

Review and Taxonomy of MOOCs and the Significance of Digital Transformation of Learning in Higher Education Institutions: Prospects and Opportunities



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ABSTRACT: This paper principally seeks to examine the genesis and development of MOOCs. Recent research and ICT development efforts have strived to engineer technologies that aim at effectively facilitating and improving the quality of learning anywhere and anytime independently in a stress-free environment. It must be noted that research in open learning environments is still making baby steps and researchers have solely made preliminary initiatives to fathom out the nature and incessant changing dynamics of Massive Open Online Courses (MOOCs) as a topic of investigation. This interest is fueled by the fact that learning has nearly completely become digital worldwide as it were, and therefore perpetual research efforts to understand the underlying principles of MOOCs is a genuine necessity. More importantly, it has been proven in research that when computer science and education are mixed together, they seem to yield impeccable learning results. Given this, we will both chart a roadmap for the creation of a MOOC and incrementally work towards its implementation.

KEYWORDS: E-Learning, MOOCs, Connectivism, Distance education, Autonomy, Taxonomy

I. INTRODUCTION

The origin of distance education dates back to the 19th century, at the time of the invention of the postage stamp (Glikman, 2002b). The sender now bears the shipping costs and not the recipient, as was previously the case. A reversal of the logic of sending postal mail made possible by the invention of the postage stamp (Blandin, 2003). Isaac Pitman took this opportunity to disseminate in London a method of shorthand he had just invented, in the form of a correspondence course. These courses will then be propagated in Europe and North America where the first correspondence university was established in Boston. This follows on from the first home-study incentive society, created in the same city a few years earlier in 1873.

These correspondence courses later became known as distance education (EAD). Originally, therefore, it was an epistolary teaching, based on correspondence. A type of education made possible by the development and security of means of transport and communication (Glikman, 2002b).

The growth in the types and scope of distance education has been more evolutionary than revolutionary. Effective distance education focuses on the needs of the learners, the content requirements and the constraints faced by the teacher (Willis, 1994). Distance learning takes place when a teacher and one or more learners are separated by a physical distance. Usually print and audio / video media are used to bypass this distance, but the immediate clues that the teacher sees in the traditional classroom when students are struggling have been largely absent in this types of training. This absence persists even today despite technological development, as the distance training market is dominated by the types of transmissive training represented by xMOOCs. In this chapter, we will trace the roots of distance education, starting with structured correspondence education, and ending with an overview of the current state of distance education. In fact, this type of teaching is part of a kind of physical separation of teacher and learner which necessarily implies a separation of the three units of time, the unit of place and the unit of action. It is in this separation that lies the fundamental difference between distance education and traditional education.

Morocco in turn tried to invest in this international dynamic, firstly through the integration of ICT in the educational field in order to modernize and develop training systems at the national level through the launch of several projects to raise awareness among the education system for ICT, namely the INJAZ project, the MARWAN project (Morocco Wide Area Network), GENIE (Generalization of ICT in Education 2009-2013) (Riyami, 2018). Despite numerous efforts, Morocco seems to be vulnerable in the field of distance training, including the creation and dissemination of MOOCs, which is reflected by the presence of a single national platform (MUN), which currently only hosts 28 courses. Unlike other countries like France, which works tirelessly to promote

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educational platforms. However, with the propagation of the Covid-19 pandemic which disrupted global stability, and that of education systems, Morocco's attempts has finally seen light. Indeed, many attempts made to promote distance learning, as well as the use of online courses at different levels of education have finally ripened up. Despite the meager importance given to MOOCs by the state, we cannot deny the efforts made by all Moroccan universities which are doing their best to be an integral part of the global movement of MOOCs, even by OERs.

2. LITERATURE REVIEW

2.1 Terminologies

Instead of the term "Distance education" (Anthony & Henri, 1985) propose the term "Training education". This terminology appears to them to be less restrictive, as it includes both the concepts of "teaching and distance learning". However, the term "Distance Education" (FAD) is of Canadian origin and dates back to 1980. It is the result of the merger of the Anglo-Saxon terms of distance education, Distance Teaching and distance learning, Distance Learning (Blandin, 2003). This term therefore appears to be more encompassing, especially as it takes into account the activity of the teacher and the activity of the learner.

Afterwards, a similar definition is proposed by (Glikman, 2002b) for whom the term "distance training" refers to any type of organized training, whatever the purpose, in which the main part of the transmission activities of knowledge or learning is outside the direct relationship, or face to face face-to-face between teacher and learners. However, this seems a little nuanced, because the essence of the activities of transmission of knowledge or learning would not mean all these activities. Hence the idea that part of the activities can be carried out in the presence.

However, the distance in time and space between actors (teacher and learners) is characteristic of EAD and FAD systems. Hence the importance and the primordial role of organizational arrangements and methods. Certain definitions of the FAD have also insisted on these aspects as key elements of identification of this type of training. Distance learning is not a teaching process, but rather a multidimensional system of learning in which the relationship between learners and teacher or training institute is made by new communication channels allowing to maintain a rate of higher interaction, adopting more sophisticated technical means. Lochard defines the FAD as "a system that allows the trainee to organize their own course either individually or in groups of a few participants without the presence of a speaker, facilitator or trainer. The exchanges take place through the media" (Lochard, 1995). This definition explicitly draws attention to the organizational dimension of a distance learning device which focuses attention more on the learner himself. In other words, the autonomy of the learner coupled with transversal skills, such as the ability to evolve in a group of learners, is an important dimension of the effectiveness of a distance training system.

The spatio-temporal distance which was previously used to identify and characterize this type of teaching is therefore no longer sufficient to understand the concept of distance education or training. The distance we are talking about here, not just a geographic distance. It must also be understood from a temporal, relational, linguistic and cultural point of view, even cognitive. This context of technological headlong rush, will subsequently impose the addition to the designations of distance education or training, other terminologies. The beginning of the last decade of the 20th century will indeed see the appearance of the term open and distance training, for example.

2.2 Computerized environments for human learning

Technological advancements have fascinated the field of education, including the places where learning and teaching take place. This special change will subsequently affect related pedagogical practices, in order to meet the demands of the new context. To understand what an EIAH is, two concepts must first be clarified, that of the computerized educational situation and that of the computerized learning situation.

A) The computerized educational situation: The concept of SPI is fairly general, it denotes any use of computers or Information and Communication Technologies (ICT) in an educational context. The software used in an SPI can be software designed specifically for educational situations or any software used for educational purposes.

B) The computerized learning situation: The notion of computerized learning situation is more constrained than the notion of computerized educational situation.

A first specificity is the existence of precise learning issues and their definition: it is a learning situation. A second specificity is the fact that the software is considered (by the designers) as playing a particular role in the targeted learning. This means that the notion of IAS does not denote any learning situation in which software is used. It corresponds to situations in which the introduction of the software plays a specific role, i.e. for which the fact that this software has different characteristics would be considered as an element modifying the learning conditions. If this last criterion is not met, it is about an SPI: there is a targeted learning, there is a software, but the particular properties of this software are not specifically linked to the knowledge issues considered.

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2.2.1 The trend of independence and autonomy

In the first category, Keegan brings together the first theories that were developed, from the end of the sixties to those of the seventies. These pay particular attention to the notions of independence and autonomy. He first cites in this category the writings of Delling (1987). According to him, distance education is not a teaching process but rather a multidimensional system of learning, in which the link between the learner and the institution takes place in an artificial manner by a transmitter of signals. According to Keegan, Delling seems to want to separate the distance learning process from the traditional field of education.

In the same category, there is a second theorist, Wedemeyer, who argues that student independence is the essential element of distance education. He has developed a system that will encourage independent study at the university level. This system should offer a choice of varied courses, flexibility of time and space and adapt to the individual needs of the target audience while recognizing that they are responsible for their learning. Wedemeyer also makes a distinction between the learner who studies locally and the learner who studies at a distance.

In the first category, a third specialist, Moore (1973), developed a method of classifying distance education programs based on two variables, distance and autonomy. According to this author, the distance variable is made up of two measurable elements: the first of these elements is the level of communication between the teacher and the learner; the second is the flexibility of a program to the individual needs of the learner. The other variable is the degree of autonomy of the distance learning learner in the selection of learning objectives, study methods and assessment. According to this researcher, the distance between the FAD workers forces the learner to become more autonomous, in relation to the degree of autonomy required in a face-to-face teaching context.

2.2.2 The Stream of Industrialization of Education

In the second category, Keegan describes another line of thought known as the theory of the industrialization of education and teaching.

The German researcher Peters (1988) indeed carried out comparative studies between the various systems of distance education during the sixties. He established a link between the industrial production process and the teaching-learning process of distance education. His theory is based on the existence of two separate forms of teaching, one traditional which is done face to face and which is based on interpersonal communication, while the other is rather a mechanized teaching based on objective interaction, and rational produced by technology.

2.2.3 Fluent in guided didactic conversation

The third category established by Keegan gathers the theories of interactions and communications-interaction and communication theories. The best known of these is the theory of guided didactic conversation by Holmberg. According to him, distance learning is achieved through continuous two-way guided communication between the learner and the teacher. To facilitate learning, this communication must have the typical elements of a successful conversation.

In addition to these three main categories, Perraton has developed a new theory of distance education based on a vision of education where education represents a source of power. He insists on promoting universal access to education and urges like Holmberg on the importance of dialogue. Its theory is a synthesis of existing theories in the field and includes elements relating to communication and dissemination, as well as to the philosophy of education. This synthesis comprises fourteen statements which examine various facets of distance learning. These statements explain:

- Any medium can be used for teaching;
 - Distance education offers flexibility in terms of teaching staff, time and space;
 - In certain circumstances distance training can minimize costs compared to traditional education;
 - The level of training, the number of students, the choice of media and the sophistication of production have some impact on costs;
 - Distance training makes it possible to gain a student who could not be reached in the traditional way;
 - It is possible to organize distance training in such a way as to promote dialogue;
 - The role of the teacher changes from one communicator of information to one of learning facilitator;
 - Group discussion is an effective method of building learning;
 - In most communities there are educational and economic resources to support distance education;
 - A multimedia program will be more effective than one that depends on a single medium;
- Systems approach is useful in planning distance learning;
- Feedback is an essential part of a distance learning system;
 - In order to be effective, the teaching material must enable students to undertake regular activities other than reading, watching and listening;
 - The criterion for selecting a teaching medium must be based on its capacity to reproduce the characteristics of face-to-face teaching. (Perraton's comments are taken from (Alain, 1999)).

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We can now identify six constant elements which appear in all the schools of thought in distance education. The following characteristics represent the fundamental aspects that differentiate distance learning from those offered face-to-face:

- The teacher and the student are now far apart;
- The institution assumes a preponderant place at the very heart of the educational act; the media are used in an integrated approach;
- Two-way communication is one of the attributes of distance learning; meetings are also possible;
- The practice of training borrows from industrial or quasi-industrial processes.

3. THE GENESIS OF MOOCs

Born in 2008 at the heart of North American universities, MOOCs have revolutionized the world of education and training. These learning environments are not the product of nothingness or chance, before the MOOCs see the light of day, the idea of distance learning has come a long way, from the appearance of study by mail correspondence to the use of the web for educational purposes. In this historical curriculum, we will try to follow the various major developments that led to the genesis of MOOCs.

From the beginning of the 2000s, the field of computer environments for human learning has experienced a great expansion, in terms of accessibility to resources and learning methods. This development was initiated by the emergence of resource repositories to allow free consultation, sharing and pooling of educational content. The advent of web 2.0 has taken distance learning modalities to the next level, facilitating interpersonal and group communication as well as document sharing across digital networks.

In the early 2000s a new form of open access to knowledge and training was initiated by the Massachusetts Institute of Technology (MIT) through the OpenCourseWare (OCW) project. They are Open Educational Resources, which are defined as digital resources offered free and openly to teachers and students. These resources can be used and reused for teaching, learning and research. The notion of interaction between educational actors remains absent in the OCWs. These are only documents and resources originally designed for face-to-face courses made available on a platform.

The concept of MOOC was initiated from OERs and OCWs (Atiaja & Guerrero-Proenza, 2016) In order to understand the relationship between these different concepts, (Lin & Cantoni, 2017) propose in their article a study of the key aspects that differentiate between OERs, OCWs and MOOCs (Figure 1). According to these authors, open content refers to any medium available online, publicly accessible, such as a website or a YouTube video. Open content, coupled with a specific educational goal gives rise to an OER. We cite as an example: a set of YouTube videos, the educational purpose of which is to initiate anyone wishing to learn the basics of an authoring system. The organization of OERs into a course structure containing educational activities, learning objectives and a strategy for self-assessment gives rise to OpenCourseWare.

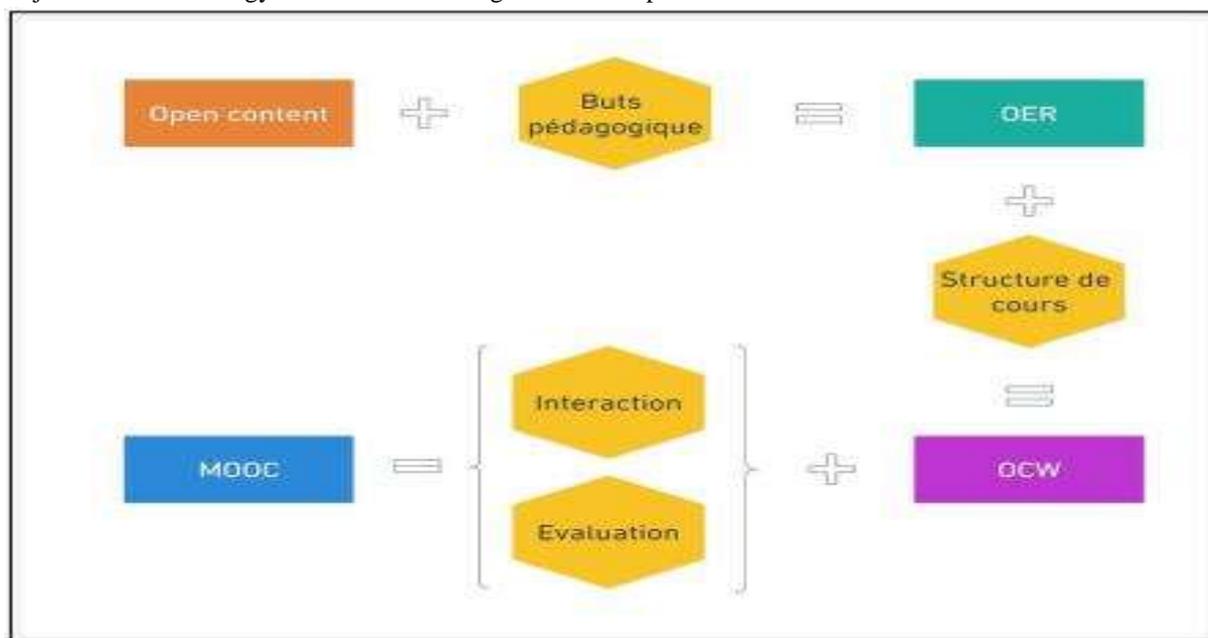


Figure 1: A hierarchy of the MOOC and its predecessors

OCWs have therefore made it possible to provide open-ended resources and activities for use in teaching and learning without allowing for real interaction. MOOCs have sought to go further by providing comprehensive and structured courses around a well-defined syllabus, with video capsules, quizzes, forums to encourage learner engagement and interaction, graded assignments and resources. Assessment, leading to certifications, or not (Butler, 2012).

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The term MOOC did not appear for the first time until 2008 in a Canadian university online course (University of Manitoba) by Georges Siemens and Stephan Downes, authors of the connectivist theory, which was called Connectivism and Connetive Knowledge. . It aimed to put into practice what this theory claimed: the art of learning by being connected to others through digital networks deemed relevant.

The name Massive Open Online Courses was used for the first time by Dave Cormier, teacher of CCK08 (version 8 of this course), in order to qualify it more easily. It was only after using the term frequently in the many interviews that followed that David Cormier and Bryan Alexander gave it the acronym MOOC.

This new training concept was subsequently developed in the United States at prestigious American universities from November 2011, notably at Stanford University in California. Sebastien Thrun, then an engineer at Google and a teacher at Stanford created a course on artificial intelligence and decided to put it online. He expected to see 10,000 registrations, and against all odds he had 160,000! This event marked the beginning of the MOOC spread in the United States. And if Sebastian Thrun renewed this experience by creating Udacity in February 2012, others subsequently created their own MOOCs, thus helping to multiply and multiply the number across the Atlantic.

Fascinated by this success, several prestigious universities have launched new MOOC platforms: Coursera, Edx, Udemy, Udacity, etc. However, these MOOCs did not borrow the same pedagogy as the underlying idea of connectivism and network learning proposed by Siemens. These are mainly transmissive MOOCs that have sprung up and are known as xMOOCs. These MOOCs adopt previous learning theories (behaviorism and cognitivism).

This phenomenon is spreading and spreading all over the world, first in India and then in Europe: Switzerland, Germany and England, but also Spain has embarked on the MOOC adventure. In early April 2014, China also entered MOOCs. The prestigious Shanghai Jiao-TONG University has taken this initiative. The first French MOOCs appeared in engineering schools in 2012 before becoming widespread in higher education. Figure 2 illustrates the chronological evolution of MOOCs since OERs.

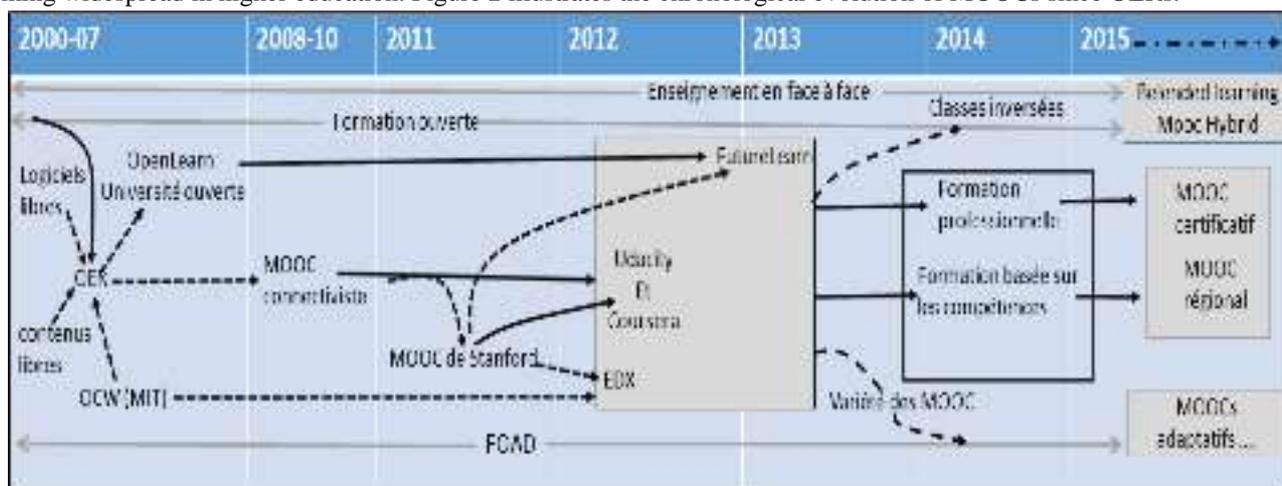


Figure 2: Chronological evolution of MOOCs. Translated from (Yuan & Powell, 2015)

3.1 Definitions of MOOCs

The term MOOC has a multitude of meanings which do not necessarily refer to the same concept. Thus, we find the Anglo-Saxon term MOOC meaning Massive Online Open Courses. In French, we find a very common term, it is the term CLOM, which is a simple translation which designates an Open and Massive Online Course. The acronym FLOT was introduced to denote Open to All Online Training. We can also highlight little-known terms such as: COOC (Corporate Online Open Courses) or MOOR (Massive Online Open Research).

To quickly define a MOOC and without wanting to reduce it, we will say that a MOOC designates open and distance training accessible to the general public via an internet platform, following a particular educational approach (connectivist, behaviorist, hybrid, etc.) with various resources including videos, assignments, assessments, forums, etc. We will note, however, that they incorporate different certification and assessment procedures, with the qualifier "massive", that is to say a large number of participants (Bakki, 2018).

In the work social appropriation of MOOCs in France, Marc Trestini gave a more detailed definition, in which he showed the meaning of each letter of the acronym MOOC, as well as what it brings new compared to a traditional course.

The MOOC designates above all a course, as the last word of its acronym reminds us. It is a platform, that is to say a technical support on which the courses are hosted. In a more developed approach and more centered on the connectivist approach, MOOCs can also designate the will of several people united in a virtual space who share the ambition to develop one or more skills and the achievement of a common objective while by self-managing their journey. As mentioned above, a MOOC is first of all a course, it

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is a set of lessons and lectures given by a teacher forming a teaching, the goal of a course is to transmit knowledge generally disciplinary. Therefore, there is nothing revolutionary about what a MOOC offers, except that this course is more original because it is delivered online.

It is the letter O meaning online that reminds us of this, but again online courses have been around for several decades and are offered by universities (EAD, FOAD, OER, OCW), with teaching and learning perspectives. Various (transmissive, collaborative, etc.).

With the following O, these online courses become, open, the notion of openness here removes the constraints of registration, to cite, the place, the time the diploma, and in the majority of cases the registration fees. This is one of the major characteristics of MOOCs which confirms and reinforces its originality. Sanchez-Gordon (2016) classified the openness aspects of MOOCs according to three criteria. The first concerns registration, that is, MOOCs allow the registration of learners without preconditions. The second concerns the content of the courses and the resources offered without financial or time constraints. The third concerns the platforms on which the courses are hosted, which can be open source. This openness will undoubtedly lead to a massiveness expressed by the letter M of the acronym, which means massive in English. The massive aspect of a MOOC is certainly what we remember best when trying to describe it. When we talk about a traditional course, we are talking about a workforce that rarely exceeds 200 people in theater in Moroccan universities. In a MOOC, tens of miles are registered or even more in some cases (Trestini et al., 2016).

This massiveness necessarily means heterogeneity, something which will encourage the creators of MOOCs to offer several types of MOOCs which adopt diversified educational perceptives, ranging from the most traditional such as behaviorism, to the most recent and more advanced ones represented by connectivism, and socioconstructivism. This diversity will lead to the emergence of several typologies of MOOCs that we will see in the next section while emphasizing connectivist MOOCs.

3.2 MOOC taxonomies in recent literature

The need to develop new taxonomies for MOOCs is inevitable, as diversity of types and structures emerge. Taxonomies help to adequately and clearly communicate about MOOCs, besides having practical value, they help shape appropriate design principles for a better experience. In addition, the classification of MOOCs is important because it allows students and educators to correctly identify, group, name and describe their nature through a standardized taxonomy (Pilli & Admiraal, 2016).

Recent literature moves away from categorization into cMOOC and xMOOC, considered too simplistic, towards a more elaborate categorization. One example is the work of (Gilliot et al., 2013) in a vision of openness between xMOOCs (which are extremely closed) and cMOOCs (extremely open). This work allowed the integration of the concepts of inquiry-based learning into MOOCs, which gave rise to a new type of MOOC: iMOOCs. This approach aims to develop learners' autonomy through mastery of five dimensions, namely: learning objectives, choice of resources, organization of activities, organization of group work and productions.

We also note the study of (Marilyne et al., 2014) who carried out a study of the typologies proposed in the literature in order to define the framework of the different types of existing MOOCs.

Table 1: Taxonomy of MOOCs according to Marilyne et al.

Selon le contenu	(Daniel, 2012)	xMOOC		cMOOC	
Selon l'intention de l'équipe pédagogique	(Lane, 2012)	orientée Contenu	orienté Tâche		Orienté Réseau
Selon les fonctionnalités d'apprentissage	(Clark, 2013)	Transfer MOOC	Synch MOOC	Adaptive MOOC	Connectivist MOOC
		Made MOOC	Asynch MOOC	Group MOOC	Mini MOOC
Selon ouverture /fermeture	(Gilliot, Garlatti, Rebai, & Belen-Sapia, 2013)	xMOOC		iMOOC	cMOOC

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Unlike various attempts to distinguish xMOOC and cMOOC, the “taxonomy” of (D. Clark, 2013) is based on an educational perspective, which is “how do they teach?”. Clark clarifies that these categories are not necessarily mutually exclusive, and that other types may exist.

Transfer MOOCs: transfer of a face-to-face course to a MOOC platform, based on the reputation of the institution or teacher to attract students (ex: Coursera)

Made MOOCs: more innovative use of video, exercisers and software allowing more interaction, peer review (eg Udacity).

Synch MOOCs: with a tight schedule, start dates, end dates, work submissions. Would motivate students more.

Asynch MOOCs: looser schedule allowing you to take the course anytime.

Adaptive MOOCs: MOOC incorporating an algorithm that adapts its content to learners, based on their responses and performance analytics (Clark gives the example of Cogbooks).

Group MOOCs: MOOCs composed of smaller groups of students, which promotes retention. They operate on the same platforms as traditional MOOCs (ex: NovoEd, formerly Venture Lab). Groups may fluctuate during the course. [Editor's note: So is it still a MOOC? It's not really "massive" anymore ...]

Connectivist MOOCs: these are cMOOCs as defined by Siemens, Downes and Cormier ... Clark sums up this type of course this way: “The important thing is to collect and share the contributions made by the participants and not to see the 'course' as a fairly fixed source of knowledge. These courses tend to create their own trajectory, rather than following a linear path. ”

Mini MOOCs: shorter MOOCs (hours or days), associated more with private companies than with universities and aimed at the acquisition of more specialized skills, related to specific tasks. Clark associates them with the Open Badges movement. In this thesis, one of our objectives is to design a MOOC dealing with the subject of authoring systems, while being based on connectivist theory and the remarks of Siemens and Downes in the design of cMOOCs. So it is very necessary to focus on connectivism and connectivist MOOCs

4. Advantages and disadvantages of MOOCs

The scientific literature that deals with this subject focuses largely on the technical solutions provided by MOOCs, but it remains uncritical of the challenges they bring as if they are a panacea for post-secondary education.

This literature quite broadly asserts the many benefits of MOOCs for teaching, learning, and assessment. It highlights the main advantages of MOOCs, linked to their potential capacities to solve problems of access to education, such as distance, work-family-study balance, massification especially in less developed countries and rights tuition fees as MOOCs, even in paid versions, remain much cheaper than university fees. With regard to pedagogical issues and access issues, the scientific literature also addresses other benefits, such as the development of autonomy and the establishment of communities of learners (Alario-Hoyos et al., 2013) which would be positive impacts of MOOCs. MOOCs would even participate in the development of so-called 21st century skills, formally or even informally. The authors also show that students who have completed MOOC-type training are generally satisfied. The greatest source of satisfaction is free access to content courses usually from a prestigious university and famous professors (Karsenti, 2014). However, this research shows that the so-called passive participation in MOOCs is also very common and the abundance rate is high.

Cisel (2016) intervenes here to clarify that this passivity or this cessation of follow-up cannot always be qualified as abundance, he notes that a common error consists in attributing the term of abandonment in “abandonment rate” since this would in fact imply that participants started the training with the aim of completing it. However, some will register for the MOOC just for the sake of coverage, while others will start the MOOC and register there just to have access to content. Since these participants did not intend to complete the training from the start, it is difficult to view these cases as dropouts.

On the other hand, there is a literature that is more cautious of the MOOC movement, which is not necessarily against its adoption, but which expresses opinions based on less admiring research results which present several arguments for question the positive impacts of MOOCs. First, several advantages of MOOCs are actually inherent in distance learning. This more critical literature also shows that the main advantage of MOOCs is above all the idea of free education, accessible to all, but often offered to the detriment of the quality of the teaching (Karsenti, 2014). The challenges mentioned are related to the low success and retention rate, issues of intellectual property of course content and the mechanisms of certification assessment (Cisel, 2018). Supporting the learning process, which requires a lot of autonomy from the learner, is also a major challenge for MOOCs, to which is added the difficulty of carrying out a valid and reliable assessment.

4.1 Development of MOOCs in the world and in Morocco

In 2018 in its 7th year, the MOOC movement surpassed 100 million learners to reach 101 million across 14,000 courses, provided by over 900 universities around the world, with around 2,000 new courses added to the roster in this year (up from 2,500 courses). in 2017). The world of MOOCs is dominated by 5 platforms which hold 86% of users. Below is the list of the main MOOC providers by registered users:

Coursera: 37 million users

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edX: 18 million users

XuetangX: 14 million users

Udacity: 10 million users

FutureLearn: 8.7 million users

In 2019, two major trends dominated the MOOC landscape. First, despite a continued slowdown in new user growth which fell from 23 million in 2017 to 20 million in 2018, MOOC platforms are seeing an increase in paying customers (and revenue). MOOCs appear to be paying off, given that vendors such as Coursera are posting record revenues (\$ 140 million in 2018 for Coursera). Second, more and more degrees are being offered through MOOC platforms, showing the direction towards what could ultimately be a sustainable income model. MOOC-based degrees have distinctive features that set them apart from past online degrees, including lower fees, a more flexible schedule, and a more relaxed admission process. In 2019 the number of registrants exceeded 110 million, not counting China. Figure 4 shows the evolution of the MOOC industry over the past year.

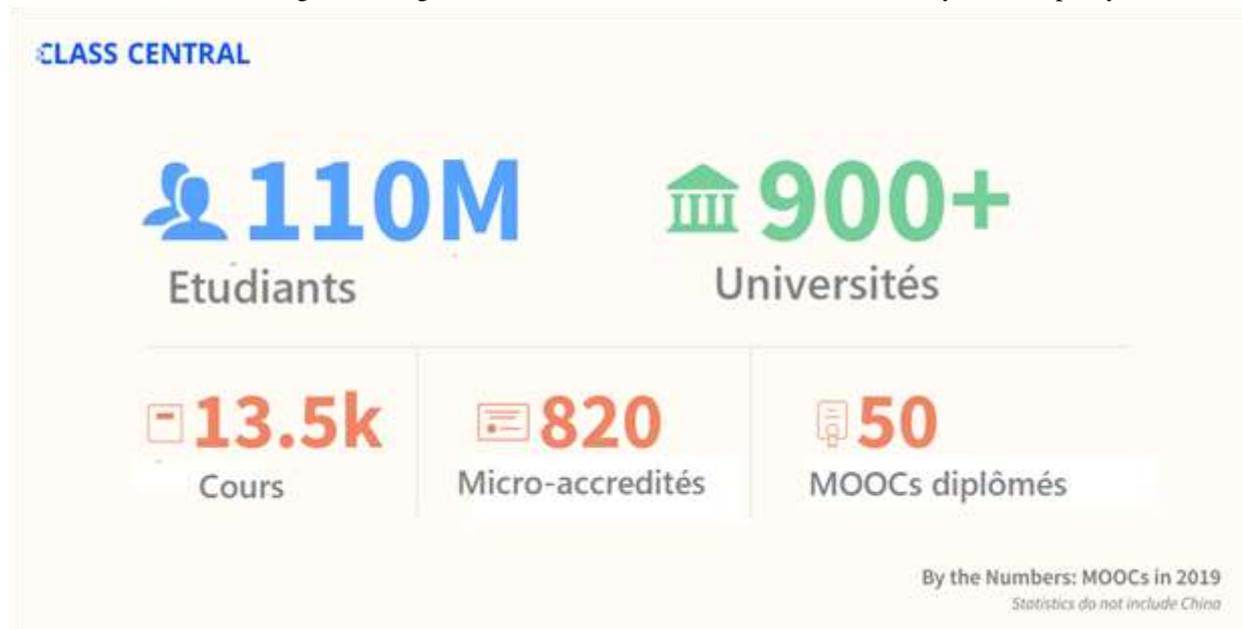


Figure 3: MOOCs in numbers, 2019

If we look closely at the numbers, we find that the total number of MOOC-based micro-accreditations has now exceeded 800. In 2019, over 170 new credits of 10 different types were launched, compared to just 120 micro-accreditations. However, only 10 MOOC-based degrees were launched this year, Table 2 summarizes the evolution of the numbers of micro-accreditations and degrees provided by world leaders in MOOCs.

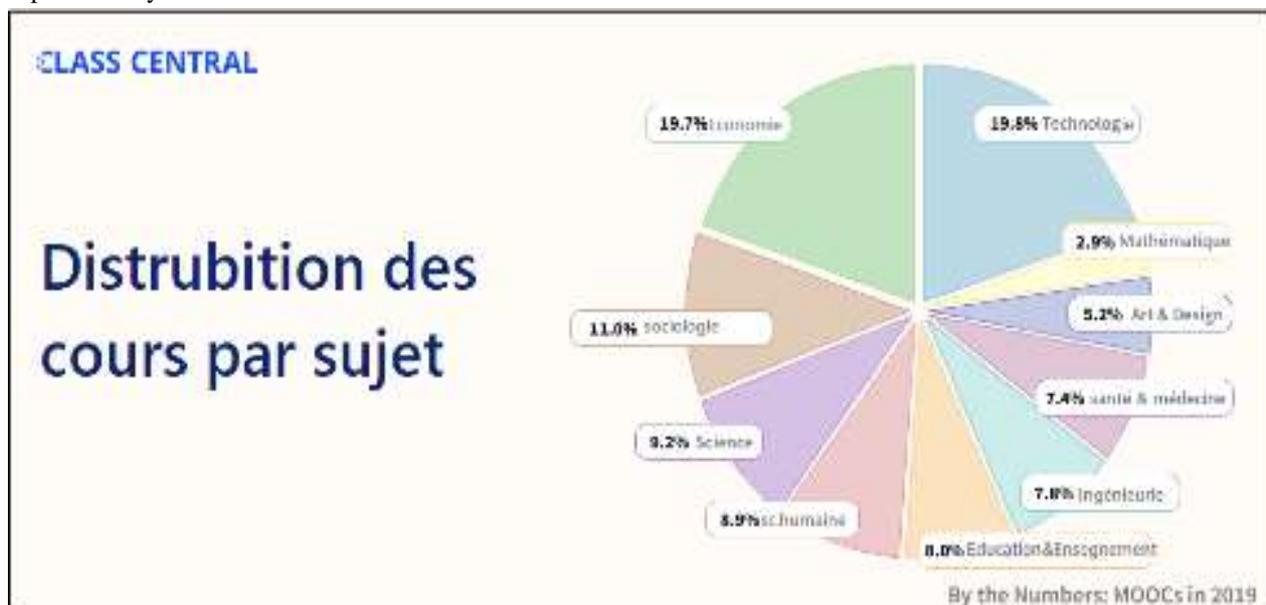


Figure 4: Proportion of topics covered in MOOCs worldwide

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The wave of MOOCs and in particular xMOOCs was initiated by MIT through Edx with courses in technologies and computer science, this field of study as well as economics continue to dominate the panorama of MOOCs with 40% of courses proposed. This can be explained by the strong demand from students for these two categories, given their place in the working market, which implies the ease of marketing such a course.

CONCLUSION

In the first part of the current study, we focused on clarifying the MOOC concept. We have laid out a definition of the acronym MOOC and presented the interpretation given by the researchers to each term composing this acronym. We subsequently drew up an inventory of the types of MOOCs existing starting from a minimalist distinction cMOOC / xMOOC, to another more elaborate during which we took stock of the model that we will adopt these principles in the design of our MOOC. We presented the connectivist approach, these principles, as well as the roles of learners within a connectivist MOOC. This literature review will allow us to choose the format of our MOOC as well as the activities to be deployed to ensure the engagement of learners. In the second part we provided statistics regarding the movement of MOOCs on a global scale, which clarified the important dynamism in this new form of training. Speaking of numbers, statistics from the largest French-speaking platform show that Moroccans are the second most common nationality. This immigration to a foreign platform led us to explore the landscape of MOOCs in Morocco. Indeed, the only national platform provides only 28 courses and they are not all available to the public. However, most MOOCs in Morocco are provided by universities and they have a structure closer to depositing course videos and tutorials, without giving importance to the interaction of learners. In brief, the technological advancements of the past two centuries have fascinated the lifestyles of mankind, including modes of learning and training. The physical barrier that separated teachers and learners was lifted at first through letter writing development. The distance education process has taken the path of the technological revolution to reduce what (Glikman, 2002b) calls "distance in time and space". Communication by radio and television signals initially made it possible to reduce the temporal distance, and ensure a minimum of interactivity between those involved in distance training. The advent of digital air has made it possible to revolutionize distance training practices and open it up to the general public, thanks to the spread of the internet and in particular the potential of web2.0, which has only made it possible to synchronize interactions between teacher and learners, but also between learners themselves, making it possible to apply the most recent learning theories in the virtual world.

One should know that the distance education scientific community was not content to borrow learning theories from face-to-face training, but was able to create its own theories, so we have seen the emergence of four streams of thought. These currents of thought all agreed on the importance of communication within a distance training device between the various actors of the educational act, hence the need to integrate the latest technologies into these types of devices has become a priority. Lastly, the integration of technologies and the massification of the numbers of learners thanks to the opening of these courses has given them a notable success, especially in North American universities, thus giving birth to the era of MOOCs.

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