Revista Cognosis
Revista de Filosofía, Letras y Ciencias de la Educación
ISSN 2588-0578

Massive on-line open course: users' learning preferences in an ecuadorian university

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Date received: 24 - 01 - 2021 Acceptance date: 15 - 04 - 2021

ABSTRACT

The Massive Online Open Courses are an evolution in education where there is free delivery of information without demographic and geographical limits, aimed at a varied audience, offering the possibility of continuous training. Thus, the University of the Armed Forces ESPE in Ecuador, needs to stay at the forefront in terms of education and offers in this type of course. Therefore, the objective of this study is to know the preferences of users to acquire knowledge within this type of course. The research arises from a previous study on the analysis of a set of high-quality MOOCs to identify the instructional design practices of the MOOC platforms recognized worldwide. The present study is approached with the collection of data through a survey applied to (N=449) students at the University. The results have shown that practical work, forums and questionnaires, videoconferences, social networks, chats, and shared documents are the main means of preference for students to acquire knowledge within MOOCs. Survey results indicate that, to carry out activities to acquire knowledge, the MOOC must propose practical work, forums, and questionnaires, as well as for the interaction within the course, videoconferences, social networks, chat and Google Docs should be used. The

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results will have practical and pedagogical implications for the Ecuadorian context.

KEYWORDS: preference; users; MOOC; online; Instructional design.

INTRODUCTION

Massive Open Online Courses (hereafter MOOCs) are resources that could potentially support many positive changes in education (Hayes 2015). Their large - scale coverage may allow access to different types of audiences (Liu et al., 2016). In recent years, there is a growing interest in MOOCs as an innovative learning approach which has been boosted by technology in higher education (Yousef et al. 2015) (Gil-Jaurena, Callejo, and Agudo 2017). In the educational aspect, there are still questions about pedagogy and new models of education that can provide a mixed and flexible learning ensuring and improving the quality of instruction (Forman et to the. 2017) (Brown 2013). According to Siemens (2012), MOOCs seem to have to do with collective leadership mission that universities must bring to higher education in the digital world. In addition, they are also leading the new revolution, to provide new opportunities for many students to attend free online courses anywhere in the world without pre-requirements (Liyanagunawardena, Adams, and Williams 2013).

The MOOC are a feasible option amid several learning environments and can be adapted to participant needs. Moreover, according to the Central Class MOOC report, the growth of massive courses since its inception until 2019 (last report) has been increasing, as shown in Figure 1.

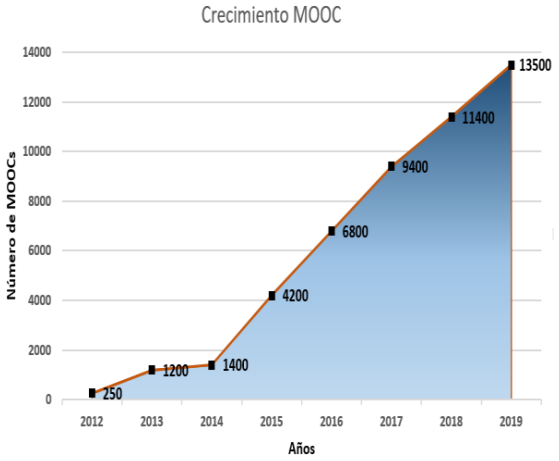

Figure 1: MOOC growth Source: Adapted from Shar. D, (2019)

Despite their growing popularity, MOOCs suffer from several limitations. Studies have reported high attrition rates of the participants who struggle to get to the end of the course (Liu et al, 2016.); as well as other pedagogical problems

related to evaluation and feedback. One of the possible reasons is the diversity of students which is related to cultural factors, demographic attributes, personal motives and individual perspectives of participants (Liu et al, 2016). According to Downes (2013), MOOCs must be defined by its process and must be seen as a means for the discovery of content and a space where learners generate experience based on the content they provide. The motivation and objectives of each user will vary according to the purpose of each of them (Creelman et al, 2014). Others have been far more cautious, pointing out problems and highlighting the fact that online learning still has and little evidence of educational benefits (Mackness, Mak, Sui, Fai, and Williams 2010).

1. Massive Online Open Courses

MOOCs have four key characteristics, and each of these raises' quality questions: massive, open, online, courses. Massive due to its high number of registrations (Daradoumis et al. 2013) (Lynda 2017).

Waard et al., (2013) suggests that the massive element does not apply to the success of the MOOC to attract a lot of people, but the design elements that make it possible education for many people. Open without prerequisites for participant registration (Bates, 2014) (Sinclair et al. 2015). Online as they are accommodated in the network. While MOOCs are initially offered entirely online, more and more institutions are negotiating to use MOOC materials in a blended format for use on campus (Bates, 2014). The MOOC differ from others open resources educational because they are organized in a course completely (Bates, 2014).

Since each student has their own goals and success criteria and they depend on each student reach their own goals, Downes (2013) provides four factors success of a MOOC: autonomy which is a capacity of it proposed labor standards according to the resources offered for their own learning, in terms of diversity refers to self - learning, and talking about opening it constitutes to be a way of training is not formally accessible av arias people and finally there is the interactivity that is related to the active participation between the users with the contents. The successor to the failure of a course depends on how well satisfies criteria. Gil-Jaurena (2017) mentions that some students study from the first module to the last, this because they require a broad vision of the subject they are reviewing and consolidate their learning in an adequate way, for this reason they do not omit studies modules since each one is concatenated with the next, however, a single user can go to the module that is of interest to obtain information.

For Hayes (2015), the design should encourage reflection, enable dialogue, foster collaboration ON, apply the learned theory into practice, creating a community of peers, enable creativity and motivate students. To do this, five fundamental principles of Merrill (2009) are considered, extracted from the theories and key models of instructional design, as follows:

1. Focused on the problem: learning is promoted when students acquire ability in the context of problems of the real world.
2. Activation: learning is promoted when students activate existing knowledge as a basis for new skills.
3. Demonstration: learning is promoted when students observe a demonstration of the ability to learn.
4. Application: Learning occurs when students apply their newly acquired skill to solve.
5. Integration: Learning is promoted when students reflect, discuss, and defend their ability reacquired IEN. Students could reflect on what they have learned, review, synthesize, or modify their new skills, and demonstrate and defend their new knowledge or ability to peers and others.

There are risks to the student experience due to poor design (Conole, 2013).

By other hand, and as mentioned Sunar, Abbasi, Davis, White, & Alj Ohani, (2020) regardless of their pedagogy, MOOC offer video, social opportunities for communication integrated to give on the platform or in the outer, written, audio or visual as educational resources. It should be noted that the platforms track the activities of students by generating data repositories, which is a valuable opportunity for the authors of MOOC to learn about the commitment of their students.

2. The voice of students in MOOC Design

Kernohan (2015) suggests the need to collect data on students underpins everything from design evaluation of a MOOC the idea to offer a course with a beginning and end date, but little research has emerged from such data collection so far. This raises the question of how much research can or should be done before implementing a MOOC, since new university and student programs are defined before approval.

Studies have analyzed the demographics, behavior, and completion of students (Breslow et al. 2013). However, one limitation is that such data neglect the voice of the student, who could and Xplore in detail ra zones behind the trends observed in terms of activities learning, evaluation and transmission of open knowledge (Jordan, 2014). To do this, Egloffstein & Ifenthaler (2017) mentioned that when it comes to explore further acceptation of a MOOC learning, the prospect of the users must also have it into account.

A study of the first course "Connectivism and Connective Knowledge" in 2008-CCK08, organized by George Siemens and Stephen Downes, is based on the application of the survey of active participants carried out by Mackness et al., (2010) to Investigate students' experiences related to autonomy, diversity, openness, and connectivity / inter - activity. The four characteristics were developed within the MOOC. Areas of tension such as lack of structure were

observed, leading the students to withdraw. Surveys and concept maps of blogs and forums related to CCK08 were studied and indicated that the preference of students for the use of blogs or forums is related to personal learning styles so that the forums were not moderated by the tutor. However, the blogs were added and distributed daily (Sinclair et to the. 2015).

In an additional study are based on Connectivism and Connective Knowledge - CCK, Kop, Fournier, and Mak, (2011) conducted surveys to users on forums and analysis to network information as a basis for investigating issues of support for the student. The author is concluded that the creation of a place or community where people feel comfortable, reliable and valued is essential to provide the support structure necessary for learning.

Thus, the present study analyzes the preferences of the users regarding the acquisition of knowledge, activities, resources, and evaluation within a MOOC.4 STUDIES.

DEVELOPMENT

The research arises from a previous study of Larrea, Freire, Costa, & Cela, (2016) on the analysis of a set of high-quality MOOCs selected from the wide range offered platforms such as Coursera, MiriadaX, EDX (Emmons, Light, and Börner 2017) and Eco- Learning (Latin American reference) where took into consideration aspects such as design styles, colors, typography, image n is, organization and presentation content. All this with the aim of identifying the instructional design practices of the MOOC platforms recognized worldwide. The results of this study reveal that the courses have contents p or through videos and three of them allowed to obtain downloadable documents read. While the tasks or activities to reinforce knowledge, the four courses conducted forums and three of them, questionnaires. You may think that these cur s will provide static tasks, same case repeated for interaction since the four MOOCs also use forums for it. On the other hand, the four courses are evaluated through questionnaires and three of them through the delivery of products. Finally, three of the four courses use social networks to share and reinforce knowledge.

Thus, this study seeks to learn beyond the practice of professionals and high-level MOOC platforms, and to focus on the voice of potential users of this type of course.

The University of the Armed Forces-ESPE, one of the reference institutions in Ecuador, staying at the forefront in terms of innovation and educational offer, has implemented MOO C courses. However, it becomes relevant know the trends and preferences of users on the activities and tools for acquisition knowledge to improve practices and Instruccional design them massive courses par to community teachers and student school and play of the institution. For this reason, the study is approached with the collection of data through a survey and as an instrument a questionnaire applied to 1000 students of the University of the Armed Forces of ESPE was carried out, which includes sociodemographic questions in view of meet the participating public and

subsequently have raised die questions multiple choice trying to know the preference of the users regarding the acquisition of knowledge, such as interaction, multimedia resources and evaluation, using the Likert scale.

The instrument was sent via electronic mail to 1000 students of the institution. 449 responses were obtained where it was verified that each question had been developed. Moreover, its s and applied a statistical analysis of the significance of the obtained sample of the population, with a level of the 95% confidence level and a 5% error. In such a way that after calculating with the formula (Figure 2), the result is a sample size of 278. That is, the study population of the present investigation exceeds the sample required for the level of significance.

$$n = \frac{z^2\ p * q}{e^2 + \frac{z^2\ p * q}{N}}$$

n= Tamaño de la muestra

z= Nivel de confianza deseado

p= Proporción de la población con la característica deseada (éxito)

q= Proporción de la población sin la característica deseada (fracaso)

e= Nivel de error dispuesto a cometer

N= Tamaño de la población

Figure 2: Sample calculation formula

After applying the survey, the instrument was reliability of the estimated use and internal consistency of the Cronbach's Alpha. This is calculated from the correlation between the items as a function of the number of items in the instrument and the mean correlation between the items (Frías D, 2019). For this reliability study, by means of the SPSS software, 10% of the responses obtained were randomly taken and subsequently the statistical study was applied to determine the reliability of the survey. Thus, a Cronbach's Alpha result of 0.87 was obtained as indicated in Figure 2. The range obtained or coefficient alpha> 0.8 is good as well as stated Huh, DeLorme, & Reid, (2006): the value of consistency internal research exploratory to be equal to or greater than 0 .6 and confirmatory studies should be between 0.7 and 0.8. Likewise, the consistency value that is considered adequate is 0.8 or more (Frías-Navarro 2019). In other words, the instrument used in the present study presents an adequate reliability of the internal consistency of the instrument, which allows to continue with the investigation and the presentation of the results.

Estadísticas de fiabilidad	
Alfa de Cronbach	N de elementos
0,87	26

Figure 3. Cronbach's alpha

For tabulation of data collected was taken as reference the item s established in the survey. In the first instance, informative data are presented, followed by the results regarding the perception and preference of students regarding MOOCs.

Results of the informative data of the surveyed students

With collecting data, we can see that the majority (54%) of the female population between the ages of 18 to 23 years and the male has just been recorded on 9, 35%, with the same age range as can be seen in figure 4.

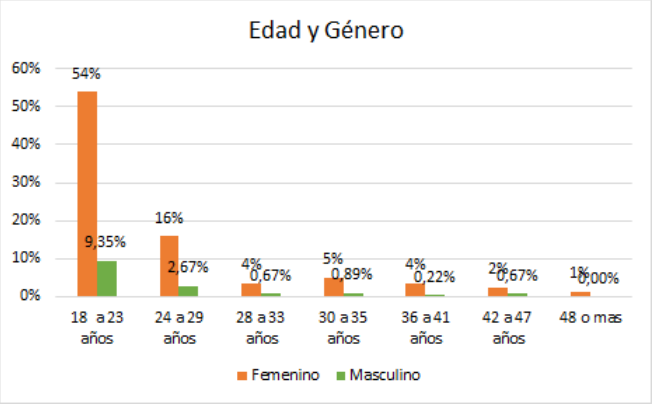

Figure 4. Age and gender of participants

In addition, it is possible to identify the different academic programs to which the students belong. The results show that a greater response was obtained from the students of the Initial Education career (70 %) and 12% of Basic General Education. After that s and recorded with less than 5% students in academic programs such as Biotechnology, Bachelor of Commerce degree in Finance and Audit, Bachelor of Applied Linguistics Language English, Mechatronics and programs Sufficiency e n English to Distance.

Results of student preferences and perceptions regarding MOOCs

He tried also to know how the duration of a course is, that users prefer, where 57% of the students have selected the short courses between 4 to 6 weeks. To try to understand this preference Gamboa, (2011) recommends considering the characteristics of the course such as the time it takes to connect, access the material and resources, or read and participate, which entails added time and effort, in addition the online student usually they usually have less free time between study and work. With this, you can reflect what e s is to what

motivated the surveyed lean for short term duration. This can generate a pattern for the design stage and planning as to fail material organizing it d and such that it is easy to understand along with tools before investigation, without the need to provide extensive course duration, which it can cause a loss of interest in students for lack of time as l or mentions the author. However, this result based on the preferences of the users does not agree with what was obtained with the documentary analysis of Larrea et al., (2016), since the courses analyzed mostly had a duration of 7 to 9 s emanate. Against this time duration, in the present investigation the 20% of students prefer MOOCs with an average duration. In the option of long-term courses, corresponding to 10 to 12 weeks, only 18% preference was identified by the students. Finally, 6% preferred curses mass with at while or long duration, this corresponds to more than 12 weeks.

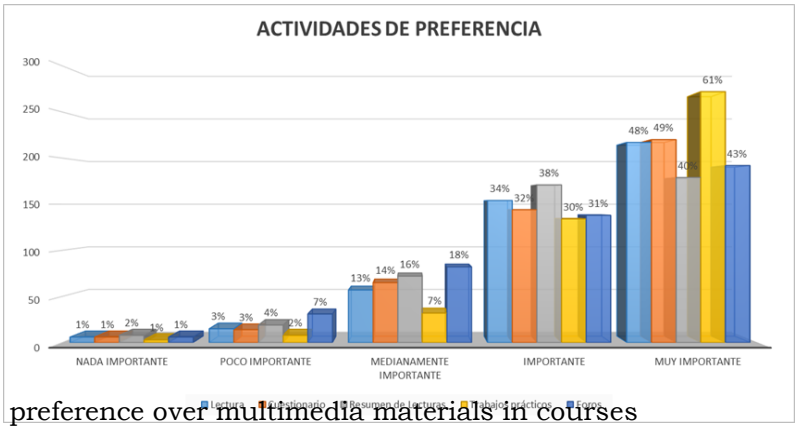

Figure 5. Students' preference over multimedia materials in courses

Figure 5 highlights high percentages (55%) of explanatory videos with the presence of the teacher, reading papers downloadable is (43%), the image is (36%), audio (39%) simulations (39%) and animations (43%) as preferred among multimedia tools. By being the first two mostly used e n the MOOCs, that were the object of study during the application of documentary analysis in previous studies (Larrea, Freire, Coast, Cela, 2017). For these results in Montoro, (2017) mentions that in e n lathes virtual teachers should provide what s support necessary to the student and work under the joint execution of tasks between teacher and student. Recalling that there is the presence of a teacher in MOOCs, videos with the presence of u n a person (teacher, counselor or expert) indirectly assume this collaborative work tasks together, which mentions the author, can the student to continually follow the learning process, having an idea of accompaniment.

Regarding the use of downloadable reading materials, the high incidence with 43% leads to reflect on what was mentioned by Ferris, (2014) whose studies show that printed texts are understood and remembered better than those presented on the screen that cause fatigue cognitive, more than paper. It can be thought that a distance student may consider it comfortable to have the

content on paper to be studied in their free time between work and studies without the need to carry devices or computers with them.

On the other hand, the preference towards images (36%), animations (43%) and simulations (39%), turn out to be a significant percentage, for this the literature indicates that studies reveal that images and animations are as effective as words to teach concepts. Being able to add images to a text can improve the understanding of a message and its learning (Montoro 2017).

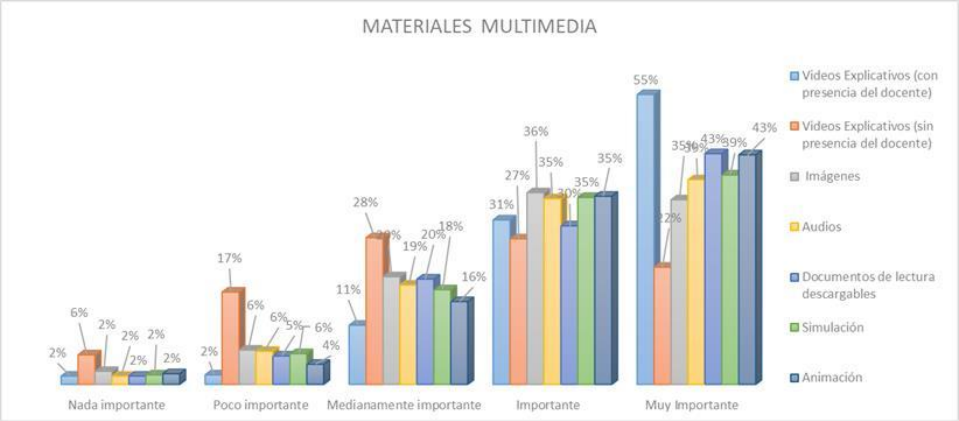

Figure 6. Students' preference over activities in the courses

In the fig. 6 preference act analyzed activities to acquire knowledge obtaining high impact in practical works (61%) rated as especially important activity. It means that to understand, students need to bring what is in the text into practice. In this sense, it can be thought that practical work for students helps to obtain meaningful learning since while an individual practices more about what he is trying to learn, he will be able to obtain greater mastery in it.

This finding does not agree with what was obtained in the documentary analysis of Larrea et al., (2016) where in most of the courses, the activities are based on the realization of forums and questionnaires, which in the present investigation yielded results of preference of the 43% and 49%, respectively. Regarding the preference of reading by the participants (48%) and summaries of readings (40%) rated as an especially important activity. For this, Ferris, (2014) mentions that when reading we form a mental representation of the text, like mental maps. This certainly favors the process of reasoning and understanding. This statement can be considered as the justification for the high percentage in this activity.

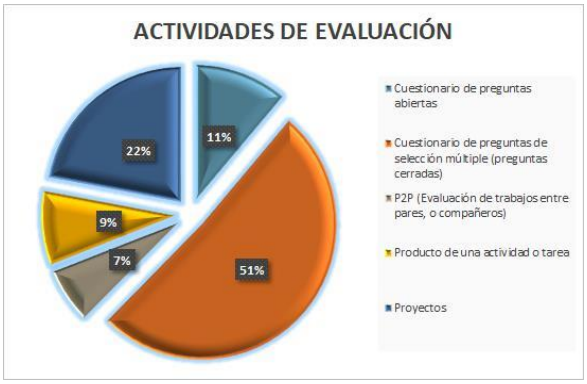

Figure 7, Students' preference on evaluation activities in courses

In the evaluation activities as shown in Fig. 7, there is a high preference (51%) for multiple-choice questionnaires (closed questions), an aspect that coincides with the planning of the courses analyzed with the first instrument for collecting data from previous studies, where evaluations are performed by middle of this and instrument. On the other hand, the preference of the students is evidenced in 22%, for the development of projects that can be related to carrying out practical work since both need what they have learned in theory and require experimentation to reinforce e l knowledge. Finally, 12% prefer open-ended questionnaire and with a lower percentage (9%) of students prefer to be evaluated through delivery of products or tasks, and evaluation of work among peers or colleagues.

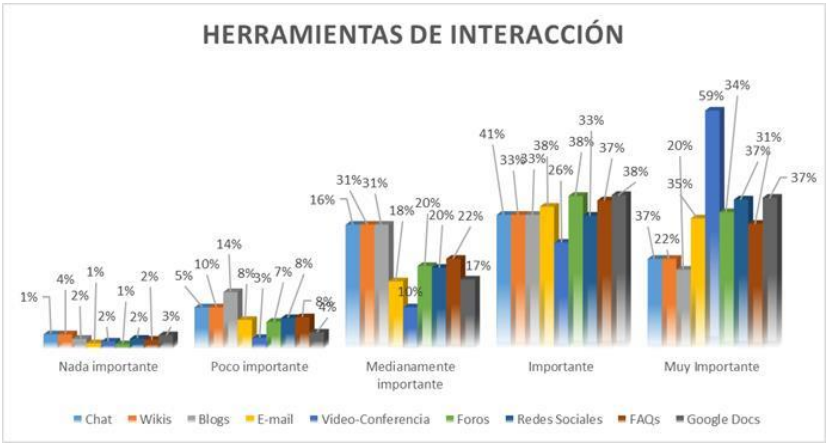

Figure 8. Preference of students on interaction tools in courses

In Fig. 8, in the analysis of the preferences on the interaction tools, it was evidenced that most of students (59%) Videoconferences and 3 7% prefer social networks, chat and Google Docs. It should be mentioned that the MOOCs analyzed in the study from which this research originates, make use of forums and social networks, which agrees with what was obtained here, unlike the first

one, since the forums obtained a preference 34%. This event leads us to think that this percentage of users probably prefer more static tools. However, 35% of students prefer interaction via email and frequently asked questions (FAQs) with 31%. For activities based on wikis and blogs, a percentage of preference was evidenced, less than 25%.

After knowing the preferences of the users to acquire knowledge and about their receptivity towards MOOCs, three options of topics were offered to be designed as a potential MOOC of the University of the Armed Forces ESPE, where a high percentage of preference was evidenced (56%) towards the topic "Technological Tools in Education". It is likely to be denoted that the lack of knowledge regarding technologies that are generally used in education either to acquire or transmit knowledge, schoolboys are highly inter and SADOS in learning about and tools Stas can l bequeath to promote and facilitate their learning. The following topics with 24% and 19% correspond to "Management of Social Networks for Education" and "Mobile Learning " respectively.

CONCLUSIONS

Learning DISTANCE to through mode courses MOOC is an innovation to education at the University of the Armed-ESPE Forces in which students have the opportunity to stay in a continuous education where they acquire digital skills and competencies required by the current knowledge society and in turn allow them to create social communities to share and discuss current issues that will undoubtedly lead them to obtain meaningful learning based on collaborative work at an individual learning pace with the help of ICT.

It is considered important to take advantage of the high rate of interest on the part of the teaching and student community towards MOOCs despite the lack of awareness of them.

After this research, the preference of the users of the University of the Armed Forces-ESPE over MOOCs has been determined; Specifically, they should last four to six weeks and using explanatory videos with the presence of the teacher, counselor or expert, downloadable reading documents, animations, audios, simulations, and images, all this in terms of multimedia tools.

It is concluded that to carry out activities to acquire knowledge, the MOOC must propose practical work, forums and questionnaires.

Similarly, for interaction within the course, Videoconferences, social networks, chat, and Google Docs will be used. As well as for the evaluation stage of the studied topics, it will be given through multiple-choice projects and questionnaires.

As a future study it is intended to analyze the data as a whole; trends, design styles, from the study by Larrea, Freire, Costa and Cela (2017) and the preferences of the users of this article, in view of designing a MOOC with the

theme "Technological tools in education", a topic of interest to the students and the different preferred tools analyzed here.

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