Virtual education during COVID-19 in higher education: A systematic review

Fatima del Socorro Torres-Caceres, Juan Méndez-Vergaray, Edith Gissela Rivera-Arellano, Mildred Jénica Ledesma-Cuadros, Yolanda Josefina Huayta-Franco, and Edward Flores

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Virtual education during COVID-19 in higher education:
A systematic review

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Abstract: The objective of the present systematic review aimed to analyze studies linked to online teaching-learning, digital competence tutoring, and technological tools in virtual education during COVID-19 in higher education. The suggested methodology by the PRISMA declaration was pursued; the information search was conducted in Scopus, EBSCO, Springer Open, ProQuest, and One File. The target period ranged from May 10, 2021, to July 4, 2021; the identification, screening, eligibility, and inclusion for its progress were performed. The search produced a total of 230 studies, with 45 remaining. The inclusion criteria included original peer-reviewed research articles and qualitative and quantitative studies in higher education, comprising

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teachers and students addressing the study objective. In contrast, the exclusion criteria covered bibliographic reviews with procedural deficiencies, studies not exposed to a peer review process, and those not depicting a relationship with parts of the study. The results reveal that online teaching-learning, digital competence tutoring, and technological tools have been affirmative features expected to persist in higher virtual education engendered by the COVID-19 pandemic.

**Keywords:** Online learning; distance learning; distance education; teaching digital competence; technological tools.

I. Introduction

Globally, the health crisis required the implementation of online teaching-learning to give continuity to the educational liaison: teacher-student-parent in simulated milieu, and the social distancing measure coerced the teacher to readapt to the new setting of teaching-learning processes, new pedagogical practices, needing a permanent transformation and conducive to the future.¹

Moreover, the pandemic caused by COVID-19 has brought radical changes in the financial, social, health, and educational spheres. Therefore, Latin American countries had to acclimatize to the changes engendered by the pandemic. It included modifications in their educational policies, technological and pedagogical revolution, reinforcement of digital competencies, and implementation of novel virtual teaching-learning practices in varied educational modalities.²,³,⁴

Educational innovation demands the acquisition of new knowledge, procedures, products, and services to enhance teachers’ pedagogical practices, infrastructure, and technological resources in line with changing times.⁵ Furthermore, it suggests innovation of educational resources, improved

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literacy in computer media assisted by the virtual form of learning with ICT tools, the eradication of space-time relationship restricting the teaching and rendering the students build their knowledge independently in these contexts.\footnote{Carlos Zurita et al., “Análisis crítico de ambientes virtuales de aprendizaje. Utopia y Praxis Latinoamericana,” Revista Internacional de Filosofía y Teoría Social, 25(Extra11) (2020): 33–47, https://doi.org/http://doi.org/10.5281/zenodo.4278319.}

To this end, Nuere and De Miguel\footnote{Silvia Nuere and Laura De Miguel, “The Digital/Technological Connection with COVID-19: An Unprecedented Challenge in University Teaching,” Technology, Knowledge and Learning, (2020), https://doi.org/10.1007/s10758-020-09454-6.} note that distance learning can be simultaneous, in real-time, and asynchronous when the interaction between teacher and student ensues at different times and places.


Teachers must equip themselves with innovative didactic strategies and digital educational materials during the teaching-learning process, making

\begin{itemize}
\end{itemize}
classes more engaging and motivating along with the needs and preferences of students. On top of that, Liesa-Orús et al. suggested a methodological revitalization of the teacher to undertake a superintendent role in the teaching-learning process. It included active methodologies, concentrating on the students to improve their participation. Also, it prioritized collaborative work, encouraged learning autonomy, and nurtured the acquisition of competencies and skills, crucial in the 21st century.

The paradigm shift in the educational system asks teachers to adapt to digitalized models using technological tools and digital competencies to get optimal results in meeting students’ needs. It, reformed to the current reality, increasingly centers on “telework” and “working with ICTs,” allowing the skills and abilities for effective technology deployment in many sources and channels in the educational setting. Thus, the teachers’ digital competence is a priority for online education, providing continuous training and covering the software use, online platforms, digital resources, and online assessment during the teaching-learning process.

Information technology tools have altered and affected the pedagogical practice, ignoring the traditional teaching-learning methodology, posing opportunities for more efficient communication between students and teachers, incredible in the past. Today, a student must socialize before being exposed to the online teaching-learning process. Thus, adequate utilization of

technological tools demands initial and permanent training in teaching practice. It targets to adapt to the technology abundance in education, incorporating them commendably and competently in the teaching-learning process.\textsuperscript{20}

Therefore, the objective of this systematic review was to review studies on online teaching-learning, digital competence tutoring, and technological tools in virtual education during COVID-19 in higher education.

II. Methodology

The systematic literature review was performed using a qualitative approach.\textsuperscript{21} To this end, the documentary analysis of scientific articles was utilized, entailing the discovery and examination, with relevant knowledge and information for research.\textsuperscript{22} It charted the methodology recognized in the PRISMA declaration, enabling a solid process of methods and results, enriching the studies of systematic reviews and meta-analyses.\textsuperscript{23} The information search was in English and Spanish, with the databases of Scopus, EBSCO, Springer Open, ProQuest, and One File having the following keywords’ combination: “Online teaching-learning and virtual education and COVID-19,” “Digital competence in teaching and virtual education and COVID-19,” and “Technological tools and virtual education and COVID-19,” considered from the subcategories presented in Table 1.

The target period was from May 10, 2021 to July 4, 2021, where the identification, screening, eligibility and inclusion were carried out. The search for articles in the database consulted yielded a total of 230, of which 45 studies remained, establishing as inclusion criteria: peer-reviewed original research articles, qualitative, quantitative and mixed studies in higher education involving teachers and students addressing the study objective; exclusion criteria: literature reviews, with methodological deficiencies, studies that were not subjected to a peer review process and those that did not demonstrate a relationship with the categories that are part of the study (see Figure 1).

III. Results and discussion

While performing the initial search in the above Databases, 230 qualitative, quantitative, and mixed scientific articles in higher education were retrieved. They encompassed teachers and students, contending with the objective of the study. The 136 articles were debarred due to duplicates; similarly, 75 were disqualified by checking title, abstract, and keywords. Eventually, 16 articles did not meet the inclusion criteria indicated in the methodology, thus excluded. The remaining was 45 articles for an extensive review and investigation as detailed below:
### Table 1
Investigations included in the systematic review

<table>
<thead>
<tr>
<th>N°</th>
<th>Author</th>
<th>Methodology</th>
<th>Instrument, technique or method</th>
<th>Subcategories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(García-de-Paz and Santana, 2021)</td>
<td>Qualitative</td>
<td>Interview</td>
<td>Teaching digital competence X</td>
</tr>
<tr>
<td>2</td>
<td>(Ramírez-Montoya, 2020)</td>
<td>Qualitative</td>
<td>Questionnaire</td>
<td>X</td>
</tr>
<tr>
<td>3</td>
<td>(Martínez-Garcés and Garcés-Fuenmayor, 2020)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td>X</td>
</tr>
<tr>
<td>4</td>
<td>(Fernández-Regueira et al., 2020)</td>
<td>Mixed</td>
<td>Questionnaire and Documentary analysis</td>
<td>X</td>
</tr>
<tr>
<td>5</td>
<td>(Zacarias and Salgado, 2020)</td>
<td>Qualitative</td>
<td>Questionnaire</td>
<td>X</td>
</tr>
<tr>
<td>6</td>
<td>(Aráztazu de las Morenas, 2020)</td>
<td>Mixed</td>
<td>Questionnaire and Interview</td>
<td>X</td>
</tr>
<tr>
<td>7</td>
<td>(Zurita et al., 2020)</td>
<td>Mixed</td>
<td>Descriptive Documentary Analysis</td>
<td>X</td>
</tr>
<tr>
<td>8</td>
<td>(Amaya et al., 2021)</td>
<td>Quantitative</td>
<td>T-Pack test</td>
<td>X</td>
</tr>
<tr>
<td>9</td>
<td>(Alamer and Alharbi, 2021)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td>X</td>
</tr>
<tr>
<td>10</td>
<td>(Drake et al., 2021)</td>
<td>Quantitative</td>
<td>FAST exam</td>
<td>X</td>
</tr>
<tr>
<td>11</td>
<td>(Hew et al., 2020)</td>
<td>Mixed</td>
<td>Online assessment</td>
<td>X</td>
</tr>
<tr>
<td>12</td>
<td>(Ashry et al., 2020)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td>X</td>
</tr>
<tr>
<td>13</td>
<td>(Venera et al., 2020)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td>X</td>
</tr>
<tr>
<td>14</td>
<td>(Ferri et al., 2020)</td>
<td>Qualitative</td>
<td>Case Study</td>
<td>X</td>
</tr>
<tr>
<td>15</td>
<td>(Amir et al., 2020)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td>X</td>
</tr>
<tr>
<td>N°</td>
<td>Author</td>
<td>Methodology</td>
<td>Subcategories</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Research type</td>
<td>Instrument, technique or method</td>
<td>Online teaching-learning</td>
</tr>
<tr>
<td>16</td>
<td>(Pozo-Rico et al., 2020)</td>
<td>Mixed</td>
<td>Questionnaire Inventory (stress)</td>
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</tr>
<tr>
<td>17</td>
<td>(Portillo et al., 2020)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>(Kara et al., 2020)</td>
<td>Qualitative</td>
<td>Virtual Environment</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>(Robles and Fernández, 2021)</td>
<td>Quantitative</td>
<td>ABP Intervention Program</td>
<td>X</td>
</tr>
<tr>
<td>20</td>
<td>(Sangeeta and Tandon, 2020)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>(Torres et al., 2021)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>(König et al., 2020)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td>X</td>
</tr>
<tr>
<td>23</td>
<td>(Tejedor et al., 2020)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>(Molise and Dube, 2020)</td>
<td>Qualitative</td>
<td>Interview</td>
<td>X</td>
</tr>
<tr>
<td>25</td>
<td>(Hortigüela-Alcalá et al., 2020)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>(Palau et al., 2020)</td>
<td>Qualitative</td>
<td>Interview</td>
<td>X</td>
</tr>
<tr>
<td>27</td>
<td>(Montenegro et al., 2020)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>(Sales et al., 2020)</td>
<td>Qualitative</td>
<td>Interview</td>
<td>X</td>
</tr>
<tr>
<td>29</td>
<td>(Ruiz-Ramirez et al., 2020)</td>
<td>Qualitative</td>
<td>Interview</td>
<td>X</td>
</tr>
<tr>
<td>30</td>
<td>(Schina et al., 2020)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td>X</td>
</tr>
<tr>
<td>31</td>
<td>(Acevedo-Duque et al., 2020)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>(Albó et al., 2020)</td>
<td>Quantitative</td>
<td>Questionnaire</td>
<td>X</td>
</tr>
</tbody>
</table>
Table 2 depicts the broad distribution of the 45 analyzed scientific articles: 51.1% (23) studies were quantitative; 8 corresponded to the subcategory online teaching-learning, 5 to the subcategory teaching digital competence, 3 to the subcategory technological tools, and seven studies exhibited interrelation between subcategories. However, 31.1% (14) were qualitative research, with four conforming to the subcategory online teaching-learning, three to teaching digital competence, and three to the technological tools. Four studies displayed interrelation between subcategories. Ultimately, 17.8% (8) articles were the mixed type, with two

<table>
<thead>
<tr>
<th>N°</th>
<th>Author</th>
<th>Methodology</th>
<th>Subcategories</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Research type</td>
<td>Instrument, technique or method</td>
</tr>
<tr>
<td>33</td>
<td>Pérez-Jorge et al., 2020</td>
<td>Quantitative</td>
<td>Questionnaire</td>
</tr>
<tr>
<td>34</td>
<td>Lie et al., 2020</td>
<td>Qualitative</td>
<td>Interview</td>
</tr>
<tr>
<td>35</td>
<td>Dutta et al., 2021</td>
<td>Quantitative</td>
<td>Questionnaire</td>
</tr>
<tr>
<td>36</td>
<td>Naidoo, 2020</td>
<td>Qualitative</td>
<td>Interactive Qorkshops</td>
</tr>
<tr>
<td>37</td>
<td>Hossain, 2021</td>
<td>Mixed</td>
<td>Open Questionnaires</td>
</tr>
<tr>
<td>38</td>
<td>Sepasgozar, 2020</td>
<td>Qualitative</td>
<td>Interview</td>
</tr>
<tr>
<td>39</td>
<td>Fernandez et al., 2021</td>
<td>Mixed</td>
<td>Open Questionnaires</td>
</tr>
<tr>
<td>40</td>
<td>Zhang, 2020</td>
<td>Qualitative</td>
<td>Ethnographic Personal Narration</td>
</tr>
<tr>
<td>41</td>
<td>Fathima and Savitha, 2021</td>
<td>Quantitative</td>
<td>Questionnaire</td>
</tr>
<tr>
<td>42</td>
<td>Ożadowicz, 2020</td>
<td>Quantitative</td>
<td>Questionnaire</td>
</tr>
<tr>
<td>43</td>
<td>Yan and Batako, 2020</td>
<td>Quantitative</td>
<td>Questionnaire</td>
</tr>
<tr>
<td>44</td>
<td>Noor et al., 2020</td>
<td>Qualitative</td>
<td>Interview</td>
</tr>
<tr>
<td>45</td>
<td>Zambrano, 2020</td>
<td>Mixed</td>
<td>Open Questionnaires</td>
</tr>
</tbody>
</table>
belonging to the online teaching-learning, three to teaching digital competence, and one to the technological tools. Two studies showed interrelation between subcategories.

<table>
<thead>
<tr>
<th>Research type</th>
<th>Number of scientific articles reviewed and analyzed</th>
</tr>
</thead>
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<tr>
<td>Online teaching-learning</td>
<td>14</td>
</tr>
<tr>
<td>Teaching digital competence</td>
<td>11</td>
</tr>
<tr>
<td>Technological tools</td>
<td>7</td>
</tr>
<tr>
<td>Interrelationship between Subcategories</td>
<td>13</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
</tr>
</tbody>
</table>

**Subcategory online teaching-learning**

The findings of the analyzes of the articles reviewed revealed that that online teaching-learning during the pandemic has had new methodologies, strategies, pedagogical approaches, and platforms explicitly engineered for virtual settings during the teaching-learning process and will be increasingly efficient and pose a prospect for a more viable educational system.\(^{24,25,26,27}\)

Also, online teaching-learning is flexible and diverges, enabling active interaction between teachers and students and expediting communication with “free discussion and debate” through virtual platforms to apply language skills. Moreover, it increases the virtual methods’ acquaintances,


saving time and resources in synchronous relations in webinars and teleconferences.\textsuperscript{28,29}

Accordingly, the studies disclose that the novel online teaching modality presents teachers the opportunity to urge the autonomy and self-regulation of students, test varying styles of synchronous and asynchronous teaching, implement advanced collaborative formats to form tasks, provide feedback and check multiple communication modes with students and their parents recognizing that communication with teachers has been constructive.\textsuperscript{30,31}

With a change in online teaching methodology, teachers have quickly undertaken their digitized pedagogical practices, despite specific difficulties using technological tools. It is due to their limited experience causing them to contract a slow work pace.\textsuperscript{32,33,34}

Yet, some studies have noted that in online teaching, teachers confront many challenges: inadequate student participation due to not possessing the needed electronic devices for online classes, low or no internet connection, deprived supervision of virtual educational settings by parents. There also exist difficulties in holding students’ attention, deficiency of social interaction with the students, monumental time devoted to class preparation and


homework assessment, changes in students’ learning behavior, and families’ precincts to attend virtual tasks.\textsuperscript{35,36,37,38,39,40,41}

However, most students readily adapted to modifications in the combined intervention and assessment procedures through a synchronous and asynchronous connection. It helps them search for novel things and didactic material supplied by their teachers during virtual classes, positively impacting the educational progression.\textsuperscript{42,43,44} Yet, students deal with challenges such as instability in the internet connection, extra financial burden, time management, scanty concentration in virtual classes at home during this acclimatization. Moreover, situational issues


increase the social need directly or indirectly, impacting their academic performance.\textsuperscript{45,46,47}

Like so, many studies disclose that students favor face-to-face classes as they provide them with an actual study environment, face-to-face learning, continual discussion, audiovisual interaction on texts associated with the study, and a blackboard for sharing questions and answers. Moreover, these classes offer adequate comprehension and the likelihood of facing a real communication setting between students and teachers. Yet, students consider that with online teaching, teachers are more considerate, solve uncertainties, learning is engaging and inspiring to partake in debates, time is properly used. On top of that, the content quality is comparable to conventional education, and the topics and ideas are exchanged appropriately and help students acquire technical knowledge, rendering them technically capable.\textsuperscript{48,49,50}

Subcategory digital competence

The research reveals digital transformations’ necessitated changes in culture, knowledge management, and open education. It has caused the enhancement and innovation of the teacher’s pedagogical practices of\textsuperscript{51}


allowing teachers and students to progressively get used to these new educational demands in the virtual environment. The updated fundamental modality replying emphatically to the current reality has coerced teachers to acquire high-quality technological equipment, internet connectivity, and reinforcing digital skills for developing online teaching-learning.52,53,54,55

Notwithstanding, the use of technologies embodies a didactic resource for sustenance, communication, and observing during the teachers’ online pedagogical practices compelling them to employ some digital implements, including WhatsApp, Google Drive, email, Zoom, Khan Academy, WhatsApp Web, Google Classroom, Facebook, Microsoft Team, and others, securing the continuation of classes through an application.56 Nevertheless, many teachers endure hardships and limitations in their digital skills while editing extant digital material. They include specifying and managing information, limited by their digital literacy and usage of technological tools. This is especially true for teachers having higher age and employed in public schools, causing a heavier workload and aggravating stress and anxiety.57,58,59

Therefore, it is critical to keep developing technological competencies to enhance their online teaching practice in distance education; a must, more manifest in teachers from rural areas.\textsuperscript{60,61,62,63} Moreover, teachers disclose that adaptation to the unexpected change in the online class format has favored the growth of digital skills through an emerging process of reinforcing and self-training. It has helped enrich their high-tech knowledge and has enabled the continuity of education. Fortunately, they have displayed solid spirit and compliance to the new world educational scenario, advancing the quality of response.\textsuperscript{64,65,66,67}

Additionally, the strategic use of ICT in converting virtual teaching-learning is crucial in the communication and elevation of critical-reflective thinking in students. Hence, developing their digital skills competently and tellingly with a critical vision is critical for their training and helps them grow into productive learners and liable citizens in the


virtual world with continuous teacher training as a permanent state educational policy.\textsuperscript{68,69,70,71}

Yet, students, albeit belonging to a new generation; have not advanced their digital skills in online education and spun classroom methodology. They gather that virtual work engenders an increased academic burden relative to face-to-face work.\textsuperscript{72,73} Equally, they mention that teachers can implement virtual active methodologies but do not possess adequate knowledge of image editors, videos, infographics, synchronous response systems, and anti-plagiarism tools.\textsuperscript{74}

Subcategory technological tools

Zurita et al.\textsuperscript{75} have noted that currently, the knowledge society goes through an immense advancement about technological tools’ use because it has succeeded in connecting to virtual educational platforms as an alternative space of knowledge, compliant to the current prerequisites of globalized societies. Similarly, it has attained a crucial impact on educational work settings. Accordingly, the teachers declare that technological tools and their


use are critical for developing high-quality educational practice. That is why they teach virtual classes employing their means, including technology and Internet support. The most used devices for online teaching include the mobile, laptop, tablet, and desktop computer with apps such as the Zoom, Cloud Meeting, and Google classroom. Also, they record their classes on their mobile phones; then upload the videos to their Facebook pages. They claim to have selected the tools, best fitting to their situation, as an enabler of the platforms or possessions, continue with the classes from home.\textsuperscript{76,77,78}

Concerning the students, most utilize personal computers, despite their mastery in technological implements and the broader use of mobile devices. They have access to virtual platforms such as Blackboard Collaborate, enabling better resolution images, radiology, and ultrasound for medical training during virtual sessions. Furthermore, they feel that webinars and sessions with recorded demonstrations are invaluable sources of knowledge acquisition and answer to the technical hardships arising during virtual classes. They can deepen the assessment methods and systems in current practice.\textsuperscript{79,80,81,82,83} The virtual learning environments, supplied by social

\textsuperscript{76} Martín Arántzazu de las Morenas, “Percepciones de alumnos y docentes de 5\textdegree{} y 6\textdegree{} de educación primaria sobre la modalidad de educación a distancia implantada temporalmente en España por COVID-19,” Enseñanza & Teaching, 38(2) (2020): 157–175, https://doi.org/10.14201/et2020382157175.


\textsuperscript{83} Dora Sales, Aurora Cuevas-Cerveró, and José-Antonio Gómez-Hernández, “Perspectives on the information and digital competence of social sciences students and faculty
networks, are message platforms essentially utilized by this century’s young generation, keeping them excited. This is due to the self-assured interaction conducted with their peers, boosting their participation and intercommunication apart from providing critical benefits and esteeming learning achievements.\textsuperscript{84,85}

Teachers have had to espouse a positive assertiveness toward the technology used to present their classes online. Nonetheless, there exist teachers, not appreciate the digital platforms’ expediency. It prevents them from implementing it and steering their online classes optimally.\textsuperscript{86} Similarly, they must secure that the utilized resources are readily available with no extra cost to themselves and students. Accordingly, it is compulsory to propound them orientation sessions on the usage of digital platforms. Only then are they better prepared for their effective and satisfactory utilization to teach several distance courses encouraging higher student participation in online classes.\textsuperscript{87,88,89}

\section*{IV. Conclusions}

Distance education has claimed that teachers devise online teaching-learning, implying a transformation in strategies and pedagogical approaches utilized in virtual milieus. It is critical to acknowledge that this process has first been convoluted as they only have fundamental training in technological tools. Yet, teachers could acclimate and assimilate their pedagogical skills in before and during lockdown due to COVID-19,” Profesional de La Informacion, 29(4) (2020):1–20, https://doi.org/10.3145/epi.2020.jul.23.


this novel form of online teaching covering a synchronous and asynchronous link, rendering classes more vigorous and inspiring for the student.

Concerning the teachers’ digital competencies, the studies have underlined that teachers should accommodate virtual teaching during the pandemic, implying classifying digital information, sharing it through digital media, editing content and texts, guarding personal data, and devising abstract proficiencies.

Therefore, digital literacy and computerization are the most sought competencies teachers should develop, not all achieving a progressive level. The need to secure the efficiency of the educational service provision has become essential for all learning institutions during the COVID. This unusual health emergency has had devastating ramifications throughout the Earth, bringing future repercussions modifying the way of making and consuming products and services, above all on the life itself.

The education sector, an essential constituent of society, has had to conform to this new form of teaching-learning. It has brought digitalization, first as an option, but has turned into compulsory later. To that end, the digital skills’ practice and reinforcement for all teachers are indispensable and commanding.

Technological tools in pandemic times have received increased attention because knowledge always plays a preeminent role in society. Technology allows conducting many human activities and even more critically in the educational field. Thus, teachers confronted with the cold reality engendered by the COVID-19 have had to readily adapt to the increased technology use in varied educational platforms and integrate it into their pedagogical work. It has included teaching their virtual classes optimally favoring students, judging that education is a fundamental right beyond the privilege. Nonetheless, a group of teachers, reluctant to change themselves and find it challenging to undertake new and unexpected challenges, should gather that adopting technology as a valuable resource in their teaching process can help them meet current educational demands. Yet, the students, the indispensable learning actors, have favorably undertaken this new modality. Attending their virtual classes, they have remained motivated as ever because they can interact, partake, sustain intercommunication with their peers and attain the anticipated learning.

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