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REVIEW ARTICLE

Virtual university and educational transformation in the context of the pandemic

Universidad virtual y la transformación educativa en el contexto de la pandemia

Universidade virtual e transformação educacional no contexto da pandemia

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ABSTRACT. The abrupt change of the pandemic implied the transformation of traditional education to a virtual one, with numerous shortcomings, both in the organization, methodology, strategies, and instruments used. The article's objective was to deepen the knowledge found on the impact of the virtual university on educational transformation during the Covid-19 pandemic. The methodology used was a literature review. Different searches of reliable and recently published sources were carried out in the Scopus database. The following 4 points were prioritized: global context, ICT, e-learning, the emotional aspect of students and teachers. The results indicate that

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the adaptation to an online education highlighted the significant gaps in the sector, affecting both students and teachers, who presented a lack of motivation in their academic work. It is concluded that virtual education is in total development. Therefore, institutions must improve their entire organization to adapt to the new form of teaching.

RESUMEN. El cambio abrupto de la pandemia implicó la transformación de una educación tradicional a una virtual, con numerosas falencias, tanto en la organización, metodología, estrategias e instrumentos utilizados. El objetivo del artículo fue profundizar los conocimientos encontrados sobre el impacto de la universidad virtual en la transformación educativa durante la pandemia del Covid-19. La metodología empleada fue de revisión bibliográfica. Se realizaron diferentes búsquedas de fuentes confiables y publicadas recientemente en la base de datos de Scopus. Se priorizaron los siguientes 4 puntos: contexto global, TIC, e-learning, el aspecto emocional de estudiantes y plana docente. Los resultados señalan que la adaptación a una educación en línea hizo relucir las grandes brechas en el sector, siendo afectados, tanto estudiantes como docentes, que presentaron una falta de motivación en sus labores académicas. Se concluye que la educación virtual está en pleno desarrollo por lo cual, las instituciones deben mejorar toda su organización, para adaptarse a la nueva forma de enseñanza.

RESUMO. A mudança abrupta da pandemia implicou a transformação de uma educação tradicional para uma virtual, com inúmeras deficiências, tanto na organização, metodologia, estratégias e instrumentos utilizados. O objetivo do artigo foi aprofundar o conhecimento encontrado sobre o impacto da universidade virtual na transformação educacional durante a pandemia de Covid-19. A metodologia utilizada foi a revisão de literatura. Diferentes buscas de fontes confiáveis e recentemente publicadas foram realizadas na base de dados Scopus. Os seguintes 4 pontos foram priorizados: contexto global, TIC, e-learning, o aspecto emocional de alunos e professores. Os resultados indicam que a adaptação a uma educação online evidenciou as grandes lacunas do setor, sendo afetados, tanto alunos como professores, que apresentaram desmotivação no seu trabalho acadêmico. Conclui-se que a educação virtual está em pleno desenvolvimento, portanto, as instituições devem aprimorar toda a sua organização, para se adequar à nova forma de ensino.

1. INTRODUCTION

Virtual education is so popular today; few know that its beginning dates back to years before the global health emergency caused by the SARS-CoV-2 virus (COVID-19) (Niño et al., 2021). This is due to the need for flexibility in the programs and the face-to-face methodology to diversify educational channels and combat the problems of desertion and exclusion that are frequently seen (Amaya et al., 2021). Well, in recent decades, there have been numerous works published by experts, where it is clear that university education must have a predominance of educational models that increase participation and practical school activities (Imbernon & Medina, 2008; Michavila, 2009; Ministerio de Educación y Ciencia, 2006, como se citó en Romero et al., 2020).

In this line, it is notable that the main factors to face the challenges of implementing virtual classrooms in educational institutions have been analyzed (Martínez & Jiménez, 2020). In addition, online courses were increasingly in demand, which encouraged their realization (Song et al., 2019). Therefore, instructors and students have adopted technology, which poses new challenges for both (Wut & Xu, 2021).

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In the case of universities, it is crucial to implement a digital transformation of the institutional model because if a university wants to transcend time and not disappear from the scene, it must evolve comprehensively (F. García, 2021; Veletsianos et al., 2021).

Regarding those above, there were efforts to promote virtuality in many Latin American countries, but due to the lack of sustained government and educational policies, they remained unfinished. Despite this, in other countries, they provided technical training to teachers. For example, the Ecuadorian Ministry of Education launched a self-study course for teachers called My Online Classroom (Navarro et al., 2021).

On the contrary, European and Asian universities had a more significant impact since they saw virtual university education as a futuristic opportunity, which in a few years would become the new reality (Fatani, 2020). Among them, we can highlight the University of Torino (Italy) and the Autonomous University of Barcelona (Spain) for imparting knowledge remotely. Since the presence of education in the new virtual spaces was necessary to improve research and use of Information and Communication Technologies (ICT) in classes (Tejedor et al., 2020). Similarly, the University of Milan (Italy) had already carried out different strategies before online courses. They trained their teachers by providing them with other technological tools and conferences to properly use educational platforms (Agasisti & Soncin, 2021). Likewise, a distance modality had already been implemented in China, which even made up 16.72% of all graduates (Li & Wang, 2021).

Although online teaching has been promoted for many years, the COVID-19 pandemic has announced it on a large scale (Wu, 2021). Unfortunately, the educational system was not exempt from the damage of the pandemic, which caused an abrupt change in the teaching perspective. Therefore, it is impossible not to see education transformation at all levels after educational centers migrated to digitalization (Amaya et al., 2021; VanLeeuwen et al., 2020). Well, distance education made us perceive a new vision of the use of technology. Different applications and platforms are needed to make the teaching process more effective and viable, which means greater relevance in education (Diaz et al., 2021).

Likewise, many institutions feel the need to have a digital infrastructure. And in most cases, it had not been foreseen. However, this restructuring brought various changes in the educational programs (S. García & Santana, 2021). As expected, the results were not very encouraging, since the quality of teaching, understanding, and participation of the students was significantly compromised, due to the leap in the shortest possible time, since many institutions were not prepared nor trained for the transition (Amaya et al., 2021; Niño et al., 2021).

Consequently, it was required to mobilize digital and pedagogical skills, institutional and non-institutional resources to provide good teaching (Damşa et al., 2021). Additionally, many private universities were severely

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affected financially due to the number of demands for tuition reimbursement since students could not make use of the facilities, services, and activities that, in the face-to-face format, were carried out in different educational centers (Ko et al., 2021). For this reason, the usability and accessibility of educational data acquire more incredible notoriety in the current context (Fonseca et al., 2021).

On the other hand, over time, there have been certain deficiencies in virtual classes involving ICT use. Among them are the little attention of the students, the insufficient training for its use, the little interaction with the student on digital platforms, and the technological gaps, especially in Latin America (Song et al., 2019). The current situation made these deficiencies visible and generated different opinions in universities regarding online education since it has exposed many gaps that separate students from a better education (Sánchez et al., 2020). So, many university students classify an online class as anti-humanistic; since it is not socialized, it is learned independently, and it does not help develop critical thinking (Eringfeld, 2021).

Adapting to virtual education is more complex in Latin America due to the indices of unequal competitiveness that they show in digital education. For example, some countries have more than 90% ICT equipment in their educational institutions, others between 82% and 61%. However, in comparison, it is evident between 11% and 6% (Information System of Educational Trends in Latin America [SITEAL], 2014, s cited in Bullón, 2021). In this regard, the results of Tejedor et al., (2020) demonstrated the use of ICTs during the first quarantine in Spain and Ecuador; university professors had a lack of technological resources. Likewise, another result of an investigation indicates how the perception regarding the availability of ICT, which includes access and the correct type of technology, depends on the user's need and the specific moment of use (Navarro et al., 2021).

> In addition, another critical point of ICT is collaborative work. The types of digital tools used in the university environment can facilitate student cooperative learning more since they focus on the use of university training platforms; precisely, one of them is the participation forum that favors learning. joint and cooperation (E. Fernández, 2020, p. 89).

Today's world is distinguished by a complex network of technical and social systems that make up cyberspace and must be accepted as mechanisms of social organization (Guerrero, 2009). Such cyberspace is embedded in our general culture and, at the same time, reshapes it. For example, with the pandemic, many people acquire knowledge through online learning approaches (Yu, 2021). That is why technological innovations accelerated their growth after the need to migrate to digitalization in the education sector, which is considered an opportunity to address social problems (Navarro et al., 2021).

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In this sense, some teachers do not seek to be trained in new technologies, which significantly affects adaptation in the virtual educational model (Amaya et al., 2021; Esteve et al., 2020). For example, according to Mendoza et al. (2019) mathematics professors in Colombian universities tend to resort to the traditional teaching method, such as using blackboards to solve exercises; however, he considers that these didactics must be used be transformed with the virtual modality. Similarly, the performance of the teaching staff in the public university of Spain has shown the shortcomings and difficulties in terms of the adaptation process with tele-education due to factors such as the abrupt change to transform the teaching process. This experience should guide how to face the new course in the multimodal modality by combining face-to-face teaching with online teaching in virtual learning environments (M. Fernández et al., 2021).

Given the limitations imposed, various training approaches have been developed. A clear example is a digital pedagogy characterized by strengthening skills in technological entrepreneurship. Its success requires students' commitment and dynamic, offering personalized comments from teachers, discussion forums, tests with immediate feedback, and classes with reading materials (Torres et al., 2021). In addition, the pedagogical success is also due to the educational support that teachers receive from both official organizations (universities) and non-formal entities (people inside and outside their university) to address the tasks of learning and teaching development (P. Gómez et al., 2021).

We must emphasize that the pandemic limited the educational system and the learning experience related to the ability to access research materials. According to the study by Hebebci, et al. (2020, as cited in Ratib & Ali, 2021) the results determined that students have difficulty doing group projects due to the lack of socialization on campus, declared by the 42.9% of those surveyed. Likewise, another study reflected that science and engineering careers are the ones with the lowest performance in distance classes due to the scarcity of methods that replace the lack of laboratories and experiments (Li & Wang, 2021).

As for e-learning, it is understood as teaching and learning through the Internet. This gained relevance mainly among students since it aims to integrate education with the use of technologies (F. García, 2021). Although it has a positive impact on university students, many urgently want a return to face-to-face teaching and university life, mainly because of the social benefits this entails (Bork et al., 2021). Contradictorily, studies by Ejdysy Kozłowska (2021) conclude that academic teachers do not share the positive results of online learning. It should also be considered that e-learning does not have the same impact at the higher level as in primary education (Edelhauser & Lupu, 2021).

The digital transition was achieved through virtual learning platforms and learning management system (LMS) schemes. In this way, the Universidad del Valle de México (UVM) chose to use the Teams platform to continue

its educational process. Among the factors that influenced the level of satisfaction of remote emergency teaching (ERT) are the lack of changes in the initial planning, the pleasant disposition on the part of the teachers, and the students' joy due to the duration of the sessions (Rodriguez et al., 2020).

Similarly, the model on Technology (TK), Pedagogy (PK), and Content (CK), better known by its acronym (TPACK), identifies the types of knowledge that a teacher must master to integrate ICT effectively in virtual teaching. This imparts In addition, it combines theoretical knowledge for students so that it facilitates the understanding and evaluation of their learning (Amaya et al., 2021; F. García, 2021). Regarding E-content, it is defined as a group of course readings, multimedia links, simulations, elaborate explanations, case studies, course assignments, and discussion forums that have as its objective qualitative learning and customer satisfaction students (Thurmond & Wambach, 2004, as cited in Kumar et al., 2021).

In different universities around the world, Tele training platforms (PTM) are implemented in teaching, which facilitates the use of digital tools for teachers. For example, the universities of Andalusia (Spain) have these platforms that go hand in hand with the economic aspect. The Governing Board has a contract with higher education institutions that stipulates the use of PTM for teaching (Marín et al., 2021).

Similarly, the Social Massive Open Online Course (MOOCs) and Transfer Massive Open Online Course (tMOOC) are post-digital online learning models, which are constantly evolving as holistic, innovative, collaborative, interactive, and social methods (Hueso et al., 2021). In addition, Flipped Classroom is an educational methodology for distance learning; in the Faculty of Educational Sciences of the University of Malaga, teachers adopted Flipped Classroom as an effective method of sustainable education in a pandemic (Collado et al., 2021). And in Peru, the Professional School of Systems Engineering of the National University of San Agustín de Arequipa demonstrated a practical approach to education based on sensory environments through the use of virtual classrooms (Aedo et al., 2020).

The emotional aspect has also been hit hard by the current crisis, such as the case of teachers since they are the ones who must now integrate the content of their pedagogy and technology when teaching their classes (Penado et al., 2021). The problem with COVID-19 is that teachers at all levels are more likely to feel stress or experience emotional distress. This is due to the increase in working hours, according to work experience, age, or country (Navarro et al., 2021; Niño et al., 2021).

Teachers also showed demotivation due to the new way of teaching, since in many universities, they could not be given the necessary tools to transmit good education online (F. García et al., 2020). However, in this aspect, the most substantial disadvantage was the lack of relational and reflective exchanges with the students "in the

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classroom" since teaching does not imply only transmitting knowledge; but also positive emotions, relationships, and memories (Casacchia et al., 2021).

Regarding the mental health of university students, confinement has caused continuous and harmful effects, such as more intense and lasting emotions (Huicho, 2020, as cited in Cuevas et al., 2021). Consequently, more than half of the student body has lost the motivation to continue studying because the universities present a poor quality of teaching (Mukhopadhyay et al., 2020). Likewise, student satisfaction decreased considerably in the last semester of 2020 since said satisfaction depends on the structure of the course, the feedback, interaction, and facilitation of learning (Rahman et al., 2021).

Some students handled the stress of the pandemic with resilience, while others were restless and fearful. This is the cause of the low motivation of the students and the lower participation in their online learning. The importance of the emotional state increased when the situation began to affect student learning, and its adverse effects multiplied when it was associated with fear of failure, especially for those who suffered economic losses due to lack of resources (Munir et al., 2021).

After the limitations and problems arising from the above, this research aims to deepen the knowledge found on the impact of the virtual university on educational transformation during the Covid-19 pandemic.

2. METHODS

The present work is a bibliographic review. This type of review aims to identify, analyze, synthesize and integrate the bibliography of the subject of study (E. Gómez et al., 2014). According to the Institute of Health Sciences (2012) the bibliographic review is divided into stages. The first thing to do was define the problem and the objective to clarify what the research revolves around. Then choose the source of information and start the search with a defined strategy. Finally, analyze the data found based on search criteria and select the documents of interest.

As a source of information, the Scopus database was mainly used due to its high bibliographic impact and the reliability of all the documents. Boolean operators were used in the search strategy for data collection, especially "AND" and "OR". And to delimit articles referring to the "virtual university", "E-learning university", "virtual university", "virtual learning", "digital transformation", "virtual education". In the first instance, a search was done with the following combination ("higher education" OR "virtual education" OR "E-learning" OR "distance education") AND ("educational transformation" OR "virtual transformation"), obtaining 1,001 results.

Subsequently, the data were further reduced, with the exclusion criteria: open access articles, from 2017 onwards, from the area of social sciences in English and Spanish, limited to 137 pieces. Subsequently, the

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papers were chosen based on the level of impact, prioritizing the Q1 and Q2 quartiles. At the end of this exclusion and selection process, 56 articles remained.

Table 1

Filtering of articles according to the exclusion criteria in Scopus

Type	Search equation	Scopus
General	("higher education" OR "virtual education" OR "E-learning" OR "distance education") AND ("educational transformation" OR "virtual transformation")	1,001
Specific	("higher education" OR "virtual education" OR "E-learning" OR "distance education") AND ("educational transformation" OR "virtual transformation") AND (LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017)) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English") OR LIMIT-TO (LANGUAGE, "Spanish"))	336
Specific	("higher education" OR "virtual education" OR "E-learning" OR "distance education") AND ("educational transformation" OR "virtual transformation") AND (LIMIT-TO (PUBYEAR , 2021) OR LIMIT-TO (PUBYEAR, 2020) OR LIMIT-TO (PUBYEAR, 2019) OR LIMIT-TO (PUBYEAR, 2018) OR LIMIT-TO (PUBYEAR, 2017)) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English") OR LIMIT-TO (LANGUAGE, "Spanish")) AND (LIMIT-TO (SUBJAREA, "SOCI")) AND (LIMIT-TO (OA , "all"))	137

Source: self-made.

Table 2

Exclusion criteria

Variable	Inclusion criteria

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Year of publication	Articles from the year 2017 onwards.
Access to publications	Open access articles are considered.
Document type	All published articles are considered.
post area	References from the area of social sciences are considered.
Languages	They are limited to articles in English and Spanish.
Most Cited Articles	They must have at least 3 appointments.

Source: self-made.

The references obtained were divided among the team members to read and accept the information of said articles: objectives, population and sample, methodology, results, conclusions, and critical ideas. All this is to delve into the subject and understand the different aspects. To obtain all this information, techniques such as underlining, summary, paraphrasing had to be applied when reading the content, where it remained. As a result, the finding of articles from different countries, for the most part, present virtual education in the context of the Covid-19 pandemic.

Likewise, the articles mentioned had to be exported from the Scopus database through the Mendeley Chrome extension to facilitate citations and references in APA seventh edition format, using the Mendeley plugin for Microsoft Word.

3. RESULTS AND DISCUSSION

The results show that the technological tools applied in education before the arrival of COVID-19 had many deficiencies, and these have limited the correct management of the decisions involved in the digital environment of the new teaching modality. For this reason, the pandemic has shown that education goes hand in hand with the use of technology. Hence, universities must progressively improve their educational platforms and implement them in adverse situations. As F. García (2021) indicates, these technologies bring with them new challenges, but at the same time, essential and necessary innovations for higher education. Adding to this, we agree with the ideas of Li and Wang (2021) that good performance in the digital environment was perceived in many races. In this way, students will want to continue with virtual platforms. This study is relevant because it expands the

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new knowledge and methodologies that educational science applies after the current context, demonstrating that education is transformed and adapted according to the needs of the members of these institutions.

In contrast, León determine that careers require face-to-face classes due to their poor performance in virtuality. Consequently, university teaching methodologies must adopt new strategies that improve the quality of online learning and are more dynamic with students (Bork et al., 2021). Likewise, it is suggested to review the study by Vidal et al. (2021) to delve into the abrupt impact of COVID-19 on higher education.

Regarding digital transformation, it can be highlighted that the usability and accessibility of virtual tools and platforms are even more crucial in the context of quarantine. Distance education has made universities perceive the need to use different applications and media to make the teaching process more effective and viable. As mentioned by Sage et al. (2021) many education centers, during confinement, quickly ventured into small classes. Students and teachers face new challenges and experiences that they can benefit from thanks to tools. Technologies applied in digital teaching. For this reason, Kumar et al. (2021) highlight that the quality of e-learning positively influences student satisfaction. Among the most outstanding contributions regarding e-learning is that of Diaz et al. (2021) They mention that e-learning has made universities develop a new vision of using technology, motivating students to continue with their learning. On the other hand, it is suggested to review the study by Fardoun et al. (2020) to understand better the difficulties faced in implementing e-learning in Ibero-America.

However, due to the massive change from face-to-face to remote education, many institutions were unprepared or trained for this transition. During the first COVID-19 lockdown, teachers faced complications in their regular teaching. They had to position themselves and act in a highly contingent situation due to the lack of attention towards them and the students. The minor handling of virtual tools and the little training of teachers regarding changes in education made adaptation difficult and reduced the quality of pedagogy. On the other hand, teachers face complications when teaching their classes due to the lack of attention, which harms students. Regarding the difficulties of virtual training, Khan et al. (2020) mention that some challenges related to the change in teaching were the development of online tests, reliability, the validity of tasks, and plagiarism in evaluations. In addition, the teachers surveyed mention that the tests carried out in software, web security, and technical support will be challenging. Faced with these difficulties, virtual tools play a significant role in distance education.

Under this idea lies the need for optimization and integration in educational centers, mainly due to the pandemic. Damşa et al. (2021) mention that technologies can also induce the appearance or development of new virtual teaching practices and programs after the COVID-19 disease. In the same way, Marín et al. (2021) mention that in different universities around the world, Tele training platforms (PTM) are being applied in teaching that

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facilitates the use of digital tools by teachers. For this reason, it is essential that the new proposals for LMS platforms adjust to the needs of higher education institutions. For this reason, it is suggested to review the study by Palacios et al. (2016) to delve into the issue of educational platforms.

The authors agree that these models are integrated into post-digital learning regarding online training models. In addition, they imply an autonomous and innovative understanding of knowledge. Therefore, the importance of having a practical methodology for sustainable distance education is reflected Hamdan et al. (2021) conclude that learning and teaching will not develop in the same way after COVID-19; education institutes should adopt online policies to support ICT learning and blended learning. The author's contribution is evident in the fact that students perceive e-learning positively to integrate education with technology. In-depth about ICT, Navarro et al. (2021) conclude that they are of great importance for the benefit of the methodology of university teachers by contrasting their critical skills after the impact of COVID-19. Therefore, it is evident that ICT use in higher education is currently essential. Therefore, there must be correct advice to teachers. It is suggested to review the article "Higher education during the COVID-19 health contingency: Use of ICT as a learning tool" by the author Sapién et al. (2020) techniques for improvement and control over ICT are provided in educational virtuality..

In the emotional aspect, it is evident that the abrupt change brought negative consequences for teachers. They experienced increased stress and job demotivation due to a more significant number of working hours, added to knowing appropriate technologies' usability. In the same way, the students showed an alert in this aspect since it was revealed that they had presented fear, stress, anxiety, among other sensations that led to the loss of motivation to continue studying. Likewise, Alibudbud (2021) studies showed a high prevalence of depression, anxiety, and obsessive-compulsive disorder (OCD) symptoms. Furthermore, many students exhibited suicidal ideation and attempts during the COVID-19 outbreak in China. Similarly, Ratib and Ali (2021) mention that the learning of the participating students has worsened after moving to the virtual education system. To reinforce this idea, Munir et al. (2021) believe that social presence is critical for student learning achievement and satisfaction. Therefore, it is suggested to review the study by Marelli et al. (2021) where the various factors that led to the emotional exhaustion of students and teachers are addressed.

Likewise, Tejedor et al. (2020) consider that students present discomfort and increased stress due to the high workload and nonconformity when taking their classes online. But, again, the majority of the students seem to agree. In this line, Penado et al. (2021) highlight that teachers' disproportionate increase in stress, anxiety, and fatigue is due to the enormous burden they present when teaching virtually with technological devices. On the other hand, Yong et al. (2017) mention that online education favors student learning and communication with

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their peers and teachers since they would be in safe interaction spaces. Similarly, Rahman et al. (2021) suggest that virtual learning has improved student satisfaction and performance.

4. CONCLUSIONS

After carrying out the present investigation, four critical points were identified regarding the subject of study. These points deepen the knowledge found on the impact of the virtual university on educational transformation during the Covid-19 pandemic.

It follows that the measures applied in the virtual university educational process in Latin America and the rest of the world before the pandemic have been uneven. In Latin America, most countries had poor preparation for virtual teaching. In Europe and Asia, its application has been helpful and progressive, which has made it possible to mitigate the effects of confinement by migrating to digitization as the only means of education. Primary education. In addition, it is concluded that the abrupt change in the teaching model has allowed it to gradually adapt to the use of new technologies useful for the continuity of online learning.

On the other hand, it is concluded that ICTs are essential in forming new methodologies in virtual education since teachers and students consider it an efficient alternative. In addition, in the wake of COVID-19, universities have quickly adopted this teaching tool, with satisfactory results. For this reason, ICTs play a fundamental role in education; this includes the monetary investment of the state and private sectors, as it is one of the essential bets for the future.

Also, e-learning has provided a new avenue of education. Although it has different repercussions at each educational level, it has gained significant relevance, especially during health crises. Moreover, innovative teaching with a sound methodology can bring good results. However, it should be noted that this method of teaching and learning is not positive and beneficial for all students. This means that a large part of the students and teachers prefer face-to-face education over a virtual one due to the difficulties that arise when carrying out this educational option.

Finally, the emotional aspect of students and teachers has been negatively affected by virtual classes. To which, the universities respond with deficiency to solve it, due to the little importance given to the mental and emotional health of their teachers and students. In this line, different evaluations must be carried out to determine the

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emotional state of each of the people who are part of the university community. Therefore, research on various factors that affect the emotional exhaustion of students and teachers should be encouraged.

In short, even though the world is in a stage of digitization, the pandemic has highlighted the deficiencies of online learning globally, especially in Latin America. However, the fundamental role of ICT and e-learning in implementing new methodologies in teaching can be highlighted. On the other hand, it is crucial to consider the mental health of students and teachers. For this, universities must carry out activities and strategies to combat emotional exhaustion.

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