Impact Of Ict On The Reading And Writing Process In Covid-19 Times

Repercusiones De Las Tic En El Proceso De Lectura Y Escritura En Tiempos De Covid-19 Impacto Das Tic No Processo De Leitura E Escrita Em Tempos De Covid-19

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ABSTRACT

A documentary review was conducted on the production and publication of research papers related to the study of ICT, Literacy, and Covid-19 variables. The purpose of the bibliometric analysis proposed in this paper was to know the main characteristics of the volume of publications registered in the Scopus database during the period 2020-2022, achieving the identification of 111 publications. The information provided by this platform was organized employing tables and figures categorizing the information by Year of Publication, Country of Origin, Area of Knowledge, and Type of Publication. Once these characteristics were described, a qualitative analysis was used to refer to the position of the different authors on the proposed topic. Among the main findings of this research was that Spain, with 11 publications, was the country with the highest scientific production registered in the name of authors affiliated with institutions of that nation. The area of knowledge that contributed most to the construction of bibliographic material referring to the study of the variables Entrepreneurship, Technology, and Innovation was Social Sciences with 61 published documents, and the type of publication most used during the period mentioned was Journal Articles with 67% of the total scientific production.

Keywords: reading and writing processes, covid-19, ict
RESUMEN
Se realizó una revisión documental sobre la producción y publicación de trabajos de investigación relacionados con el estudio de las variables TIC, Alfabetización y Covid-19. El propósito del análisis bibliométrico propuesto en este trabajo fue conocer las principales características del volumen de publicaciones registradas en la base de datos Scopus durante el periodo 2020-2022, logrando la identificación de 111 publicaciones. La información proporcionada por esta plataforma se organizó empleando tablas y figuras categorizando la información por Año de Publicación, País de Origen, Área de Conocimiento y Tipo de Publicación. Una vez descritas estas características, se utilizó un análisis cualitativo para referirse a la posición de los diferentes autores sobre el tema propuesto. Entre los principales hallazgos de esta investigación se encontró que España, con 11 publicaciones, fue el país con mayor producción científica registrada a nombre de autores afiliados a instituciones de esa nación. El área del conocimiento que más contribuyó a la construcción de material bibliográfico referido al estudio de las variables Emprendimiento, Tecnología e Innovación fue Ciencias Sociales con 61 documentos publicados, y el tipo de publicación más utilizada durante el período mencionado fue Artículos de Revistas con el 67% del total de la producción científica.

Palabras clave: procesos de lectura y escritura, covid-19, tic

RESUMO
Foi realizada uma revisão documental sobre a produção e publicação de trabalhos de investigação relacionados com o estudo das variáveis TIC, Literacia e Covid-19. O objetivo da análise bibliométrica proposta neste trabalho foi conhecer as principais características do volume de publicações registadas na base de dados Scopus durante o período 2020-2022, conseguindo identificar 111 publicações. A informação disponibilizada por esta plataforma foi organizada através de tabelas e figuras categorizando a informação por Ano de Publicação, País de Origem, Área de Conhecimento e Tipo de Publicação. Uma vez descritas estas características, recorreu-se a uma análise qualitativa para referir o posicionamento dos diferentes autores sobre o tema proposto. Entre as principais conclusões desta investigação, verificou-se que a Espanha, com 11 publicações, foi o país com maior produção científica registada em nome de autores filiados em instituições dessa nação. A área de conhecimento que mais contribuiu para a construção de material bibliográfico referente ao estudo das variáveis Empreendedorismo, Tecnologia e Inovação foi a de Ciências Sociais com 61 documentos publicados, e o tipo de publicação mais utilizado no período citado foi o de Artigos de Periódicos com 67% do total da produção científica.

Palavras-chave: Processos de Leitura e Escrita, Covid-19, TIC.
INTRODUCTION

The impact of information and communication technologies (ICT) on literacy processes during COVID-19 is profound and transformative. The global pandemic has forced educational innovation in an environment marked by social distancing and school closures, which has stimulated the adoption and integration of technological tools in learning. In this context, ICTs have become an essential ally to guarantee the continuity of education. Online learning platforms, virtual classrooms, and interactive applications have become the new space for teaching and learning. Students, teachers, and parents are immersed in a digital environment where reading and writing skills are developed creatively and dynamically.

ICTs have provided access to a wide variety of reading materials in digital formats, from electronic books and articles to multimedia resources and online libraries. This not only expands the range of options available but also facilitates the personalization of the reading experience to suit the needs and preferences of each student.

In the field of writing, ICT has fostered creativity and collaboration. Word processing platforms, grammar-checking applications, and online editing tools have provided students with the opportunity to improve their writing skills interactively. Digital communication and real-time feedback with teachers have also become essential ingredients for developing effective writing skills. However, it is important to recognize that the influence of ICT on literacy processes also presents challenges. The digital divide is evident because not all students have the same access to reliable devices and connections. This has highlighted the need to address inequalities to ensure that all students can benefit equally from online educational opportunities.

The impact of ICTs on the literacy process in the COVID-19 era is a double-edged sword: it opens up new opportunities for education and literacy, but it also emphasizes the importance of addressing technological disparities. This transitional moment underscores the need to continue to explore and equitably leverage educational technology tools to refine literacy skills relevant to today's digital world.

For this reason, this article seeks to describe the main characteristics of the compendium of publications indexed in the Scopus database related to the ICTs, Literacy, and Covid-19 variables, as follows.
well as the description of the position of certain authors affiliated to institutions, during the period between 2020 and 2022. The general objective is To analyze from a bibliometric and bibliographic perspective, the elaboration and publication of research papers in high-impact journals indexed in the Scopus database on the variables ICTs, Literacy, and Covid-19, during the period 2020-2022.

METHODOLOGY

This article is carried out through research with a mixed orientation that combines quantitative and qualitative methods. On the one hand, a quantitative analysis of the information selected in Scopus is carried out under a bibliometric approach of the scientific production corresponding to the study of ICT, Literacy, and Covid-19.

A qualitative perspective, examples of some research papers published in the area of the study mentioned above, based on a bibliographic approach that allows describing the position of different authors on the proposed topic. It is important to point out that the entire search was carried out through Scopus, establishing the parameters referenced in Figure 1.

**Figure 1.** Methodological design

![Methodological design](source.png)

**Source:** Own elaboration

### 3.1.1 Phase 1: Data collection

The data collection was executed from the Scopus web page search tool, where 111 publications were obtained by choosing the following filters:

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TITLE-ABS-KEY (ict, AND literacy, AND covid-19 ) AND PUBYEAR > 2019 AND PUBYEAR < 2023
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- Published papers whose study variables are related to the study of Covid-19, ICT, and literacy processes.
- Limited to the years 2020-2022.
- Without distinction of country of origin.
- Without distinction of area of knowledge.
- Without distinction of type of publication.

3.1.2 Phase 2: Construction of analysis material

The information collected in Scopus during the previous phase is organized and subsequently classified through graphs, figures, and tables as follows:

- Cooccurrence of words.
- Year of publication.
- Country of origin of publication.
- Area of knowledge.
- Type of publication.

3.1.3 Phase 3: Drafting of conclusions and final document

In this phase, the results previously obtained are analyzed, resulting in the determination of conclusions and, consequently, in obtaining the final document.

RESULTS

4.1 Cooccurrence of words

Figure 2 shows the co-occurrence of keywords found in the publications identified in the Scopus database.
Figure 2. Cooccurrence of words

Source: Own elaboration (2023) based on data exported from Scopus.

Covid-19 was the most frequently used keyword in the studies identified through the execution of Phase 1 of the Methodological Design proposed for the development of this article. Information and Communication are also among the most frequently used variables, associated with variables such as E-Learning, Pandemic, ICT, Digital Library, Higher Education, and Online Education. From the above, it is noteworthy that the profound impact of ICTs on literacy processes shows how technology has reformed traditional teaching methods, expanding access to educational resources and creating new opportunities for interactive and collaborative learning. In addition, it discusses the challenges and inequalities that arise due to the digital divide and the strategies used to address these differences. By analyzing the evolution of ICT integration in education during COVID-19, valuable information can be gained about the future of education and its long-term impacts at this transition point.

4.2 Distribution of scientific production by year of publication

Figure 3 shows the distribution of scientific production by year of publication.
Within the main characteristics evidenced through the distribution of scientific production by year of publication, a notable number of publications registered in Scopus were in 2022, reaching a total of 57 documents published in journals indexed in that platform. The above can be explained by articles such as “The effect of external factors on technology use among Ha'il university faculty: evidence from Saudi Arabia” (Khan, 2022). The purpose of this paper is to explore external factors: organizational technical support, organizational administrative support, organizational infrastructure and resources, and the effect of organizational ICT policy on engagement with technology use among faculty at Ha'il University, Saudi Arabia. Design/methodology/approach: A cross-sectional survey approach was used to collect data. A sample of 300 full-time employees, with administrative and teaching responsibilities, participated using a self-completion questionnaire. Data were analyzed using exploratory factor analysis (EFA), correlation, and multiple regression to determine the impact of external factors on engagement in technology use. Overall, the results provided evidence that organizational technical support, organizational administrative support, and organizational infrastructure and resources have a significant positive impact on a commitment to technology use. However, the organization's ICT policy has a negligible negative impact on commitment to technology use. The findings could be generalized to other public sector universities in the Kingdom of Saudi Arabia.

4.3 Distribution of scientific production by country of origin.
Figure 4 shows the distribution of scientific production according to the nationality of the authors.

**Figure 4.** Distribution of scientific production by country of origin.

Within the distribution of scientific production by country of origin, the records from institutions were taken into account, establishing Spain as the country with the highest number of publications indexed in Scopus during the period 2020-2022, with a total of 11 publications. In the second place, Indonesia with 9 scientific papers, and Ukraine occupy the third place presenting to the scientific community, with a total of 8 papers among which is the article entitled “The digital competence of Spanish secondary school teachers in time of COVID-19” (Martin, 2022) The main objective of this research was to analyze the ICT resources and teaching methodologies used by secondary school teachers before and during the state of alarm decreed by the Spanish state to combat the COVID-19, as well as the opinion of teachers about their training in digital competences. The information was collected through a questionnaire designed ad hoc addressed to all Biology and Geology teachers in the autonomous community of Castilla y León (Spain) who taught in ESO, Bachillerato, and/or Vocational Training centers during the academic year 2020/2021 (n= 145). The results obtained show that the use of ICT increased considerably during the state of alarm, which allowed the adaptation of programs and teaching methodology. The teachers surveyed considered that their use facilitated the teaching-learning process; however, a high percentage stated that they did not have the necessary training and resources. This study also suggests the existence of a digital divide in the Spanish educational system, since a high
percentage of teachers indicated that not all their students had the necessary means and/or training to use virtual learning environments or virtual educational communication tools.

4.4 Distribution of scientific production by area of knowledge

Figure 5 shows the distribution of scientific publications according to the area of knowledge through which the different research methodologies are implemented.

Figure 5. Distribution of scientific production by area of knowledge.

Social Sciences was the area of knowledge with the highest number of publications registered in Scopus with a total of 61 documents that have based their variable methodologies on ICTs, Literacy, and Covid-19. In second place, Computer Science with 40 articles, and Environmental Science in third place with 15. The above can be explained thanks to the contribution and study of different branches. The article with the highest impact was registered in the area of Social Sciences entitled “Students’ Skills and Experiences in the Use of Information and Communication Technologies in Remote Physical Education Lessons” (Rutkauskaite, 2022). This study aimed to determine the relationship of Lithuanian students
of grades 8-12 with information and communication technologies and to reveal students' experiences in participating in remote physical education lessons. A total of 268 students selected by the convenience sampling method completed a questionnaire consisting of four blocks with 53 closed and 4 open-ended questions divided by themes. The relationships between physical activity during quarantine and its predictors were evaluated by linear and hierarchical regression analysis. Students' computer literacy skills were estimated to be slightly above average and students' positive attitudes toward ICT in the educational process would prevail. In remote physical education lessons, students generally exercised independently or together using a video communication program. Students' expectations for remote physical education lessons included playing sports, interesting and active challenges, and the opportunity to be independent. Older students and students who spent more time with ICT and had fewer computer skills were less physically active and fit. During quarantine, students' physical activity and physical fitness declined.

4.5 Type of publication

Figure 6 shows the distribution of the bibliographic findings according to the type of publication made by each of the authors found in Scopus.

Figure 6. Type of publication.

The type of publication most frequently used by the researchers referenced in the body of this document was Journal Articles with 67% of the total production identified for analysis, followed by Session Papers.
with 21%. Book Chapter are part of this classification, representing 7% of the research papers published during the period 2020-2022 in journals indexed in Scopus. In the latter category, the one entitled “Work from the home study: the impact of ICT anxiety and smartphone addiction in NIPA School of Management Teachers on job performance” (Suryanto, 2022) stands out. This study aims to analyze the impact of ICT anxiety and smartphone addiction on the job performance of all NIPA School of Management teachers (Jakarta, Bandung, and Makassar). This study applied a quantitative method with a total sampling technique and surveyed 135 respondents using an online questionnaire. In addition, this study employed job demands and resources theory as well as PLS-SEM to analyze five variables (ICT anxiety, smartphone addiction, disruption, job effectiveness, and job performance) and test seven hypotheses. The findings show that there is a positive relationship between ICT anxiety and disruption, while disruption has negative influences on job efficacy and job performance. Therefore, this study recommends the facilitation of knowledge sharing related to ICT competence or literacy. In addition, NIPA should improve the security guarantees of teachers' intellectual rights concerning technology choice and integrate the requirements of ICT needs with the technical-administrative procedures.

CONCLUSIONS

Through the bibliometric analysis carried out in this study, it was possible to establish that Spain was the country with the largest number of published records regarding the variables ICTs, Literacy, and Covid-19, with a total of 11 publications in the Scopus database. It was also possible to establish that the application of theories framed in the area of Social Sciences was used more frequently in the impact generated by the implementation of ICTs in the literacy processes during the Covid-19 pandemic since it generated an unprecedented transformation in the educational field. The pandemic has led to the rapid adoption and adaptation of technological tools in education, changing literacy and learning skills in general. ICT has demonstrated its ability to overcome physical barriers and enable the literacy process beyond the limitations of traditional classrooms. Virtual classrooms and online platforms are becoming meeting places where teachers and learners can interact despite distance. Digital reading materials, multimedia resources, and interactive applications enrich the learning experience, making it more engaging and suitable for different learning styles.
However, despite the challenges, ICTs have left a lasting imprint on education. They promote global collaboration, self-learning, and continuous adaptation, essential skills in a changing world. The pandemic has accelerated the integration of technology in education and highlighted the importance of educators using these tools effectively in their teaching practices. Ultimately, the impact of ICT on the literacy process during Covid-19 highlights the need for a balanced and careful approach when integrating technology into education. Properly managed and addressed, ICT can transform the way students develop literacy and prepare them for an increasingly digital and globalized world.

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