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GUIDELINES AND SUCCESS FACTORS IDENTIFIED IN THE FIRST MOOC IN LATIN AMERICA

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Abstract

In Latin America there are great challenges in educational training opportunities for a predominantly young population with high needs in the field of teaching. In this context arises the first MOOC in Latin America that sought to provide an option for teachers training on the issue of open access to knowledge as a democratizing opportunity for learning. The MOOC was delivered by a network of academics incorporated in ten Mexican universities supported by the fund of the National Distance Education System (SINED) in Mexico, through the content platform (LMS) CourseSites by Blackboard. The study presented here addresses the question: what are the learning design components that aid students and teachers to be successful in a MOOC in Latin America? The study has a mixed methodology with a quantitative approach (through surveys and self-assessment) and a qualitative approach (through focus groups, diagnostic tools, as well as observations from participants and analysis from significant documents). The instruments explored perceptions of the participants, usability from the platform and competences for open access. The results show essential components for learning's design with a connectivist approach, open educational resources for self-management in the Spanish language, follow tutorial, motivations for using OER, participation of experts in facilitating the learning process, usability of the platform and the participation of academic networks for the MOOC management and implementation.

Keywords: MOOC, learning design, open access, competences, instructional design, social learning, collaborative evaluation.

1 INTRODUCTION

New technologies bring new possibilities for training. The field of *e-learning* recently brought an opportunity for large-scale training: MOOCs. This paper describes the case of the first MOOC in Latin America, where the collaborative space formed served as a platform to research and develop the capabilities of the open education movement to promote the use of open access knowledge (academic and scientific production) available online and to support the improvement of educational practices in distance education institutions.

The open education movement was the focus of the project, conceptualized as the educational activities that allows open access training practices, ranging from the use of open educational resources (OER) available online, production of materials with open licensing, OER selection through repositories and connectors that act as infomediaries between OER catalogs, dissemination of practices in academic, governmental and institutional environments and mobilization towards educational practices (Ramirez, 2013) [1].

The MOOC was developed through the network initiative: SINED - CLARISE for distance education. This network has its roots in a successful case called Open Regional Latin American Community for Social and Educational Research (CLARISE, www.redclarise.org). CLARISE is a community supported by RedCLARA, the Latin American Cooperation of Advanced Networks (www.redclara.net) and hosted by the ALICE2 project: Latin America Interconnected with Europe (http://alice2.redclara.net) during the 2011 – 2012 period. Through this project, 45 professors from ten Mexican institutions designed and implemented the first MOOC [1] which aimed to provide an option for teacher training on the issue of open access to knowledge as an opportunity for democratizing learning. The MOOC was delivered by a network of professors from ten Mexican universities supported by the fund of the National Remote Education System (Sined) in Mexico, using the content platform (LMS) CourseSites by Blackboard. This study attempts to answers the question

Which are the components of learning design that aid students and teachers to be successful in a MOOC in Latin America?

2 THEORETICAL FRAMEWORK

2.1 Instructional Design in MOOC Courses

In 2008 a new training mode appeared on the field of e-learning: the Massive Online Open Courses (MOOC), which are based on designs promoting social learning, supported by several tools for creating and managing networks. These new courses represent an opportunity for research to garner further understanding on the challenges and opportunities of this generation of learning. Fini (2009) [2] conducted a research which provides some recommendations for future MOOCs, including a stronger emphasis on the purpose of the tools and to make it clear that learners may choose the tools of their preference. The author also warns in regards of the elements of sustainability, the analysis of the workload of the facilitator to be done to determine the cost and effectiveness of the MOOC, and the need to understand the profiles of the participants and how they relate to the course outcomes and retention. Kop, Fournier and Mak (2011) [3] also analyzed the connections between learners and between facilitators and learners, finding that meaningful learning occurs if the social and teaching presence is part of the basis of design, instruction and direction of the cognitive processes. Thus, the design of the MOOC courses integrates new possibilities for instructional design, how to build learning through connections and the roles of the participants.

Connectivism, as defined by Siemens (2006) [4] and Downes (2012) [5] assumes the existence of universal access to networked technologies and focuses on the construction and maintenance of online connections flexible enough to be applied to existing and budding problems. This paradigm proposes a learning process (applicable knowledge) based on the connection of sets of specialized information which can reside no only within individuals, but also in institutions and databases (Siemens, 2004) [6]. It is based in a model of construction of learning, wherein participants interact for common objectives, so this set of connections is also made up of the actions and experiences [5] of the participants in the learning process.

The design of the MOOC includes models that interrelate, in a non-traditional way, political, epistemological, pedagogical and assessment components. O'Connor (2014) [7] discussed the changing dynamics of MOOCs and distance learning (*e-learning*), as well of the policies of e-learning as a vehicle for curriculum redesign. Meanwhile, Rodriguez (2013) [8] compares two instructional designs (formats) used in massive open online courses and reviews the experiences and outcomes of student learning, finding that the student's experience and the outcome of courses are very different depending on the format used. The design of the MOOC must undergo an analysis that allows decision making in the interrelationship established in its educational model, in order to find learning in participants integrating open, diverse and interactive environments.

Open educational resources are an essential element in the design of the MOOC, just as the strategies attempting to connect learning through social networks. Among the analysis of these elements in the design, Yeager, Hurley-Dasgupta, & Bliss (2013) [9] investigated a MOOC, stating how they can facilitate intercultural connections and they provide recommendations for design with references to connectivism, the use of open educational resources, learning networks, creativity and multiculturalism. The social learning, with the support of open educational resources, represents an opportunity by themselves, not only to design, but to study the type of training that the MOOC provides.

2.2 Motivations for learning using MOOCs

The training opportunities that exist through a MOOC contrast with the level of terminal effectiveness, hence the interest of researchers to analyze the connection variables. Some studies have focused on trying to determine variables of interrelationship, one of which was presented by DeBoer, Ho, Stump & Breslow (2014) [10], which showed how inadequate or insufficient were conventional interpretations of four variables for analysis and quantitative report: registration, participation, curriculum, and performance. Al-Atabi & Deboer (2014) [11] also discussed issues such as the platform used to deliver courses in MOOC format and the assessment of the effectiveness of a MOOC course, using analyzing criteria such as student motivation (their reasons to register for the course), peer collaboration, learning outcomes and the use of resources available to students. While the challenges presented in the phenomenon of dropping out of MOOC courses may be preceded by several variables, it is still

important to further explore these interconnected factors in order to increase the completion rate of participants.

The MOOC phenomenon brings significant challenges for the motivation of participants and administrators of these formative experiences. Authors like Vinader, Safe & Vences (2013) [12] analyzed MOOCs from the modalities and platforms through which they are taught, to the different business models that are being considered to make them profitable. Zutshi, O'Hare & Rodafinos (2013) [13] consider the commitment and student interaction, technology and motivations for participation in the MOOC, the positive aspects of the experiences of students, as well as areas of opportunity for such courses. From these experiments it can be mentioned that the trials and challenges are important for the management of learning of new educational experiences.

Finally, important elements in the motivation to learn in MOOCs are the manner in which they try to promote joint development of learning and self-determination of learners. Tschofen & Mackness (2012) [14], based on the theory of personality and self-determination to understand the experience of learners in a MOOC, explored concepts such as autonomy, connectivity and interactivity, and found that some aspects have an influence on the motivation and social learning of the participants in a MOOC, such as identity and extroversion or introversion. As long as the principles of connectivism are tested in everyday learning, it is expected that we will recognize the capabilities of networks and the possibilities they bring to the acknowledgment of the individual concerns and motivations of the participants.

3 METHODOLOGY

The study focused on a mixed methodology (Johnson and Onwuegbuzie, 2004) [15], with a quantitative approach (through surveys and self-evaluation) and a qualitative approach (through focus groups, diagnostic tools, as well as participants comments and the analysis of significant documents). The design chosen was the concurrent triangulation and Likert scales (Creswell and Plano Clark, 2011) [16], which allowed the use of two approaches to confirm, cross-validate data and corroborate findings (Creswell, Plano Clark, Guttmann and Hanson, 2003) [17] within the MOOC, the object of study, which facilitated the collection of qualitative and quantitative data simultaneously and in a short period of time, in order to integrate the results in the data interpretation phase. The instruments explored the perceptions of the participants, the ease of use of the platform and open access competences.

The population of the MOOC were 1,126 participants from 13 countries from Latin America and 2 from the Iberian Peninsula. There were 58 facilitators, the majority being researchers of the project (45) and the rest where guest professors from other institutions (13). The sample of participants consisted of those who passed the course 14% (162) and answered the instruments. From this perspective, the qualitative, not random, atypical sample based on metainferences and stratification of part of the population (Collins, 2003) [18], was cemented on the representativeness and availability of those involved. The sample of facilitators was made up of 100% (58), who answered the instruments.

The scenario where this study was conducted was the first Latin American MOOC seminar "Training of teachers in distance environments to develop skills in the use of OER" which for five weeks covered topics regarding the acquisition of skills for search, selection, design, production and mobilization of OER in an innovative learning environment such as massive online courses (MOOC). This was conducted under Connectivism’s pedagogical approach, which yielded a learning experience in an educational paradigm in line with the socio-cultural dynamics of the 21st century and also contributes to the open education movement and its precepts (Fig. 1).

Fig. 1. Platform of the MOOC "Development of Competences for Integration of OER in Virtual Environments" (https://sites.google.com/site/sinedclarise/seminario).

The objective of the MOOC's participants was to develop digital and instructional design competences in order to integrate open educational resources in remote environments, and doing so contributing with innovative practices as part of the open education movement.

4 RESULTS

In determining the profile of the course's participants, we found that most of them were teachers (47%), followed by researchers (17%) and a smaller percentage were employed as managers (9%), administrative work (9 %) and students (8%). They had the knowledge and skills necessary to use technologies and had teaching experience. Their perceptions about OER were that they had the potential to support the quality of education, cause changes, increase participation and that they do not affect teaching processes (Table 1).

Table 1. *Perceptions of the participants regarding use of Open Educational Resources (OER).*

They have the potential to improve the quality of education	
Agree	**33 participants (82.5%)**
Disagree	0 participants (0%)
No answer	7 participants (17.5%)
Lead to pedagogical changes	
Agree	**30 participants (75%)**
Disagree	3 participants (7.5%)
No answer	7 participants (17.5%)
Encourages participation of students	
Agree	31 participants (77.5%)
Disagree	2 participants (5%)
No answer	7 participants (17.5%)
Affects the teaching process	
Agree	24 participants (22.5%)
Disagree	**9 participants (60%)**
No answer	7 participants (17.5%)

Allow resource savings because they can be reused	
Agree	**33 participants (82.5 %)**
Disagree	0 participants (0%)
No answer	7 participants (17.5%)

The analysis of qualitative data produced findings regarding the barriers for using Open Educational Resources (Table 2).

Table 2. *Barriers for using Open Educational Resources (OER).*

There is mistrust in the resources produced by others	9 participants	6%
There is misunderstanding about copyright in the institution	18 participants	**12.7%**
I don't have time to find appropriate materials	7 participants	5%
I don't have internet access	2 participants	1.5%
I require specialized software to modify resources	6 participants	4.2%
The OER have less quality than the resources I use	2 participants	1.5%
OER are not appropriate for my institution's cultural characteristics	5 participants	3.5%
OER's language complicates their use in my institution	7 participants	5%
OER's use is not encouraged in my institution	17 participants	**11.9%**
Lack of interest in innovation by education professionals	**15 participants**	**10.5%**
Lack of regional and national policies to support the creation and use of OER	**18 participants**	**12.7%**
Lack of institutional policies to support the creation and use of OER	**20 participants**	**14%**
Lack of skills or knowledge to produce and use OER	**16 participants**	**11.3%**

In the analysis of usability (considered as the quality which guarantees that a OER would achieve proper interaction with the user, in order to provide a comfortable, easy and efficient experience), it was found through the Likert scale that participants considered as satisfactory the conditions of infrastructure to carry out the processes of learning in the MOOC (Fig. 2).

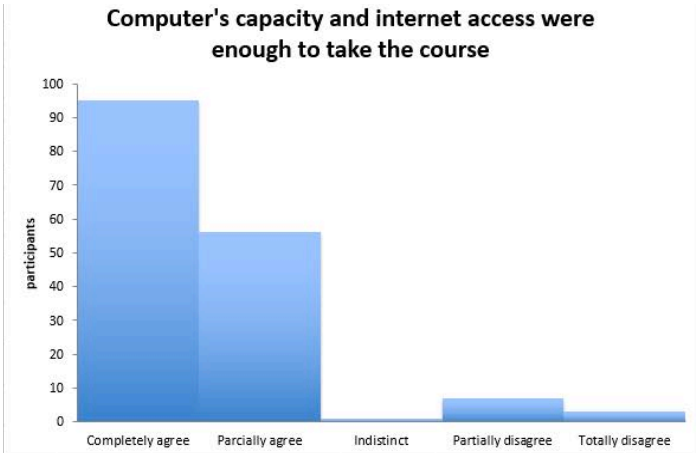

Fig. 2. Conditions of technological infraestructure of the participants.

The participants mentioned that they found it easy to install, configure and use the appropriate support software tools required, eg web browser, editors, forums, displays and websites. Similarly, the interaction in the course platform seemed satisfactory (Fig. 3).

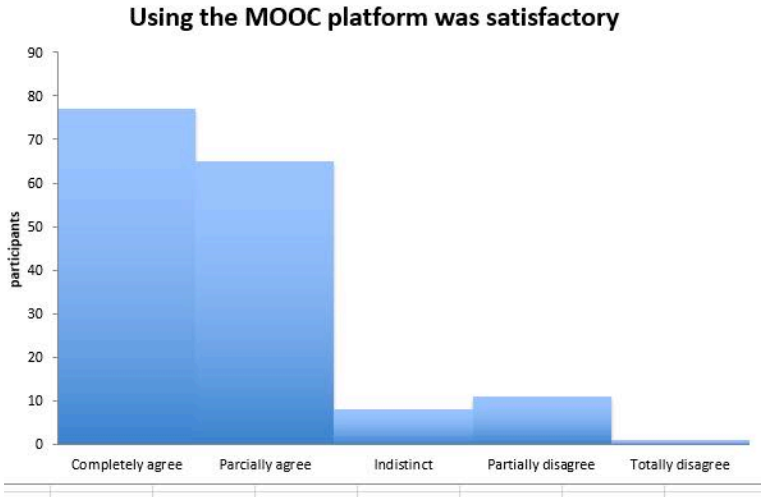

Fig. 3 Satisfaction level when using the MOOC platform.

In regards to searching information in forums using the platform (the speed with which the participants located what they needed in the platform), they also found it satisfactory (Fig. 4)

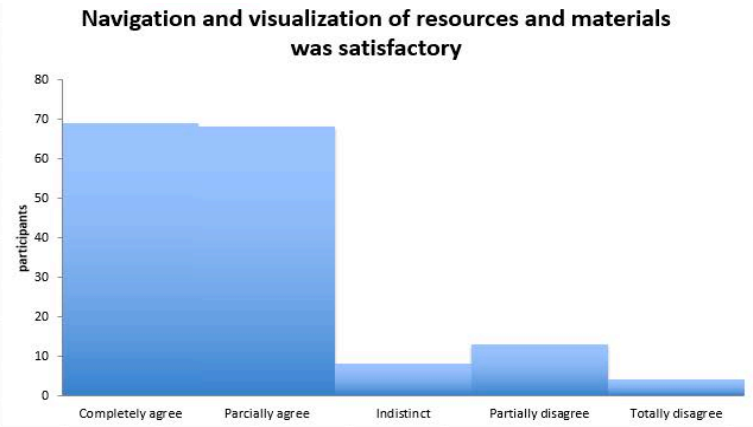

Fig. 4. Level of satisfaction when searching information in the platform's forums.

Concerning the open access competences developed and considering that the objective of the MOOC seminar was to develop skills for the use of OER, it was considered important to know the level of skills acquired. The results are shown in Table 3, with similar results for both teachers and students regarding their OER search skills, as well as when assessing the results of the dissemination of an OER. However, when defining the essential characteristics that an OER possesses and planning activities and instructional design strategies incorporating OER, an intermediate to advanced level was shown.

Table 3. *Level of competences acquired in the MOOC for the use of OER (based on the MOOC criteria).*

Skills	Students			Teachers		
	Intermediate (50-60%)	Advanced (70-80%)	Expert (90-100%)	Intermediate (50-60%)	Advanced (70-80%)	Expert (90-100%)
Perform searches for OER using valid and reliable information	7%	40%	**53%**	20%	20%	**40%**
Assess the results of the dissemination of OER	13%	33%	**53%**	20%	20%	**40%**
Create a work plan incorporating OER	13%	40%	**47%**	20%	**30%**	20%
Define the objective, strategy, goal and audience of an OER	7%	**53%**	40%	20%	**30%**	20%
Determine the name, genre, mode of presentation, granularity and type of license of an OER	7%	**53%**	40%	20%	**30%**	20%
Design strategies for the dissemination of OER	13%	**47%**	40%	**40%**	20%	20%

Lastly, the MOOC indicator was analyzed to consider diverse aspects that could contribute to the examination of how digital teaching skills in a learning stage of this type are developed. In this regard, the pedagogical model of the MOOC seminar was explored, i.e. on connectivism and its postulates to find out the level of agreement with the characteristics of this educational trend of the Society of Knowledge. The results from this analysis are shown in Table 4.

As we can see, the most salient points of the MOOC seminar were the assertions regarding learning being brought about in accordance with self-regulation and the problems that come with this dynamic; also, that learning is a process of connecting specialized nodes or information sources, and the ability to see connections between fields, ideas and concepts is a key skill.

Table 4. *Considerations regarding the pedagogical model of the MOOC seminar (adapted from [4] and [5]).*

Assertions:	Students		Teachers		
	Somewhat agree	Strongly agree	Strongly disagree	Somewhat agree	Strongly agree
Learning is brought about in accordance with self-regulation and the problems that come with this dynamic.	7%	**93%**	0%	20%	**80%**
Learning and knowledge are based on the diversity of opinions.	27%	**73%**	20%	40%	40%
Continuous learning is based on cultivating and maintaining the relationships necessary for its facilitation.	20%	**80%**	20%	40%	40%
Learning is a process of connecting nodes or sources of specialized information.	7%	**93%**	0%	20%	**80%**
Learning can reside in non-human devices.	33%	**67%**	0%	40%	**60%**

The capacity for further knowledge is more important than what is currently known.	40%	**60%**	20%	20%	**60%**
The ability to see connections between the fields, ideas and concepts is a key skill.	7%	**93%**	0%	0%	**100%**

5 CONCLUSIONS

The study began with the question: what are the learning design components that aid students and teachers to be successful in a MOOC in Latin America? The results show the essential components to learning with a connectivist approach, open educational resources for self-management in the Spanish language, follow tutorial, motivations for use of OER, the participation of experts in facilitating the learning process, usability of the platform and the participation of academic networks for the management and implementation of the MOOC.

One of the transversal factors for the efficiency of MOOCs is the consideration of the contextual conditions of the users. For example, in terms of usability, it is desirable that the designs and resources to be accessible in environments where technology and the internet have not yet reached an efficient connectivity. It is also important to include, as part of the design, resources to support the appropriation and technological immersion of the participants having their first experiences in technology-mediated environments, and have in place mechanisms for detection and retention (linked to the motivational factors that inspired the income) to find mechanisms to reduce dropping out (characteristic factor in MOOC training areas).

In Latin America, the incorporation of massive learning scenarios is a largely untapped alternative, which limits the integration of those countries into the open education movement. For most participants, attendance at the MOOC seminar was their first encounter with this kind of virtual learning scenario. In this regard, some authors [3] point out that MOOCs act as an environment in which new forms of distribution, storage and retrieval of information, offer the potential for developing shared forms of distributed cognition and knowledge. In this context, we can mention that, for the Latin American context and other emerging countries, the implementation of MOOC courses can be an educational area to address, in order to help reduce the digital divide and educational democratization, a situation that should be promoted as a universal right in international agendas.

MOOCs require acquisition of knowledge and skills in order to understand the educational paradigm that supports them. This was evident in the opinions of the participants of the study regarding the MOOC's pedagogical dynamics (Table 4), in deep contrast with the difficulties that appeared during the development of the course. Connectivism assumes universal access to networked technologies and focuses on the construction and maintenance of network connections so, as Siemens [4] remarks, the learning process (applicable knowledge) is based on the connection of nodes of specialized information, residing not only in individuals but also in technological devices that can be accessed anytime. In conclusion, adaptation to this type of scenario presents a challenge to participants of the open education movement, which will require an understanding of principles such as self-knowledge, collaborative learning, information networks, capacity to find and use knowledge and learning supported by technology, all principles behind the pedagogy of connectivism.

This paper closes with the expectation that it can serve as a reference for the design and implementation of MOOCs increasingly more contextualized to the Latin American educational environment and emerging countries, as well as for a more intensive dissemination of OER for their incorporation into curriculum planning, not only in virtual modes, but in the classroom as a way of incorporating students to competence-based educational dynamics in digital environments, which is more of a necessity than it is a requirement for the successful development of the citizens of this century. It is also an invitation to further analyze the impact that this type of training brings and the transference that could take place in those involved.

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