Revista Científica Interdisciplinaria Investigación y Saberes
2024, Vol. 14, No. 1 e-ISSN: 1390-8146
Published by: Universidad Técnica Luis Vargas Torres

Digital teaching competencies in the return to face-to-face teaching

Las competencias digitales docentes en el retorno a la presencialidad

Mayra del Rocío Benavides Rodríguez
MSc. Docente Universidad de Guayaquil, mayra.benavidesrod@ug.edu.ec
https://orcid.org/0009-0007-3295-4123

Fernando Chuchuca Basantes
Mgtr. Docente Universidad de Guayaquil, fernando.chuchucab@ug.edu.ec
https://orcid.org/0009-0009-3643-4146

Received 2023-07-19
Revised 2023-11-03
Published 2024-01-05
Corresponding Author
Mayra del Rocío Benavides Rodríguez
mayra.benavidesrod@ug.edu.ec
Pages: 46-62

Abstract

This research was conducted at the University of Guayaquil with the purpose of knowing if the digital knowledge, skills and abilities acquired by university teachers in the virtual modality during the COVID 19 pandemic in the biennium from 2020 to 2022; digital competencies that were consolidated in the four academic quinquemestre and that are still in force in the current face-to-face modality. To fulfill this research purpose, an approach to the teachers of the disciplines selected for their academic development in the face-to-face modality in the Early Childhood Education and Basic Education Careers during the IC - 2023-2024 was foreseen, and to collect qualitative data from this segment of teachers, which allows us to know the truth beyond the evidence of their digital skills.
Keywords: digital competences, face-to-face

Resumen

Esta investigación se realizó en la Universidad de Guayaquil con el propósito de conocer si los conocimientos, habilidades y capacidades digitales adquiridos por los docentes universitarios en la modalidad virtual durante la pandemia del COVID 19 en el bienio del 2020 al

How to cite this article (APA): *Maridueña, M., Fernández, M. (2024) Digital teaching competencies in the return to face-to-face teaching, Revista Científica Interdisciplinaria Investigación y Saberes,* 14(1) 46-62

2022; competencias digitales que se consolidaron en los cuatro quinquemestre académicos y que siguen vigentes en la actual modalidad presencial. Para cumplir con este propósito investigativo, se previó un abordaje a los docentes de las disciplinas seleccionadas para su desarrollo académico en la modalidad presencial en las Carreras de Educación Inicial y Educación Básica durante el CI - 2023-2024, y recoger datos cualitativos de este segmento de profesores, que nos permita conocer la verdad más allá de las evidencias de sus habilidades digitales.
Palabras clave: competencias digitales, presencialidad

Introduction

This research originates from the importance of assessing the digital competencies acquired by university teachers during the 2020-2022 biennium, in the social and educational isolation, adopted in the higher education system, due to the fulminating and deadly consequences of COVID 19 in that period, The health cause that motivated to change the mode of study of the student population in almost all countries of the world, and with this decision to abruptly enter the virtual mode and continue the training processes of the active population in the schooling levels of basic education, high school, undergraduate and graduate.

To make this virtual training process feasible, educational institutions carried out continuous training of their teachers and students, although the latter proved to have closer links with technology due to their millennial characteristics; these theoretical and practical technological competencies were progressively consolidated as transversal axes because they were used in the processes of disciplinary, interdisciplinary, transdisciplinary, multidisciplinary and multidisciplinary learning and study modalities.

Competencies are defined as those skills, abilities and knowledge that a person has to efficiently perform a certain task. Competencies are the knowledge that accredits someone to perform a certain activity in a certain field of knowledge, which not only include theoretical

aptitudes, but also define thinking, character, values and the good management of problematic situations. Retrieved from "Meaning of Competencies". In: Significados.com. Available at: https://www.significados.com/competencias/

This construct helps us to understand that a person who has learned a knowledge or ability in a meaningful way, and who uses it to solve some contextual problem related to that knowledge, can be said to have acquired competence.

Digital competencies are a set of skills, knowledge and attitudes in technological, informational, multimedia and communicative aspects, which generate as a result a complex multiple digital literacy (Gisbert & Esteve, 2011), Cited by Zavala D. et al., 2016.

Consequently, these digital competencies are generators of a series of actions in the educational platforms of higher education institutions, capabilities that were acquired by teachers in multimedia training processes and that are visualized in the performance in the virtual modality,

The Lisbon European Council defines digital competence as "the ethical, critical and safe use of ICTs for personal, educational, occupational and communicational purposes". Quoted by Perdomo, B., et al. (2020).

These concepts refer not only to technological knowledge per se, but also to the broad and correct use of these multimedia practices, due to this deontological link in the application of digital knowledge.

We also refer that: with the term Information and Communication Technologies, we define the set of resources, tools, equipment, programs, computer applications, which allow the compilation, processing, transmission of information, such as voice, data, text, video and images. Its use in the educational field gives rise to digital competencies, which is synthesized in the definition: "to have skills to search, obtain, process and communicate information, and thus transform it into knowledge" Perdomo, B.; González-Martínez, O.A. & Barrutia Barreto, I. (2020).

Digital skills, which were being incorporated into the profile of educators through slowed training processes, are now being vigorously resumed to mitigate the digital gap that separated us from the first world countries, that historical distance was minimized by the massive entry of teachers and students to the virtual contexts of the higher education system, cyberspace and connectivity of educational platforms, this access to technologies has grown exponentially for its dynamism, connectivity, security, speed and versatility of its applications.

The change from face-to-face education to the virtual classroom, increased the consumption and urgent transmission of data, which converge in the technological massification of the emerging virtuality caused by the pandemic; today for university teachers of the XXI century, this knowledge, capabilities and virtualized digital skills linked to technology are no longer utopias, they are no longer unattainable knowledge, and have become essential and daily practices, because they permanently contribute to optimize the quality of educational practice in university professional training.

Digital competencies lead a person to achieve relative autonomy in information processing, to act responsibly, critically, reflectively and efficiently when selecting, through the use of different technological tools, the sources of knowledge that will nourish their educational loop, with multiplying effectiveness when teachers are the ones who seek and channel data for the ubiquitous, autonomous and collaborative learning process of their students.

The aforementioned digital competencies are progressively consolidated in the educational population in the return to face-to-face teaching, the new public policies related to national and institutional information and communication technologies guarantee the development of new academic activities in a context of face-to-face teaching with virtualization.

This aspiration, to provide the classrooms with technological infrastructure and maintain the educational platforms and online processes in force, will allow us to consolidate the digital and virtual competencies of teachers and students, and is a magnificent opportunity to improve the quality of the university educational system, if this option is not possible, the road travelled will be diluted,

and the effort made by the actors of the university system to incorporate the new technological currents to the university culture, will have been only a utopia.

In this section we are going to make visible some data related to the educational policies at a planetary level, which directed the virtualization of the levels of the educational system, including higher education; to avoid contagions and to protect the health of the educational community; this measure facilitated the teaching participation in synchronous and asynchronous virtual classes through educational platforms, for both andragogic activities, an investment in technological and virtual training of university professors under the responsibility of the Higher Education Institutions was required.

These continuing education processes that led university professors to acquire several digital habits and new educational practices, which were consolidated as digital competencies of teachers, among these practices can be mentioned, navigation and permanent search for information in digital databases, downloading digital information and organization of multimedia teaching materials such as videos and pdf files, access to the institutional virtual classroom, to upload individual and team assignments, grade and download files, participate in cooperative and collaborative work, online management meetings and virtual tutorials, use digital applications, dynamic communication with students, managers and directors, daily use of institutional mail and/or wasap to send and receive academic information, among others, which demand a consolidated habit to move through the platforms and cyberspace. These arguments coincide with the approach of Velásquez O. (2019), who considers that the role of the virtual teacher is transformed into a subject of accompaniment, facilitation, motivation, mediator of information and knowledge, catalyst of learning, because he/she fulfills multiple roles and performances.

To corroborate the above, we recover the following text from IESALC-UNESCO, 2021, which states that: in order to favor pedagogical continuity, universities did not propose a single methodology. The majority recommended the use of the corresponding virtual classroom, but virtualized synchronous classes were also encouraged. About 78% of the universities participating in the study promoted this

approach. The second option preferred by the universities is the use of lectures delivered as videos, synchronously or asynchronously, which is the case in 41% of the universities.

As can be seen in this quantitative data, the proposal of the university system, in its two modalities summarized in previous paragraphs, had a global acceptance by universities in 78% and 41% respectively, modalities that demanded a digital learning and practice of their teachers and students, to transit through the institutional platforms.

Quintana (2000), developed a model that was proposed and implemented in Spain with the objective of standardizing the levels of ICT competency training of basic education teachers, digital competence is the mastery of knowledge, skills and attitudes that allow them to effectively use ICT as a support to their professional training and resources that facilitate student learning. Cited by Zavala D. et al., 2016.

This proposal, implemented to improve the professional performance of Basic Education teachers in the field of Information and Communication Technologies, was undoubtedly more than two decades ahead of the pandemic, and managed to substantially optimize the training quality of these professionals and their work performance.

In studies conducted by Rangel (2015), he describes the new role of the 21st century teacher as that of training teachers with a set of resources, those that allow them to interact with information, intellectually manage the different systems and codes, read and decode not only in a linear way but also hypertextual and hypermedia and evaluate the information discriminating the valid and useful for their educational, communicative and action project. Cited by Zavala D. et al., 2016.

This proposal also has technological features, since it approaches in a linear and transversal way all the fields of knowledge and additionally incorporates images, sounds, videos, audios and texts that are resources of the hypermedia current, because the vertiginous development of virtuality contributes systemically and significantly in the experiential learning of students, when your main senses participate simultaneously.

This requires investments in digital literacy and infrastructure, in addition to strengthening linkages between the formal and informal sectors of education" (UN, 2020). Cited by Díaz D. et. al. 2021

This state investment in continuing education, digital literacy and technological infrastructure should be channeled by governments through their portfolios and state secretariats, complemented by the governing bodies of the university system, to monitor compliance with public policies for the development of technologies in the higher education system and progressively in other educational systems.

In such a case, there is a need for digital literacy that links schools with society, improving the acquisition of digital competencies for collaborative learning, autonomy, effective communication, ethics and digital citizenship (Días -Trindade, et al., 2020; Cited by Díaz D. et. al. 2021

This quote establishes a general link between the educational system and society, because the national educational system trains high school graduates for the exercise of citizenship, when the young person reaches the age of majority, and the university system trains professionals for the labor activity in the national socioeconomic system, since university education has a graduation profile with a high digital component, labor insertion has greater possibilities.

At the same time, it suggests that education systems must urgently move towards "(...) progressive systems that deliver quality education for all as a pathway to achieving the Sustainable Development Goals. This requires investments in digital literacy and infrastructure, in addition to strengthening linkages between the formal and informal sectors of education" (UN, 2020). Cited by Díaz D. et. al. 2021.

This social policy direction to improve the quality of education and insert our university system in the international context, on a par with developed countries, provides the opportunity to improve the social conditions of future professionals and the population in general, and consequently improve their quality of life.

As a result, we can conclude that the purpose of this research is to know which are the digital competences of university teachers, many of them acquired during the pandemic, and which of these

technological abilities and skills they are using in the return to the face-to-face modality, which could mean the optimal use of these significant digital learning.

Coronavirus, also known as Covid-19, has been identified as a deadly infectious disease caused by severe acute respiratory syndrome, as well as some types of the common cold. Due to its rapid spread and the numerous deaths it has caused, a worldwide pandemic emergency has been declared. As a result of this outbreak, the first Movement Control Order (MCO) was issued, which involved an Ecuadorian-wide containment.

This has had an impact on the education sector, as throughout the pandemic crisis, schools had to close temporarily. As a result, the Ecuadorian Ministry of Education opted for online education or e-learning through technology or devices to facilitate communication instead of face-to-face classroom learning.

In 1981, the Ministry of Education of Ecuador offered a course called Instructional Systems Technology for the in-service teacher training program in order to improve the educational system by focusing on the teaching and learning process. Since then, many researchers have conducted studies on the implementation of 21st century technologies such as Virtual Reality, Gamification and Mobile Assisted Language Learning (MALL) applications to develop and improve students' English language learning.

In addition, online games have influenced the lifestyles of children, teenagers and even adults around the world. Researchers believe that the application of gamification in education would not only motivate students, but also increase their focus on learning and their higher-level thinking skills.

According to many researchers regarding the use of mobile applications in language learning, this approach could also be defined as constructive learning. For example, study results show that the use of Mobile Assisted Language Learning (MALL) in the classroom benefits students by motivating their attitude towards learning and enhancing their learning experience.

The concept of Virtual Reality dates back to the mid-1960s, allowing the user to perceive the virtual world as if it were real and to act realistically in it. Hundreds of researchers have explored the effects and applications of this technology over the past 20 years. According to Singhal, Bagga, Goyal, and Saxena (2012), Virtual Reality technology has attracted public attention because it allows users to interact with real and virtual objects, providing experiential learning and increasing user attention and motivation at the same time.

There is evidence showing that Virtual Reality application has been adapted in various educational sectors, such as early childhood education and elementary schools, to teach English language in other countries. It was shown that exposure to Virtual Reality applications helped to improve students' motivation and their more positive attitudes towards English language learning.

However, when teaching with technology, there are advantages and disadvantages. Although it improves students' motivation to learn, teachers must also consider that students may be distracted by the content and not grasp the main ideas of the context. In addition, despite the advancement of technology, there are still students who do not own high-tech devices.

Virtual Reality could be considered a unique method for teaching English to students, but it could also pose problems. For example, it could be expensive for some students who cannot afford it. In addition, understanding the technology, such as digital innovations, could be a problem for both teachers and students. Lack of learning content was the main argument among teachers, as Virtual Reality was designed mainly for entertainment purposes. It is considered a challenge for teachers to acquire technical skills when incorporating this into pedagogical planning. Therefore, cognitive overload when using Virtual Reality applications can be considered a challenge for an effective learning environment.

According to Becta (2004), the inaccessibility of ICT resources was due not only to the unavailability of hardware and software or other ICT materials, but also to several factors, such as poor organization of resources, poor quality hardware, or inadequate software. Teachers also need to provide multiple instructions for many different devices, as each student may possess different types of ICT resources.

Methodology

This qualitative cross-sectional study, framed in the descriptive, phenomenological and hermeneutic methods, was announced to know the digital competencies acquired by university teachers during the pandemic, through continuing education processes planned by the institution, and applied in the labor exercise of the virtual modality, in the semesters from 2020 to 2022, highlighting the pragmatic and multidisciplinary value of technological skills, because these knowledge, skills and abilities, favor the dynamics of teaching work, using the multiple formats provided by the multimedia environment.

In order to gather empirical information, qualitative and subjective data on the work practices of teachers of humanistic, pedagogical, technological and specialization disciplines, of the Early Childhood and Basic Education careers, morning and evening shifts, who worked in the on-site modality during the IC 2023-2024, at the University of Guayaquil, were requested.

The selected sample consisted of 16 teachers of both sexes, who returned to the face-to-face modality, which is equivalent to 20% of the total number of teachers in the initial education careers and 20% of the basic education teachers, that is, 8 teachers per career, who, during the pandemic worked in the virtual modality and during this cycle that has been selected as the field of study, in the face-to-face modality.

The survey technique was used with a questionnaire of 20 questions, related to the two categories of analysis, with a rating scale of five quantitative-qualitative alternatives, according to the Likert model, so that the informant teachers could choose the option closest to their reality, according to the following alternatives, 5 = Totally agree-Always, 4 = Agree-Almost always, 3 = Partially agree-Neither almost always nor almost never, 2 = Disagree-Almost never and 1 = Totally disagree-Never.

The survey was sent and received by institutional mail and by wasap, the digital files were downloaded for tabulation, the qualitative data obtained in this way were processed according to statistical guidelines, to condense, describe and interpret the empirical responses.

Results

The double-entry table that is presented with a single visual structure, collects in a simplified way the quali-quantitative values that the informants assigned in the different levels of the Likert scale to each of the 20 questions that were asked in the survey technique, the information that was requested was related to the categories in the contexts of the virtual and face-to-face modalities. Therefore, we have grouped all the questions and their answers into five levels, with the purpose of facilitating the interpretation of these data.

Total, of informants 16

DOUBLE-ENTRY TABLE WITH INFORMANT RESPONSES

¿?	1	11	2	12	3	13	4	14	5	15	6	16	7	17	8	18	9	19	10	20
Likert	V	P	V	P	V	P	V	P	V	P	V	P	V	P	V	P	V	P	V	P
5	9		12		13		11		16		12		14		16	14	16		16	
4	6	4	4	2	3	3	5	3			4		2			2				
3	1	12		14		13		13		2		12		1				8		
2										14		4		15				4		8
1																		4		8
Total	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16

Prepared by Mayra Benavides Rodríguez

Source: Research data

The answers to the questions posed from the categories of analysis linked to the focused problem and to the modalities of university work were processed, which made the following information possible:

The first five questions are related to the information management competency, which allows the user to navigate in cyberspace to search for information and resources for interlearning sessions and at the same time classify files by their formats, validity, updating and reliability of sources to organize his or her personal library.

Question 1 inquired about the teacher's navigation to search for information in digital databases during their work in the virtual modality, a question to which 9 teachers responded with 5-always, 6 teachers responded with 4-almost always and 1 teacher responded with 3-in partial agreement. Question 11, which requested the same information, but during the face-to-face modality, and the answers were 4 teachers 4-almost always and 12 teachers 3- Partially agree. This already denotes a significant decrease in the level of online management of teachers because they performed the same activity with less intensity in the face-to-face modality.

Question 2 requested information related to the downloading of digital books and pdf files for their students, during the virtual modality, the response was 12 teachers 4=almost always and 4 teachers 3=partially agree. Question 12, which asks about the same content, was answered by only 2 teachers with 4=almost always, and 14 teachers in the alternative 3-partially agree, i.e. there is evidence of a decrease in this activity, which was more intense in the virtual modality.

Question 3 requested information related to the downloading of videos and multimedia material for their students, during the virtual modality, which motivated the response of 13 teachers with 5-always and 3 teachers with 4 almost always. Question 13, which inquired about the same activity of the previous question but during the face-to-face modality, yielded the following result: 3 teachers responded with 4 almost always and 13 teachers with 3-partially agree, which shows a downward trend in this information management activity.

Question 4 inquired about the organization of academic activities on the institutional platform by teachers during the virtual modality, 11 of the teachers responded with 5-always and 5 teachers, with 4-almost always, which shows that the teachers were in charge of organizing the virtual classrooms; Question 14, related to the previous question but in the face-to-face modality, the answers differ from the previous

ones, in this case 3 teachers answered with 4-almost always and 13 teachers with 3-partially agree, results that confirm this decrease in the trend as in the previous questions.

Question 5 was formulated to know if the teachers used the virtual platform to download and grade assignments, in the virtual modality, the answers of the 16 teachers were positive, that they always used it during the semester; question 15 is related to the same activity, but in the face-to-face modality, 2 teachers answered with 3-partially agree and 14 teachers with 2-almost never, answers that confirm the tendency of less use of technological resources in the face-to-face modality.

The five questions we analyze below are related to the Digital Communication competency that includes among its activities the participation in meetings with managers, tutorials with students, training seminars through video conferencing tools.

Question 6 was formulated to know if the professors used the ZOOM or Teams applications to participate in teaching work meetings during the virtual modality, the answer of 12 professors was that they always did and 4 professors, that they almost always did. With question 16, we inquired about the level of teacher participation in work meetings through the mentioned applications during the face-to-face modality, 12 professors responded with 3 - partial use and 4 professors with 2 - almost never used because the meetings were face-to-face.

Question 7 was designed to analyze if the professors organized virtual or asynchronous tutorials, with the purpose of reinforcing some academic content, during the virtual modality, their answers identify the almost total use they made of the technological resources, since 14 professors expressed with 5 that they always made use of those resources and 2 professors answered with 4 that they almost always did. Question 17 was included for the same activity mentioned in the face-to-face modality, in this case, their reports were different, 1 professor expressed that the use of technological resources was partial, responded with 3 of partial use and 15 professors indicated that they almost never used them, therefore they marked option 2 on the Likert scale.

Question 8 was posed to find out if the professors used the institutional e-mail as a tool for internal communication in the virtual modality, the answers were conclusive, since 16 professors answered that it was always the ideal resource; with question 18, we inquired about the same concept, but in the face-to-face modality, 14 professors answered that they always used this resource to communicate, but 2 professors answered that they almost always used it.

Question 9 was established to know if they authorized the use of technological devices by their students (cell phones, tablets, laptops) during their classes, in the current virtual modality, the 16 teachers of the sample responded that their students always used them; with question 19, the same information was required, but in the face-to-face modality, 8 teachers responded with 3- partial use of these devices, 4 teachers responded that they almost never used them and 4 teachers that they never used them in their classes.

Question 10 was formalized to know if the teachers used the technological tools of the institutional platform to evaluate the learning of their students during the virtual modality, to which 16 teachers, equivalent to 100% responded that they always used them, question 20, with the same concern, but in the face-to-face modality, had other answers, 8 teachers responded with 2-almost never, and 8 teachers with 1-never, is the Likert scale, which shows a significant decrease in the use of technological tools in the university teaching activity.

The analyses carried out lead us to conclude that, despite having achieved significant progress in improving the digital skills of teachers, which were used during the semesters carried out in the virtual mode, today, upon returning to the classroom, the progress acquired with great effort, with budgetary, technological and human investment, overthrowing even the generational prejudices of teaching from the 60s onwards, to adapt them to the new educational approaches with digital support, today we see with concern how these achievements are diluted in the first months of face-to-face academic activities.

The answers are testimonies of the progress achieved by university teachers in the technological field, as they learned the processes of

entry and use of these digital tools, adapted to the requirements and protocols established and fulfilled their role in a different scenario to the one they had worked in, as many of the teachers with an extensive experience in the classroom modality, saw themselves as actors in a new scenario, such as Zoom and Teams, two of the applications with which they were familiarized because they worked with them for two years in continuous activities.

These concepts lead us to reflect on the redesign of teacher training careers, because teachers today surf the Internet, search for information, download files, videos, games and multimedia material as a normal activity, enter a virtual platform, schedule their classes, tasks, exams, upload didactic material, organize online meetings, with an amazing normality, and these new scenarios must be assimilated and used by the new generations of teachers.

In this sense, we consider pertinent the proposal made by García Aretio, 2020, of some authors who propose to place the face-to-face modality as an extension of virtual education, since the use of technologies in this traditional modality guarantees the pedagogical link.

It is also necessary to recover some concepts expressed in the 2030 Agenda for Sustainable Development of the UN, which points out the importance of the dissemination and adoption of information and communication technologies, such as the global interconnection they provide to accelerate human progress, constructs that show that beyond information and communication as fundamental elements of society, these require the development of technology for the planetary integration of social groups, is the reality that has been experienced in the educational systems in the 2020-2022 biennium.

The same agenda argues that digital transformation implies a high degree of investment in network infrastructure and connectivity in the countries. The pandemic implied an extraordinary increase in the number of devices connected at home simultaneously, using data and videoconferencing platforms and a strong increase in work in the cloud, which has led to an exponential increase in data traffic and has created a bottleneck in wifi routers operating on unlicensed spectrum, arguments that tend to value the effort deployed by universities to give continuity to the training processes, therefore it is important that

these resources are redirected to the face-to-face education system to invigorate the modality with technological presence.

It is also argued that "remote, emergency learning" or "emergency virtualization" was the strategy of pedagogical continuity through digital media in universities, in the face of the emergency of COVID-19 that produced the forced interruption of face-to-face classes, the concept of this new presentiality that must include the dynamics of technological applications, due to the vertiginous advances in science and technology, at the service of educational systems. Retrieved from https://www.un.org/sustainabledevelopment/es/2015/09/la-asamblea-general-adopta-la-agenda-2030-para-el-des.

The results of this study show that the digital competencies of teachers are present in their work performance, that the learning acquired by them gave viability to virtual work, that society can testify to the paradigm shift of university teaching and the education system as a whole, that teachers, despite having worked continuously for more than 20 years in the classroom mode, this expertise was not an impediment to adapt to technological changes and be part of a new approach and manager of a new paradigm of curriculum development.

Conclusions

The digital transformation implied a high degree of investment in network infrastructure and connectivity in the higher education system, and it is neither possible nor acceptable that this effort deployed during those academic periods, when returning to the face-to-face modality, will gradually disappear and its use will lose validity, due to the lack of adequate planning in which technological tools should be included as fundamental elements of academic activities, for lack of foresight and equipment of the classrooms, to strengthen the use of these tools for the advantages and benefits they offer and have proven to have in the academic training processes.

It should be considered as a policy of the higher education system, but also as institutional policies, that all modalities should have a strong technological component, to enhance these digital resources and the experiences of teachers in the new educational processes.

There is a long way to go, which should motivate higher education institutions to equip classrooms with state-of-the-art technology and take advantage of the expertise of professors who have been part of this process of change, in order to seek the effectiveness of higher education, with a strong digital component.

Because it has been demonstrated with sufficient arguments that technology will not overcome human acts, that it only replicates them, therefore, it should be visualized that these tools with exclusive training purposes are useful for learning activities, so classrooms should be equipped instead of excluding these technological tools.

Reference

Digital competencies in the COVID 19 context: an educational perspective. Dariel Díaz-Arce; Efraín Loyola-Illescas, 2021- Vol. 3 Núm. 1- pp. 120-15

Digital competences in higher education teachers Esther Fernández-Márquez Published: 30/06/2018

Marquina, M., et al, (2022). Diagnostic report 2022 on higher education and science post COVID-19 in Ibero-America. Perspectives and challenges for the future. Caracas: OEI-Organization of Ibero-American States. Retrieved from https://scioteca.caf.com/handle/123456789/1924

Zavala, D. et al, 2016. An approach to teachers' digital competencies,

UN, Sustainable Agenda 2030 retrieved from https://www.un.org/sustainabledevelopment/es/2015/09/la-asamblea-general-adopta-la-agenda-2030-para-el-des

https://blog.pearsonlatam.com/educacion-del-futuro/habilidades-digitales-para-la-empleabilidad, 2023