VIRTUAL CLASSROOMS AS AN INTERACTIVE LEARNING SCENARIO IN ECUADORIAN HIGHER EDUCATION. CASE STUDY: UNIVERSIDAD TÉCNICA DE MANABÍ

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Abstract

The purpose of this work is to analyze and investigate the way in which virtual classrooms have become an interactive learning scenario in Ecuadorian higher education. For this, the Technical University of Manabí and more specifically the Faculty of Humanistic and Social Sciences have been taken as a case study. In this academic unit, the virtual classroom used by the teacher is Moodle, a learning management tool whose details of its operation will be known throughout this study. From approachqualitative, descriptive methodological and from a bibliographic-documentary approach, this study has investigated how virtual classrooms have served for both teachers and students to communicate adequately in virtual learning environments. In this sense, the incorporation of new technologies has made it possible to redesign the scenarios where the teaching and learning processes take place and even more so since the emergence of the pandemic caused by Covid-19. The analysis carried out has taken as a perspective the teachers of this faculty and the proposed temporary cut considered is the semester period between the months of November 2020 and March 2021.

Introduction

Virtual classrooms in the field of higher education have become essential. The use that both teachers and students make of them has allowed progress in the teaching and learning process even in times of pandemic caused by Covid-19. The importance of this resource is that they allow online training using various strategies forlearning, strategies that the virtual tutor can propose based on the content'sacademics in combination with the technological tools provided

by the platform andother tools. In this way, virtual classrooms play a preponderant role at all educational levels.

The relevance of this research lies in the fact of its approach, when considering virtual classrooms as an interactive learning scenario, since they constitute an environment where all the factors that exist in the traditional classroom are found, but some of them, such as the students and the teacher are separated both in time and place. This educational environment expects the student to perform their homeworkindependent learning, and specific course materials should containthe concepts of teaching, as well as the opportunities for interaction that are normally,they exist in teaching in a traditional classroom. It is for this reason that through this investigation the procedures, usefulness, operation, difficulties and characteristics of virtual classrooms were determined so that they become interactive learning scenarios in Ecuadorian higher education, particularly in the Faculty of Humanistic and Social Sciences of the Technical University of Manabí.

In Latin America, there are countries such as Guatemala, Nicaragua and Paraguay where low percentages of teachers trained in ICT are estimated, compared to Chile, Peru, Colombia and Costa Rica, in which the educational staff is prepared at a high level with respect to the evolution that technological processes are having (Rivera et al., 2018).

The most advanced countries are those that tend to give way to virtuality, since their experiences serve as an example to developing countries, it is important to mention that, in countries like Mexico, in the XXI century there are still limitations in rural areas due to lack of of teachers and technology, which prevents students from accessing a guaranteed and inclusive level of education (Toca& Carrillo, 2019).

In Uruguay, more than a decade ago the use of technology has been implemented, facilitating the adaptation of new educational literacy programs, through policies carried out by the state, which have allowed educational access and technological tools to many families in the country, expanding inclusion to a large majority of Uruguayans of all ages and socioeconomic backgrounds (Carabelli, 2020).

Virtual classrooms are attractive learning environments, easily accessible, that allow students to enter courses where they are previously enrolled, so that they can carry out activities through an internet connection with multimedia content, where online teacher-student interaction intervenes, sharing experiences in a participatory way, in addition to investigating and building their own learning (Sánchez, 2020).

Over time, ICTs have been gaining ground in different fields, especially in educational processes where virtual education models have been made, strengthening collaborative learning between teachers and students through virtual classrooms, where activities are carried out. , information is posted, assignments are sent and received, interactive forums are held, in which students can access and receive feedback on a daily basis and always rely on the tutor (Martínez & Jiménez, 2020).

The purpose of ICT and virtual platforms is to improve the teaching-learning of students, showing them how to use technological tools that provide them with materials, allowing them to build new knowledge, skills and abilities autonomously, using criticality and even building learning. meaningful through new experiences generated in virtual interaction (Granados, 2019).

In Ecuador, it is considered that there is a society open to the technological system, where the use of virtual spaces has begun to be promoted, providing motivations in the educational community, so that it becomes interested in the interaction that being part of virtual education entails, offering tools , ideas and creative digital models that attract the attention of the learner, that facilitate the foray into this field, in addition, to make it easier for him to follow up and close to the teacher of the activities that he sends daily regarding the subjects he teaches (Pérez, Suárez, &Rosillo, 2018).

In the Technical University of Manabí (UTM), in 2015 virtual interaction began, through the Moodle platform, this process had small technical difficulties and internet providers, but despite that they could be overcome, resulting in: understanding the activities and good management of tools associated with ICT (Arroyo, et al. 2018).

The studies served as the basis for establishing the present investigation. Therefore, virtual classrooms have served for both teachers and students to communicate properly in virtual learning environments. It is, in any case, a strategy that allows improving educational processes, a good interaction between members of educational processes beyond a definitive physical space. This has led to investigate these resources as innovative interactive learning scenarios in Ecuadorian higher education.

Methodology

To analyze the implementation of virtual classrooms as an interactive learning scenario in Ecuadorian higher education, this research work bases its methodological perspective on a qualitative, descriptive approach and from a bibliographic-documentary approach.

At this point it is pertinent to determine that, according to Bernal (2010), the qualitative method is a non-mathematical process of interpretation, carried out with the purpose of discovering concepts, relating them to the data and then organizing them in a theoretical explanatory scheme. Along with the qualitative, this research uses the descriptive method, the purpose of which is to have a first knowledge of reality as it can be seen from the direct observation carried out by the researcher and the knowledge, he has acquired through the indirect information obtained (Hernández& Mendoza, 2018).

Finally, the proposed methodological triangulation is complemented with the bibliographic-documentary method that allows to gather the existing theory about the proposed object of study. According to Hernández (2014), this approach allows us to analyze various useful documentary sources for the conformation of the theoretical foundation and contributes to a greater understanding of the methodological issues of the research.

The technique for obtaining data is the survey, which was applied to 58 professors from the Faculty of Humanistic and Social Sciences of the Technical University of Manabí. It should be specified that in this work only the tenured teachers of this academic unit have been considered. This technique is an instrument that allows gathering general information and points of view from a group of people.

Analysis and discussion of results

In this section the data obtained from the survey carried out on 58 professors from theare systematized Faculty of Humanistic and Social Sciences of the Technical University of Manabí.

Table 1. What do you understand by virtual classroom?

Variables	Teachers	Percentage (%)
A virtual learning space located on the web	10	17
A complementary site to traditional teaching	8	14
A digital platform that has served in the pandemic instead of the traditional classroom.	28	48
A virtual space that is not used efficiently by students.	12	21
Other definition (please indicate).		

In this first question of the survey, 17% of the professors consulted indicated that by virtual classroom they understand virtual learning space located on the web; For 14%, on the other hand, it is a complementary site to traditional teaching; while for 4% of teachers it is a digital platform that has served in the pandemic instead of the traditional classroom. Finally, 21% indicated that it is a virtual space that is not used efficiently by students.

The use of the virtual classroom has come to innovate the teaching process. As is often the case in any process, innovation has its resistance at the beginning due to its complexity, but frequent practice banishes any doubts there may be about these procedures. For this reason, the opinions of the teachers consulted are divided in this regard. Although there are rules that have not yet been defined in the use of the virtual classroom, the use that has begun to be made is already significant. It may be that the conception that teachers have is varied, but the use that is being given is an indication of how information and communication technologies play an important role in the teaching and learning process in higher education (Acevedo, 2019).

Table 2. How do you rate the operation of the Moodle virtual classroom used in the Faculty of Human Sciences of the Technical University of Manabí?

Variables	Teachers	Percentage (%)
Very satisfactory	20	34
Satisfactory	12	21
Not very satisfactory	22	38
Not at all satisfactory	4	7

In this second question of the survey, 34% of teachers rate the operation of the Moodle virtual classroom used in the Faculty of Humanistic Sciences of the Technical University of Manabí, while 21% define it as satisfactory. For 38% of teachers, it is unsatisfactory. Finally, only 7% of teachers classify it as unsatisfactory.

The operation of the virtual classroom may present some technical drawbacks, but its usefulness, much more at this time, is not in doubt. The implementation of the classroom is relevant insofar as it offers interactivity, communication, dynamism in the presentation ofcontent, use of multimedia, text and elements that allow serving students withdifferent learning styles all in one place. For this, the student must be motivated by the virtual learning environment, virtual classroom resources and the permanent attention of the teachers (Barrera & Lugo, 2019)

Table 3. What difficulties have you had with the use of the virtual classroom?

Variables	Teachers	Percentage (%)
Lack of internet connectivity	10	17
The virtual classroom is slow and confusing	8	14
The assigned activities are not developed by the students.	15	26
None. The virtual classroom works perfectly	25	43

In this third question of the survey, teachers were consulted about the difficulties they have had with the use of the virtual classroom. For 17% it is the lack of internet connectivity; 14% pointed out that the virtual classroom is slow and confusing, while 26% said that the assigned activities are not developed by the students. Finally, a significant 43% of teachers indicated that they have not had any difficulties, since the virtual classroom works perfectly.

The drawbacks detected in the use of the virtual classroom reflect that the process started is arduous. Teachers have complications, many of them with the lack of internet connectivity in their homes. This can be solved gradually with the development of technological processes. What is worrying is that the activities are not sufficiently fed back in forums or chats provided to solve these types of problems.

It should be considered that platforms such as Moodle provide teachers with all the necessary tools to exchange knowledge with students and share teaching resources in any multimedia format: Word, Power Point, video, podcast, flash, etc. Moodle is fully customizable. It allows creating virtual classrooms with functionalities adjusted to the needs of the training center and the teacher. This is possible thanks to its catalog of extensions or plugins for free download. These add-ons, whose implementation allows it to be customized, also extend its functionality (Véliz and Gutiérrez, 2021).

Table 4. What characteristics do you think the UTM virtual classroom should have to improve the teaching and learning process?

Variables	Teachers	Percentage (%)
Share experiences and ask for the active participation of students.	4	7
That allows the socialization of tasks, activities, and evaluations with students	4	7
Permanent interaction with students through the Moodle platform	24	41
Use all the resources of the virtual platform and not just a few.	26	45
Other (indicate which one)		

In the fourth question of the survey, teachers were asked about the characteristics that the UTM virtual classroom should have to improve the teaching and learning process. 7% indicated that it is the fact of sharing experiences and asking for the active participation of students. The same percentage said that the virtual classroom should allow socializing tasks, activities, and evaluations with students. For 41% of teachers, permanent interaction with students must be

facilitated through the Moodle platform. Finally, the remaining 45% indicated that all the resources of the virtual platform should be used and not just a few.

Virtual classrooms are configured in educational innovation scenarios characterized by their flexibility, comprehensiveness, versatility, potentiality, and diversity, in which the teacher manages content, shares information, uses pedagogical resources, encourages skills and competencies in students through activities, promotes cooperative learning and strengthens independent work. This has made them very popular in higher education institutions, especially in this context of the pandemic caused by Covid-19. However, it should be considered that with platforms such as Moodle it is not possible to have direct interaction with teachers - constant communication must be established between teachers and students. In addition, it shows the same contents to all students; there is no way to select content according to the profile or performance of the student (Martínez & Jiménez, 2020).

Table 5. Have you received constant training on the use of the virtual classroom?

Variables	Teachers	Percentage (%)
Always	3	5
Almost always	5	9
Occasionally	50	86
Sometimes	0	0
Never	0	0

In the last question of the survey, teachers were asked if they had received training on the use of the virtual classroom. In this regard, the vast majority, that is, 86% indicated that occasionally, while 9% indicated that almost always. Finally, only 5% indicated the option always as an answer alternative.

Teachers need to be trained to edit their courses and upload resources, among other aspects. It should also be considered that Moodle presents an infinity of resources available on the internet for self-taught learning. However, it is always necessary for higher education institutions to train teachers because this type of virtual classrooms is an effective tool that allows creating and managing courses, topics and content in a simple way (Vélez, 2020).

Conceptual framework or development:

The investigation of virtual environments has been gaining ground until today it is consolidated as essential spaces for teaching and learning. In higher education, their use is not new, but it has become much more visible because they emerged as a resource that could replace conventional classrooms as a result of the pandemic caused by Covid-19. This section analyzes the theoretical foundations of virtual environments, their purposes, strategies, procedures, among other aspects, which are fundamental in the educational field.

Virtual classrooms are a training modality that is applied in face-to-face and non-face-to-face education, which despite the distance facilitates communication between teachers and speakers, incorporating many tools and resources in training to enrich learning. In addition, they have produced significant changes in education due to the implementation of new forms of knowledge transfer and that through information and communication technologies, new paradigms are being created in the teaching and learning process. This means that virtual platforms have become a powerful tool in educational technology, being capable of developing the independence of

knowledge in many cases and the virtual approach between teachers and students (Barrera &Guapi, 2018).

Higher education is undergoing great transformations with the expansion of information and communication technologies. Universities that were traditionally face-to-face are opening to offer courses, careers or academic programs that are taught through digital platforms. And it is emphasized that to successfully meet the expectations of virtual platforms towards students, they must have the following characteristics:

- Share experiences, knowledge and ask for the active participation of students.
- Socialize internal and external scientific content, as well as the institutional repository.
- Communicate through the agenda the schedule of activities of the institution.
- Send and receive assignments, activities and evaluations with their timely evaluation and correction.
- Communicate the feedback of the activities, as well as write comments on the task if necessary.
- Present for each activity or task, the grading rubric.
- Use all the resources that virtual platforms present.
- Present websites with scientific information related to the subject or subject (Salgado, 2015).

It is necessary to know that virtual classrooms are synonymous with innovation, since they are currently characterized by being versatile, potential, comprehensive learning scenarios, with a diversity of content for the educational community, since through them it is possible to share countless numbers of original and important information to strengthen knowledge, increase skills, promote learning and student autonomy (Area, San Nicolás, & Sanabria, 2018). There are several benefits that stand out from virtual classrooms, among them are the material resources that are provided to the student, which do not need to be printed or photocopied, since they are delivered in digital format and are used in an organized manner.

Virtual classrooms are the basis for the generation of knowledge in the online mode. These have undergone changes since their appearance and have evolved gradually. This evolution represents amazing effects on learning, research and knowledge generation. It is understood that the design of activities with the support of virtual classrooms is a key factor for teachers in planning their courses, since it not only awakens motivation and interest in students, but also makes them autonomous in their learning by entering and participating in collaborative environments made to measure where reflection, interaction and creativity prevail (Vélez, 2020).

Educators have found a world of possibilities to develop their teaching practice through integrating new technologies as one more resource in the teaching-learning process, which has allowed them to promote and facilitate the participatory and creative attitude of students, teaching individualized interactive learning. Among the benefits generated by the use of the virtual classroom in the learning of university students, include the following: it favors greater competitiveness, generates a culture in the use of new technologies to develop innovative teaching-learning models that adjust to the demands society, provides the technological tools to help and support the student and alternative monitoring and control to the teacher, promotes collaborative learning by having tools that allow the development of asynchronous activities complementary to the face-to-face and distance teaching, through virtual tools adequate (López, 2017).

The analysis in question is nothing new in studies related to this topic. Even several works can be considered as antecedents of this research. For example, Rodríguez and Zambrano (2016) point out that "the use of the virtual classroom is oriented not only as a support resource for face-to-face teaching, but also as a space where didactic activities are generated and developed" (p. 72). The design of these activities is carried out in various ways: in the form of questions, debates, communication forums, as well as the preparation of work projects, in addition to providing the student with information in the form of texts, presentations, or access to Internet sites, thus offering a practice of work innovation, communication, accompaniment and interaction between teacher and students.

The implementation and use of virtual classrooms in higher education is very important, as it breaks down the barriers of time and distance for access to information and learning. In addition, it constitutes a motivating and easy-to-use tool for students because they are used to using technology as a means of communicating (Quijano & Rodríguez, 2018).

The teacher's way of teaching changes, since the intensive use of the blackboard and the spoken word as tools for communication is no longer necessary, all the necessary information is in the virtual classroom exposed in different ways; The teacher has the responsibility of managing the virtual classroom and its contents, carefully design the learning objects that it is going to incorporate, as well as in the rebound activities and knowledge construction, clarifying doubts, inducing the performance of analysis, evaluation and creation of knowledge by the student (Acevedo, 2019).

Since the emergence of the COVID-19 pandemic, drastic changes have occurred in human life habits. University education is not immune to the various reforms that the current situation demands. For this reason, many of them adapted their classes to a purely virtual modality. Thus, the COVID-19 pandemic forced higher education centers to postpone classes taught in person and replace them with purely virtual semesters. Hence, virtual classrooms in many higher education institutions went from mere accessories to essential resources for their optimal functioning (Lovón& Cisneros, 2020).

Many educational institutions have made large investments in technology, and now it is common to see computer systems that support administrative processes, the use of the Internet has become widespread. Moodle is used in several educational institutions for computer support for education, a software for the management of educational resources widely used worldwide through which teachers create and manage virtual classrooms (Suasnabas, Quinto &Alcázar, 2018).

The integration of virtual classrooms in education has various benefits for pedagogical work which are: increased motivation, adaptation of learning rhythms, digital storage of resources and diversification of learning activities. Teachers often do not explore virtual learning environments to their full potential and adopt only a limited set of available tools, and some teachers share their courses with each other to strengthen virtual environments. In the same way, the attitude of the teacher is important and is a central element for the good use of the new information and communication technologies within the classroom (Monroy, Hernández & Jiménez, 2018).

Virtual education begins the interactivity between teacher - student, taking virtual classrooms as a scenario, for the development of capacities, abilities and skills, through new knowledge, obtaining significant learning and achieving the objectives set at the beginning of the teaching-learning process (Pando, 2018).

Higher education has opted for virtual classes as an alternative to eliminate the level of contagion due to the pandemic caused by Covid-19. Therefore, innovation has become very important in all academic and administrative processes within the career and university. The self-learning process takes place in an effective and dynamic way, ensuring that the students of the degree are competitive and efficient in their working lives (Chávez, Rivera and Haro, 2021).

Virtual classrooms offer the opportunity to have a participatory atmosphere in which the student can interact, reflect, and participate, satisfying needs, doubts and concerns, in addition, it allows the teacher to monitor the process that the student is obtaining during the teaching process learning (Rodriguez &Grilli, 2019). In virtual classrooms it is feasible to use role play, where students use their creativity, stimulated by their imagination, reflecting on video games, celebrities, events, etc., it is important to orient these activities to the teaching exercise to which it is directed, in order to be able to obtain the result that the teacher proposes (Véliz& Gutiérrez, 2021).

It is necessary to know that currently all kinds of information can be accessed quickly, through ICT, which is something enriching, that is why the teacher must innovate quickly, to be prepared for the different situations that arise. daily in front of the student body, being the one who invites them to read and benefit from what they find in virtuality, transforming it into something positive, resulting in learning (González, 2019). This is how the research aims to expose the importance of virtual classrooms as an interactive setting for learning.

Conclusions

Virtual learning environments are constituted in scenarios that offer a quality training and learning alternative, which is supported by having a team of professionals involved in the execution of good teaching practices in their teaching activities, their academic consultancies, their tutorials and in their design of learning materials. Currently, implementing effective teaching practices in virtual environments is a challenge that requires the adoption of a pedagogical model appropriate to online teaching and the needs of students to enhance the use of technology in education. Therefore, it is necessary to increase efforts to promote effective online education, with results that favor student learning.

In this context, the virtual classrooms of the Technical University of Manabí become platforms where teachers and students find countless tools that allow permanent communication between users and that facilitate inter-learning of the academic year; In addition to the contents programmed for the subject (documents, Excel pages, pdf, etc.), there are spaces for presentation of the teacher, communication, opening hours, activities for the middle and end of the cycle, collaborative work, forums, chat, consultation , glossary, prezzi, wiki tasks, integrative work, projects, tests, evaluations, surveys and others. Estos espacios son útiles porque los estudiantes rápidamente incorporan al aula virtual como una herramienta fundamental de su aprendizaje, y con la guía del profesor la utilizan en forma intensiva para la realización de sus tareas.

Se concluye, en el contexto de la investigación, que las aulas virtuales no solo se emplean para socializar información, sino para fomentar la interacción entre los estudiantes con sus docentes.

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