

# SCIENTIFIC AND TECHNOLOGICAL PRODUCTION AND THE USE OF INTERNET IN LATIN AMERICA

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## Abstract

A systematic review of the production and publication of research papers on the study of Internet use in Latin America was carried out under the PRISMA approach (Preferred Reporting Items for Systematic reviews and Meta-Analyses). The purpose of the analysis proposed in this document was to know the main characteristics of the publications registered in the Scopus and WoS databases during the year and their scope in the study of the proposed variables, achieving the identification of 55 publications in total. Thanks to this first identification, it was possible to refine the results through the keywords entered in the search button of both platforms, ICT, INTERNET, and LATIN AMERICA, reaching 14 documents, already excluding duplicates and those that did not meet the analysis criteria. The identified scientific publications were analyzed in order to know the main characteristics within the execution of research projects related to the study of the use of different Information and Communication Technologies and their application in different areas of knowledge in Latin America, thus determining the main advantages and disadvantages of the use of the Internet in aspects such as education, health, economy, among others.

**Keywords:** Internet, ICT, Latin America.

## I. Introduction

The rapid population growth, advances in technology, and the application of new and better mechanisms to perform tasks in areas such as health, education, economy, and infrastructure, have driven the virtualization of more and more activities that previously were only contemplated to be performed in person so that the use of the Internet has become a vital resource for the operation of almost all tasks of daily life. In

education, for example, its coverage has expanded thanks to virtual education and its variants, allowing access to it to students in different situations that prevent their presence in an educational center. In terms of health, most medical consultations were carried out virtually due to the impossibility of mobilizing during the pandemic generated by the emergence of the disease called Covid-19, which originated in China and quickly spread throughout the globe, generating a significant health crisis that claimed

hundreds of thousands of lives. Therefore, the authorities-imposed measures of social distancing, relying then on the use of technological resources such as the Internet, digital devices, and virtual platforms, among others, so that patients could continue to attend their medical checkups in a virtual way without exposing their physical integrity.

Latin America has been no stranger to rapid growth in developing new and better alternatives to taking advantage of globalization's effects in improving processes that optimize the use of resources, increasingly terrifying the traditional ways of managing information. Therefore, it is important to know what has been contribution that research has had to the development of new knowledge about the use of the Internet as the main tool in the generation of strategies to increase the quality in every aspect of the companies in all Latin American economic sectors, so identifying the roadmap of scientific publications, becomes a vital objective, analyzing the position of different Latin American authors, against the current state of the use of the Internet in the same community.

## **2. General Objective**

To analyze from a bibliometric and bibliographic perspective, the production of research papers on the variable Internet, ICT, and Latin America published in high-impact journals indexed in Scopus and Wos databases.

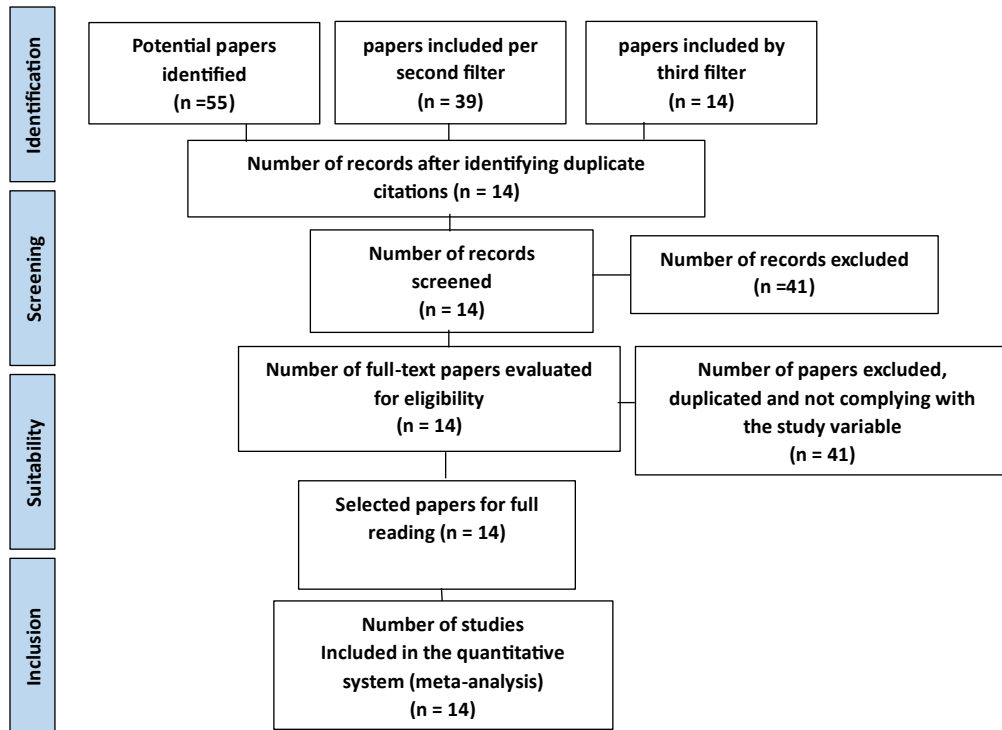
## **3. Methodology**

The present research is of a qualitative type; according to Hernández et al. (2015), qualitative approaches correspond to research that carry out the procedure of obtaining information to review and interpret the results obtained in such studies; for this purpose, the search for information was carried out in the Scopus and Wos databases employing the words ICT, INTERNET, LATIN AMERICA

### **3.1 Research design**

The research design proposed for the present research was the Systematic Review which involves a set of guidelines to carry out the analysis of the data collected, framed in a process that begins with the coding to the visualization of theories (Strauss & Corbin, 2016). On the other hand, it is stated that the text corresponds to a descriptive narrative in that it is intended to find out how the levels of the variable effect; and systematic because after reviewing the academic material obtained from scientific journals, the theories on knowledge management were analyzed and interpreted (Hernández et al., 2015).

The results of this search are processed as shown in Figure 1, which expresses the PRISMA technique for identifying documentary analysis material. It was taken into account that the publication was published during the period between 2020 and 2022 without distinction of the country of origin of the publication, the distinction of area of knowledge, as well as any publication, namely: Journal Articles, Reviews, Book Chapters, and Books, among others.



**Figure 1.** Flowchart of the systematic review conducted under the PRISMA technique.

**Source:** Own elaboration; based on the proposal of the Prisma Group (Moher et al., 2009).

**4. Results**

Table 1 shows the results after applying the search filters related to the methodology

proposed for this research after recognizing the relevance of each referenced work.

**Table 1.** Flowchart of the systematic review conducted under the PRISMA technique.

No.	TITLE OF THE RESEARCH	AUTHOR/YEAR	COUNTRY	TYPE OF STUDY	INDICATION
1	<i>Information and communication technologies in knowledge management in higher education institutions in Latin America</i>	FERNÁNDEZ, V. J. (2022)	BRAZIL	QUALITATIVE	SCOPUS

2	<i>TOURISM MARKETING IN LATIN AMERICA: A BIBLIOMETRIC STU-DIGITAL DY 2010-2019</i>	Avellaneda Flórez, D. V., Rodríguez Núñez, N. J., Hernández Sierra, H. L., & Patiño Gómez, J. C. (2022).	COLOMBIA	QUALITATIVE	SCOPUS
3	<i>The effects of telecommunications infrastructure on Latin America's economic growth</i>	Fawaz, F., Popiashvili, A., & Mnif, A. (2021).	UNITED STATES	QUALITATIVE	SCOPUS
4	<i>PArental Mediations And Internet Use By Colombian Children And Adolescents</i>	Moreno-Carmona, N. D., Marín-Cortés, A., Cano-Bedoya, V. H., Sanabria-González, J. A., Jaramillo-Suarez, Á. M., & Ossa-Ossa, J. C. (2021).	COLOMBIA	QUALITATIVE	SCOPUS
5	<i>Incidence of personal and contextual factors on the use of technological resources by students in Latin America</i>	Cebrián-Cifuentes, S., Almerich, G., Suárez-Rodríguez, J. M., & Pedró, F. (2021).	INDEFINITE	QUANTITATIVE	SCOPUS
6	<i>Older adults in the digital age in Latin America: Bridging the digital age divide.</i>	Sunkel, G., & Ullmann, H. (2019).	INDEFINITE	QUALITATIVE	SCOPUS
7	<i>Incidence of the age of access to information and communications technology and the use of the Internet in science learning.</i>	Vaillant, D., Rodríguez-Zidán, E., & Zorrilla-Salgador, J. P. (2019).	URUGUAY	QUALITATIVE	SCOPUS

8	<i>Public policies of connectivity in Latin America in the context of COVID-19</i>	Califano, B., & Becerra, M. (2021).	ARGENTINA	QUANTITATIVE/QUALITATIVE	WOS
9	<i>Technological convergence of communication in Latin America and the Caribbean</i>	Grewenig, E., Lergetporer, P., Werner, K., Woessmann, L., & Zierow, L. (2021).	ECUADOR	QUALITATIVE	WOS
10	<i>Learning from or leaning on? The impact of children on Internet use by adults.</i>	Galperin, H., & Arcidiacono, M. (2019).	ARGENTINA, UNITED STATES	QUALITATIVE	WOS
11	<i>The implications of covid-19 on institutions of higher learning: A case of Zimbabwe and South Africa.</i>	Matsilele, T. (2021).	SOUTH AFRICA	QUALITATIVE	WOS
12	<i>Research Perspectives on Indigenous Knowledge and ICT: A Decolonial Approach.</i>	Flores-Fuentes, G., & Navarro-Rangel, Y. (2020).	MEXICO	QUALITATIVE	WOS
13	<i>Student engagement in online learning in Latin American higher education during the COVID-19 pandemic: A systematic review.</i>	Salas-Pilco, S. Z., Yang, Y., & Zhang, Z. (2022).	CHINA	QUALITATIVE	WOS
14	<i>Internet adoption and usage patterns in rural Mexico</i>	Martínez-Domínguez, M., & Mora-Rivera, J. (2020).	MEXICO	QUALITATIVE	WOS

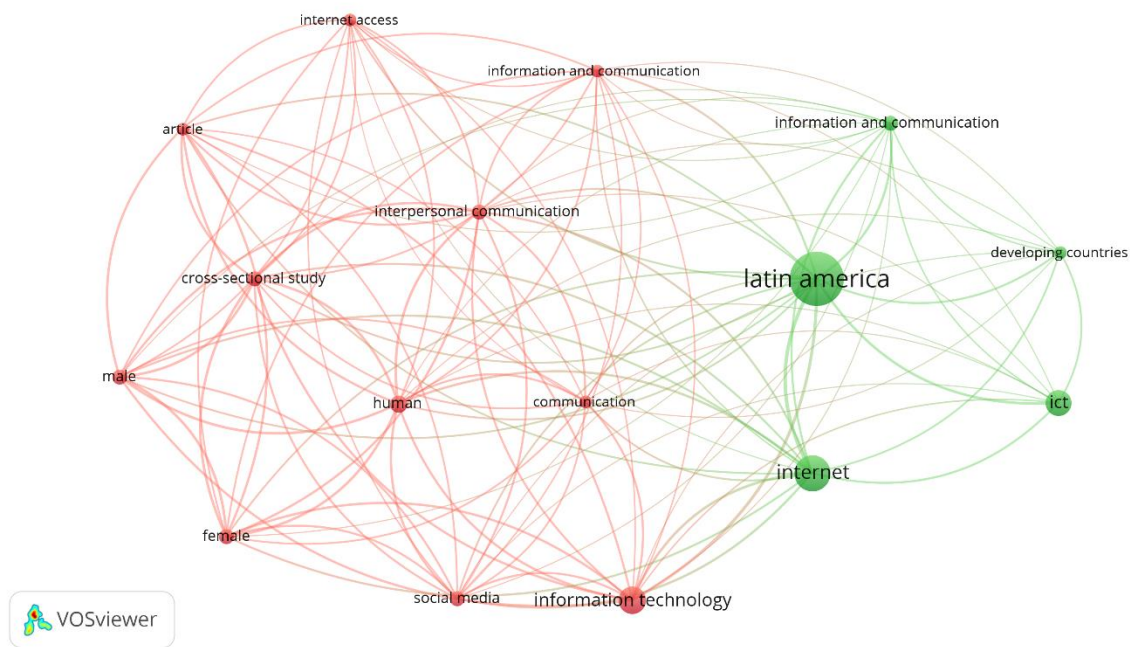
15	<i>Impact of digital technologies upon teaching and learning in higher education in Latin America: an outlook on the reach, barriers, and bottlenecks</i>	Okoye, K., Hussein, H., Arrona-Palacios, A., Quintero, H. N., Ortega, L. O. P., Sanchez, A. L., ... & Hosseini, S. (2022).	MEXICO, COLOMBIA, UNITED STATES, UNITED STATES	QUALITATIVE/QUANTITATIVE	WOS
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Source: Own elaboration; Based on the proposal of the Prisma Group (Moher et al., 2009).

**4.1 Co-occurrence of words**

elaborating the systematic analysis proposed for the present research.

Figure 2 shows the relationship between the keywords used to search the study material for



**Figure 2.** Co-occurrence of keywords.

Source: Own elaboration

Internet and Latin America were the predominant variables in implementing the different research methodologies to develop works published and indexed in specialized databases such as Scopus and Wos. The most frequent use was in Information and Communication and

Interpersonal Communication, so it is possible to infer that people in this community use the Internet mostly as a tool for communication through instant messaging, among others. Social Networks also occupied an important place in the research identified.

## 4.2 Discussion

The purpose of this article was to analyze, from a systematic perspective, the contribution of the authors through their publications to the study of the use of the Internet, ICT, and Latin America carried out through high-impact journals indexed in Scopus and Wos databases, leading the authors to identify which have been the applications of technological resources as shown in articles such as “Incidence of personal and contextual factors on the use of technological resources by students in Latin America” (Cebrián-Cifuentes et al., 2021), whose objective was to determine the structure of ICT use by students, together with the influence of personal and contextual factors. The application of a survey-type tool allowed to identify that students use the Internet in their leisure time more than in their study time, from which it can be inferred that educational methodologies still focus more effort on traditional training and that the space that students use technology is mostly dedicated to different social networks and real-time communication applications. Within this same line of research, the article entitled “Impact of digital technologies on teaching and learning in higher education in Latin America: a look at the scope, barriers and bottlenecks” is registered (Okoye et al., 2022) which sought to reveal the extent to which digital technologies have been used to advance the teaching and learning process in HEIs, and the barriers and bottlenecks that may have prevented their effective implementation in all HEIs. This research was conducted in nine Latin American countries highlighting, among its main findings, the existence of a digital divide caused by insufficient levels of investment in technology and research in educational institutions, which displaces the student body, training in the use of technological resources, resulting in the formation of professionals with few digital skills in the development of their professions in the labor market, making their Persiles less attractive when facing the real sector within companies. The above implies that an opportunity for improvement is identified in creating strategies in public planning to encourage investment and training of both students and teachers in using

technological tools to support students’ academic training.

On the other hand, it is important to highlight research results such as “the effects of telecommunications infrastructure on economic growth in Latin America” (Fawaz et al., 2021), whose objective was to examine the effects of telecommunications infrastructure on economic growth in 15 Latin American (LA) countries for the period 1995-2016. The study has analyzed how technological tools contribute to economic, social and cultural development as their use has been increasingly implemented in everyday life, from the first calculations made by giant computers to real-time communication of people regardless of their geographical position. Companies support many of their strategies in production, sales, marketing, human talent management, and investments, among others, in the utilities found in the use of ICT tools and, of course, the use of the Internet, so globalization has marched at the same time and importance that technological advances in the service of humanity. The authors concluded that the telecommunications infrastructure contributes to countries’ economic growth and that the absence of this can cause delays in the social, economic and cultural evolution. Therein lies the importance of having government plans and programs that encourage research that opens the way to the findings that constitute raw material in the creation of new and better tools increasingly specialized.

## 5. Conclusions

This review article concludes by highlighting the importance of knowing the updated state of the literature published in databases such as Scopus or Wos regarding the study of Internet use and the use of ICTs in Latin America since, from this, it is possible to identify the needs of the countries belonging to this community, in terms of technology development and Internet use. Among the main contributions of the authors cited in this article, it is concluded that the area where Internet access is mainly used in its operation is education, which has identified significant advantages in the implementation of virtual

strategies for the training of hundreds of thousands of students who, for some reason, cannot access academic institutions of higher education. However, it has become evident that the absence of investment in technology as well as the lack of training of teachers in the use of the same, does not allow for enhancing teachers' digital skills. This leads to significant social, economic and cultural backwardness compared to countries whose investment in technological infrastructure exceeds global averages, thus significantly reducing the latent digital divide in most Latin American countries. It also identifies the evidence that technological infrastructure investment helps nations develop potentialities that contribute to their development. In this way, this article concludes, confirming the importance of knowing the contributions that the scientific community has carried out thanks to research on variables such as those discussed in this document, and it is expected, once the results of this review are identified, to encourage researchers to continue printing significant efforts in identifying opportunities for improvement in the use of the Internet in different social aspects, such as education, industrialization, and communication.

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