

Analyze The Digital Divide With The Use Of Learning Management Systems During Remote Teaching In Times Of Coronavirus In Uladech Católica Students

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Abstract

The global coronavirus pandemic (COVID-19) has caused an unprecedented crisis in all areas. In the sphere of education, this emergency has led to the massive closure of face-to-face activities of educational institutions in more than 190 countries in order to prevent the spread of the virus and mitigate its impact. For virtual teaching, he is making use of digital tools, but it is not enough for the student to understand and understand his classes efficiently. In view of this problem, the following main objective was raised to analyze the Digital Divide and the use of Learning Management Systems allows improving the academic performance of students. For this, an exhaustive investigation was carried out and when analyzing this platform, aspects were considered because there is a digital divide and what are the benefits of the Learning Management Systems platform. The results of the study indicated that Learning Management Systems is not widespread in both companies and

educational institutions. It is concluded that the use of learning management systems improves the academic performance of students.

Keywords: COVID19, digital divide, learning management systems, academic performance.

Introduction

Due to the current situation there are some educational institutions, due to the consequences of the COVID 19 pandemic worldwide, they are still forced to take the virtual and / or distance modality, where the student is responsible for their self-learning under the guidance of a teacher who acts as a facilitator of knowledge.

In one of the recommendations of the research carried out by Ancajima V. and Castro J. [1], referring to factors that prevent the use of EVA in relation to Academic Performance in ULADECH's Systems Engineering students, he suggests deepening the present study. In this sense, this research aims to know the digital divide that exists in the students of the professional schools of Engineering offered by the ULADECH CATÓLICA, in order to know the access to technological resources (1st digital divide) and correct use and understanding of its usefulness (2nd digital divide) [2].

The term Digital Divide was coined by the US Department of Commerce to refer to those who can take advantage of Information and Communication Technologies (ICT) and those who are excluded [3], [4]. Due to the technological change that exists, there is the presence of a digital technological gap in Teacher Training, it is a reality and a challenge, which has been further evidenced in the times of rapid increase in online educational environments generated by the expansion of the COVID-19 pandemic [5], [6]. In this regard, the harmful impacts of inequality and conditions of vulnerability have been identified in different studies at the international level, as barriers to accessing the effective use of digital educational tools [7], [8], [4].

Opening spaces that enhance digital skills for teachers is key, in an increasingly technological world, it is imperative that teachers acquire digital skills, given that the pandemic made visible the great digital divide that exists between teachers and students [9]. Within this context, Cabero and Ruiz [10] express that "never throughout its history, humanity has had at its disposal so many ICTs as today, technologies that are duplicating at great speed thanks to digitalization. The use of Information and Communication Technologies (ICT) in the teaching-learning process is changing the way in which teaching is carried out in higher education, as it incorporates new strategies with the use of the Internet to generate environments that facilitate learning

and access to information [11]. This consequence derives from the incorporation of the learning management system (better known as LMS (Learning Management System), whose use has spread worldwide given the advantages it offers, as it provides tools for the delivery of content to students; in the same way it does for the design of practical learning activities, as well as for the evaluation and communication of the teacher with the students, or that which is established between the latter [12].

The advantages reported in the literature on the use of Learning Management System are multiple [13]; however, its implementation in teaching depends on computer literacy has been limited by deficiencies in skills in the use of ICT [14], [15].

Learning management systems have become increasingly attractive in recent times. Modern education relies heavily on technology and this has redefined the teaching-learning process. Learning Management Systems have positive implications in education. Learning Management Systems are considered to be largely applicable to the natural sciences, as they allow the representation of phenomena, encourage experimental study, and enable the creation of models and applications of problem solving [16].

Teaching in an e-learning environment can contribute to the ability to teach, the ability to learn and, most importantly, to serve as a bridge between two main components of the classroom, teacher and learner [17].

Contemporary educational approaches expect students to be active producers of knowledge [18].

A Learning Management System is software that is used to provide, track and manage training-education. LMSs range from systems for managing educational training records to software for distributing courses over the internet and offering features for online collaboration [19], [20].

According to Rodríguez J. [21], in his study "The digital divide and its determinants" he argues that the use of new technologies has given rise to different ideas. Some consider it as a way to mitigate inequality, others as another form of discrimination, because the use of technology fails to satisfy the whole society, thereby strengthening the digital divide.

In their research by Strakos et al. [22], called "A Learning Management System-based approach to assess learning outcomes in operations management courses", they stated that they allow students to master the process analysis material inside and outside the classroom using a learning feedback approach generated by Learning Management Systems within its limitations is that it requires technological and computer skills.

The study by Rodriguez, Restrepo and Aranzazu [11], called "Computer literacy and use of learning management systems (LMS) in university teaching", concluded that a low use of the LMS Moodle was found by the teachers of the Faculty of Agricultural Sciences, as well as a low level of computer literacy, both in the technical part and in the pedagogical use of these technologies. aspects that show the need to improve the university program with LMS platform, where students will improve their learning.

Due to the current situation of education at all levels, whether in basic education, technical education, non-university higher education and university higher education, due to the consequences of the COVID 19 pandemic worldwide, this has been forced to be provided by the virtual and / or distance modality, where the student is responsible for his self-learning under the guidance of a teacher who acts as a facilitator of knowledge.

Emotions have a great development today in all areas of society. In this sense, it is known as the affective dimension of the person that reflects in turn the object of the investigations of different branches of knowledge. Also within the studies in Communication, and specifically in relation to digital technology, there is an academic interest in emotions.

Taking into account the above issues, the objective of this article is to analyze the Digital Divide and the use of Learning Management Systems allows to improve the academic performance of students. In order to achieve the objective proposed above, the following specific objectives were defined:

1. Determine the digital divide of the use of Learning Management Systems during remote teaching in times of coronavirus in ULADECH CATÓLICA students,
2. Analyze the advantages of Learning Management Systems during remote teaching in times of coronavirus in ULADECH CATÓLICA students,
3. Use Learning Management Systems, for teaching and learning students.

Through an exhaustive analysis, it is possible to know that emotions and digital technology reduce the digital divide of the use of Learning Management Systems during remote teaching. So it shows a vibrant, broad and complex scenario, in which they converge that the use of Learning Management Systems improves the academic performance of students.

Materials and methods:

Design

The research design is a quantitative cross-sectional non-experimental design, and descriptive. The population is composed of students of the Faculty of Engineering of the Catholic University Los Angeles de

Chimbote, making a total of 303 students enrolled. We will use non-probability sampling for convenience, The sample will be 50 students from the School of Systems, randomly choosing 5 enrolled students of each cycle, until completing the sample. The independent variable is the digital divide (access, understanding and use of technological resources); and as a dependent variable the use of LMS during non-face-to-face teaching in times of coronavirus. The technique to be used is the survey. With the data obtained from the applied instruments, a database will be created in Excel and tabulation will be carried out.

Population and sample

If the study is aimed at a particular population, such as the students of systems engineering of the ULADECH of the Catholic University Los Angeles, which corresponds to 303 students of systems engineering, and taking into account the non-probability sampling for convenience has been considered a sample equal to 170 students of systems engineering.

Table 1.- systems engineering students enrolled by ULADECH headquarters

N°	Description	I	II	III	IV	V	SAW	VII	VIII	IX	X	Total
1	Cañete	0	0	1	1	7	3	2	1	4	2	21
2	Huaraz	0	0	2	1	17	15	8	9	3	3	58
3	Piura	0	0	3	0	14	11	11	15	8	6	68
4	Headquarters - Chimbote	0	0	6	0	39	17	22	14	17	16	131
5	Sullana	0	0	0	0	9	6	3	1	3	3	25
Total enrolments												303

Nivel de confianza:

Tamaño de la población:

Margen de error:

Tamaño ideal de la muestra:

Figure 1. Sample calculation by random probability sampling

Procedures

An instrument is applied as a questionnaire in the Likert Scale, which was surveyed to all systems engineering students who are part of the

selected sample, in order to analyze by variables their respective dimensions and indicators the achievement or fulfillment of the objectives, also verifies the reliability with the alpha of cronbach respectively.

The digital divide of the use of Learning Management Systems and non-face-to-face teaching in times of coronavirus in ULADECH CATÓLICA students has been considered as variables or characteristics of the research; From these, the instrument is built that allows me to apply the survey to the Systems Engineering students who are part of the sample.

It consists of operationalizing variables from the consistency matrix of the research, and then knowing the dimensions and indicators that allow generating the Likert Scale that will form the instrument to be applied as a survey to the 170 systems engineering students of the respective sample.

Calculate cronbach's alpha to verify the reliability of the research.

Determine the respective frequency distribution, and then analyze each result by dimension and item in order to generate discussion and conclusions to meet the objective of the research.

Results

1. Do you think there is a digital divide with the use of the Learning Management Systems program?

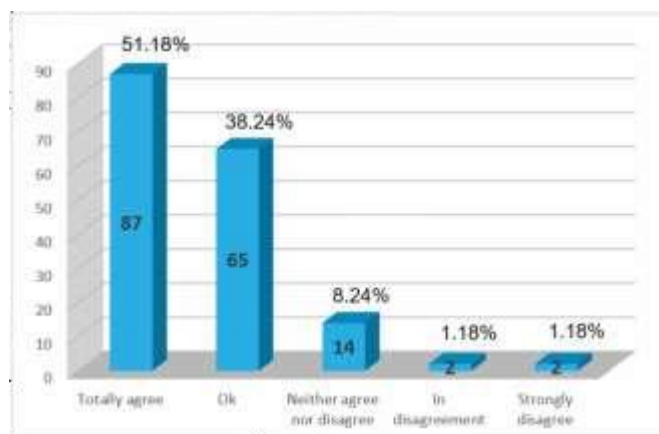


Figure 2. Digital divide and the learning management systems program

In figure 2, of the instrument applied to the students of the professional school of System Engineering of the ULADECH, in relation to the question: Do you think there is a digital divide with the use of the Learning Management Systems program ?, it can be seen that 51.18% of the respondents expressed that they fully agree that there is a digital divide with the use of the Learning Management Systems program, while 38.24% of respondents indicated that there is a digital divide with the use of the Learning Management Systems program, it can also be seen that 8.24% of respondents responded that neither agree nor

disagree, in addition 1.18% said they disagree and finally 1.18% said they strongly disagree.

2. Do you think you would agree to take advantage of Learning Management Systems in remote learning?

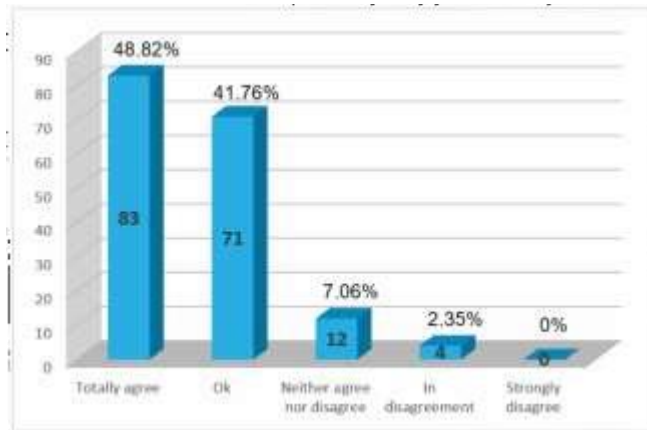


Figure 3. Take advantage of Learning Management Systems in remote learning

In figure 3, of the instrument applied to the students of the professional school of System Engineering of the ULADECH, in relation to the question: Do you think you would agree to take advantage of the advantages of Learning Management Systems in remote teaching?, it can be seen that 48.82% of respondents said that they fully agree to take advantage of Learning Management Systems in teaching, while 41.76% of respondents indicated that they agree, it can also be seen that 7,067% of respondents responded that neither agree nor disagree and finally 2.35% said they disagree to take advantage of Learning Management Systems in teaching students.

3. Do you think that the use of Learning Management Systems improves teaching-learning?

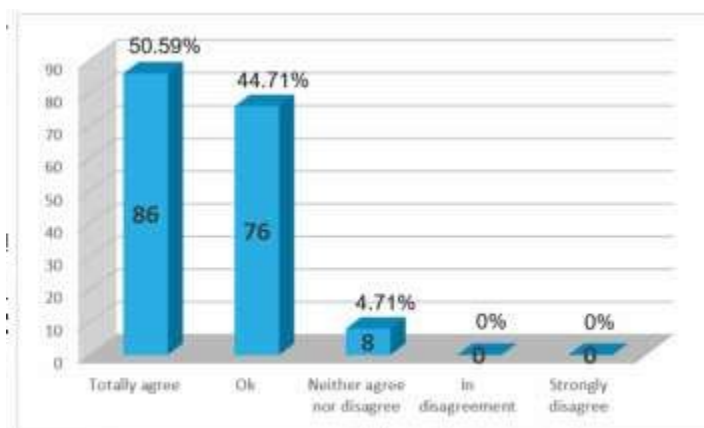


Figure 4. Using Learning Management Systems improves teaching-learning

In figure 4, of the instrument applied to the students of the professional school of System Engineering of the ULADECH, in relation to the question: Do you think that the use of Learning Management Systems improves teaching and learning?, it can be seen that 50.59% of respondents said they fully agree that the use of Learning Management Systems improves teaching and learning, while 44.71% of respondents indicated that they agree and finally it can be seen that 4.71% of respondents responded that neither agree nor disagree on the use of Learning Management Systems improves teaching learning.

Discussion:

The results obtained in Figure 2, show that a significant number of respondents state that there is an electronic divide and the Learning Management Systems program. Another group said they agreed on the electronic divide and the Learning Management Systems program. A small group responded that they neither agreed nor disagreed with the digital divide and the Learning Management Systems program.

According to Rodríguez J. [3], he states that his work "The digital divide and its determinants" argues that the use of technology has allowed the impact on the economy, society, culture and politics of the world. Some consider it as a new and powerful mechanism to transform social inequality while others consider it another form of marginalization, due to the need to use ICTs has not achieved expected results, since a large part of the population, such as developing countries, do not enjoy the probabilities, which thereby strengthen the so-called digital divide. In this project it was also found that there is a digital divide with the Learning Management Systems program, it is necessary to establish the use of this software because it will help students in their learning.

On the other hand, Strakos et al. [4], stated that they allow students to master the process analysis material inside and outside the classroom using a learning feedback approach generated by Learning Management Systems within its limitations is that it requires technological and computer skills. In this project it was found that students agree to use and take advantage of this Learning Management Systems program since they quickly adapt to any program and students will have a better learning.

Another way to contribute like Rodríguez, Restrepo and Aranzazu [5], in their article called "Computer literacy and use of Learning Management Systems (LMS) in university teaching", mentions that a low use of the LMS Moodle by the teachers of the Faculty of Agricultural Sciences was found, as well as a low level of computer literacy, both in the technical part and in the pedagogical use of these technologies, aspects that show the need to improve the university program with LMS platform, where students will improve their learning. In this project it was

evidenced that the use of Learning Management Systems improves teaching-learning and of course teachers are part of computer change. Therefore, it is necessary to indicate that the use of the Learning Management Systems program is necessary and accurate during the current teaching of the students of Systems Engineering of the ULADECH CATÓLICA.

Conclusions

A low use of Learning Management Systems by teachers and students of the Faculty of Systems Engineering was found, as well as a low level of updating of emerging technologies, aspects that demonstrate the need to train teachers and students in technologies because there is a technological gap in the new programs that come to market that although it is true helps students to improve their learning.

The Learning Management Systems program has a number of advantages that help in student learning and basically focuses learning, facilitate the teaching-learning process and allow monitoring the learning of each of the students. It is therefore feasible to use the Learning Management Systems program, for the aforementioned reasons.

The use of Learning Management Systems is indispensable because it allows you to keep track of student progress. Plus, you can easily combine text, images, and video into a learning management system. In this way students will have better teaching-learning results.

6.1. References

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