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Are MOOCs Promising Learning Environments?

¿Son los MOOC una alternativa de aprendizaje?

Dr. Antonio Bartolomé is Professor in the Faculty of Education at the Universitat de Barcelona (Spain) (abartolomepina@gmail.com).
Dr. Karl Steffens is Professor in the Institute of Didactics and Educational Research, at the Universität zu Köln (Germany) (Karl.Steffens@uni-koeln.de).

ABSTRACT
This article reflect upon MOOCs as technology enhanced learning environments. The increase in numbers of Massive Open Online Courses (MOOCs) has been dramatic in recent years. MOOCs may be considered to be a new form of virtual technology enhanced learning environments. Two types of MOOCs may be distinguished: cMOOCs as proposed by Siemens, based on his ideas of connectivism, and xMOOCs developed in institutions such as Stanford and MIT. Although they have received a great deal of attention, they have also met with criticism. The time has therefore come to critically reflect upon this phenomenon. While there is still relatively little empirical research on the effects of MOOCs on learning, this study tries to shed light on the issue from a theoretical point of view. It will first explore positive and negative expectations regarding MOOCs. MOOCs might constitute a good option if they can be delivered on a large scale, and this will only be possible for a few big institutions. There is no empirical research which would uphold the claims concerning their positive effects. It will then review classical and more recent learning theories with respect to their capability to explain the process of learning in order to compare traditional online courses, xMOOC and cMOOC with respect to their potential to support learning and its self-regulation.

RESUMEN
Este trabajo reflexiona sobre los MOOC como entornos de aprendizaje. El número de cursos masivos abiertos y en línea (MOOC) ha crecido exponencialmente en pocos años desde que fueron introducidos. Los MOOC son considerados una nueva forma de entornos virtuales de aprendizaje potenciados por la tecnología. Se consideran dos tipos de MOOC: unos los organizados por Siemens y Downes (cMOOC) y otros los desarrollados en lugares como Stanford, con muchos estudiantes y loables objetivos (xMOOC); estos tienen también sus debilidades. Aunque han sido recibidos con altas expectativas, también han encontrado una fuerte oposición que está aumentando con el tiempo, lo que nos permite estudiar este fenómeno en profundidad. Aunque todavía hay pocas investigaciones empíricas sobre los efectos de los MOOC en el aprendizaje, este estudio trata de arrojar luz sobre el tema desde un punto de vista teórico. En primer lugar exploraremos las expectativas positivas y negativas generadas. Los MOOC pueden constituir una buena propuesta a gran escala, lo que sólo es posible para unas pocas grandes instituciones. No hay estudio de mercado, ni modelo de negocio, ni investigaciones empíricas que permitan confirmar los anuncios de sus efectos positivos. Revisaremos las teorías del aprendizaje recientes y clásicas respecto a su capacidad para explicar el proceso de aprendizaje y compararemos los cursos en línea tradicionales, los xMOOC y los cMOOC en relación a su potencial para apoyar el aprendizaje y su auto-regulación.

KEYWORDS | PALABRAS CLAVE
Connectivism, learning theories, elearning, MOOC, cMOOC, xMOOC, SRL, ODL.
Conectivismo, teorías del aprendizaje, elearning, MOOC, cMOOC, xMOOC, aprendizaje autorregulado, EAD.

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1. Introduction

Massive Open Online Courses (MOOCs) in Higher Education have received a great deal of attention during recent years (Karsenti, 2013). Udacity, Coursera and EdX, the main providers of MOOCs in the US, are adding universities as partners at a breathtaking speed; the same is true, although to a lesser extent, for MOOC providers in Europe. OpenupEd, for instance, a pan-European initiative founded in 2013 and supported by the European Commission, is offering courses from a number of European and even non-European higher education institutions. Also, a number of national institutions in Europe have started to offer MOOCs (European Commission, 2014).

Despite public enthusiasm concerning MOOCs, participants in MOOCs seem to meet with serious problems leading to enormous dropout rates. A recent study showed that only 4% of students attending Coursera MOOCs completed their courses (Armstrong, 2014). One of the problems may be that many courses were created without taking into consideration findings of research in the fields of learning and self-regulated learning. In the present article we will therefore first explore the positive and negative expectations that have accompanied the rapid spread of MOOCs.

While other recent works are based on a bibliography review (Hew & Cheung, 2014) or on empirical analysis (Gillani & Eynon, 2014), this study is centred on a reflection on the capabilities of MOOCs from a learning theory point of view. Our aim is to analyse how the contributions from learning theories are being reflected in MOOCs.

2. Background

2.1. Understanding MOOCs: historical key elements

When Stephen Downes and George Siemens attended the Desire21Learn conference, tired of discussing connectivism applications, they wondered whether best way to understand how online learning worked was to participate in online learning (Siemens, 2012a). They therefore designed their first open online course CCK08 «Connectivism and Connective Knowledge». 2300 students signed up, and Dave Cormier and Bryan Alexander therefore called it a «massive open online course» or MOOC (Siemens, 2012b).

However, this was not the first MOOC in history. As Siemens (2012a) indicated, courses of this type had already been offered in 2007 by Alec Couros and David Wiley. Also, similar concepts can be found in studies on open universities, open learning and distance education.

It could be claimed the first MOOC appeared in 1922 (Bartolomé, 2013). The University of New York started its radio courses which were open and massive, and soon universities like Columbia, Harvard, Kansas State, Ohio State, NYU, Purdue, Rufts and many others followed suit. However, these were not courses in the form that Downes and Siemens suggested, but courses more in line with courses that are offered today by Standord, Coursera and similar institutions.

At the moment, two types of MOOCs may be distinguished (Lugton, 2012; Adell, 2013). Quinn (2012) talks about the type of MOOCs which were organized by Siemens, Downes and their «co-conspirators» and which are based on Siemens' ideas of connectivism. On the other hand, there are xMOOCs or simply MOOCs which are based to a large degree on traditional methods of distance education. Some include opportunities for collaboration in discussion forums and peer-based evaluation, a system that was implemented by Coursera.

There are additional criteria to distinguish between different types of MOOCs. Lane (2012) suggested the following classification:

- MOOCs which are based in a network, such as cMOOCs.
- MOOCs which focus on the problems to be solved, such as his own and those of Jim Groom.
- MOOCs focusing on content, such as EdX, Coursera and Udacity.

This is somewhat reminiscent of the classification that was offered by Moodle to design courses using this platform; the distinction is made between themes (content), weekly or Scorm (activities) and social courses (equivalent to cMOOCs).

2.2. Differences between xMOOCs and cMOOCs

It would be wrong to assume that an xMOOC may be converted into a cMOOC simply by introducing activities for collaboration. Siemens (2012a) in his introduction to «MOOC for the win!» makes this point very clear.

He wanted to explore and experiment with new forms of online interaction; the question of whether these new forms might help universities improve their teaching was not of interest to him. He was more interested in offering something in the field of learning and instruction that was similar to what MIT had developed in the OpenCourseware Project.

It was in 2012 that the economic potential of MOOCs was discovered. Cupaiuolo (2012) describes how Thrun arrived at his decision to leave Stanford.

In his course on Artificial Intelligence, 160.000 students from 190 countries were enrolled, while only 200 students were enrolled in the course offered on campus. In addition, the majority of the campus students stopped going to class and continued the course online. Although only a small percentage of students managed to complete the course, in absolute numbers there were still 23,000 successful students.

Some additional data may help to situate MOOCs in the teaching and learning landscape. At the end of 2011, Stanford started its first three MOOCs on computation, and in December of the same year, MIT started MITx (MIT news office, 2011). A month later, Thrun had abandoned Stanford to collaborate with Udacity (Watters, 2012a) which offered his course CS 101: Build a Search Engine (joined by one of the founders of Google). At the same time, Andrew Ng and Daphne Koller created Coursera, and in April 2012, the universities of Princeton, Penn, Michigan, Stanford and the University of California at Berkeley joined Coursera (Kolowich, 2012).

It soon became known that large amounts of money were being invested in the MOOC business. In May 2012, EdX was founded by MIT and Harvard with a contribution of some 30 million dollars by each institution (Watters, 2012b). A month later, Pearson joined Udacity (Udacity, 2012) and in October it was announced that an additional 15 million dollars had been invested. Also in 2012, Banco Santander and Universia in Spain launched MiriadaX, the biggest platform in the Spanish language. However, according to Sangrà (2013) there is no Spanish university among the universities which intend to control the international market, these being Oxford, Cambridge, MIT, Harvard, Stanford, Princeton and Pearson, Google and Walmart.

3. Problems

It seems to us that there are some problems which are genuinely related to MOOCs and which have to do with their creation and maintenance as well as with their acceptance and use.

3.1. Courses or resources

The 1980s and 1990s may be characterized as the time of computer-based instruction (CBI or similar variants like CAI, CAL, and CBL). In spite of the large amounts of funding these projects received, none of these survived long enough to justify the economic investments. In 1994, Philip Barker (personal communication) pointed out traditional classes were less expensive than computer-based courses. Reasons for this were the low rate of re-utilization and the high costs of keeping them updated. In some cases, it was not possible to update the course for the simple reason that the people who had participated in its creation were no longer available. This is therefore one of the major problems: to update a complete course is much more expensive than to change smaller units. At the same time, a complete course will need more year-to-year updating.

This problem exists independent of the course, be this open and free or closed and with fees, online or face-to-face. In 2006, the first author was invited by DUOC in Chile as a consultant. One problem he encountered was that material that was created for a course by one lecturer was not used by the others. This constitutes another problem: it is rather unlikely, at least in some cultures that lecturers are willing to integrate learning material in their teaching that was created by a colleague.

The idea of working with educational resources

Despite public enthusiasm concerning MOOCs, participants in MOOCs seem to meet with serious problems leading to enormous dropout rates. A recent study showed that only 4% of students attending Coursera MOOCs completed their courses (Armstrong, 2014). One of the problems may be that many courses were created without taking into consideration findings of research in the fields of learning and self-regulated learning. In the present article we will therefore first explore the positive and negative expectations that have accompanied the rapid spread of MOOCs.

that can be re-utilized is as old as the computer. As Gibbons and Ot (2002: 28) wrote, «it is possible to create small curricular units which can be combined in different ways to fit different students». Hodgins (2002) suggested the metaphor of Lego building blocks. No matter to which author or definition of learning objects or visions of learning resources we refer, what they all have in common is the modularity of the resources which makes it possible to integrate them in programs which suit different lecturers and different students. Due to their small size, it is also easier to update or replace them.

Taking all this into consideration, it simply does not seem to be a good idea to design complete courses although this may work out in certain circumstances. If there are some hundred millions of dollars which are available for the creation of a course and if there is a large number of students who will take the course, there is no doubt that it will be possible to develop a course of high quality. However, only the most affluent institutions will be able to do so. In other words, MOOCs might constitute a good solution if they can really be scaled up, and this will only be possible for a few big institutions. In times of austerity, this will be almost impossible. Rather, as in other realms of our lives, a reaction to the contrary can be observed; in the food sector, for example, there is a tendency towards «local consumption».

A similar tendency can be seen in regard to MOOCs. Oremos (2013), for instance, talks about SPOCs, «small private online courses», an idea which was suggested by Armando Fox (Fox, 2013). However, the term does not refer to MOOCs for a few, but rather to a new business model. This is clearly explained by Agarwal, president of EdX: «You create a course and then license it to a university or an organization or corporation» (Goral, 2013). As Oremus points out, something similar may happen in the context of a model of a «flipped classroom», or, to generalize this idea, in the context of any model. What we have then is educational material elaborated by tutors and lecturers that can be sold to institutions, companies or even individuals.

What is different is that the material is being sold in the form of courses. This, however, does not solve the first problem we mentioned: difficulties and costs of updating the material. Evidently, this is not a problem in large-scale economies; SPOCs may be sold to any client who is able to cope with the production costs. But then the second problem still remains: will a university lecturer accept the specific selection of contents and modes of presentation as a whole, or will he prefer to pick some material from different sources and keep this in a space of his own?

Of course, the academic culture of the institution also matters. In recent years, the economic situation in Spain, together with the fact that the mean age of university lecturers has increased, has led to an increase in young lecturers, with short-term contracts resulting in a low level of dedication due to the fact that the teaching job has to be reconciled with other activities. This has limited the role of professors to almost exclusively being the tutor, with little room to design a curriculum or to develop their own material.

3.2. Economic analysis

To return to SPOCs: what we find is not a new proposal or the exploration of new teaching solutions, as Fox maintains, but a new business model which aims at increasing returns. Put bluntly, it is about making money. In a recent study of a MOOC offered by the University of Pennsylvania (Alcorn et al., 2014), 35,000 students who had completed at least one lesson were asked how much they were willing to pay for the course. The results obtained are shown in table 1.

Table 1: Percentages of students willing to pay a specific fee for attending a MOOC

Willing to pay US $	1	5	10	25	100
Percentage	64	49	44	34	18

The data show that offering MOOCs might represent good business. However, other results from this study o are really disheartening: women, jobless people, people from the third world, students without a higher education degree and people older than fifty-one are clearly underrepresented in MOOCs.

In the case of women, the ratio of 55 to 45 in favour of men in the higher education sector in the industrialised countries turns into 65 to 35 when it comes to register for MOOCs. Only 6 % of the students enrolled in MOOCs in the United States are without work. 86 % of the US students who are enrolled in MOOCs have already completed studies in Higher Education while the mean percentage for this in the general population is 32 %. This difference turns into a real divide when we look at MOOC participation in the BRIC countries (79 % versus 5 %) or in developing countries (79 % versus 6 %). This means that MOOCs particularly offer an opportunity for those who already obtain Higher Education degrees. Possibly, the factor that most courses are offered in English plays a role, but his has not been clarified as yet. We agree with Alcorn & al. (2014) that as far as

MOOCs are concerned, at present there is no market study, no business model and no empirical investigation which would uphold the claims that have been made concerning their positive effects.

In the following section, we would like to review theories of learning and of self-regulated learning in order to be able to assess MOOCs with respect to their learning theoretical foundations.

4. Methodology

To allow for a solid reflection on how MOOCs have incorporated learning theoretical aspects, the authors organized a focus group with a collective discussion on MOOCs that developed in two steps. In the first phase, specific learning theories were selected. Also, special attention was given to theoretical approaches to self-regulated learning. In a second step, the concepts of cMOOCs and xMOOCs were reviewed with respect to their potential for incorporating elements from theoretical approaches to learning and self-regulated learning.

> MOOCs are a specific type of online courses. We doubt that making them massive provides any added value, either from the point of view of education, nor from the point of view of psychology. Nonetheless, they constitute a form of virtual TELEs that needs to be studied in a differentiated manner. At the same time, it might be worthwhile to consider alternative forms of online courses, like Small Private Online Courses (SPOCs). One alternative that seems promising to us would be SCOOCs – Small Connectivist Open Online Courses.

4.1. Learning theoretical foundations of MOOCs

In his first presentation of the concept of connectivism, Siemens referred to Driscoll (2000) who defined learning as «a persisting change in human performance or performance potential… [which] must come about as a result of the learner's experience and interaction with the world» (Driscoll, 2000: 11). This definition is quite valuable because it makes a distinction between performance and performance potential thus allowing to distinguish between overt and observable behaviour on the one hand and competences as performance potential for which overt behaviour may be an indicator on the other. At the same time, it seems wide enough to include different approaches to learning. While behaviourist theories of learning focus on observable behaviour, other approaches to learning assume that learning is related to processes that are not directly observable (cognitive and constructivist theories, connectivism).

It would, however, be unwise to completely discard behaviourist theories. Classical conditioning explains how a formerly neutral stimulus acquires the capacity to elicit an emotional response (Watson, 1913) and there is an increasing acknowledgement of the fact that emotions do play a role in learning. Also, Skinner showed that his theory of operant conditioning lent itself as a basis to develop teaching machines and was also able to explain language acquisition (Skinner, 1957; 1958).

Approaches to learning were also developed in the field of cognitive psychology. The problem with the cognitive approach is, however, that the individual is portrayed as an information processing system, a system without emotions and without the capacity to be conscious of itself. Piaget's theory focuses on cognitive structures and activities, but is not completely oblivious of emotions and consciousness (Piaget, 1947). While in the course of a child's cognitive development, cognitive activities (thinking) turn into operations by acquiring a specific formal structure, children –and adults– also develop structures of content (schemata) in which their knowledge about the world is represented. Knowledge is therefore constructed individually, although there is no doubt that knowledge construction is also a social process.

Recent progress in neuroscience has greatly improved our understanding of human beings and how they learn. Findings from neuroscience show that individual learning is a very complex activity, involving emotional as well as cognitive processes. According to Damasio (1994: 2003), all our cognitive activities are

accompanied by body feelings (somatic marker hypothesis). On the basis of findings in neuroscience, Caine & Caine (1991) suggested 12 principles of brain-based learning.

The most recent ideas on learning were proposed by Siemens. Siemens (2005) introduced the concept of connectivism as a learning theory for the digital age. Basically, his idea is that learning takes place in a community of individuals interested in a specific topic. His works on learning (Siemens, 2005) and knowledge (Siemens, 2006) are certainly some of the most interesting contributions on these topics. Although Siemens suggests connectivism to be a learning theory for the digital age, it may be doubted that is a learning theory. According to Verhagen (2006) it is more of a pedagogical view than a learning theory. Duke, Harper & Johnston (2013) in their critical analysis of Siemens' approach come to the conclusion that connectivism as described by Siemens is «a tool to be used in the learning process for instruction or curriculum rather than a standalone learning theory» (Duke, Harper & Johnston, 2013: 10).

What Siemens is describing is actually a community of people interested in a specific subject. This is reminiscent of ideas other authors have proposed. Ivan Illich (1972), for example, suggested that schools should be abandoned and in their place, knowledge centres should be established. Although schools will probably never be abandoned, the Internet may be viewed as one big knowledge centre. The idea of a community of practice had also been proposed by Lave & Wenger (1991; Wenger, 1998).

In his publication «Knowing knowledge» (Siemens, 2006), Siemens states «Learning is the process of creating networks. Nodes are external entities which we can use to form a network. Or nodes may be people, organizations, libraries, web sites, books, journals, database, or any other source of information. The act of learning (things become a bit tricky here) is one of creating an external network of nodes – where we connect and form information and knowledge sources. The learning that happens in our heads is an internal network (neural) (Siemens, 2006: 29).

From our point of view, learning may certainly be described as the formation and strengthening of neural networks, although the neural activities that go on while somebody is learning are much more complex. The external entities –the sources of knowledge– to which we connect in order to increase our knowledge are indispensable for learning and may therefore be considered to be part of the learning process.

4.2. Self-regulated learning

Presently, we are observing a gradual shift from teacher-oriented learning to student-oriented learning. In the Bucharest Communiqué which was signed by ministers of 47 European countries in the context of the implementation of the European Higher Education Area (EHEA), it is stated: «We reiterate our commitment to promote student-centred learning in higher education, characterised by innovative methods of teaching that involve students as active participants in their own learning» (EHEA Ministerial Conference, 2012: 2). The advent of MOOCs seems to have come just in time to turn these political ambitions into reality. Self-regulated learning has been listed as one of the key competences for lifelong learning (European Council, 2006).

Models of self-regulation have also been applied to education (see Boekaerts et al., 2000). Although several models have been proposed for self-regulated learning, probably the best known is the one by Zimmerman (2000) who assumes that self-regulated learning takes place in cycles of: 1) forethought, 2) execution and volitional control and 3) self-reflection. It is also recognised, however, that self-regulation addresses not only cognitive activities. Emotional, motivational and behavioural activities in the learning process are also subject to self-regulation. According to Zeidner et al. (2000), self-regulation involves «cognitive, affective, motivational and behavioural components that provide the individual with the capacity to adjust his or her actions and goals to achieve the desired results in light of changing environmental conditions» (Zeidner & al., 2000: 751).

While some learners may have acquired good strategies for self-regulating their learning, others may still be in need to improve these. The development of SRL skills needs scaffolded practice and subsequent fading of the guidance (Beishuizen & Steffens, 2011; Azevedo & Hadwin, 2005).

Table 2: Macro-level phases of learning in different learning theories

	Behaviourism	Cognitivism	Constructivism	Neuroscience	Connectivism
Explore	+	+	+	+	+
Understand			+	+	+
Practice		+	+	+	+
Transfer		+	+	+	+
Self-regulate		?	+	+	+

4.3. A process model of learning

Theories of learning tend to focus on relatively short learning activities. Learning may, however, involve activities that last for a much longer period of time. Learning to walk, leaning to speak, learning a second language, learning to play a musical instrument all require longer learning periods. After all, today we are speaking of lifelong learning. However, even if we speak of extended learning periods, these may be broken up into smaller periods at the macro level. We therefore think that long time learning is achieved in cycles of macro level phases of:

1) Exploring a specific domain.

2) Understanding the domain.

3) Practice and rehearsal of domain-relevant skills.

4) Application of the acquired knowledge and skills to other domains.

We have tried to assess the learning theories which we referred to in the beginning with respect to the question to what degreed they explicitly consider these macro-level phases of learning (table 2).

5. Discussion

When we talk about technology enhanced learning environments (TELEs), we are not only talking about technology. Technology provides digital media which may facilitate learning, but learning is the activity of an individual which in most cases is taking place in a social context (although this may be virtual) involving peers and a teacher or tutor.

Although it is difficult to compare traditional online courses with xMOOCs and cMOOCs, there seem to be some characteristics which allow us to describe differences between the three forms of TELEs. We believe that it is important that TELEs support learning in the four macro level phases of learning which we introduced above (explore, understand, practice and transfer). As far as self-regulation of learning is concerned, we believe that TELEs, particularly if they come in the form of online courses, require a greater competence of self-regulation than traditional face-to-face learning environments. We also believe that cMOOCs support self-regulated learning to a greater extent than other forms of online-based TELEs because we conceive of cMOOCs as communities of learners whose members support each other in exploring and learning about the domain in question.

From our point of view, interaction with learning objects, peers and tutors is also important. In fact, in one of our research projects on self-regulated learning in TELEs (Steffens, 2006; Bartolomé & Steffens, 2006), we discovered that teachers/tutors do matter. In this project, we evaluated TELEs with respect to their potential to foster self-regulated learning. We categorised the TELEs into three different kinds of TELEs: (1) container systems with tutor, (2) content systems with tutors and (3) content systems without tutor.

Container systems with tutors were TELEs in universities in which students created content with the assistance of a tutor, using digital technologies (digital portfolios, digital videos, learning management systems, blogs). In the content systems with tutors, content was already provided and was being studied in blended-learning courses. Content systems without tutors involved computer programs or online application, which could be studied individually by students, with little or no interactivity with fellow students and coaches. It seems to us that there is some similarity between container systems with tutors and cMOOCs because in both cases, the creation of content and new knowledge is important. Traditional online courses seem more like content systems with tutors because in both kinds of learning environments, content is already provided and is being studied with a teacher or tutor as coach. xMOOCs seem to resemble most content systems without tutors because they usually provide little interaction with peers and tutors.

In our study of TELEs, we found that container systems with tutors were evaluated highest with respect to their capacity to foster self-regulated learning; this was true for self-regulated learning in general as well as for the cognitive, emotional, motivational and social component of self-regulated learning. While the other kinds of TELEs received lower ratings, the content systems with tutors still received good ratings for fostering the emotional and social component of self-regulated learning, while the content system without tutor did well with respect to fostering the cognitive and motivational component of self-regulated learning.

Of course, the TELEs we studied were not MOOCs, but we think it is possible to extrapolate our findings to these kinds of TELEs. On the basis of our knowledge, we have tried to evaluate the concepts of traditional online courses (OCs), XMOOCs and cMOOCs with respect to their potential to support learning in the four macro-level learning phases that we introduced and to foster self-regulated learning. We also assessed their affordances with respect to interaction with learning objects, peers and tutors. Finally, we considered the aspects of formal evaluation and accreditation important. While this seems to be a problem with xMOOCs, it is not relevant for cMOOCs because participants in cMOOCs seem to

Table 3: Assessing the potential of online courses			
Facilitate	OC	xMOOC	cMOOC
Exploration	+	+	+
Understanding			+
Practice			
Transfer			
Self-regulation			+
Interact with objects			+
Interact with tutors			+
Interact with peers			+
Formal evaluation	+		
Formal accreditation	+		

be primarily interested in learning, rather than in evaluation or accreditation. Our opinions are documented in table 3.

Online courses, XMOOCs and cMOOCs constitute different types of virtual TELEs. In table 3, we indicated which characteristics each type of virtual TELE is likely to possess. These are therefore characteristics which we consider to be typical of each virtual TELE. For some characteristics, it was difficult to decide whether they are typical of the specific TELE. Any virtual TELE might foster interaction with peers, for instance, but there are probably many virtual TELEs which do not provide this opportunity, while it is a typical characteristic of cMOOCs to support interaction with peers, in fact, this is one of the defining characteristics of this type of virtual TELE. Table 3 also documents our belief that cMOOCs have a greater potential to foster learning and its self-regulation than xMOOCs because they foresee a much higher degree of interactivity with learning objects, peers and tutors. cMOOCs constitute virtual learning environments in which participants are active in acquiring, sharing and creating knowledge while xMOOCs focus on delivering knowledge only.

Characteristics that clearly distinguish traditional online courses from xMOOCs and cMOOCs are the large number of enrolled students and the degree of openness. We do not see any value in massive courses; there are no pedagogical or psychological reasons why a course with 100.000 students should foster learning better than a course with 100 students. And while it is desirable to have open online courses, it is questionable whether MOOCs are really open. Participation in MOOCs may be free of charge, but evaluation and accreditation in general is not. Also, as we explained in the first part of our paper, MOOCs seem to be more open to individuals who already possess a university degree than to other individuals.

MOOCs are a specific type of online courses. We doubt that making them massive provides any added value, either from the point of view of education, nor from the point of view of psychology. Nonetheless, they constitute a form of virtual TELEs that needs to be studied in a differentiated manner. At the same time, it might be worthwhile to consider alternative forms of online courses, like Small Private Online Courses (SPOCs, Fox, 2013). One alternative that seems promising to us would be SCOOCs – Small Connectivist Open Online Courses.

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