

## ORIGINAL ARTICLE

# The impact of E-learning and ICT on English language learning: COVID-19 context

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(Received: 27 October 2022; Revised: 17 May 2023; Accepted: 3 July 2023;

Published: 18 September 2023)

**Background:** E-learning and ICT have developed an innovative way of teaching English. To make sure the learning of this foreign language is effective, educational establishments and universities adjusted their infrastructure and technological devices.

**Aim:** This article aims to present the results from a comprehensive examination of the literature regarding the Effects of E-learning and ICT on English language learning in COVID-19.

**Methods:** The investigators made use of the PRISMA MODEL to determine the 65 articles to be included in the sample selection. A systematic search was performed on databases to select articles on E-learning and ICT related to English language learning. The databases employed for this study were Scielo, Redalyc, Dialnet, cademic Publishing (ACPI), Springer, Scopus, ECLAC, and MINTIC.

**Results:** These technologies experienced an increase in usage during the COVID-19 pandemic.

**Conclusion:** Incorporating e-learning and ICT has made language learning more dynamic. In addition, it demanded training of teachers to manage the tools and resources that they offer.

**Keywords:** E-learning; ICT; learning; English language; COVID-19 pandemic

## Introduction

English language learning has changed with implementing Information and Communication Technologies (ICTs) in the educational context, as students are used to the digital world, and are technological natives (Carranza Alcántar et al., 2018). It is essential to understand that the learning process starts with acquiring the code and progresses with the development and enhancement of the four communication abilities (speaking, listening, reading and writing), which are required to reinforce sociocultural, work or study exchanges (Cronquist & Fiszbein, 2017).

The United Nations Educational, Scientific and Cultural Organization (UNESCO) suggests Latin American educational systems should make it a priority to teach a second language, such as English (UNESCO, 2019a). In addition, during the

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COVID-19 pandemic of 2020, educators from all academic organizations and universities in Latin America had to adjust English language teaching activities to a virtual platform. This raised questions about how to incorporate ICT into educational practices outside of the classroom (UNESCO, 2021b).

The limitations set in place because of the pandemic caused adapting the teaching and learning processes to virtual education, with the mastery of ICT becoming the primary factor for students to pursue their academic training. This context showed the unexpected alteration of educational practices; they experienced an unprecedented extent of development during the pandemic (Guzmán de Castro et al., 2021).

Using educational platforms, technological tools, and digital educational resources for learning English has been increasing. In 2020, COVID-19 caused a dramatic rise in using these technologies. According to the Economic Commission for Latin America and the Caribbean (ECLAC), 190 countries have implemented the measure of closing down educational institutions in order to impede the spread of the coronavirus. More than 1 billion students across all levels of education, from preschool to university, have ceased to attend in-person classes. Out of these, over 160 million were from the Latin American and Caribbean region (ECLAC-UNESCO, 2020).

This article studies the impact of E-learning and ICT on the enhancement of English language proficiency. To better understand the effects of E-learning on English language learning during the COVID-19 pandemic, the investigators crafted the following research questions: What is the impact of E-learning on English language learning in COVID-19? How has the use of information and communications technology impacted the learning of English at the time of the COVID-19 pandemic? The motivation for the investigators to pursue this article was the necessity of comprehending the experiences of their peers in other countries who incorporated E-learning and ICT to teach English during the COVID-19 situation. This inquiry allows them to extend their comprehension of educational advancement that is created through its execution.

## **Literature review**

### ***Education during COVID-19: experiences in Latin America***

Latin American educational systems implemented digital policies to address the contingencies of the coronavirus and provide continuity of education during the pandemic. As an example, Argentina established the 'Seguimos Educando' program, which provided strategies to ensure access to the Internet and technological devices to students with a lack thereof (United Nations Educational, Scientific and Culture [UNESCO], 2021a).

This program provided students with an online platform that offered educational resources, instructional sequences, videos of topics to be explored, etc. Besides traditional broadcast media such as radio and television. The Ministry of Education produced printed material for educational institutions in rural areas that do not have internet access. At the midpoint of the year, the Federal Education Council assessed the progress of this program. Connectivity and equipment issues were the primary issues among the results. The program received more financial support from the private sector, which was also linked to ensure the continuation of educational opportunities for Argentine students (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2021c).

The Ministry of Education and Science (MEC) of Paraguay mandated the distance education model to persist with the educational development, as the country

was facing difficulties with connectivity and digital educational materials. Therefore, they designed the 'Education Plan in Times of Pandemic, Your School at Home' which enabled the usage of two education approaches: virtual and non-virtual. This first was for students who have access to the Internet and the technology at home. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2021a), teachers and students maintained their communication and could continue teaching and learning academic content.

They created the second strategy, non-virtual education, for students living in indigenous communities, attending hospital classrooms, boarding schools, and areas remote from the Internet or technological devices. They received notebooks featuring information and instructions relevant to each thematic unit to facilitate their activities. On top of this, they broadcasted this content on community radio and television, and in the newspaper supplement. Private entities and governmental organizations, including UNESCO, have backed this program at the international level (UNESCO, 2017).

The government of Colombia established the policy of 'Computers to Educate' in 2004, which enabled the distribution of ICT in various educational establishments, universities, libraries, and cultural centers. The UNESCO has emphasized teaching teachers the fundamentals and governance of these technologies (UNESCO, 2021b). Taking this policy into account and during the COVID-19 pandemic, UNESCO created the 'Education at home' program, aiming to enhance the physical conditions of educational institutions for internet access, providing technological devices and instructing and guiding teachers on the operation of ICT.

The initial step taken to achieve connectivity was to give them free internet access from both prepaid and postpaid cellular plans. The second was an economical option for households with two or more pupils living in the same house, and the third was supplying students with technological tools. They made educational material accessible and did not require an internet connection. The government delivered this version of computers to educational organizations in rural areas. The Ministry of Education enhanced this program with the use of radio and television as an educational tool. Implementing this approach was used to strengthen instruction and understanding of each field of knowledge (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2021b).

Concerning Peru, there were many obstacles in keeping the educational progression uninterrupted for all the students across the country, as the access to connectivity was inadequate due to the lack of a proper infrastructure to allow the internet signal to reach all cities and rural areas. This resulted in an uneven distribution of access to educational platforms and other technological tools for students. A great number of families did not have the technological resources to support their children in their studies.

Despite the One Laptop per Child (OLPC) policy being established in 2007, its success was stifled because of fluctuations within the educational system and the lack of continuity from its rulers. There was an inequality between public and private educational institutions because of the lack of availability of the internet, technology, and devices. At the commencement of 2020, classes begun via the platform 'Aprendo en Casa'. Subsequently, the government bought more than 1 million tablets, 200 000 solar chargers and half a million data plans to be distributed to students and teachers (p. 41). It was estimated that 86.9% of rural schools and 10% of urban schools could persist with their educational activities.

Ultimately, Uruguay had a limited gap in internet access, because schools had over 80% connectivity, allowing students and teachers to have access to various educational programs and technological resources during the pandemic. The development of the Ceibal Plan in 2007 has had a positive impact on the provision of computers or tablets to students in public institutions. It enabled them to connect to the Wi-Fi network and videoconferencing systems were installed in educational environments. These activities resulted in the development of the Ceibal Programme in English, which enabled the continuation of English learning through videoconferencing. With the help of these initiatives, the Uruguayan government could ensure that its entrance into distance education was not as complicated as it was in other countries in the region.

## **Methods**

The researchers reviewed the literature on the incidence of E-learning and ICT in learning the English language during the COVID-19 pandemic. Examining both methodological aspects can help the researcher detect the influence of these technologies on learning this language while in quarantine (Arnau Sabatés & Sala Roca, 2020). The researchers considered the following phases: (1) Selection of databases; (2) Choice of search string; (3) inclusion and exclusion criteria (4) preselection of articles and (5) Application of the PRISMA model to choose the studies that will make up the sample (Mangaroska & Giannakos, 2019).

### ***Phase 1. Databases***

The databases selected were Google Scholar, Redalyc, Scielo, Dialnet, Academic Publishing (ACPI), Springer, Scopus, ECLAC, and MINTIC. The researchers selected them because of the significant influence of their publications on the international scientific research field (Márquez, 2011).

### ***Phase 2. Search string***

The descriptors or keywords were: E-learning and education; E-learning and COVID-19; E-learning and ICT; E-learning and learning; E-learning and English language; ICT and COVID-19; and ICT and English language.

### ***Phase 3. Inclusion and Exclusion Criteria***

These initially retrieved articles were subsequently selected based on specific criteria to address the quality of this review. As an illustration, it was required that articles be published in English or Spanish and subjected to peer-review. In addition, the articles needed to be based on empirical studies that emphasize EFL/ESL learning through e-learning and ICT. We will include only articles from reputable, recognized, and indexed journals to ensure the publication's quality. Additionally, to acknowledge the originality of the research, this review specifically picked articles that were published within the last six years (2017-2022).

In order to improve the search and selection of relevant information for achieving the aim of this study, we use the following criteria of inclusion and exclusion:

• **Inclusion:**

- Year of publication:** 2017 – 2022.
- Article types:** peer-reviewed.
- Types of studies:** empirical with a clear method.
- Context of studies:** EFL/ESL context.
- Languages:** English or Spanish.
- Quality:** recognized and indexed databases.
- Bibliographical references:** 50 or more

• **Exclusion:**

- Year of publication** before 2017.
- Types of articles:** non-peer-reviewed or single-peer reviewed.
- Types of studies:** non-empirical or lacking a method.
- Context of studies:** non-EFL/ESL context.
- Languages:** other than English or Spanish.
- Quality:** databases lacking quality or are inappropriate for this study.
- Bibliographical references:** less than 50

**Phase 4. Preselected articles**

Researchers evaluated 101 articles while considering the following topics: the concept of E-learning; the usage of E-learning in learning the English language; and ICT in learning this foreign language. Table 1 shows the number of articles found in the databases.

**Phase 5. PRISMA model for sample selection**

In order to select the articles that would make up the sample, we employed the PRISMA model. Figure 1 presents the document review process through the PRISMA diagram.

**Results**

The search for information and inclusion and exclusion criteria led to the merger of 65 research articles that were published between 2017 and 2022. Investigators classified documents into seven groups: E-learning and education, 18 documents; E-learning and COVID-19, 10; E-learning and ICT, 3; E-learning and learning, 2; E-learning and English language, 10; ICT and COVID-19, 11; ICT and English language, 11. There is an interest in performing research on the subject, since it has become a priority for the educational system because of technological advances that affect this sector (Arnau Sabatés & Sala Roca, 2020). Table 2 presents the consolidation of the sample according to the group of descriptors used for this process.

Table 1. Articles found in databases.

Data-bases	Google Scholar	Redalyc	Scielo	Dialnet	Academic publishing (ACPI)	Springer	Scopus	ECLAC	MINTIC
Number of articles	30	14	12	10	13	10	10	1	1

Note: Table prepared from the previous review.

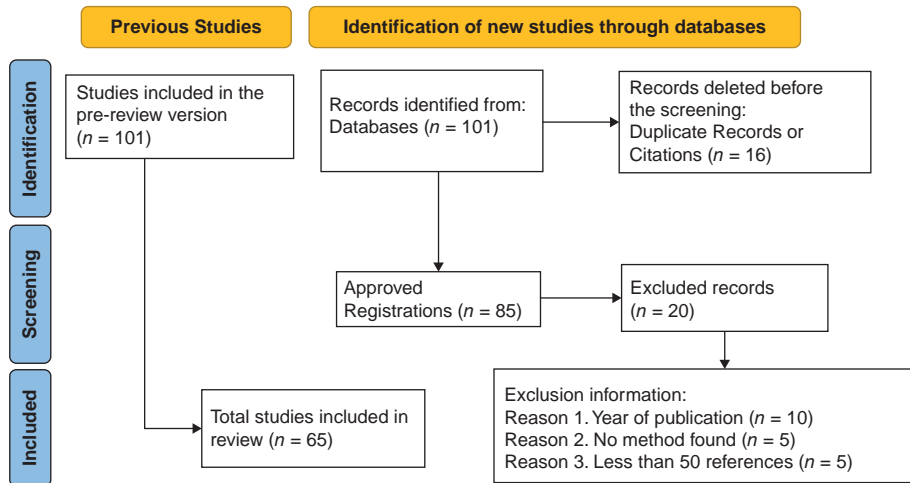


Figure 1. PRISMA diagram.

Note: Prepared from the PRISMA model (Page et al, 2021)

Table 2. Sample consolidation.

Items	E-learning and education	E-learning and COVID-19	E-learning and ICT	E-learning and learning	E-learning and language learning	ICT and COVID-19	ICT and English language	Total
Number of publications	18	10	3	2	10	11	11	65

Note: Table prepared from the previous review.

Table 3. Empirical studies on E-learning in education.

Items	Articles	Main finding
E-learning in education	18	E-learning has been used in the educational setting for many years preceding the COVID-19 pandemic. Because of the restrictions created by the coronavirus, the use of technology saw an exponential rise, leading to a significant influence on the world's educational systems (Mahyoob, 2020).

Note: Table prepared from the previous review.

These articles showed a convergence, which resulted in a key conclusion. This study enabled the answering of the following research questions: What is the impact of E-learning on English language learning in COVID-19? How has the use of information and communications technology impacted the learning of English at the time of the COVID-19 pandemic? Tables 3 to 9 show that information.

This review revealed the number of publications that were created before, throughout and after the pandemic concerning the application of E-learning in English language learning. The data from Table 8 summarizes the quantity of articles published between 2017 and 2022.

Table 4. Studies on E-learning during the COVID-19.

Items	Articles	Main finding
E-learning during the COVID-19	10	The COVID-19 pandemic brought about many changes in the education field. The transformation of 2020 was the sped-up incorporation of technology into substitute face-to-face classes (Domínguez-Barbosa, 2021). Some studies examine the use of E-learning as a method to maintain student instruction (Linand & Nguyen, 2021).

Note: Table prepared from the previous review.

Table 5. Research on E-learning and English language.

Items	Articles	Main finding
E-learning and English language	10	E-learning confirms that students are the center of the training process in this second language, which makes up a guideline that all teachers should consider when planning activities in order to achieve the acquisition and development in this second language (Tapia Salinas et al. 2018). Therefore, this learning method affects the development in a foreign language, such as English.

Note: Table prepared from the previous review.

Table 6. Empirical studies on ICT and COVID-19 in education.

Items	Articles	Main finding
ICT and COVID-19 in education	11	Using Information and Communication Technologies (ICTs) was pushed for in the learning process during the COVID-19 pandemic. The health crisis brought about multiple effects, one of which is the emergence of a new education model (Pacheco, 2022). Universities and other educational institutions had to alter their model of teaching and learning in the classroom. It shifted from an in-person setting to total virtuality (Vidal et al., 2022). Many studies and investigations have been carried out concerning ICT education during the pandemic.

Note: Table prepared from the previous review.

The data show that the number of publications has increased over the 2017–2021 period, which has been deemed crucial because of the post-pandemic effect. It is noteworthy to consider that, in 2020 and 2021, there were 10 and 15 publications, respectively. Considering the difficulties and complexities introduced by the pandemic, educators, and researchers in education created papers analysing the consequences of E-learning in teaching and learning processes, regarding the English language (Cedeño Zambrano et al., 2020).

Table 9 shows the publications regarding the integration of ICTs and learning the English language prior to, throughout, and following the pandemic.

Researchers conducted few studies on the use of ICT and English language learning, in 2020 and 2021 (during and post pandemic) when more research was needed. This may be a suggestion that educational institutions were not prepared to deal with an event of such large proportions with global implications (Medina-Lerena et al.,



Table 7. Research on ICT and English language.

Items	Articles	Main finding
ICT and English language	11	Educators have employed Information and Communication Technology (ICT) to aid in the growth of English language proficiency (Montero Ríos et al., 2017). ICTs provide multiple resources and tools that facilitate dynamic, creative learning of the foreign language (Medina-Lerena et al., 2017). It is essential to consider the views of students when discussing how to implement ICT in English language learning (Carranza Alcántar et al., 2018).

Note: Table prepared from the previous review.

Table 8. Publications 2017 - 2022 related to the application of E-learning in English language learning.

Year	2017	2018	2019	2020	2021	2022
Number of publications	7	6	2	10	15	1

Note: Table prepared from the previous review.

Table 9. Publications between 2017 - 2022 related to the integration of ICT and learning the English language.

Year	2017	2018	2019	2020	2021	2022
Number of publications	3	2	2	2	0	1

Note: Table prepared from the previous review.

2017). These statistics show that technological equipment and resources are playing a role in the educational domain. This is because of the requirement of treating English as a foreign language content as a fresh educational model that should have its own presence in the school curriculum, in area plans and in the mainstreaming of English content (Martínez-Salas, 2019).

## Discussion

The pandemic prompted a sudden transformation to an entirely online education system. This alteration was clear; however, it was not intended to occur suddenly. The reason various teachers found it hard to implement was that they had a basic understanding of it. However, for others it was something new, still unexplored (Karasneh et al., 2021). Similarly, the students had to decide if they wanted to go through a traditional educational model or a virtual one, which was complicated because of the lack of resources or a suitable internet connection in their families. Despite this, the families endeavoured to ensure the students did not miss any classes during the period of lockdown (Rifaldi et al., 2021).

It is imperative to emphasise that during the health emergency, implementing technological tools and resources increased to make the teaching and learning processes more vibrant and facilitate teacher–student interaction. Integration of virtuality in teaching had implications for the knowledge and exploration of alternative methods



of doing activities and exercises (Vidal et al., 2022). COVID-19 made the use of technological tools and resources essential, prompting teachers to take short courses on their management as they had been scarcely used. The restriction complexly changed the way the practical sessions were before, requiring the development of activities, the instruction of how to execute them, and the relationship between students and educators (Sandoval, 2020).

The expansion of the range of tools, materials, and technological means that fortify the implementation of new approaches in learning English language, as suggested by Espinosa Izquierdo et al. (2021), connected to the effects of E-learning on the development of English language skills during the period of confinement. This approach aimed to lessen the impact of the pandemic by introducing fresh approaches to learning and mastering the second language.

The effects of communication and information technologies on learning English during the quarantine were such that teachers were required to research and use new resources and tools in order to implement them in the activities and exercises related to the English language (Pacheco, 2022). It is important to mention that the students were empathetic towards the use of applications, social networks, games, etc., as a strategy to develop and strengthen their command of this language (Carranza Alcántar et al., 2018).

The emergence of distinct public policies during COVID-19 has highlighted the commitment of governments to establish virtual learning environments for students to pursue their studies in this language. ICT and e-learning are providing educators with a setting to create new teaching and learning strategies for English as a foreign language (UNESCO, 2021a).

Despite the prevalence of E-learning, there are still regions (such as rural areas) where access to the Internet is difficult because of atmospheric conditions and poor connectivity in the towns and villages where educational institutions are located. As a result, these shortcomings hinder the effect E-learning and ICT can have on the English language learning process. The Colombian government has made efforts to provide students with the internet access and connectivity they need in rural areas, but students have been unable to use communication technologies due to the poor internet service and lack of equipped antennas to provide them (UNESCO, 2019b). The aforementioned can be an additional research topic, as the E-learning method and ICT can create an alternate type of effect on rural education.

We imagine that the introduction of an educational advancement is represented by the establishment of the E-learning model, where all the instruments and assets that ICT offer join, making the way towards learning this language vigorous, inventive and intelligent. Hence, E-learning involves various resources, tools, and technological means in use that contribute to create new teaching approaches for studying this foreign language (Zevallos de las Casas et al., 2022). The researchers sought to cultivate the ability to be adept in a language such as English. Here, the engagement between the material and the students is most prominent, which results in a variety of meaningful experiences that show proficiency in this language (Gros Salvat, 2018). Researchers have conducted investigations on the application of this method in education.

## **Conclusions**

The influence that E-learning had on learning English during the pandemic was that it gave the possibility to stay on track with training from home. The families whose

students experienced language learning from home during the COVID-19 pandemic were more involved in this process and gave them more support and encouragement to carry out school tasks.

With the use of E-learning in teaching, teachers were able to establish a new way of teaching English through using educational platforms, which can produce and incorporate digital educational resources that stimulate and inspire students to gain proficiency in the language. The systematic literature review has revealed different experiences that handle this event.

The pandemic increased the usage of information and communication technology through e-learning. However, the ICT implementation reduced the in-person social interactions and all contents had to be studied and learned in isolated manner. In addition, students started spending more time on their digital devices than they ought to. It is well known that digital technologies and learning tools became more popular after the Covid 19, but digitalization of education is not always successful due to economic inequality and the knowledge required to use such technologies (Chaves-Montero, 2018)

ICTs remain a challenge for Latin American educational systems, as English language learning largely depends on the proficiency and expertise of teachers in these domains. Therefore, the directors of educational institutions should make it a priority to train teachers in the understanding and utilisation of ICT in the classroom (Intriago Cedeño, 2019).

Latin American educational systems must collaborate in order to foster an interactive and creative approach to learning a foreign language, such as English. Incorporating E-learning and ICT enables the achievement of the goals set for language learning. All educational institutions and universities in this region have a policy of bilingualism in this foreign language in place.

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