational environments. The present work focuses specifically on the European Project: E-learning, Communication, and Open-data (ECO), which was developed from 2014 to 2017. Twenty-two partners from nine different countries took part in the project, developing a new educational course-format based on aspects such as collaborative learning, intercreativity, student empowerment, and social transfer of knowledge. ECO was funded by the European Union as part of its Competitiveness and Innovation Framework Program (CIP). Among the educational institutions participating in ECO were: from Spain, the National University of Distance Education (UNED), the University of Zaragoza University, the University of Cantabria, the University of Valladolid, the University of Oviedo and Loyola University of Andalucía; from France, the Sorbonne-Nouvelle University; from the United Kingdom, the University of Manchester; from Italy, Milan's Polytechnic University; from the Netherlands, the OUNL; and from Portugal, the Open University. These Universities were joined by some specialized partners, such as Tabarca Consulting, Geographica, Prisma Vista Digital S.L., and Telefónica Educación Digital from Spain; EADTU and ReimerIT from the Netherlands; Sünne Eichler and HUMANCE from Germany; and FEDRAVE from Portugal. In addition, two off-European institutions have contributed to the Project: Colombia's Manuela Beltrán University and Argentina's Quilmes University.

6.2 Principles of Gamification

For a better understanding of gamification, differences must be set up between the classic Game Theory, Serious Games, and Gamification Strategies (Osuna-Acedo, 2017). The *Classic Game Theory* has been often used in areas such as Mathematics, Physics, and Philosophy and comprises a training on decision-making. A number of required strategies must be carried out through certain action tactics within the game itself, which involves a series of rewards. One needs to know the rules of the game, in order to play.

Serious games, otherwise, are widely used in Education and Health and are not meant to be a training as in the previous case, but a tool to enhance motivation and engagement. Serious games usually simulate real-life situations, which implies that subjects learn while interacting in a simulation. The teaching potential of serious games lies in the fact that the pursued goals go far beyond entertainment. Serious games need specific interfaces permitting simulation options for participants to interact.

Finally, *gamification strategies* also intend to increase motivation and participation in order to build solid learning communities, but they lack specific gaming interfaces. The main hindrance for success at serious games is the lack of attention paid to the quality of player (Ferrara, 2013), which is not an issue if gamification strategies are set.

6.2.1 *Intercreativity in Gamification*

Gamification is commonly defined as the use of game-related techniques, elements, and dynamics in non-recreational activities, aimed at enhancing motivation, reinforcing problem-solving behaviors, activating learning, etc. Such goals involve applying games' mechanics and ways of thinking to specific areas of daily life, in order to achieve certain goals concerning issues such as education, engagement, social cohesion, or creativity. A clear example is the inclusion of games in social media which has proven to significantly increase users' motivation and participation.

Remarkably, gamification is based on two basic principles: the participatory culture, as coined by Jenkins, and the principle of intercreativity. According to Aparici and Osuna Acedo (2013), "the culture of participation involves horizontal communication models in which relationships of power provide each individual with the possibility of exchanging point of view and expressing ideas, comments and experiences, as well as working collaboratively" (Aparici & Osuna Acedo, 2013, p. 137). This is a result of participative situations occurring in gamified environments, such as a strong support to create and share each other's creations, informal mentoring, which involves training beginners on what experienced students are already familiar with, and the degree of social connection among participants (Jenkins, 2009).

Likewise, the notion of intercreativity was coined by Tim Berners-Lee (1996) by linking the concepts of interactivity and creativity. The principle of intercreativity advocates interactivity among persons, which leads to a joint creation. Solving problems is important, but such importance becomes even greater when problems are solved jointly (Osuna Acedo & Camarero Cano, 2016; Osuna-Acedo et al., 2017). Linked to the concept of intercreativity is the term coauthorship, as far as interactivity and joint creation result in shared authorship, which in turn is a product of new courses of action in a participative culture.

6.2.2 Motivation, Engagement, Participation

It is a fact, proven by a number of research works, that gamification in education environments results in remarkable improvements on students' motivation and engagement (Chen, Liu, & Hwang, 2016; De-Marcos, Dominguez, Saenz-de-Navarrete, & Pages, 2014; Domínguez et al., 2013; Filsecker & Hickey, 2014; Kuo & Chuang, 2016; Marti-Parreno, Mendez-Ibanez, & Alonso-Arroyo, 2016). It is also demonstrated that the increase in motivation and engagement directly involves an increase of participation in the teaching-learning process. So it is shown in research works by Osipov, Nikulchev, Volinsky, and Prasikova (2015), who studied the practical training on the use of a foreign language among users who voluntarily selected either the role of teachers or of students through gamification, and who passed the course. The authors finally obtained a genuine successful rate among non-motivated, unfamiliar users, compared to those engaged.

Researchers Domínguez et al. (2013) developed a gamification plug-in, integrated it into an e-learning platform and collected the resulting quantitative and qualitative data. They then concluded that students who completed the gamified experience obtained better scores in practical assignments and in their global assessment, but these students performed poorly on written assignments and participated less in class activities, although their initial motivation was higher.

Additionally, results obtained by Seixas, Gomes, and de Melo Filho (2016) at assessing the efficiency of gamification platforms as a strategy for students' engagement showed that those students obtaining more rewards from the tutor eventually achieved significantly better results.

Research works carried out by Hanus and Fox (2015) studied students' participation in two separate groups over a 6-month term, taking into account motivation, social comparison, satisfaction regarding the effort, students empowerment, and academic performance as variables. Only one of the groups followed a gamified course plan. As it turned out, those students attending the gamified course showed less motivation, satisfaction, and empowerment, and hence obtaining poorer scores at exams. This is a good reminder of the need for an extra careful implementation of gamification mechanics in educational environments. It also shows that implementing gamification is not enough by itself; rather, it requires to be implemented through adequate methods.

Further research is yet to be carried out, concerning the best way to design, implement, manage, and optimize gamification strategies. Robson, Plangger, Kietzmann, McCarthy, and Pitt (2015) presented a framework including three gamification principles: mechanics, dynamics, and emotions (MDE) to explain how to create gamified experiences.

6.3 Gamification and E-Learning, Ubiquitous, Mobile

Digital technologies have brought significant changes to sociocultural relationships among citizens (Marta-Lazo & Gabelas-Barroso, 2016). The impact is even deeper when referred to mobile digital technologies, thanks to the options for ubiquity they offer. Such evolution involves new ways to communicate through the interactive use of an increasing number of devices thus creating the necessity to have several screens around all the time. In addition, the new communication formats provide endless opportunities for citizens to participate in the culture of their time. Likewise, the ubiquitous learning contexts based on interactivity, the personalization of learning, and flexibility should be supported by e-learning management platforms, wireless networks, and compatibility among mobile devices (Virtanen, Haavisto, Liikane, & Kääriäinen, 2018). We consider much further research is needed about alternative processes for the development of ubiquitous learning, where the act of learning is not limited by time or space or, in other words, learning takes place anywhere, at any time (Bennis & Amali, 2019).

When speaking specifically about e-learning contexts, there is an urgent need for the integration of every mobile, ubiquitous technology in both the formal and informal learning spaces where citizens are trained throughout their lives. In this sense, gamification stands out as the ideal way to achieve such goal, thanks to the increasing rates of motivation, commitment, and participation it attracts, as mentioned in the previous epigraph. The use of mobile devices to learn second languages is, for instance, one of the most popular areas among citizens, thanks to their gamified designs that allow participants to use them during the time they spend at commuting, at the doctor's waiting room, etc. Smartphones are actually very powerful mini-computers with a high potential and, most significantly, they allow users to learn when and where they want, thanks to the interactive technologies available.

Some authors note that gamification spans beyond education. Fuchs (2014), for instance, understands the ubiquitous notion of gamification is a kind of ideology and, from that perspective, the education work could be considered some sort of leisure activity. As such, it would require education spaces to be open and flexible, as far as access to information and content are concerned. Further studies show that, in several fields of knowledge, e-learning and distance systems allow the inclusion of new innovative pedagogical methods, together with a study of their efficiency.

In addition, games and digital strategies of gamification displayed in any format (game console, the Internet, or mobile devices) follow the patterns of the classic Game Theory, according to which, humans have played since their early stages of society and, in their most basic essence, games help us share and communicate what we are (Contreras Espinosa, 2016).

Meanwhile, Su and Cheng (2015) researched on how mobile, gamified learning has an impact on learning rates, achievement, and motivation for science thus helping students participate actively in planned activities. They concluded that implementing mobile technologies and gamification can improve performance and

increase motivation among students. They also revealed a positive relationship between learning goals and motivation.

Nakajima and Lehdonvirta (2013) studied users' behavior and attitudes in four case studies based on ubiquitous persuasive technologies. These four cases consisted of: a study on persuasive art which reflects the users' physical exercise on artistic images; a study about tooth-brushing in a virtual aquarium; a studio known as "Mona Lisa Bookshelf," reflecting the conditions of a shared shelf featuring a Mona Lisa painting; and, finally, a study about Eco Island, reflecting cooperation efforts to reduce carbon emissions as an array of virtual islands shared in a neighborhood. As a result of designing and assessing those four studies, the authors provided guidelines for the design of persuasive ambient mirrors or systems using visual comments aimed at changing the users' daily behavior patterns. This remarkable research provided data concerning incentive-choosing, emotionally attractive feedback design, time feedback, and persuasive design of interactions.

In addition, Sakamoto, Nakajima, and Akioka (2017) worked on a design framework called "Gameful Digital Rhetoric" that offered a set of design frames for designing meaningful digital rhetoric that guided collective human behavior in ubiquitous social digital services, such as crowdsourcing. This approach is different from traditional gamification, as it focuses more on the semiotic aspect of virtuality in video games, not game mechanics. Hence, it helped to enhance the students' meaning of the real world for changing human attitude and behavior through various sociocultural and psychological techniques. "Gameful Digital Rhetoric" offers useful information on the design of future digital social services with an influence on collective human behavior.

Initially, people interacting with the first digital environments focused on efficiency. Later on, ubiquitous computation brought a significant improvement to the process, and the attention drifted toward creating game environments that provided a good user experience or, in other words, created better life experiences for participants in the game, and subsequently increased their motivation. Oja and Riekkilä (2012) spoke of persuasive information technologies, intended to create gamification applications and ubiquitous games from which measurement data could be obtained, and from where avatars could be managed, in addition to granting ubiquitous accessibility.

As smartphones became more popular, research on gamification techniques focused on mobile technologies, aiming to increase participation and engage users. However, until Van Berkel, Goncalves, Hosio, and Kostakos (2017) published their research works, the quality and quantity of collected data were not assessed. This is a major issue in the current post-digital era, in which social progress is measured in terms of the information we collect, and no one hesitates to reveal their location in any gamified environment requiring such details. The previously mentioned authors concluded that the addition of gamification could improve the collecting processes and the quality of data collected on mobile formats. Further on, it would be interesting to research about where such willingness to share everything on the Internet, without questioning, could lead us to, and which could be the ethical consequences of such actions, as far as safeguarding personal data is concerned.

6.4 Gamification and MOOCs

MOOC phenomenon is leading to new scenarios and challenges which differ from traditional online education approaches. Borrás-Gene, Martínez-Núñez, and Fidalgo-Blanco (2016) present a gamification cooperative MOOC model (gcMOOC) aiming to influence motivation, collaboration, and learning through gamification. Study results point to an increase in motivation for learning among participants on engineering MOOC courses thanks to the introduction of virtual communities and gamification methods. Such tools also help students to deepen their learning and engagement in the course, and hence increasing overall motivation and completion rates on MOOCs.

Likewise, Vaibhav and Gupta (2014) claimed that those MOOCs launched in attractive and ubiquitous environments, would enjoy a significant increase in engagement rates throughout the course. They ensure that, without a doubt, gamification boosts participation. The mentioned authors based their research on a short vocabulary course that they developed and distributed among 100 candidates. Once the course was launched, the research team carried out a comparative analysis between the gamified learning tools available in the course and the conventional ones. Results clearly showed that gamified learning boosted both enrolment and participation in the course. Gamification also contributed, as it was observed, to turn the learning process into a unique, fun experience. After completing the course, a small survey was conducted among participants who had used the gamified tool, and results showed confirmed the previously observed increase in both enrolment and participation on gamified platforms.

In the same vein, OpenHPI carried out a MOOC based on supporting all learning styles through technical and didactical developments within MOOCs' environment. Purposely, they developed tools allowing users to create diverging pathways among the provided learning materials thus engaging them and rewarding them through gamification (Grunewald, Meinel, Totschnig, & Willems, 2013).

ECO Project, meanwhile, analyzed the most popular MOOC types, xMOOC and cMOOC, in order to develop their own model: sMOOC (Social Massive Open Online Course). Altinpulluk and Kesim (2016) mention this type among those thriving in the post-MOOC era. As they state, the distinguishing characteristic of ECOsMOOC is their higher degree of interaction and social participation, in addition to their ubiquity and accessibility from different platforms and computerized formats (Gil-Quintana et al., 2017). The "s" in ECO sMOOC refers to two main features: "social" and "seamless." A social construction of knowledge is implemented from the sMOOC platform, while social interactions and a fluent participation is achieved through gamification. Additionally, courses are made accessible for everyone from mobile devices thus integrating them in the daily lives of participants. All this is possible because sMOOCs are not limited by themselves, but open to implement in all associated social media—FaceBook, YouTube, Twitter, etc.—practices such as webinars open to all those wishing to take part and further open resources, adequate to each case.

6.4.1 *Social Media*

Gamification and social media are playing an increasingly significant role in education. Social media provide unknown communication choices and connection opportunities, while gamification is a powerful tool to engage students. Participation on social media for educational purposes, especially among young people, implies the acquisition of communicative habits that are currently becoming a characteristic cultural trait of the current generation, who lives in a post-digital society. The youngsters of today need to live permanently connected, share knowledge with peers, generate transmedia narratives constantly, and, most significantly, participate in gamification strategies during their leisure time. In addition, social media have become the first choice for the current post-digital generation, rather than conventional learning spaces, in order to carry out a series of non-formal learning strategies. This means that education contexts must implement collaborative learning strategies to be performed on social media, and that must be done naturally, so that the current audiences perceive MOOCs as part of a regular learning method, without feeling a breaking point between the format chosen for the tasks suggested on a MOOC and their usual learning patterns.

Gamified approaches in massive educational environments are taking such characteristics into account and, as a result, are increasingly attracting attention from students. Gamification is especially new, and its effectiveness has been proved. Potential of social media or what increasingly known as social gamification (De-Marcos, Garcia-Lopez, & Garcia-Cabot, 2016) has been seized as well by educators and educational institutions through the use of popular sites on social media or specific instances (De-Marcos et al., 2016). These authors compare educational gaming approaches and social media to the newer concepts of gamification and social gamification in terms of learning achievement in an undergraduate course. The results obtained suggest that all experimental conditions have a significant impact on learning achievement, but social gamification yielded better outcomes in terms of immediacy and on all kinds of assessments.

Moreover, García-Peñalvo, Cruz-Benito, Borrás-Gene, and Fidalgo Blanco (2015) developed a MOOC in which social media Twitter and Google+ were used in the teaching/learning process. The course added up over 400 students and more than 700 interactions (posts, replies, likes, shares, etc.) on social media (approximately, 200 interactions on Twitter and 500 on Google+). Such process of conversations among students at their participation in social media help us understand the degree of exchange and construction of knowledge in those environments. That was a real-life experience in a MOOC which included a parallel use of social media that proved its capability to improve the students' learning achievement.

Similarly, De-Marcos et al. (2014) carried out a comparative study within a sole educational environment. On the one hand, they introduce a gamification plug-in and, on the other hand, they worked with social media. While social media stood out as highly efficient e-learning tools, gamification proved efficient only to increase

students' motivation. From a joint perspective, both action—gamification plug-in and use of social media—showed better academic performance than a traditional virtual learning approach for practical tasks. Also worth bearing in mind is the fact that the students' construction of knowledge was higher in the traditional e-learning system.

6.4.2 Gamification Elements in ECO Project's sMOOCs

At ECO Project, gamification strategies are carried out (Osuna-Acedo, 2017) at any learning moment, such as:

- *Scores*: Gamification elements such as level to overcome, and classification charts turned into achievement points, aimed at improving intrinsic motivation and fostering academic achievement. Scores are used towards the empowerment of students and the improvement of their personal competences. Nevertheless, a reflection raised among ECO members concerning the fact that numeric scores mirrored the competitive society we live in and therefore a decision was made to prioritize qualitative scores on the project's MOOCs.
- *Progress Bars*: They provide real-time information about acquired competences and general progress achieved in the sMOOC.
- *Medals or Badges*: Used to highlight competences acquired through the course. They are, in fact, the evidence showing that a certain competence has been achieved. Badges' potential is reflected, above all, by strengthening students' credibility out of the contexts in which the badges were obtained, by granting a reliable record track of skills and goals achieved by students through their participation in a MOOC. However, credibility is also a major challenge associated to digital badges. For badges to be credible under the eyes of external audiences, their validity should be recognized—and that is a goal still to be achieved (Davis & Singh, 2015). Badges' assets could be significant for designers of open online learning environments, who are looking forward to spreading and connecting real-life social environments.

Recent research on that subject is abundant. Badges are used to foster users' engagement, service profitability, commitment to objectives, and general improvement of results in behavior (Hamari, 2017).

Medals that require to achieve a goal are a form of gamification aimed at increasing engagement and motivation among online students (Hakulinen, Auvinen, & Korhonen, 2015). Through their research work, these authors observed promising results concerning the real effect caused by medals in the students' motivation and engagement (Filsecker & Hickey, 2014).

- *Karma*: It is used to identify people with high reputation rates in the sMOOC, who often share interesting links, contents, resources, etc., related to the course and therefore become trend-setters.

- *Followers*: Following someone involves receiving the messages this person posts and it is used when such user is known to post interesting messages.
- *Likes and dislikes*: To click on “like” or “dislike” is used to highlight important messages, which hence stand out among those which are considered not significant.
- *Hashtag*: It is used to tag the speech generated in the sMOOC. Likewise, it establishes a direct connection with corresponding spaces on social media which are associated to the sMOOC.

In addition to these specific gamification strategies, the sMOOC also introduced collective spaces for interactive work. Each participant was assigned to a specific group—although they were also given the chance to change groups later through the course, should they wish to. The work done by each participant in their respective groups was associated to its personal microblogging system. This way, all the messages posted by each participant could be seen on a central panel displaying all messages from all groups. Such design allowed every participant to interact with the rest of their group and, at the same time, to check all discussions and debates taking place in other groups. For clarification purposes, the hashtag identifying each group was added to the central panel where conversations were displayed.

Significantly, ECO sMOOCs’ continuity and natural openness to social media are distinguishing marks of the whole ECO Project, coherently with the edumunicative characteristics of sMOOCs.

6.5 Conclusion

Through the last decade, games have become the most popular format for information systems in leisure environments. Nevertheless, games are also used in a wide range of areas and with different purposes.

Evidence is still scarce concerning the reason why people turn to gamification services (Hamari & Koivisto, 2015). As these authors observed, social factors are strongly bonded to attitude, but weakly linked to the intention to keep using gamification services.

In educational environments, gamification has become a powerful learning methodology, supported and implemented by top universities. Brull and Finlayson (2016) described the theory, the components, the applications, and the benefits gamification offers to those educators interested in new, innovative teaching forms.

Research on gamification and educational environments is still ongoing but, nevertheless, an sMOOC without gamification elements is hardly conceivable nowadays. Among some recent outstanding research lines are, for instance, studies carried out by Rapp (2017), who searched for new significant elements in video-games which could inspire the design of new gamified system in virtual learning environments. Basing on online role games by Massive Multi Player, Rapp identified nine recommendations to outline new designs for gamification in interactive systems, such as adapting to social participation forms, imagining new online

communities, and implementing interactive systems aimed at changing the users' behaviors. Such recommendations encourage the development of intrinsic motivations and propose new and diversified gaming elements, applied to educational environments.

The trend in future research lines on gamification suggests a growing interest in four gamification-related issues: effectiveness, acceptance, users' engagement, and social interactions achieved (Kasurinen & Knutas, 2018).

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Chapter 7

MOOC and Cyberactivism: Relationships from and as Social Practices



Miguel Ezequiel Badillo Mendoza

7.1 Introduction

In 1982 the film *Blade Runner*, by Ridley Scott, projected a futuristic world in 2019 with robots, flying cars, lunar colonies, artificial intelligence, computer interaction, and digital advertising. Beyond deepening the plot of film production, or the discussion among fans about what was fulfilled or what not? the interest centers on time and how the predictions that science fiction has raised in various formats and that in its moment they were imaginary of the future, they are closing their cycles, that is to say that projected future in past decades becomes present.¹ Dystopian universes, wars, corporations, forms of communication, inventions, robots, connections, wars, feelings, sex, politics, rebellion, art, in short, all social practices shape an imaginary of a future on which, based on margins of limited knowledge as human beings to the scientific and cognitive context of the era that corresponds to them, allow from imagination and creativity to visualize beyond what will happen.

This reference serves to understand the relationship that is drawn in this chapter on Cyberactivism and MOOCs (Massive Online Open Courses). A thematic relationship that addresses the complexity and interconnection of two practices that were foreseen in the past as a possible idealized future: denunciation, mass participation, democratization of knowledge, education, access, open learning, open education, connectivity, collaborative construction, and critical citizenship training.

¹ 2001: “an odyssey in space”. Stanley Kubrick, *Matrix*, *Back to the future 2*, *Star Trek*, *Star Wars*, *Elysium* are similar cases in which various technological developments today exist or were the basis for prototypes that currently perform similar functions.

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All this on a historical need: to transcend activism to raise citizen education, on the basis that allows communicative action, dialog, moving from reflection to action, Freire (1971) and Prieto Castillo (2017).

Questions are raised on what kind of relationships can be configured between Cyberactivism and MOOCs, what particularities cross these practices and what displacements can be generated, their areas of action and what axes can glimpse possible meeting and disagreement points.

Initially, each practice is approached, identifying concepts, theories, and evolutionary frameworks, then an approach was made from the social practices based on Shove, Pantzar, and Watson (2012), which led to the construction of a map of categories of analysis on Cyberactivism and MOOCs, separating its components initially to then register meeting points.

7.2 Starting Points

The MOOCs (Massive Online Open Courses) are an e-learning model, which from a technical perspective by its acronym is a massive and open education system allows access to a large number of users that supported by technology. According to Castaño and Cabero (2013, p. 89), they are courses with the following characteristics: it is an educational resource that has a certain resemblance to a class, with a classroom, with starting and due dates, has evaluation mechanisms, is online, free to use, is open through the web, has no admission criteria, and allows large-scale interactive participation of hundreds of students.

But the phenomenon becomes more complex when its antecedents focused on open education are approached where García-Peñalvo and Ramírez Montoya (2015) establish the Open Educational Movement as a reference with guidelines on the democratization of knowledge, conceptualization, production, distribution, consumption, and mobilization of open access resources. Although, according to Chiappe-Laverde, Hine, and Martínez-Silva (2015), the process, although motivating, moved towards open educational practices as “producing and using OER [Open Educational Resources] is not enough to generate educational innovation, just as it is not enough to generate and manage repositories and give them visibility”, p.10.

Focusing on educational practice and inputs introduced the need for adequate taxonomies and focused developments on other fronts “the idea,” which seems simple, is apparently very difficult to implement in practice: instead of focusing on

“The openness” of the content, the emphasis should be on making educational practices more open. From this perspective it is possible to identify a very interesting educational practice: open teaching, which has found a contemporary way of implementation in the form of what is known as MOOC (Massive Open Online Courses), Chiappe-Laverde et al. (2015, p. 10).

This complexity is the process and not the system, central axes on the debate of tensions against MOOCs. The learning, the didactic structure, the

communicative perspective, and the self-regulation of the learning carried out by the users, motivated changes in the training systems, Barbas (2011), Raposo Rivas (2013), Cantillo-Valero and Camarero-Cano (2016), in the same way and according to Gil-Quintana (2016), MOOCs are based on learning communities and communities of practice, where communication with a social character enhances interconnection, collaboration, and exchange, in essence imply that subjects of diverse backgrounds and formations are placed in a dialogic action and open to knowledge and new dimensions of what is today, training, communication, and learning.

According to Bartolomé and Steffens (2015), the first MOOC was designed by Siemens and Downes, who coined the term. The present grants an evolution product of improvements and critical analyzes on diverse developments. The cited authors reference traditional MOOCs such as those designed by Siemens and Downes, based on connectivism and xMOOCs, traditional courses transferred to specific MOOC platforms.

Osuna-Acedo, Marta-Lazo, and Frau-Meigs (2018, p. 106), pose

We are in the postMOOC era with a controversial criticism of these courses, in a double sense. On the one hand, traditional measures of success show that their completion rate is lower (between 5–8%) than the classic e-learning courses (between 20–30%) and, on the other, the massive character makes them in methods of transmissive learning.

From this diagnosis arise the sMOOC (Social Massive Open Online Course), where the “s” derives from socially seamless; that is to say, social and continuous, emphasizing the interactive nature between the actors and the evolution of the “open” to continuous, as an area of inclusion, access, and approach.

This proposal implemented in the European ECO Project (E-learning, Communication, and Open-Data) generated a broad spectrum of teacher training in resource design. This advances to a tMOOC or transferMOOC model.

That it has as objective that the participants, through collaborative work with a common dimension, acquire the necessary skills to put into practice all the tools, learning methods, peer co-evaluation system, etc. in their own course on the theme they choose, Osuna-Acedo et al. (2018, p. 106).

This is how the reflection on the meaning of this learning system emerges, Cabero, Llorente, and Vásquez (2014), reflect on MOOCs as a training alternative, their emergence as cognitive and business capitalism for training centers and the positioning of informal learning in a society where “doing” is revalidated and a deinstitutionalization of accredited entities is encouraged to train subjects.

An innovative position from the sMOOC and tMOOC is to approach their developments from an educommunicative perspective, which has as its purpose

the acceptance and development by its participants according to personal criteria. This is not an imposition, students choose the itinerary they want to follow according to their needs and availability. Then, after having developed the chosen process, they share their own conclusions with the community and disseminate them through social networks, making “everyone learns from everyone”. Gil-Quintana (2016, p. 6)

7.3 Cyberactivism

Citizen participation, politics, democracy and governance, conceive different concepts, actions and dissimilar symbolisms thanks to the use of the Internet, which has influenced notions and agenda building, a diverse public sphere, and new forms of promotion and collective action.

Evidenced in global events which have already had extensive reference and study (“Social Netwar” of the Mexican Zapatista movement, Primavera Arabe, 11 M, No more FARC, No more FARC!., La Ola Verde, 15 M, #metoo), it is evident a constant evolution in actions and speeches according to the levels of appropriation and technological development.

From the incipient actions through blogs and emails to the dynamics that today allow transmedia and social networks, digital activism has gained spaces of influence as the communicative power, access, and inclusion of technologies grows.

A review of the concept indicates the need to find its roots and not focus on the impacts, that is, retaking visions of greater scaffolding. Sierra-Caballero (2018) indicates the emergence of these technopolitical processes in the framework of the crisis of capitalism, which invites to strip the idea of reductism over the instrumental (devices) and equal communicational idealism, motivating not to analyze the phenomenon as something social, but to understand the mediations of technology as a problem of construction and social mediation.

In that outline, participation emerges as a nodal concept of citizen action through the Internet. The capacity of expression and construction of convergence networks of various aspects (cultural, social, political, economic) promote citizen participation from different communicative spheres, which are nourished by the benefits of technological development. Political participation has traditionally been unidirectional, where the citizen was a static actor in a fully conditioned public sphere. Then the mass media facilitated remote access, but it is with the emergence of new mediations that the insertion of the citizen is actively facilitated. Currently, these dynamics intersect and promote diverse forms of mobilization and citizen participation, integrating traditional participation and conventional spaces such as the public square, with the management of simultaneous digital content.

In essence, cyberactivism is a social phenomenon product of the insertion of technologies in the processes of activism carried out by various sectors at the individual and collective level. The interesting thing and that about the meaning of this chapter interests is to deepen in specific lines as follows.

García-Estévez (2017) focuses on the importance of freedom of expression that digital communication networks allow, where citizens have access to a large amount of direct information, in diverse formats and not “channeled through political or institutional media speeches. They are, or pretend to be, alternative communication networks to power” (p. 145).

Burgos (2017) indicates that cyberactivism is a component of contemporary political culture, mainstreamed by ICTs, a complex scenario where political

marketing and new media emerge. In its concept, cyberactivism is the integration of new communicational forms, participation, and citizenship.

De Ugarte considers that the conflict itself is different, (swarming), multichannel, at first sight chaotic, but with an internal order where the way of acting goes out of conventional systems and the action starts from renouncing the traditional systems of organization.

The same war in the network society, the netwar, is a corsican war in which small units "already know what they have to do" and know that "they have to communicate with each other not to prepare the action, but only as a result of it and, above all, through it». In this type of confrontation the definition of the subjects in conflict, the implicit, is more important than the explicit (the plans or strategies based on causal lines of action-reaction). De Ugarte (2007, p. 64).

Rueda (2017) adds as a fundamental aspect, the appropriation of technology at the emergence of Prosumers (creators and users of content), his proposal addresses that cyberactivism is energized from the appropriation that subjects have of technology,

As they become scenarios that offer possibilities for mobilization, negotiation and resistance, which allow promoting the empowerment and self-management of citizens towards possibilities that improve their living conditions. (p. 76).

From historical materialism, Sierra-Caballero introduces a look from Negt's Oppositional Public Space theory, placing within the framework of cyberactivism the contradictions that occur in all mediation processes indicating four key aspects for the understanding of what he calls the technopolitics: technological appropriation and social organization, interactivity and new models of social mediation, memory and local knowledge management, and the political economy of technological change and social innovation.

Pérez (n.d., S.F.) points out two references in the theory of cyberactivism, civil disobedience, seen not as an anarchic action but "a collective protest action that aims to express his disapproval of political and social injustices" and hacktivism, an action that mobilizes Cyberspace to motivate offline processes.

Like the MOOC phenomenon, cyberactivity in its complexity has required sections that agree to understand its dimensions and scope. Various studies propose typologies that integrate the uses of resources and purposes.

Fernández (2012), cited by Cortes and Garzón (2017), indicates three typologies: net activism with the use of digital tools in a peaceful and nondestructive way. The activities to be applied within this group are: the search for information, the construction of websites, the dissemination of websites, the exchange of information through the post office, the use of the web as a public space and for debates, integration and consolidation of groups, and planning and coordination of actions. A second consists of "hacktivism" or the so-called electronic civil disobedience, such as "web protests and virtual blocks, automated email bombs, computer intrusions, and computer viruses/worms" and finally cyberterrorism, which includes aspects of consequences stronger through social mobilizations and through the networks, all these actions with political incentive plus the use of hacking transcend to the point

of causing damage of strong consequences that include from affectation to material goods to the attempt on the life of the people.

De Ugarte (2007) concludes by indicating that cyberactivism integrates: *A discourse*, based on empowerment not marked by ideology but by what he calls “ranks” that are channels of a way of looking at the world, *tools*, designed and distributed to be used according to needs, “cyber-activism, as a son of the hacker culture, is reiterated in the myth of doing it yourself, of the power of the individual to generate consensus and transmit ideas in a distributed network,” (p. 65) and *Visibility*, with online and offline possibilities.

Therefore, cyberactivism in its certain typologies develops narratives, actions, and strategies with mobility and high capacity for mutation. This “narrative” is defined by aspects such as the management of digital resources, online collaborative and community management, free software, participation, and decentralized and horizontal communication. This peculiarity allows that in cyberspace and at the moment of a mobilization, a heterogeneous, mixed and diverse public sphere is constituted.

7.4 A Perspective from Social Practices

On the interest of this chapter, already established some starting points, the interest is shifted towards the connections or disconnections that could be identified between MOOCs and Cyberactivism. Tensions arise in the first instance, while defined limits are identified and in other fissile instances on which there are ideas and practices that cross.

Providing a conceptual basis for the task, the position will be taken as a reference from the social practices indicated by Ariztía (2017), based on Shove et al. (2012), cited by Ariztía (2017), which will allow the construction of crossing territories and describes which manage to configure deeper analysis spaces, allowing

Transcend the dichotomies that have historically populated social theory – individual/collective, structure/agency, social/material – shifting its axis from the emphasis on the agency of “individuals” or “structures” towards the analysis of the dynamics of practices. This is understood as an entity that analytically precedes the individual and the structure: both individual action and the capacity of institutions to shape the social world would be the result of the deployment of practices. (p. 222).

This interest towards the dynamics of the practices is valuable since it allows a wide and attentive look at the behaviors and modifications of two processes with high level of variability such as MOOCs and Cyberactivism, facilitating

Place the dynamics and internal trajectory of a practice and the relationships with others as a starting point for your analysis. This allows to account for the processes of social change in a different way, since attention is on the framework of practices that constitute the social world, its relationships and transformations over time, Ariztía (2017, p. 230).

Literature postulates understanding practices as ways of doing and/or saying that arise from the interrelation of the temporal space of three elements: competences,

meaning, and materialities. Something fundamental is that the three share various actions.

Competencies are understood as the set of practical knowledge and skills that allow a practice. Ariztía Quote (2017)

As a practical way of knowing, competencies are generally corporeized and are part of an automatic and often a-reflexive repertoire. For certain types of practices, the competences may be formalized in rules, procedures or manuals which facilitate the possibility of the competences to move at different times of execution or even to perpetuate themselves in time, (p. 224).

The *sense*, which refers to the meaning and assessment of the actions of those who carry them out, integrates the social, emotional, emotive, and cultural aspects that characterize, individualize, or make a specific practice collective and that can be translated into parameters.

The *materialities* conceptualized as the factual aspects that are part and operate in a social practice. Integrate repertoires, tools, resources.

It is important to note that the materialities are constitutive of the practices and not an external element: they define the possibility of their existence, as well as their transformations. The different material elements of the practices allow specific forms of execution, while making others unfeasible, Ariztía (2017, p. 225).

What will these three referents allow? specify the dynamics and interrelationships of social practices focusing on the study of *Performance*, its performance, while a practice exists at the time it is executed and in delimiting social practice as an *Entity*, where “Social practice” includes some background to its realization and the actors update or expand their ranks with the various actions.

Finally, this theoretical position is complemented by the possibility of understanding the dynamics of the practices with the following dimensions:

- *Trajectory and recruitment*, the trajectory refers to the mobility in the time of the practice and the recruitment to the relations with the diverse actors in the time, this dimension constitutes a biography, the interactions, and the mobility of the process.
- *Relationships*, marked by the possibilities of packaging, complementarity, and assemblies between social practices.

7.5 Findings

Once an analysis framework has been established, the focus is on MOOCs and cyberactivism as social practices, where behaviors such as those described below are identified:

Skills: MOOCs and Cyberactivism imply development of skills and knowledge in their management and development. Competencies that are given at various times. Initially, there is a competition that occurs from its global framework as practices in the framework of cyber-citizenship, Badillo and Marta-Lazo (2014), where

citizens in digital environments develop their own knowledge every day that are configured and evolve within the framework of the relationship with technology, which we call media skills, Ferres and Piscitelli (2012). Thus, users of MOOC and Cyberactivists require and define knowledge in terms of languages, technology, interaction, production and dissemination, ideology, values, and aesthetics. Another fundamental element is the competition of association and a citizen perspective in terms of social participation, drawing bridges between the MOOC philosophy and Cyber-Activism in terms of Transmediality, Collaborative Work, Intercreative Talent, and Transnationalism, Osuna-Acedo et al. (2018).

Sense: a crossroads between MOOCs and cyberactivism is essentially generated as a culture of production, circulation, and consumption of the border, the edge, and the alternate. The conception of the Open and the participatory emerge in common. Neoliberalism is based on what is called by Harving (1968), as the *Tragedy of the commons*, indicating the fatal sense and failure implied by what has been developed with community sense. MOOCs and cyberactivism are built from an open and collaborative culture, based its intellectual property on the right to non-exclusion, thinking above all and guaranteeing the rights of users, free circulation of content, mobility in the producer-user limits (no consumer, nor customer), and scalability (integration of actors into the process). On the OPEN concept, valuable categories arise such as open research, opening of methods, data and research results, as well as distribution of free data, Open Publication, with the use of OPEN ACCESS and the Creative Commons and market license formats and “black” and “gray market,” with sometimes illegal initiatives for the dissemination of data and the use of alternative means of publication for the transmission of knowledge such as blogs or social networks, but by the authors themselves, Aibar and Dunajcsik-Maxigas (2014).

The materialities: MOOCs and cyberactivism establish from their particularities parameters of production and use of resources according to their intentions. Each practice moves from an establishment. The MOOCs as training alternatives to the institutionality of formal education and cyberactivism that is inserted as a strategy against social imbalance processes acting from the margin. But its rise is combustion from cyberspace and cyber-citizenship, by integrating TRIC, Marta-Lazo, Marfil-Carmona, and Hergueta-Covacho (2016), not as simple technological resources but as sociocultural fields that involve mutant relationships between subjects and the technology. Technologies from the Relational Factor (R) are instruments, resources, artifacts with a social and humanized sense that motivates indefinite symbiosis with the subjects that develop and use them,

The key to explaining the vast majority of the new social and political phenomena that we face is to understand the difference between a world in which information is distributed in a decentralized network and another in which it is distributed in a distributed network. De Ugarte (2007, p. 28).

In the instance of the dynamics, the questions pave other spaces of analysis. As a *Performance*, the two practices happen and exist on cross-sections in time, in the digital space as an analog, of a subject and a collective. The MOOCs resume the academic logic of an offer, of a record, a pedagogical design, and a closure, which

stabilizes their management over portions of time in which the participant decides to continue or not. Cyberactivism lives from the action framed in times and spaces according to its purposes. Following De Ugarte, Cyberactivism is common to all subjects, a comment, a post, or a criticism in a suitable medium can generate a series of threads and comments. In that logic, the Performance adapts to its strategies, in case of being a campaign, a center, a scheme and base planning that evolves on controlled parameters are established, in case of a swarming, this consists of generating a great social debate with inputs and unpredictable exits, which can detonate in a mob, which makes it possible to arise and end unexpectedly.

Now as an Entity, both practices constitute episodes on which subjects become involved and evolve over time. But following the analysis, they are practices that are rooted or detached on the evolutions and developments of democratic and human rights, there is the germ of their transcendence in time. The MOOCs build their scaffolding on the Open and collaborative experience, so predicting their results is complex on the basis that each offer consists of a diversity of subjects, experiences, backgrounds, ideologies, and interests. The practice currently places a point of view from social and transfer emphases that are an evolutionary framework of the conception of these systems and an interest to strengthen these constructs politically with an educative look that puts in tension the instrumental and economic vision of the courses. And about cyberactivism, each campaign, swarming or strategy draws on successes and failures; the evolutions occur from their essential aspects: the discourse that draws on events, political elections, the maturity of the themes, new actors, evolution of empowerment, the conception of human rights, and integrated tools on the experience in the use of devices, which are quickly coupled by the actors and finally visibility, where the groups everyday appropriate new online and offline connection strategies.

Trajectory and recruitment: at this point, the two practices have a prodigious growth capacity. The MOOCs present various taxonomies given by the context, but it highlights the proposal to integrate sMOOC and tMOOC as it is a break that places a political instance on the process: media literacy. It implies a cut that distances an instrumental stance from the courses and involves the actors to question aspects in their development and to a holistic view of the training. The 10 T proposal: *authentic tasks, transfer of learning to the profession, pedagogical transformation, TRIC, transmediality, open temporality, transnationalism, intercreative talent, collaborative work and tolerance*, Osuna-Acedo et al. (2018), determines a feature in the biography of this social practice and affects the actions of the actors.

Cyberactivism exists since the constant renewal, part of management of social, political, and cultural resources that show imbalances and affect life, thereby integrating an ecological vision of existence. The reaction possibilities take a variety of options and a cyberturba can emerge from a basic comment on Facebook or Twitter. But focused on an organized perspective (in its own style), network management makes it easier to adopt learning and build media and collective action biographies that are the same, distributed in networks and nodes. Being reactive, their actions make strategic sense (an objective, some goals, some tactics, some indicators) on which cyberactivists alike grow: in experiences, learnings, and repertoires. Thus,

recruitment is vital to feed new perceptions and creative and technological developments that foster empowerment. Technology demands competencies and the Policy implies appropriating transdisciplinary and interdisciplinary contexts and positions that require actors and continuous rotation.

7.6 Relationships

Following the proposal of the analysis from social practices, the following relationships are proposed in this chapter:

Coexistence: MOOCs and cyberactivism are practices that can only be conceived in a knowledge society, are processes framed in cyber-citizenship, and from there are made explicit. They conceive a nondeterministic relationship towards technology, they are strengthened by developments but they are inserted in the spheres from alternative positions. Although there are criticisms that support that MOOCs require institutionality as support and are part of the economic framework of training centers, their base and growth possibilities imply distances to these spheres. Another area is that the OPEN culture, articulates both practices and every day, the perspective of the “*DO ITSELF*” will strengthen new dimensions to these processes.

Assembly: relationship that is evidenced in the sense that cyberactivist groups and social movements require a discursive and technological base and it is built from training environments. From this position, the two practices align on training in human rights and citizenship, with criteria of access, inclusion, and social and community development. Activism and cyberactivism is developed in societies that achieve levels of awareness about their realities and that expand their knowledge

Education, information and knowledge are essential to assimilate values such as tolerance, which works in contexts where democracy is consolidated, where plurality and diversity exist, and where ideas and ideology are respected (Camacho-Azurduy, 2005).

In this area, media literacy becomes a determining base by allowing strategies and actions of each practice to be assembled and coupled to specific purposes. For example, there are experiences of using cyberactivity repertoires in the use of audiovisuals in the framework of education for world citizenship (ECM), Aguilar (2019), in the same way the dynamics of the campaigns are added to pedagogical strategies to sensitize about social networks or motivating reflections on the environmental crisis, war, and peace.

A look at MOOC’s offers on platforms (Table 7.1) demonstrates an interest in generating critical thinking content that nurtures discursive axes and that can motivate alternative training and debate dynamics.

The chart shows a series of contents that are fundamental to broaden a criticality about the different realities. Cortes and Garzón (2017) proposes the scope and

Table 7.1 MOOC's on social, political, and democratic processes

| | |
|---|--|
| Coursera: Social Sciences Governance and Society | Impact assement |
| | Cibersecurity |
| | Inkscape |
| | Constitutions |
| | Social entrepreneurship |
| | Enviromental protection |
| | Terrorism |
| EDX Social Sciences | Humanitarian |
| | Découvrir la science politique |
| | Democracy and autocracy: theories and empirical |
| | Quality education for all: equity, inclusion and attention to diversity |
| | Global health: beyond ebola |
| | What works in education: policies |
| | Make your school human rights friendly |
| | Sdg in the 2030 united nations agenda challenges of the sustainable development objectives |
| | Philosophical idealism and cosmovisions: how to make worlds with ideas |
| | Sustainable tourism: society environmental |
| | Diversity and social justice in social work |
| | Contemporary issues in world politics |
| | Le politiche pubbliche come strategia di governo |
| | Le forme di governo nel mondo |
| | La povertà nella società contemporanea |
| | Digital security and human rights |
| | Sustainable development: the post capitalist order |
| | Women making history: ten objects, many stories |
| | Tools for network collaboration |
| | Understanding politicas concepts |
| | Economic democracy: the cooperative alternative |
| | Children protection: childrenés rights in theory and practice |
| | Disability and digital accessibility |
| Visualizing postwar Tokyo | |
| Responsive cities | |
| Human right defenders | |

(continued)

Table 7.1 (continued)

| | |
|--|--|
| Tutellus | Armed conflict in Colombia |
| | Education in private contexts of freedom |
| | Learn about technology and democracy in Colombia and Peru |
| | Women driving women |
| | New violence perspectives |
| | Childhood and human rights in Argentina |
| | Revolutions and change of cycle in the Arab countries democracy, secularism and religion |
| | Wikileaks, USA and US, with inocencio arias |
| | The big problems in Mexico: culture, power and democracy |
| Udemy | Terrorism analysis |
| | Introduction to the inter-American human rights system muslim refugees |
| | Introduction to human rights |
| | Gender equality and sexual diversity |
| | Transition to democracy and human rights |
| | Global environmental problems: surveying the human footprint |
| Future learn | Gender and development |
| | Next generation biosecurity: responding to twenty-first century biorisks |
| | Staying safe: how to be prepared in the modern world |
| | Global prosperity beyond GDP |
| | Tipping points: climate change and society |
| | Transforming education in challenging environments |
| | Unleash your potential global citizenship |
| | Global health governance: addressing globalization and health inequities |
| | Inequalities in Latin America and the Caribbean: research, policy and management for social transformations |
| | Humanist lives |
| | Ideas for better world: leading change through policymaking |
| | Why do people migrate? Theories |
| | Global studies: cultures and organizations in international relations |
| | Make change happen |
| | Global studies: risk and threats in international relations |
| Global resource politics: the past, present and future of oil, gas and sale | |

possibilities of cyberactivism and begins with the “cyber” as a generator of consciousness

It responds to an educational process and the creation of a system that frames the group's course in political action, based on the search for a response or solution to a need, based on web-type technological tools. Without an ideological basis, there will not be a solid struggle and will only be given to the recruitment of alleged rebels without cause and cyberactivists without foundation.

7.7 Reflections

A novel perspective has been raised regarding the theme of the chapter and it is from social practices to establish a framework of analysis that outlines relationships between MOOCs and Cyberactivism. These are complex analyzes that imply deepening the dynamics of the knowledge society, cyber-citizenship, and cyberculture, delving into the social appropriation of ICTs and displacing traditional media and impact studies.

There is a lack of deep theoretical approaches that integrate the two practices, which opens study gaps. How are the theoretical, methodological, and strategic frameworks found or disengaged? On what areas will it be possible to advance in dynamics that place MOOCs in need of advancing in methods and themes of greater commitment and risk and cyberactivism, to be inserted in a vision of management and processes that provide greater stability and impact as can be provided by intersecting with TIC-mediated education?.

The analysis as social practices of MOOCs and cyberactivism allows us to intertwine the social dimension of these phenomena, which first instance links them to the aspects and vertigo of technology. The theory and dimensions on which it is analyzed particularize scenarios that clarify and in others broaden doubts about the way in which technologies are related to subjects and social conflicts. From this nuance, the materialities on which MOOCs and cyberactivism are developed are identified, their temporal and spatial dimension are validated, the biographies they have been building and on which human beings articulate, their ways of integrating resources, of positioning interaction and relationship, while projecting possible futures by describing assemblies and couplings between their components. Therefore, it is allowed to narrate and analyze the daily life of these practices and locate some aspects that are embedded in their routines. This chapter raises some areas of relationship, but delving into each one of them opens up a horizon of study and challenging analysis.

A common axis that is installed in this discussion and evidenced by the application of the theory of social practices is the reflection on the social appropriation of technology, which reflects the uses that individuals and groups develop. These applications should be investigated, on which OPEN, Politics, society, and conflicts are resized. The competences that are achieved in these areas, resources, and self-management generate diverse logics, which break the traditional schemes of action, learning, and connection. The appropriation developed in MOOCs and cyberactivity depends on the same disruptive basis, a symbology and representation of the Policy on which these social phenomena are gestated and consumed.

The media literacy plays a preponderant role as long as it is the point on which these practices and what has been described previously materialize movements and actions, that is, consolidate them into proposals. Literacy is preponderant when crossing the boundaries of the operation of systems to understand their uses and possibilities of social appropriation, to certify their own knowledge and place them creatively in other spaces where they have not been traditionally used or accepted.

Media literacy is what will allow MOOCs to expand their possibilities not so much of numerical impacts on their access but of incidence and ability to be instruments to create competencies and resources to invigorate agency capacity. And media literacy will allow cyberactivism to generate taxonomies that integrate action, reaction, all its management power, and its repertoires articulated to training processes that generate comfort and confidence in their social and political objectives such as sMOOCs. It is clear that thinking about proposals such as the sMOOCs and the tMOOCs, entail and open up undefined possibilities, perhaps unexplored. A reconfiguration in general. Cyberactivists implementing sMOOC, tMOOC, and these forming from a cyberactivist logic, a realizable imaginary, an imaginary proper to what cyber-citizenship is.

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Chapter 8

Circular Economy and MOOCs



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The history of the economics of education is quite bizarre. Until the mid-twentieth century, economists paid little attention to the economic analysis of education. The first interests were due to Adam Smith's idea of decent people—because “an instructed and intelligent people besides are always more decent and orderly than an ignorant and stupid one” (Smith, 1976, 788)—with a long chain of *social features* (Blaug, 1975, 572). However, in the long run, the *individual features* of the definition of “human capital” were the real winners of education's rise inside economic science. Between 1950 and 1970, the human capital theory became dominant, not only among the neo-classical approaches but also in personal income distribution. According to this theory, individual incomes can be derived from human capital because it makes people more productive and leads to higher income micro results (Spalletti, 2009; Teixeira, 2000).

8.1 Education and Economics

Three trends converged in the wake of the Second World War to give increased prominence to the economic impacts of education (Teixeira, 2008). The first trend was the interest in personal income studies, namely, the belief that causal explana-

The attributions can be divided as follows: sections 8.1, 8.2 and 8.3 to S. Spalletti; sections 8.4 and 8.5 to B. Pérez

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tions for income distribution could be provided and that education was a candidate to be included among others. The second element was the post-war growth discussion. The expansion of educational systems in most nations led to a growing emphasis on the quality of labor forces as a main factor in explaining differentiated growth performance. However, the main cause was the intensification of the neoclassical approach (in economics and in labor economics, in particular), which played down the specificity of the labor market and showed the way for the systematic application of neoclassical economics in this area of research.

The development and common spread of human capital theory is usually taken up by a research group led by Theodore W. Schultz., Jacob Mincer, and Gary Becker (Spalletti, 2009, 143–67). The official birth of the economics of education as an autonomous branch of economics took shape with Schultz's inaugural speech to the presidency of the American Economic Association in 1960. By the end of the 1960s, the *Journal of Economic Literature* had already included the voices "human capital" and "economy of education" in its subject index. Blaug (1966) cataloged 792 magazine articles, books, and research studies on the economics of education and identified Schultz as the father of the idea of human capital. Schultz's interest in human capital stemmed from his efforts to understand the reasons for the growth of the economy. Of the three great founding fathers of the 1950s and 1960s, he showed the greatest growth-oriented attitude. His awareness of the problems of economic development stemmed from his experience as an agricultural economist; among the elements of imbalance underlying the "farm problem," he included the fluctuating distribution of farmers' incomes and the duty to fight the operation of the Ricardian law. This perspective clearly appeared in 1964 with the idea to break the spiral of low agricultural incomes in poor countries thanks to education and land workers as introducers of new technologies (Schultz, 1964).

Moreover, the attraction to labor economics was important in Mincer's works. After the Second World War, the traditional measurement of labor input in terms of man-hours rapidly became inadequate. The shift of focus from homogeneity to labor heterogeneity and from short-run wage and employment decisions to long-run investment decisions brought the major contributions of human capital theory to labor economics (Mincer, 1993, 1, x).

Finally, the real success of the scientific economics of education and human capital paradigms can be attributed to Becker, who won a Nobel prize in 1992 "for having extended the domain of microeconomic analysis to a wide range of human behavior and interaction, including nonmarket behavior." According to his peculiar philosophy of science, "all human behavior can be viewed as involving participants who maximize their utility from a stable set of preferences and accumulate a minimal amount of information and other inputs in a variety of markets" (Becker, 1976, 14). The method chosen by Becker assumed that the behavior of economic agents was rational and well-founded, characterized by men acting as if they were maximizing their utility functions based on the restrictions they had to bear.

8.2 The Economics of Education in the Digital Age

In discussing the economics of education in the digital age, economics investigations can observe the implications of online technologies. In the spring of 2013, MIT launched its first MOOC in economics, “The Challenges of Global Poverty,” on the edX platform. It was taught by Banerjee and Duflo (2014), who analyzed the (dis)organization and the success of that MOOC in a top journal in economics, marking the very first attempt to examine the economics of MOOC education. They noticed that the main problem that MOOC faced was that few users completed the class. As classroom participants, the MOOC users suffered from two disadvantages: the need for self-discipline and focus without the benefit of a peer group or a structured study time.

Today, we are still nearly at the start of the appraisal of MOOC economic and business models and their impacts on higher education. From a general perspective, the economics of education has the potential to include MOOCs among the true public goods that aim to exhibit both non-rivalry and non-excludability proprieties. In fact, the usage of an education program by a single person does not limit the opportunities of others to consume the same program, which is an intrinsic property of higher education. Instead, the ability to exclude people from using the good (excludability) relies on technological and organizational variables. In fact, by depending on the Internet and digital technologies, MOOC platforms succeed in significantly loosening, if not eliminating, capacity limitations on traditional greater education programs. Therefore, MOOC platforms can attract thousands of learners per course, and the marginal teaching cost of an additional student is near to zero. Moreover, MOOCs are, or should be, truly open, with free access and without the imposition of other types of exclusions (e.g., contractual) (Belleflamme & Jacqmin, 2016, 149). Thus, MOOC platforms have begun to play a key transformative role in higher education in economics. Moving forward, one of the first problems to face is whether it may be appropriate to put more emphasis on committed learners when designing a course, as they have the most to gain from it (Allione & Stein, 2016). Drawing on reports and media commentary, there are claims and counterclaims of MOOC proponents and MOOC skeptics, with different implications for students, governments, institutions, and scholars. Even so, mass-scale online courses have the potential to reshape the sector significantly over time (Sharrock, 2015).

Summing up this initial discussion, the evolution of the economics of education—from the 1950s up to the MOOC innovation—has focused on maximizing the functions of individual order in which human capital represents the typical expression of economic neoclassicism, even if this definition has been labeled as both rhetorical and challenging. The evolution of such an approach today addresses an economic paradigm belonging to the so-called “linear economy,” although the linear economy, according to the supporters of the new and controversial nature of the “circular economy” (CE), is no more sustainable.

8.3 The Social Rate of Returns in Economics Education: CE Aims and Problems

With an increasing number of research studies claiming that education plays an important role in personal income thanks to the driver of human capital (e.g., Hartog, 2000), education in economics shortly became a kind of “cultural imperialism”; its major function is as an instrument of social reproduction, transmitting the social and economic structure from one generation to another through mechanisms of selection, reward, and working practices (Carnoy, 1974). As Teixeira (2008) claims, this weakened the support for education based on arguments other than private economic ones, since social benefits seemed difficult to measure and less important than was previously thought. Inside this economic thinking, Esposito, Tse, and Soufani (2018, 5) remember that, since the industrial revolution epoch, men have been living in a linear economy, in which consumption and “single use” lifestyles have made the planet a “take, make, dispose” system. This refers to a unidirectional model of production; natural resources provide factory inputs, which are then used to create mass-produced goods to be purchased and, typically, disposed after a single use.

However, linear economy models of mass consumption and production have almost reached the physical limits of the globe and the biosphere. A shift toward sustainability is inevitable today and a rich growing up of the literature on CE proves this trend. Knowledge in CE—with definitions of the subject often “all inclusive” in character—is also well-related to the development of digital communication. The research products, even sometimes too repetitively, rapidly increased in quantity from the end of the 1980s, and circular economy babble (CEB) has been evident since 2006 (Figs. 8.1 and 8.2).

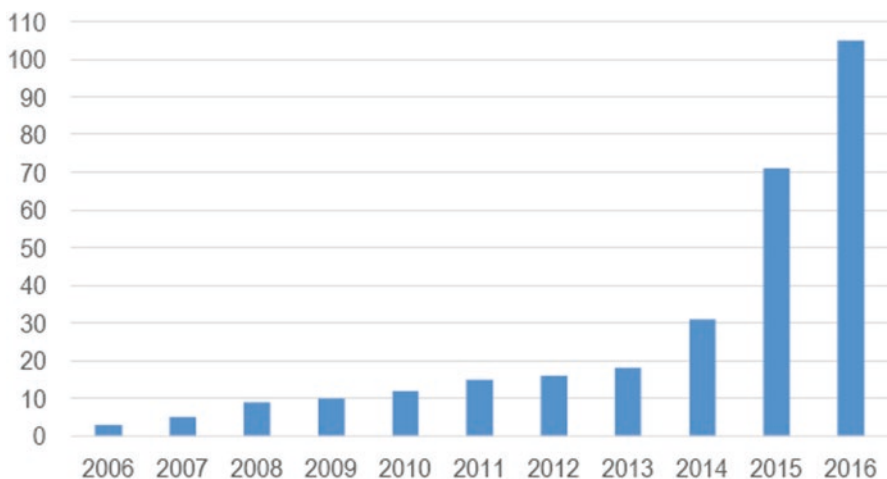


Fig. 8.1 Articles per year, 2006–2016 (source: Geissdoerfer et al., 2017)

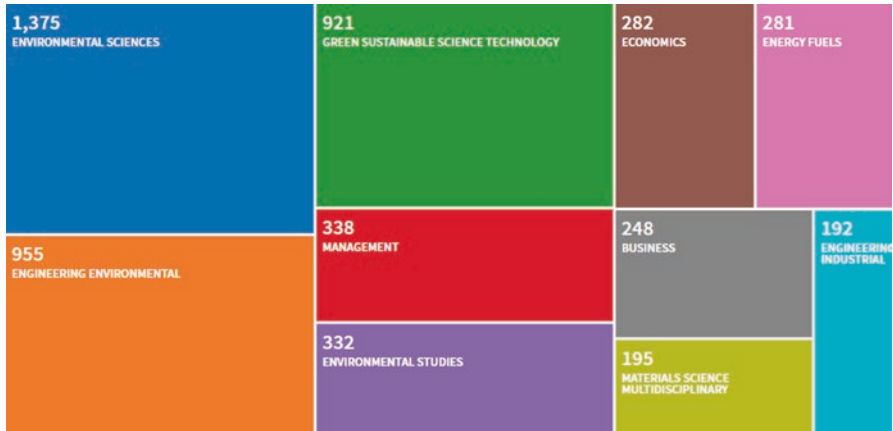


Fig. 8.2 CE in WoS (2019)

However, the literature review shows that CE is not very attractive to most traditional economists.

A search in WoS (topic search: “circular economy”; WoS field: “economics”) yielded 282 results, which is a low number compared to other fields of knowledge, such as “environmental sciences,” “engineering environmental,” and “green sustainable science technology.” In other words, the attraction of CE within most research and publication circuits of economic theory seems quite low. Moreover, a real lack of interest is apparent among the editors of the five most important journals of economic theory; there are no articles with “circular economy” in the title in *American Economic Review*, *Quarterly Journal of Economics*, *Journal of Political Economy*, *Economic Journal*, and *Journal of Economic Literature* from 1950 to 2019.

The main reasons for this absence could depend on the fact that, while linear economics is founded on (neo)classical epistemological grounds, CE has not yet found any clear and strong methodological axioms. CE cannot accept the expression of “maximization of self-interest” by economic agents; on the contrary, it is oriented to a general “limitation of damages.” One student’s feedback to a CE MOOC on the Udey platform recently noted, “[CE] is such an important subject that will not only help you make a lot of money but will also help you to serve generations to come.” Likewise, the European Commission maintains that CE is not oriented toward making money or maximizing self-interest, asserting that CE should be “an economy where the value of products, materials, and resources is maintained in the economy for as long as possible, and the generation of waste minimized” (European Commission, 2015). Also, several public and private projects and organizations—in *primis*, the Ellen MacArthur Foundation—are working to spread knowledge of CE, while sustainable development proponents share knowledge of industrial ecosystems.

Despite the internal problems in CE’s epistemology, two structural elements are evident in the relationship between MOOCs and CE, as examined by Vázquez-Cano,

López-Meneses, and Barroso Osuna (2015). The first regards the impact of online training platforms that utilize MOOCs in the current educational landscape; given the need for the lifelong learning of human capital inside the conception of the knowledge society, the educational field is intended to promote and reactivate the development and economic growth of countries using technology as an effective instrument. Thus, from a technological and innovative approach—in both higher education and occupational/pre-university education—the use of Web 2.0 resources and the creation of new learning scenarios through virtual communities for the social construction of knowledge from within appear to be pertinent and inclusive. In this way, the MOOC philosophy should be oriented toward responding to the training needs of society by offering new informal and nonformal learning environments that serve all citizens from a democratic perspective to eradicate the digital and social divide. Second, MOOC courses are intended to act as a mechanism to face the digital and social divide. In this way, they make possible a true democratization of knowledge. Therefore, starting from the basic features of MOOCs as open, massive, accessible, and free training platforms based on sustainability criteria, accessibility to these courses must accommodate multilingualism, multiculturalism, and people with functional diversity. Meanwhile, from a pedagogical point of view, the potential of the smartphone and bring your own device (BYOD) initiatives is important to alleviate deficiencies in terms of technological equipment in educational centers due to lack of funds.

This first modern online information in CE was designed in 2013 by the Ellen MacArthur Foundation. It developed CE in seven classical sectors that, nowadays, have become thematic “canon” (Table 8.1).

Table 8.1 Seven classical sectors that, nowadays, have become thematic “canon” (source: Ellen MacArthur Foundation, 2013, 26–28)

| Main topics in CE | |
|--|--|
| Cradle to cradle | All technical and biological material involved in industrial and commercial processes must be nutrients |
| Performance/functional service economy | A “closed loop” approach to production processes with four main goals: product-life extension, long-life goods, reconditioning activities, and waste prevention |
| Biomimicry | Nature as model, nature as measure and nature as mentor: view and value nature not based on what we can extract from the natural world, but what we can learn from it |
| Industrial ecology | Focusing on ‘industrial ecosystem’, a closed-loop processes in which waste serves as an input, thus eliminating the notion of undesirable by-product |
| Natural capitalism | A global economy in which business and environmental interests overlap, recognising the interdependencies that exist between the production and use of human-made capital and flows of natural capital |
| Blue economy | Open-source movement and solutions determined by local environment and physical/ecological characteristics, putting the emphasis on gravity as the primary source of energy |
| Regenerative design | Ideas about regenerative design that could be applied to all systems, i.e., beyond agriculture |

Higher education strategies should play a pioneering role in MOOCs, given the potential advantages of MOOC platforms and their techniques. Also, at the regional, national, and supranational levels, governments should promote financial projects and guarantee the adequate transmission of data. As higher education institutions, public authorities should focus on the creation (or funding) of new platforms because these authorities have access to extensive resources and can take advantage of large economies of scale due to the high potential number of users (Belleflamme & Jacqmin, 2016).

Regarding the business model of the platforms offering CE MOOCs, we can find similarities and differences between them based on the data provided by each website in their “about” section. Table 8.2 describes the main CE MOOCs that include the expression “circular economy” in their titles.

Table 8.2 Main current MOOCs in CE

| Platform, topic and MOOC title | What MOOC declares the students learn |
|--|--|
| EdX Business and Economics <i>Business and Economics for a Circular Economy</i> | Understand the basics of biobased materials and their conversion to useful products and services, Understand and evaluate technological, business, societal, and economic consequences in the production of biobased products, Judge new innovations on their sustainability and business merits, Understand the role biofuel policies play in a biobased economy and how they impact markets, Apply the circular economy principles to a process or product chain |
| EdX Business & Management <i>Circular Economy: An Introduction.</i> | What is the circular economy? Business value in a circular economy, Longer lasting products, Remanufacturing, Waste equals Food, Thinking in systems, Giving back |
| EdX Business & Management <i>Waste Management and Critical Raw Materials</i> | Current challenges and opportunities in resource resilience, Environmental problems caused by waste mismanagement of products that contain CRMs, Waste collection methods and efficient collection of waste in households and at companies, Remanufacturing, refurbishment, re-use and recycling processes of products which contain CRMs, Waste prevention through chain optimization, Benefits of circular procurement to keep critical raw materials in the loop through smart waste management, How product design can support efficient recycling and remanufacturing, How to uncover new business models to reduce waste and to make your business more resource resilient |
| EdX Business & Management <i>Business Strategy and Operations in a Biobased Economy</i> | Understand the dynamics in biobased business investments, Creating business strategies in a biobased economy, Understand the supply chain challenges for biobased businesses, Design and evaluate biobased supply chains using quantitative methods |
| EdX Design <i>Sustainable Packaging in a Circular Economy</i> | How circular design principles can be applied to create ‘closed loop’ packaging systems, Business strategies that support these systems, Opportunities of designing with renewable, bio-based materials, Best practices through case studies with industry frontrunners |

(continued)

Table 8.2 (continued)

| Platform, topic and MOOC title | What MOOC declares the students learn |
|---|--|
| EdX Design <i>Engineering Design for a Circular Economy</i> | Learn “Design for R” strategies: reuse, repair, remanufacturing, and recycling, Integrate life-cycle design into your skillset and your company vision, Understand the strategic importance of raw material supply and conservation, Effectively balance value creation with industrial sustainability, Improve your strategic design skills to make better decisions |
| EdX Energy & Earth Sciences <i>Economics and Policies in a Biobased Economy</i> | Explain the economic issues and policies affecting the biobased economy at the EU and international level Identify the important factors driving the development of the circular bioeconomy Assess the development of the circular bioeconomy from an economic perspective |
| EdX Energy & Earth Sciences <i>From Fossil Resources to Biomass: A Chemistry Perspective</i> | Understand the basic chemical and technological concepts underlying the biobased value chain, Understand the factors and methods that can influence production of biobased crops, Understand how the composition and chemical nature of biomass fractions determines the processing steps within a biorefinery, Understand the potential of microorganisms for the production of biobased products, Explain how catalysis can contribute to a biobased economy |
| EdX Energy & Earth Sciences <i>Circular Economy: An Interdisciplinary Approach</i> | Understand the concept of a circular economy, Understand how a circular economy deviates from the current linear system, Analyse and develop complex circular systems using a systems thinking approach, Assess the use of Life Cycle Assessment and Agent Based Modelling, Formulate improvements for a transition towards a circular design, Learn how to use and apply complexity aspects & agent-based modelling |
| EdX Energy & Earth Sciences <i>Capstone Business and Economics for a Circular Economy</i> | Define a proper research proposal on the edge of the technological, business and economic aspects in a Circular Economy, Find adequate academic literature and interpret this literature, Develop a methodology taking into account all disciplines discussed in this MicroMasters, Applying the methodology to design a sustainable biobased practice |
| Coursera Environmental Science and Sustainability <i>Circular Economy – Sustainable Materials Management</i> | Materials, Circular Business Models, Circular Design, Innovation and Assessment, Policies and Networks, Circular Societies |
| Coursera Environmental Science and Sustainability <i>A Circular Economy of Metals: Towards a Sustainable Societal Metabolism</i> | Introduction, Metals in Society, Metals Challenge, Dynamics of Metal Systems, Solutions to the Metals Challenge, Circular Economy as an Overarching Solution, Look into the Future |

(continued)

Table 8.2 (continued)

| Platform, topic and MOOC title | What MOOC declares the students learn |
|--|---|
| Udemy Economics <i>The Circular Economy. What and Where Are the Opportunities for Entrepreneurs?</i> | Introduction, History of the Circular Economy, Where are the Opportunities? Word Of Caution, Business Models, Financing, Managing Change, Your Next Step |
| EMMA Education <i>Circular Economy MOOC</i> | You'll learn what circular economy means, you'll be introduced to competencies for a circular economy, you'll learn how circular-economy-competencies can be achieved, you'll experience how such a learning process can be conducted, you'll be introduced to examples of ThreeC school practices |
| FUN <i>Economie circulaire et innovation</i> | De mieux comprendre ce qui est fait et ce qui est dit par tous ces “acteurs de l'économie circulaire”, d'accroître votre capacité d'être à la fois critique et force de proposition par rapport à ces projets d'économie circulaire, d'identifier les savoirs et les compétences utiles pour investir le champ de l'économie circulaire |
| Miríada X Empresas y organizaciones <i>Sostenibilidad ambiental de las organizaciones en la economía circular</i> | ¿Qué es la sostenibilidad?, Herramientas para a sostenibilidad de las organizaciones, Estrategias para la sostenibilidad de las organizaciones, La comunicación de la sostenibilidad |

CE MOOCs deal with sustainability, remanufacturing, waste reduction, environmental problems, product reuse and recycling processes, packaging system improvements, transitions toward circular design, etc. Given that these topics include aspects of social development and inclusion, MOOCs may take on a sMOOC model of education, as discussed in the next section. If CE MOOCs are aimed at providing participants with collaborative thought work in a pro-common dimension, including the competences needed to implement, the learning method, and a peer-to-peer assessment system, research targets can also investigate the innovative dimension of the transferMOOC (tMOOC) model (Osuna-Acedo, Marta-Lazo, & Frau-Meigs, 2018).

8.4 Education, sMOOC, and CE

The seminal aims pursued by MOOCs—participative and “connectivist” learning approaches—have not yet been accomplished. From traditional models, multiple modalities have been developed, which progressively integrate new features. The sMOOC is among the latest proposals. The initial “s” stands for two terms: social and seamless (Camarero-Cano & Cantillo-Valero, 2016). Social MOOCs promote

higher interaction in learning and are “seamless” because they are conceived for easier access. The latter implies an important feature discussed above, namely, ubiquity, which makes access possible anywhere, anytime, and through any device. sMOOCs are characterized by the interaction and the implication of the participants who, relying on collective intelligence, look for the co-creation of knowledge in every educational action (Osuna-Acedo et al., 2018). Thus, sMOOCs promote active and collaborative learning, not only on the pedagogical side but also on the citizenship side, as they engage participants to contribute to social and civic activities. Even more than traditional MOOCs, sMOOCs seem to claim participatory in the framework of relationship, information, and communication technologies (RICT) (Osuna-Acedo, 2019).

Thanks to CE, the United Nations Industrial Development Organization (UNIDO), whose primary objective is the promotion of inclusive and sustainable industrial development (ISID) in developing countries and economies in transition, attempts to create shared prosperity, advancing economic competitiveness, safeguarding the environment, and strengthening knowledge. The 2030 Agenda for Sustainable Development recognizes the critical role of ISID and the contribution of UNIDO to achieving the Sustainable Development Goals (SDGs) more clearly than ever before (UNIDO, 2019). If CE goals focus solely on environmental and economic performance, there is the risk of leaving out the essential question of inclusiveness. Many reviews of the academic literature on CE could show that current academic discussions mainly deal with business models, cleaner production innovations, climate change, and the green economy. Since optimizing performance and efficiency is of primary importance in this field of research and education, social, and institutional implications are not always deeply considered. Sustainability and inequality are strictly intertwined because the benefits of gross domestic products are largely reaped by those who are already wealthy, while the hidden costs are typically borne by the poorest. A large part of economic growth relies either on the input of natural resources or on natural systems to process waste. However, many environmental and climatic inputs and outputs do not appear in company or national accounts. Often, the state of resources is ignored, and many actions are seen as free and costless inputs (Ridpath, Kendal, & Gordon, 2017, 4).

Focusing on the strategies that are most useful for ending inequality and financial exclusion, sMOOCs in CE could contribute to promote inclusiveness. Schröder's (2018) lines of intervention attempt to transform CE into a more inclusive discipline than the linear economy. Schroeder claims that, as we are reshaping the current economic system to design out waste, we should also take the opportunity to design out poverty and inequality at the same time. This goal is reachable when basing the discussion upon a series of building blocks:

- (1) [...] Whether they are one of the 15–20 million informal waste pickers and recyclers or one of the two billion people who have no basic waste removal services, people in low and middle-income countries are affected everyday by waste. A circular economy that improves the working conditions of waste pickers and provides better waste management services could significantly benefit their health and quality of life. Beyond waste, there are practical circular economy applications for a range of sectors and SDGs, including water and sanitation, clean energy, food production and urban development.
- (2) [...] While the circular

economy offers real opportunities for developing countries, there is also the real risk that the CE could cut poorer countries out of the global supply chains they've worked so hard to enter [...] The knowledge and skills required to benefit from the transition to the CE can mitigate potential negative impacts and needs to reach people in all countries. Special focus should be placed on educating young people in developing countries, who could potentially miss out on opportunities the circular economy has to offer. This can be partly achieved through Open Source online platforms, such as OSCEdays, with learning materials, hackathons, courses and manuals [...] (3) [...] Repairing [...] is becoming increasingly difficult and exclusive—monopolized by powerful companies—due to design standards and [the] lack of reparability due to planned obsolescence. Ensuring the “right to repair” [...] will be an important building block for an inclusive circular economy. (4) [...] The re-use of products and secondary materials requires new standards and regulation on health, hygiene and safety of products to ensure consumer protection and acceptance. Moreover, an inclusive circular economy will be as much about changing social practices and behavior, and actively involve citizens as it is about changing products. So far, citizens have only marginally been involved in the public conversations and academic discourse on circular economy [...] (5) [...] As digital technologies, big data, artificial intelligence and blockchain will play a major role in the circular economy, it is important to ensure both transparency and data protection. New digital technologies can provide the relevant data on resources, such as water, land, forests, waste, to enable accurate tracking of stocks and flows. To make the CE inclusive and provide equal opportunities, it will be necessary to provide open access to these data[...] (6) [...] A leasing model of resources and raw materials [...] should be developed and implemented to ensure that developing countries will have long-term benefits of their resources. An inclusive CE would enable resource abundant countries to utilize their natural resources to promote development, retain long-term ownership over them and address issues, such as conflict metals and exploitation (Schröder, 2018).

8.5 Conclusion

Some investigational transformations produce new educational steps. MOOCs' collaborative environment combines the transfer toward the social empowerment of CE with a working planetary situation, which needs not only innovative but also inclusive support. sMOOCs go a step further; they promote active but socially collaborative knowledge, learning, and even professional practices. Social empowerment does not simply depend on a pedagogical perspective but also on a bid for civic commitment, especially when dealing with an urgent and multidimensional discipline, such as CE. As such, Schroeder's suggested building blocks can represent real “social content” in sMOOCs' organization and supply.

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Part III
Sensible Practices: Community-Building
and Transfer of Experiences

Chapter 9

sMOOC: Communication, and Social and Relational Mobile Learning



Carmen Marta-Lazo and Cristina Villalonga Gómez

9.1 Introduction

The Massive Open Online Courses, MOOC, have posed new challenges for teaching, learning, and digital communication. Since their first appearance in 2008 with the precursor course “Connectivism and Connective Knowledge,” devised by George Siemens and Stephen Downes, MOOC courses have attracted the interest of the university community. This type of course does not imply educational innovation in itself. Despite their great technological dependence, through the complex platforms that house them, it is through their pedagogical design, as well as the use of digital tools and networks in their educational and communicative dimension, that innovation can be achieved in learning and knowledge construction in massively connected and “tangled” environments.

MOOC are in “a technological and social trend progress, especially in the field of higher study for innovation-oriented stimulation and promotion of mass learning, openly and interactively, that is, the genesis of collective research” (Tobías-Martínez, Duarte-Freitas, & Kemczinski, 2015: 64). In addition, they are positioned as “a cultural strategy of different social groups to reinvent digital citizen power” (Aparici & Osuna, 2013: 147) thus becoming, with the appropriate approach, a way of educational and social empowerment.

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9.2 Context

MOOC courses are based, on a methodological level, on “distributed networked learning, based on connectivist theory and its learning model” and their tasks, “according to the students’ abilities in solving certain types of work and their content” (Raposo-Rivas, Martínez-Figueira, & Sarmiento, 2014: 2). It is from their open social perspective that MOOC become an innovative, disruptive educational option:

MOOC are positioned as a disruptive educational alternative and as edu-communicative meeting points open to all, through which we can access that distributed and accessible intelligence on the Web to form external and internal relational networks and weave a net of knowledge, based on new ideas and the collective intelligence that is produced (Hergueta-Covacho, Marta-Lazo, & Gabelas-Barroso, 2016: 47).

Along these same lines, the revolutionary approach of MOOC lies, according to Aguaded, in the way of “conceiving the here and now of teaching, given that their ubiquity and temporality are diluted until they almost disappear, while teacher/learner interactions are retransformed compared with what they have been conceived up to now, and especially the relationships among the students, because now they collaboratively build their learning” (2013: 7). The interactions are, in this sense, essential in both the learning process and the digital communicational dialog.

The European ECO Project (Elearning, Communication and Open-Data: Massive Mobile, Ubiquitous and Open Learning), within the framework of the Competitiveness and Innovation Framework Program, is committed to an educational model based on these interactions. The design of the ECO MOOC courses therefore is based on a horizontal and bidirectional model, focused on the principles of “equity, social inclusion, accessibility, autonomy and openness [...] the empowerment of students becomes a reality with this proposal for training, breaking the barriers of the digital environment of the course to influence, from social networks, on the social layer” (Osuna-Acedo & Gil-Quintana, 2017: 189). The community, in this model, is the central focus, and the interactions give rise to experiences and learning that transcend individuality and allow the development of the collective intelligence of the participants. For this reason, these courses are called Social MOOC (sMOOC).

This chapter presents the experience of the MOOC course “Communication and mobile learning,” directed and taught by teachers and researchers from the Universidad Nacional de Educación a Distancia (UNED) and the Universidad de Zaragoza, members of TRICLab, which is inspired from the social learning model and exposed connective and in the edu-communicative relations of the community.

9.3 The Practical and Social Learning Approach

The course “Communication and mobile learning,” taught between 2014 and 2016, has finished its fifth edition. It aims to develop theoretical and practical knowledge related to communication and mobile learning from an edu-communicating perspective. Specifically, the objectives are:

- To learn to communicate effectively, playfully, creatively, and educatively in learning communities on social networks and through mobile devices.
- To learn to design an innovative methodology that exploits the educational and communicative possibilities of m-learning.
- To know the characteristics and principles of mobile learning.
- To develop practical knowledge that together with theoretical knowledge respond to the demands that will be part of daily practice as teachers within the framework of communication and mobile learning.

The course, with a workload of five credits and an approximate duration of two months is structured, regarding its contents, in six modules, which correspond to: Introduction; Theoretical framework of communication; Technologies for communication; Mobile learning; Applications in mobile learning; and Synchronous and asynchronous tools. In each of the modules, the contents are worked from the perspective of accessibility and “design for all” (Sánchez-Palacín, 2014) and follow the same sequence:

- Study guide for the module.
- Video presentation of the contents (with audio descriptions).
- Transcription of the videos.
- Theoretical content in PDF format.
- Content podcast.
- Forum for dialog—Activity.

The focus of the course content however avoids the transmission, banking model (Kaplún, 1998). That means, it avoids the exposure of materials and resources for the massive consumption of the audience-students. In this sense, the apprentice is not conceived as a receiver but “an actively participating co-constructor, who privileges meaning and its elaboration, collaboration and reciprocity, who has a host of pre-existing conventions also taken from the media and the Internet browsing” (Marta-Lazo & Gabelas-Barroso, 2016: 111). In this way, the contents are set aside, in the student learning process, by the relationships, the critical exchange of ideas, and the collaborative and collective construction of knowledge in community. Communication is horizontal between students and teachers, who share the virtual space. The role of the teacher is to guide the students, to accompany them in their learning process and not “instruct” them through digital material.

9.4 The R-elational Factor and the Creation of Online Learning Communities: Reflection and Criticism Through Activities and Evaluation

The R-elational Factor (Marta-Lazo, Gabelas-Barroso, & Aranda, 2012), as a learning model based on communication, dialog, participation, and collaborative creation, is the center of the methodology applied in the course “Communication and

mobile learning.” According to Marta-Lazo and Gabelas-Barroso, “The R-elational Factor unfolds a double dimension. The properly relational one, which contains the potential of psychosocial abilities, and the synaptic dimension, which includes the brain model as *modus operandi* of learning processes” (2016: 84). Both dimensions are contemplated in the pedagogical design of the course through the proposal of activities focused on encouraging dialog and collaborative work on the Internet.

The learning community, in addition, goes beyond the technological environment of the ECO technology platform; it flows through the networks in the different social scenarios of the virtual space. Communication travels from “internal” tools (especially forums) to other interaction spaces. According to Gil-Quintana:

The activist success of these projects is based on an interactive participation that is directed beyond the barriers of the course platform, usually through social media, an intrinsic characteristic of the connectivist pedagogy. Learning is disseminated in all areas of social software that contribute to the building of collective intelligence (2015: 304).

In the proposed activities, students must take a leading role, a creative-active role (EMIREC) (Kaplún, 1998), which takes advantage of networks to transform content into knowledge through their empowerment. It is through practice that the student develops his or her communication skills in a digital environment and is able to analyze the educational potential of virtual tools, especially mobility and ubiquity, the central axis of the course.

In the first blocks of the course, for example, students put digital communication into practice in the network environment through activities that allow them to put into practice relevant aspects of the media culture of the digital space:

- Media education as the first contact with Twitter: intervene and interact with other students in a debate about the role of media education, on the Twitter social network, with the hashtag identifying the dialectic (# ECOCAM_1).
- Identify a communicative situation in a real learning context: choose a communicative situation in a real learning context and identify the elements that compose it, that is, sender, receiver, channel, message, code, context, feedback, and noise.
- Monitoring of a TT phenomenon: prepare a monitoring report of a mass phenomenon on Twitter, known as a trending topic.
- “Me, wikipedist”: participate as an author or coauthor in Wikipedia and know the reaction of the community, as a method of participation in new collaborative and coauthoring trends, typical of new models of horizontal communication on the Internet.
- Lights and shadows of social networks in education: prepare a SWOT analysis on the use of social networks in educational activities, with a previous discussion on the LinkedIn network.
- The R-elational Factor: acquire the necessary variables to assess the presence of the R-elational Factor on the Internet and in social networks and its potential in teaching.

As it can be observed, students become active users of digital communication, who must approach these environments in a critical and reflective way. This critical spirit, with himself and with the community, is also transferred to the evaluation of the course. The collaborative assessment model of the MOOC course, Peer-to-Peer or peer assessment, forces the student to reflect and make a critical approach to the work of the partner as part of their learning process.

The R-relational Factor permeates the entire learning process and the collaborative construction of knowledge in the community, being the axis of dialogical action, of the empathy that students develop through communication, collaboration, creation, reflection, and critical attitude.

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Chapter 10

MOOC Knowledge Transfer from Practice Communities



Javier Gil Quintana, Óscar Almazán López, and Alejandro Buldón Olalla

10.1 Introduction

The classical philosopher Aristotle made a remarkable contribution to political thought with the statement that the nature of man is essentially social. Faced with various theories of sophisticated origin that considered society a product of conventions, Aristotle stated that sociability is an eminently human quality. He himself declared in his *Politics* (1, 2) that the state is something produced by nature, and man is, by nature too, a political animal. Affirming that the human being is social, is to say that he tends by nature to live in a community, whose highest level, according to the philosopher, is the state. The function of the state however goes beyond this characteristic, and is not limited to citizens living, but to living in a community. Only in the state, according to Aristotle, can the human being achieve his perfection and live a truly human life. Nowadays, the social reality that forms the state is consolidated from sectors such as the family, the media, the Internet, and educational spaces. In our case, we will focus on the potential of the latter to promote socialization and train mediating agents of social change for justice and equality.

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10.2 Knowledge Transfer in Theory

In the educational field, communities of practice take special importance in this social construction, in order to develop knowledge and share learning based on a collective experience. A community of practice takes as a basis, education for all and makes real the transfer of knowledge within networks and social groups. From the point of view of the thinkers Wenger, McDermott, and Snyder (2002), these groups make sense insofar as they allow building knowledge with the intention of transferring and multiplying it while viewing this training as a process of social construction.

Knowledge transfer thus develops its full potential when a learning community chooses a bidirectional communicative model and shares knowledge, within a field of practice, with another group of people. This knowledge management concept refers to transferring the same knowledge from the place where it is generated to the space in which it will be developed (Fuentes Morales, 2010). In order to accomplish this process, it is essential to be trained in certain communicative competencies and to be able to develop active pedagogical practices that allow for this transmission with a certain scientific validity. This action empowers students and creates democratically active citizens while at the same time being fair and accessing in an equal way the construction of collective wisdom (Surowiecki, 2004).

In this order of ideas, we cannot forget the role that avant-garde technology has played in the development of these communities of practice from the Internet. The advancement of social software has contributed to the establishment of group relationships between people from different sectors of thought, cultures, and countries. Currently, the virtual communities of practice are playing an outstanding role, not only because they favor interaction among people, but also because their praxis locus is projecting itself into the formation of citizens. An example of these communities is MOOCs, which came about as an evolution of e-learning and progressively improved from xMOOC, cMOOC, and sMOOC models. Among these types, we highlight the sMOOC in our work, which has emerged with the aim of promoting the training of citizens in an open and massive way through the Internet.

This sMOOC model has been consolidated on a global level thanks to the European Project ECO (E-learning, Communication, Open-data) promoted by the National University of Distance Education (UNED). Different investigations show how this project, the object of our study, has developed the new sMOOC model (Gil-Quintana, 2015), proposing not only access to knowledge by citizens (Osuna-Acedo & Gil-Quintana, 2017) but also the potential for the empowerment of students, intercreativity (Osuna & Camarero-Cano, 2016), gamification (Gil-Quintana, Camarero-Cano, Cantillo-Valero, & Osuna-Acedo, 2017), peer evaluation (Camarero-Cano & Cantillo-Valero, 2016), and the transfer of knowledge in open learning in order to train all citizens.

The research process that we present in this chapter starts from a quantitative methodology taking as a sample the students who took part in the sMOOC “Running Saludable 2.0”(Healthy Running 2.0) of ECO. This course has fostered social learning in order to promote physical activity and health education in teachers,

professional athletes, or amateurs and incorporating training on the use of electronic devices in these practices. This study shows the importance of the project for online training that ECO is undergoing, the positive assessment made by the participants and their satisfying experience of converting the ECO student body into e-teachers, empowering the platform and making knowledge transfer a reality. This training model in the culture of connectivity is creating a path (Van Dijck, 2016) for the instruction and socialization of citizens, making the world more transparent, collectively built, and accessible to everyone.

10.3 Methodology

The study presented in this chapter takes as a reference the sMOOC “Running Saludable 2.0“(Healthy Running 2.0) that took place within the courses offered by the European Project Platform ECO in the fourth edition, from April 5, 2016 to May 20, 2016; and in the fifth edition, from October 3, 2016 to November 18, 2016.

In order to respond to the formulated objectives and hypotheses we have used the survey as a technique to collect timely and reliable information from students in the virtual learning community. For the purpose of gathering the data, this survey was distributed widely among all the students of the sMOOC. We obtained responses from 392 of the total number of participants enrolled in the sMOOC. Consequently, the framework of the study we present is to:

- Analyze students` interactions in the sMOOC context.
- Value students` participation in the construction of learning as a foundational skill for knowledge transfer.
- Evaluate the students` level of interaction within the community of practice.

Once the objectives of our study related to the subject are established, justified, encompassed, and delimited in the real approach, we continue with the formulation of the hypotheses presented below:

- H1: In communities of practice, teachers are more involved in designing the sMOOC to promote more active learning.
- H2: In the communities of practice generated in sMOOC, the students develop a greater level of interaction and personal reflection.
- H3: The sMOOC model fosters the participation and interaction of the students, promoting a greater commitment to their knowledge transfer.

10.4 Findings

In this section, we present the results based on the objectives and hypotheses specified above from which we have extracted the conclusions that will be shown in the last section. Firstly, we analyze the design of the sMOOC to determine whether it

allows for the completion of the established objectives. Next, we evaluate if sMOOCs are aligned to a bidirectional communicative model and a participatory pedagogy that facilitates interaction and personal reflection. Finally, we will observe if the virtual community has been satisfied with the communication tools offered by ECO and with the approach of “Running Saludable 2.0” (Healthy Running 2.0) course, and if it favors participation and interaction between participants, helping to build social learning. For this purpose, the following codes have been formulated by categories that will be accounted for in the study in order to classify the responses of the sample:

- Development and evaluation of the learning method within the sMOOC platform.
- Repercussion and personal reflection before the contributions made in the sMOOC.
- Interaction and participation among the members of the practice community created around the sMOOC.

The ECO project offers the possibility of learning to create an sMOOC and carry it out on the platform itself from the completion of the “sMOOC step by step.” The commitment level shown in the training process by the latter e-teachers participating in this course has been demonstrated in the development of other courses such as the one that is the subject of our study. The learning experience based on a bidirectional communicative model and an interactive pedagogy displays a potential that is projected as a powerful incentive in itself for the students. We want to emphasize with other studies that the more involvement a student has, the greater is “the feeling of belonging to the virtual learning community, connectivity, participation and interaction between them, and the students are more motivated to continue advancing towards the community of practice” (Gil-Quintana et al., 2017) (Table 10.1).

Although the number of people who have enrolled in the course and have not completed it is high, the high abandonment rate is a characteristic of this massive, open, and online training. The interest and motivation of the e-teacher to make the learning adapted to all and satisfactory for all is evidenced by the evaluation made by the participants about the design of the sMOOC. We must point out that, as shown in Figure 1, 88.8% of the participants in the study have valued very positively the approach of the sMOOC in general, being a very striking fact. Only 2.6% do not know or did not answer and 8.7% rate that to some extent the sMOOC is designed to achieve the objectives of the course (Table 10.2).

Table 10.1 The MOOC is designed to achieve the stated objectives of the course

| | Frequency | Percentage | Valid percentage | Accumulated percentage |
|-------------------|-----------|------------|------------------|------------------------|
| NR/DK | 10 | 2.6 | 2.6 | 2.6 |
| To some extent | 34 | 8.7 | 8.7 | 11.3 |
| To a large extent | 191 | 48.7 | 48.7 | 60.0 |
| Completely | 157 | 40.1 | 40.1 | 100.0 |
| Total | 392 | 100.0 | 100.0 | |

Table 10.2 The MOOC encourages discussion and personal reflection

| | Frequency | Percentage | Valid percentage | Accumulated percentage |
|-------------------|-----------|------------|------------------|------------------------|
| Inadequately | 5 | 13 | 1.3 | 1.31 |
| NR/DK | 15 | 3.8 | 3.8 | 5.1 |
| To some extent | 39 | 10.0 | 10.0 | 15.1 |
| To a large extent | 171 | 43.6 | 43.6 | 58.7 |
| Completely | 162 | 41.3 | 41.3 | 100.0 |
| Total | 392 | 100.0 | 100.0 | |

Table 10.3 The sMOOC promotes learner involvement in the course

| | Frequency | Percentage | Valid percentage | Accumulated percentage |
|-------------------|-----------|------------|------------------|------------------------|
| NR/DK | 10 | 2.6 | 2.6 | 2.6 |
| To some extent | 44 | 11.2 | 11.2 | 13.8 |
| To a large extent | 162 | 41.3 | 41.3 | 55.1 |
| Completely | 176 | 44.9 | 44.9 | 100.0 |
| Total | 392 | 100.0 | 100.0 | |

Table 10.4 The sMOOC promotes interaction with other learners in the course

| | Frequency | Percentage | Valid percentage | Accumulated percentage |
|-------------------|-----------|------------|------------------|------------------------|
| Inadequately | 5 | 1.3 | 1.3 | 1.3 |
| NR/DK | 10 | 2.6 | 2.6 | 3.9 |
| To some extent | 68 | 17.3 | 17.3 | 21.2 |
| To a large extent | 142 | 36.2 | 36.2 | 57.4 |
| Completely | 167 | 42.6 | 42.6 | 100.0 |
| Total | 392 | 100.0 | 100.0 | |

This assessment is based on the personal opinions that students of the sMOOC made, in comparison to other e-learning experiences. Among other data that we have observed in our study, we highlight the grade that the sample has given to interactions and personal reflections that have taken away from the course. 84.9% of the answers give a very high level of satisfaction in the area of interaction and personal reflection. This conditioning factor is fundamental because, sometimes, in digital training scenarios, the participation of students is limited to contributions in communicative tools such as forums, that have no scientific rigor and sometimes these comments become “infotrash” causing noise in communication. In this way, the fact that respondents value this criterion in such a positive way gives great value to the quality of teaching and learning that takes place in sMOOC (Tables 10.3 and 10.4).

Table 10.5 Collected statistical data

| | | Figure 1 | Figure 2 | Figure 3 | Figure 4 |
|---------|-------|----------|----------|----------|----------|
| N | Valid | 80 | 80 | 80 | 80 |
| | Lost | 0 | 0 | 0 | 0 |
| Average | | 3.24 | 3.14 | 3.26 | 3.11 |
| Median | | 3.00 | 3.00 | 3.00 | 3.00 |
| Mode | | 3 | 3 | 4 | 4 |

Participation and interaction are key communicative and pedagogical features that differentiate the sMOOC courses from the xMOOC and cMOOC models. Initially, through the sMOOC “Step by Step” the participants could have the experience of this communicative and pedagogical interaction. Later, these participants become the e-teachers and promote their own community of practice through the sMOOC “Running Saludable 2.0” (Healthy Running 2.0). It is here where the knowledge transfer takes place due to the interest of the students to create their own course. The work developed by the teachers from the reference model course was applied by the new e-teachers using didactic strategies of participation and interaction among their students. All this didactic planning, as indicated by other studies, has had as a consequence, an increase of the participants’ motivation in the learning community (Gil-Quintana, 2015; Osuna-Acedo & Gil-Quintana, 2017; Osuna & Camarero-Cano, 2016). This involvement is essential to be able to carry out the teaching responsibility when creating your own sMOOC. As we can see in Figures 3 and 4, where participants responded to the question of whether interaction between learners was encouraged in the sMOOC “Running Saludable 2.0”(Healthy Running 2.0), their response showed that it was valued very positively by 78.8% of the respondents. The highest score of 86.2% of the sample reflects their opinion of feeling their involvement within the sMOOC. It is therefore evident that the students have given a high rating to this active methodological process (Table 10.5).

The scale used to obtain the statistical data of Figure 5 is as follows:

- 4.- Completely.
- 3.-To a large extent
- 2.-To some extent
- 0.-NR/DK or Blank
- 2.-Inadequately.

All the data collected in the study and discussed in Figure 5 shows that the e-teacher team’s high involvement level made the sMOOC “Running Saludable 2.0”(Healthy Running 2.0) a rewarding experience for the people who participated. A positive experience offers more possibilities for greater knowledge transfers to be developed by the students who, if they follow the ECO model can become e-teachers and create their own sMOOC based on their own community of practice.

10.5 Discussion

In our study, we have verified that the interactive experiences developed by the European ECO Project, foster social learning by offering participants the possibility of building knowledge from a virtual community.

This project was designed with the aim of training e-teachers who, starting with a desire to transfer their knowledge and a commitment to improving the quality of teaching, build their own communities of practice in sMOOCs to promote a design that favors the model of self-regulated learning.

The students' experience of the learning process lived within a collective environment are reproduced when these students are empowered by a digital platform, by presenting their own formative proposal structured on the basis of a bidirectional communicative model and a participatory pedagogy. This commitment is made because, in the sMOOC where the initial learning took place, they have been driven to learn from a personal reflection approach and to use all the current communication tools in order to participate in the construction of knowledge. Then, starting from this original sMOOC, where the subsequent course was generated, this knowledge is transferred to the digital scenario where it is going to be developed and for that reason, it is necessary to train the new teaching team in certain communicative competencies to develop active pedagogical practices.

We can conclude, according to the data analyzed, that the ECO Project "Running Saludable 2.0"(Healthy Running 2.0) course was developed with a communicative and pedagogical level according to the sMOOC model, encouraging the participation and interaction of the people who form the virtual learning community that is projected within a field of practice. As a consequence, this social course model encourages the participation of students and promotes a greater commitment to the knowledge transfer from which we can educate citizens based on collaboration among their peers.

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Chapter 11

Dialogue as Peers Assessment Process in MOOCs



Margarita Roura-Redondo

11.1 Introduction

Since MOOC have an open and free of charge nature, they have made learning easier for many individuals. In order to deal with this excessive amount of students in such courses, an automatic and autonomous way of assessment must be found so that students can be correctly assessed, while ensuring the quality of learning and its reliability. The evaluation process of such courses must adapt to their specific characteristics so, generally, we find quiz questions and peers assessment. Both ways are based on the application of process and systems which provide a numeric qualification, and students start worrying more about the grade itself rather than about what they have learnt.

The high number of students of a MOOC will turn peers assessment into a basic peers assessment form. O'Toole (2013) points out that instead of naming this type of *peer assessment* it should rather be named as *peer grading* since, actually, it consists of offering a general heading of enclosed assessment evaluation to the assessing student and in some cases, even instructs on how to apply such assessment, so it completely loses its usefulness as an educational and meaningful activity.

Downes (2013) himself highlights two shortcomings in this type of assessment. On one hand, he states that it is a case of blind-leading-the-blind. By saying this, he means that giving total responsibility of evaluation in the hands of the students can derive in cases that, by using own criteria, people end up learning from myths or understanding concepts without any logic.

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11.2 Assessment in Learning Process

Our main focus when it comes to evaluating must be integrating assessment within the learning process. We cannot understand assessment as an appendix in some eventual moment, rather it must flow throughout the entire process. Assessment evaluation therefore must be continuous and will cover the entire learning community. It is recommendable to choose between several evaluation models: coevaluation or evaluation among peers or among equals; heteroevaluation or assessment among individuals on a different level (assessment from professor to pupil or assessment from pupil to professor); and self-evaluation or evaluation of someone's own knowledge. Assessment evaluation must be conceived as a development concept.

If someone wishes to develop the educative practice of horizontal communication, then dialogue is necessary. Teachers are not the owners of the word, and cannot impose their speech upon the students. In order to make students a part of their learning in an active way, student's speech is also necessary. If speech is imposed by the professors, students will have the false idea that they are finding knowledge when they are actually having their thoughts conditioned through manipulation. That is how Freire (1970) points out: "Only dialogue, which implies critical thought, is capable of generating it. Without it there is no communication, and without such there is no true education" (p.74).

Dialogue is the base of dialogical learning, which is included in critical pedagogy within a communicative conception of learning. It is an education system connected to the transformation of society through collective construction of meanings. This dialogical and communicative orientation of learning is the one that allows to reach maximum meaningful learning through interaction among heterogeneous groups. Dialogue is fundamental in the learning process and guarantees an education with quality. Experts (Burbules, 1993; Laurillard, 2002; Nicol & Macfarlane-Dick, 2006) consider dialogue within education as an essential matter for the development of the self-regulating capacity of students.

From here, the idea of generating an alternative assessment among peers started, one that would allow the interaction between "assessor" and "assessed," and that between both people consensual positions could be reached through argumentation. In this manner, a direct relation between peers would arise which would allow a debate about the grade in case of someone not agreeing, or having questions about it, and therefore increasing the reliability of the assessment. And on the other hand, offering a developmental activity within the educative process, within the assessment itself, when it comes to empowering argumentation through discussion about the contents of learning.

The main goals of dialogic assessment which are suggested are developing the capacity of argumentation about previous knowledge, increasing intersubjective communication and cooperation among peers, supporting individual responsibility, increasing analytical capacity as well as the search of consensual agreements and finally increasing the degree of trust and reliability in an assessment process between equals.

11.3 Implementation of MOOC “Awaken the Sight: Introduction to Critical Reading of Image”

The plan consisted in the creation of an MOOC within the Project ECOLearning called: “Awaken the sight: Introduction to critical reading of image” on which a practical dialogic evaluation would be put into practice.

The course, framed within the category of Social Science, had a duration of 1 month and 3 weeks. Such course was aimed towards all those people who would not settle with just having a look at the image but rather felt the need of meditating about the image and developing a critical thought that would drive them to think while creating images. It was not deemed necessary to have any previous requisite except for keenness on the topic. The main goal of the course was to develop a comprehensive learning capacity and critical thought towards visual messages, in terms of representation of reality as owners of an ideology and carriers of their own interest. A formative assessment process was chosen, encouraging participation and integration, among peers. *Instagram* was chosen as the set for dialogue in the assessment.

Participants registered their assessment projects in Instagram by using the hashtag #despertaIamiradam3 and evaluators could access the work of their peers through the address that each student linked in the peer assessment tool of the unit. For collection of all the handed-in assessment projects individuals just had to search for the suggested hashtag in Instagram.

Within the same place from where the image address was being shared, individuals were explained how to fulfill their tasks as assessed and assessor and a set of evaluating guidelines was provided. Also, two questions were offered as examples so that they could initiate the dialogue if they considered it convenient.

Once dialogue about the analysis of the image had been carried out, it was time for grading. Through the aforementioned guidelines, they graded both analysis work as well as the argumentative process through dialogue. The grade was sent automatically via email to the evaluated individual and he, or she, would further have the chance to remark about his grade through the comments in Instagram within the same evaluation discussion.

11.4 Analysis of Results

Students who took part in the dialogical peer assessment were 103, which is 82% of the total students enrolled in the course. Fifty seven contributions published in Instagram could be recovered from the 103 that were handed in.

Among the 146 questions asked in all cases, only 16% of questions were left unanswered from the 57 analyzed cases. Most of the evaluators chose to use the suggested questions by the professors. In more than half of the cases, which is 52.6%, questions different from the ones suggested were asked. It is very

positive to find this level of participation from the evaluators with their own questions since it is very important that students add their own assessment and their own criteria.

No case appeared on which questions derived from previous questions. This means that no questions were asked in order to clarify points or arguments given as answers to previous questions. Non pertinent questions were asked, i.e., certain discussions came up which differed from the topic of assessment which in most cases had to do with external participants that were not part of the assessment.

Analysis of the speech used within the dialogue was carried out by analyzing the content of the following descriptive categories: expression of emotion, argumentative speech, mechanical question-answer, objection speech, and assessments.

Emotional expressions that were found in the analyzed cases are related to the positive expressions of affection and mutual understanding among friends. Generally, they were provided by individuals external to the assessment that had no knowledge about what was happening. It is important to remind that evaluations are carried out in social networks and in open and public profiles, so it is logical that such cases may occur. After all, comments are no more than messages of surprise or mutual understanding due to the bonds of friendship among students.

Assessments are generally positive comments about the work of the evaluated individual. They are the only comments that were found of the evaluators about the work handed out in the peer assessment. Also, evaluation from “appraise” to “appraiser” has been found, which in all of the cases were messages of appreciation.

Speeches of objection refer to the questions or comments that evaluated students addressed to their appraisers, and which allows them to discuss about their grading and the received comments. Just two questions were raised from the evaluated to their evaluator and both were focused on the asked questions. In both cases, a much better evaluation from the appraiser was being demanded by the assessed student, but such questions consisted basically in asking for more questions, and not in asking for a justification about their grades.

Except for seldom positive assessment comments, as we have seen previously, evaluators did not make any comment to the assessed student. Basically, they restrict themselves to ask the questions. Evaluated individuals in any of the 57 cases ask for a comment to the evaluator asking them to justify their grading. Therefore, there is no place for a dialogue about the carried out work, and ways to improve it. There are rarely argumentative speeches, understood as the ones on which the speaker has an intention to defend an opinion.

The most frequent speech were the ones of direct question-answer. The appraiser makes his questions and the appraisee answers them. Sometimes even the appraiser makes several questions consecutively and then, the appraisee organizes the questions in a sequence. Therefore, there is no such thing as a dialogue, since there is only an alternative exchange of information. The number of question-answer speeches matches with the number of cases with assessment since all of the speeches have this category included.

11.5 Discussion

Knowledge and thought must be motivated through dialogue, argumentation, and discussion. It is very important to inspire the students to question knowledge, ask questions to themselves, and develop a sense of criticism. Scientific thought comes from curiosity and flows through discovery, which leads to asking questions. Dialogical evaluation is born from this premise and develops itself through connectivism (Siemens, 2005) and dialogical learning.

It is convenient to generate more participative and interactive methodologies based on dialogue and argumentation, and to motivate activities based on questioning pedagogics. This will be a very inspirational practice to motivate students into participation through dialogue.

The proposed dialogical assessment evaluation pretended to, with feedback among peers, motivate students, encourage active participation, develop argumentative competences and interpersonal abilities, to reflect upon the depth of the topics, generate criteria for a critical reasoning, and to promote the creation of knowledge in a collaborative way. Unfortunately, results obtained in the implementation of dialogical assessment were not positive in terms of the quality of dialogical and argumentative speech.

The interaction between evaluator and evaluated individuals through the peer assessment which was carried out in this investigation had no dialogue or argumentation. Interaction between evaluator and evaluated individuals was limited to an exchange of questions and answers in an automatic way. The evaluator asked and the evaluated answered. The evaluator did not face the evaluated in order to develop and redefine his ideas through an argumentative discussion; he did no commentary about the evaluated person's work to improve it or to reflect upon its content.

If we focus on the role of the evaluator and evaluated student, conclusions about the analysis of the peer assessment of the MOOC "*Awaken the sight: Introduction to critical reading of image*" are that the evaluated student understands the role of the evaluator as unchangeable and undebatable, and does not argue about the grading whether he, or she, agrees or not with it.

Possibly, there should have been a better explanation about what was expected of each one of the students in his role as an evaluator, and some sort of activity in order to learn how the dialogue should have been performed. Due to the results, we can extract that students lack the skills to take part in argumentative discussions, and do not have the initiative when it comes to suggesting questions and to create a critical debate.

Artifacts and systems are basically tools, and whosoever makes them useful spaces are the ones that make more use of them. It will depend on the skills and abilities of the users, the effectiveness and value of the tool. The most sophisticated and innovative tools could be created, whether they were platforms online systems that favor peers interaction and communication, and it would not have any value if dialogical and argumentative communicative skills are not developed among the participants, and therefore we would only possess a shiny technological toy.

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