

CONNECTIVITY AND MANAGEMENT OF TECHNOLOGICAL SUPPLIES IN EDUCATIONAL INSTITUTIONS DURING COVID -19

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Summary

Through this document, it was possible to analyze the main characteristics of the volume of scientific production regarding the study of the variables Connectivity, Education and COVID-19, in order to know the management of electronic supplies in Educational Institutions during the COVID-19 pandemic. A bibliometric analysis was proposed to analyze details such as Year of Publication, Country of Origin of the publication, Area of Knowledge in which the published research is carried out and the Type of Publication most frequently used by the authors of each document published in high impact journals indexed in the Scopus database during the period between the years 2019 and 2022. Among the main findings, it was possible to determine that, for the execution of the different research methodologies, the report of 447 scientific documents related to the study of Connectivity, Education and Covid-19 was achieved. The maximum number of publications made in a year was 194 documents submitted both in 2019 and in 2020 and 2021. The country of origin of the institutions that reported the highest number of records in Scopus, was India with 75 documents, with 50 documents presented by authors affiliated with institutions in the United States. The area of knowledge with the greatest influence at the time of executing the research projects that resulted in scientific publications was Social Sciences, which contributed great theoretical material in a total of 241 publications, followed by Computer Science with 129 documents. Finally, the type of publication most frequently used to publicize findings from the analysis of the aforementioned variables was the Article, which represented 69.1% of the total scientific production.

Keywords: Connectivity, Education, Covid-19

1. INTRODUCTION

The crossing of the COVID-19 health emergency worldwide, has marked a significant change in life as we know it, education has taken a new direction and optics, marked by the obstacles of confinement. The development of new dogmas that allow access to education as a basic and fundamental right of humanity, is the starting point at present, the use of technological tools as an end to bias the difficulties of the "new normal", are the factors to take into account through the analysis proposed in this article. Faced with this challenge, the role of teachers as a key factor in making students' rights effective is highlighted (Santiago, Navaridas, & Reparaz, 2014).



The above is based on the fact that the methodologies to be incorporated into the academic programs of any institution without distinction of the level of schooling, are of great responsibility of the teaching staff, so the inclusion of ICT as tools for access to education find their starting point in them. Now we can also see the political role of the different governments and their classes, for the determination of strategies that allow the scenarios for quality education (Cervantes & Gutiérrez, 2020). And this in turn is based on the guidelines of different international organizations and the premise of social inequality, as a determinant in the digital divide and its difficult access, for those who do not have the resources of a technological nature and that prevent the learning of those who belong to these excluded sectors (UNESCO, 2020). Therefore, the development of this article has been proposed in order to identify the main characteristics within the total of scientific publications carried out in high impact journals indexed in Scopus during the period 2019-2022, in order to constitute a support material in the construction of new knowledge around the study of the variables Connectivity, Education and COVID-19.

2. GENERAL OBJECTIVE

Analyze from a bibliometric approach, the characteristics in the volume of scientific production related to Connectivity, Education and COVID-19, registered in Scopus during the period 2019-2022.

3. METHODOLOGY

This article is carried out through a mixed orientation research that combines the quantitative and qualitative method.

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 Connectivity, Education and COVID-19.

On the other hand, examples of some research works published in the area of study indicated above are analyzed from a qualitative perspective, starting from a bibliographic approach that allows describing the position of different authors against the proposed topic.

It is important to note that the entire research was carried out through Scopus, managing to establish the parameters referenced in *Figure 1*.

3.1 METHODOLOGICAL DESIGN

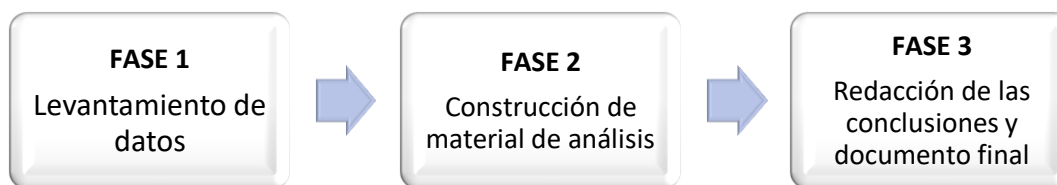


Figure 1. Methodological design

Source: Authors.

3.1.1 PHASE 1: DATA COLLECTION

Data collection was executed from the Search tool on the Scopus website, where 16 publications were obtained from the choice of the following filters:

- TITLE-ABS-KEY (connectivity, AND education, AND covid AND -19) AND (EXCLUDE (PUBYEAR , 2023))
- Published documents whose study variables are related to the study of Connectivity, Education and Covid-19.
- Works published in journals indexed in Scopus during the period 2019-2022.
- No distinction by country of origin
- Without distinction in areas of knowledge.
- Regardless 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 by graphs, figures and tables as follows:

- Co-occurrence of Words.
- Year of publication.
- Country of origin of the publication.
- Area of knowledge.
- Type of Publication.

3.1.3 PHASE 3: DRAFTING OF CONCLUSIONS AND OUTCOME DOCUMENT

In this phase, we proceed with the analysis of the results previously yielded resulting in the determination of conclusions and, consequently, the obtaining of the final document.

4. RESULTADOS

4.1 CO-OCCURRENCE OF WORDS

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

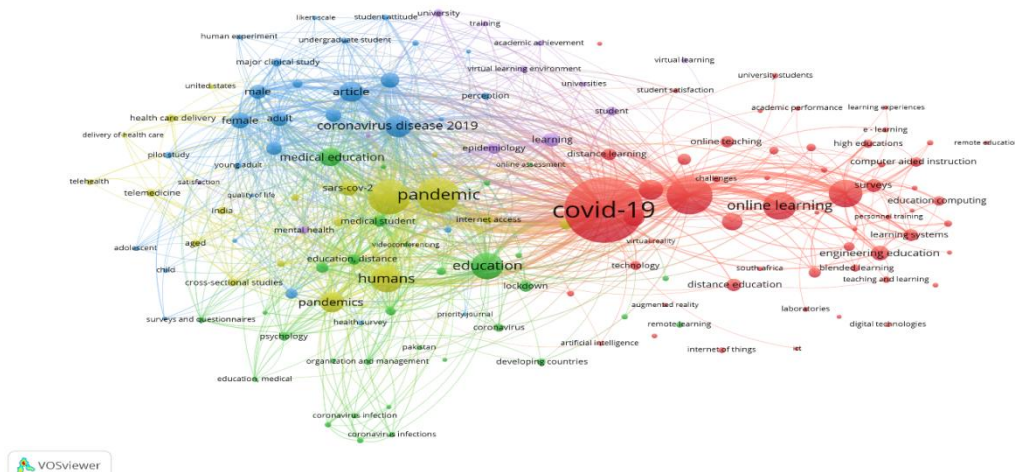


Figure 2. Co-occurrence of words
 Source: Own elaboration (2023); based on data exported from Scopus.

In observance of Figure 2, corresponding to this numeral, it is possible to identify the word COVID-19 with the highest influx within the 447 publications of high impact journal indexed in Scopus Database during the corresponding period between the validity of 2019 and 2022, in addition to the words pandemic, online education, human and distancing, among others that were identified through the application of Phase 1 of the methodological design proposed for this article and that are closely related, since they are the product of the impact of the pandemic on society and in the different areas that converge it. On the other hand, words such as Distance Education, virtuality and internet access make up another important group of words that are part of research of great relevance and that broadly determine the management exercised by the different actors of society to meet the objective of education in it. The analysis of this graph of Co-currence that contains the keywords for this research, allow to evaluate the relevance of the same and that in the same sense direct the conduct of the fulfillment of the proposed objectives of this review within what is contemplated in numeral 2.

4.2 DISTRIBUTION OF SCIENTIFIC PRODUCTION BY YEAR OF PUBLICATION

Figure 3 shows how scientific production is distributed according to the year of publication.

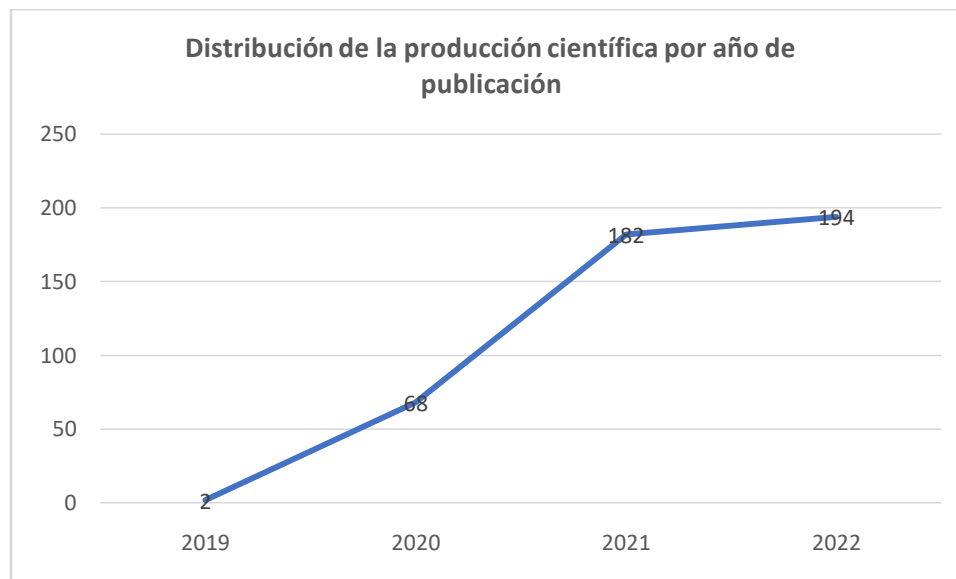


Figure 3. Distribution of scientific production by year of publication.

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

The study of the variables Connectivity, Education and COVID-19, has been evidenced in a significant growth within the publications registered in the Scopus Database since 2019 with 2 records to a total of 194 only in the validity of 2022, leaving between 2020 and 2021 large contributions with a total of 250 publications. Among the publications under analysis is the 2020 article entitled "Technological barriers and challenges in the use of ICT during the COVID-19 emergency Distance learning", (Rahiem, 2020) whose objective was to analyze the observations of university students in the face of the vicissitudes of the Covid 19 pandemic, in attention to the use of technological tools for remote learning; for which a qualitative approach was used as a scientific method applied to a population of 80 students belonging to the Faculty of Education of a University in Jakarta, Indonesia. This study showed that the problems with technological devices, internet connection and lack of computer skills of students for access to education were evident, likewise, there were also problems in the social framework, as many families did not have enough resources for the purchase of new devices, for full internet coverage and to cover

the cost of data. The analysis and study of this article is important, since it allows the improvement of the learning experience of students in the midst of the pandemic and post-pandemic. It is also important to highlight the 2021 research article entitled "The unconnected: COVID-19 and disparities in access to quality broadband for higher education students", (Cullinan, Flannery, Harold, Lyons, & Palcic, 2021) whose main objective was to combine nationwide data on students of higher education in the Irish country, which presented difficulties in accessing technological tools and poor access to high-quality internet, in order to determine the improvements that could be applied to mitigate these factors that hinder the participation of students in learning processes in the midst of the pandemic, this becomes very relevant due to the types of pedagogical models that had to be applied in the midst of COVID 19. The research showed that 1 in 6 students comes from areas with little coverage, due to residing in remote geographical spaces or more vulnerable socio-economic states, data that are of great importance for the identification and support of them by higher education institutions and the State. This model can be replicated to great extent worldwide, for the improvement of education as a determining factor and as a fundamental right of humanity.

4.3 DISTRIBUTION OF SCIENTIFIC PRODUCTION BY COUNTRY OF ORIGIN.

Figure 4 shows how scientific production is distributed according to the nationality of the authors.

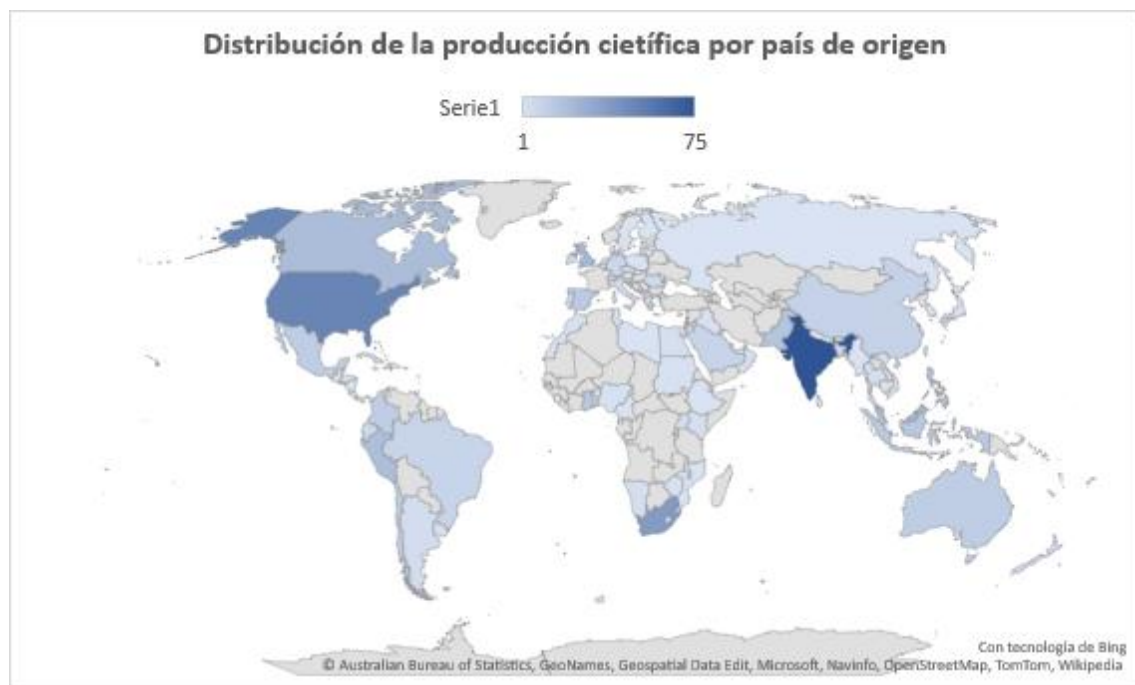


Figure 4. Distribution of scientific production by country of origin.

Source: Own elaboration (2023); based on data provided by Scopus.

India was the country with the highest number of publications registered in the Scopus Database during the period between 2019-2022 regarding the study of the variables Connectivity, Education and COVID-19, with a total of 75 documents, followed by the United States of America with 50 publications registered in second place. Among them, the article entitled "Interrupted educational trajectories: exploring the effects of COVID-19 on adolescent learning and priorities to "build back better" education systems in Ethiopia stands out, (Jones, et al., 2022) whose study I count with the purpose of establishing ways to mitigate the negative impact of the pandemic on

education systems worldwide, in observance of the models adapted in Ethiopia, which experienced a favorable progress after the health emergency, the above concluded on the study of mixed methods applied to the region virtually to 3066 adolescent students, to whom interviews were conducted, where it was found that the population belonging to marginalized communities had the greatest difficulties in accessing education, This leads to better policy intervention for the establishment of investments in blended learning approaches and a reduction in the gap for the least advantaged.

Peru, Mexico, Colombia, Brazil and Chile stand out as Latin American countries registered in this list within the scientific management on these variables Connectivity, Education and COVID-19. At this point it should be noted that the production of scientific publications when classified by country of origin, presents a special characteristic and is the collaboration between authors with different affiliation to both public and private institutions, and these institutions can be from the same country or of different nationalities so that the production of an article with co-authorship of different authors from different countries of origin allows each of the countries to add as a unit in general publications.

4.4 DISTRIBUTION OF SCIENTIFIC PRODUCTION BY AREA OF KNOWLEDGE

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

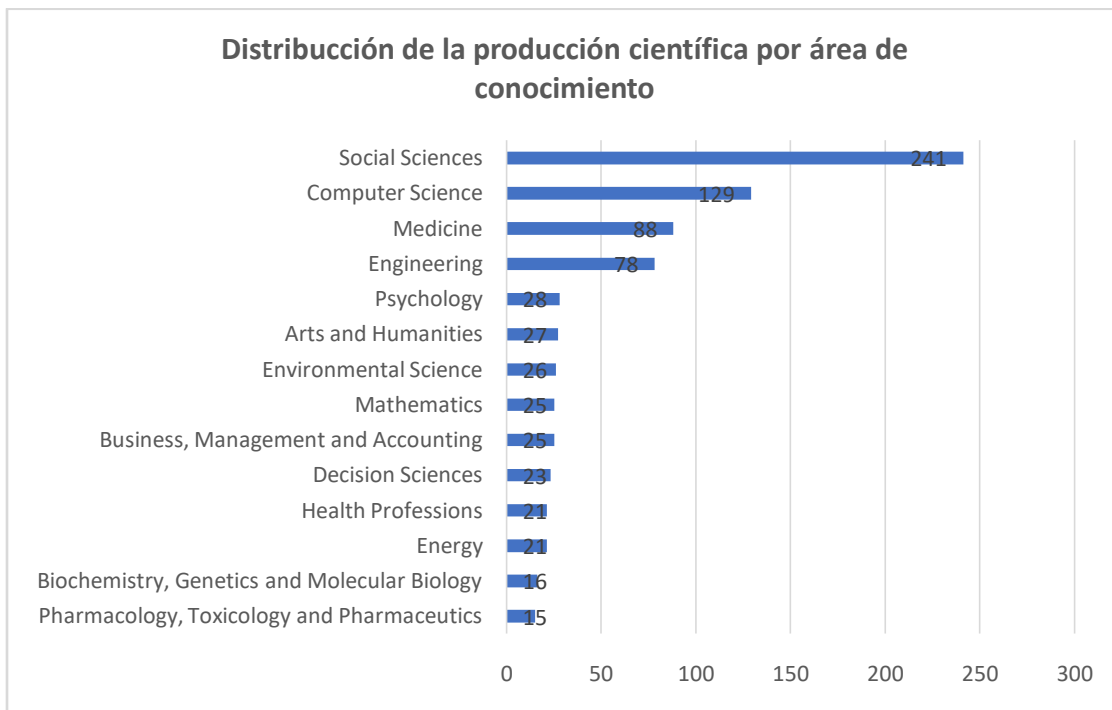


Figure 5. Distribution of scientific production by area of knowledge.

Source: Own elaboration (2023); based on data provided by Scopus.

The social sciences was the area of knowledge with the greatest contribution in the study of the variables Connectivity, Education and COVID-19, with a total of 241 publications registered in the Scopus Database, among which the article entitled "Adoption of online learning platforms for inclusive growth: post-COVID-19 approach" stands out, (Gandotra, 2022) whose objective was to examine the current context in the face of the challenges of virtuality, the internet and access to

ICTs as a necessity to safeguard education as a factor for human development. Digital platforms went from being an option to an obligation, education from distancing was the starting point for the application of new dogmas in learning, the study of these variables from the orbit of social behavior as a science is fundamental for the progress that is required. In second place with the greatest contribution in research regarding the topic raised, we find Computer Science with 129 publications, among which we find the article named "Student practices of mobile telephony for academic purposes: Strengthening post-pandemic university digitalization", (Nikolopoulou, 2022) which focused on determining the advantages and implications for students, educators and student organizations of the use of the smartphone as an educational resource, since students use it to search for information, allows them easy and quick access to electronic classes, etc., however it could be a distracting element if it is not used in a relevant way by the student body. For this research, the participation of 60 students from a Greek University was analyzed, through questionnaires that allowed a descriptive content analysis to examine the qualitative data. This debt allowed the deepening of the post-pandemic university digitalization and the importance of the practice of mobile phones for academic purposes.

Likewise, various areas of knowledge are evidenced in the study of the variables, as the variables under analysis have a great scope, as evidenced in Figure 5, where there are areas such as Medicine, Engineering and Psychology with great contributions and even areas such as Pharmacology, Toxicology and Pharmaceuticals that also have an incidence of relevance.

4.5 TYPE OF PUBLICATION

In the following graph, you will observe the distribution of the bibliographic finding according to the type of publication made by each of the authors found in Scopus.



Figure 6. Type of publication.

Source: Own elaboration (2023); based on data provided by Scopus.

70% of the publications identified through the execution of Phase 1 of the Methodological Design proposed for the development of this article, corresponds to Journal Articles, I feel this is the type of publication used most frequently by researchers, to publicize their findings in the study of the variables Connectivity, Education and COVID-19, in which it is important to highlight the article by Latin American authors "The Digitalization of Education in a Pandemic. The perspective of a Peruvian teacher", study (Suárez-Guerrero & Lloret-Catalá, 2022) that emphasized establishing the strengths, threats, weaknesses and opportunities of digitalization in the context of the pandemic in education, for which 1106 active teachers were used who developed structural interviews, in attention to a qualitative research approach, such research yielded for the Peruvian population under study, the marked gap in inequality for digital access and academic dropout; This clearly requires firm, inclusive and progressive policies to mitigate this great problem.


Conference articles with 19% make a strong presence in the research construction of this analysis in second place and Reviews with 6% were also of great importance for the study of the variables.


5. CONCLUSIONS

Thanks to the bibliometric analysis carried out in this article, it is possible to determine that within the main characteristics in the volume of scientific production referring to the study of the variables Connectivity, Education and COVID-19, taking into account that the search did not discriminate country of origin and that the temporal delimitation was broad when considering the records in Scopus during the period between 2019 and 2022, the total number of published research was really significant with 446 documents published in journals indexed on the same platform, which allows us to infer that education is a fundamental pillar within the formative processes of the human being and that even going through a large-scale health emergency such as COVID 19, it does not diminish importance in its study, Recognition and strengthening. With the elaboration of this academic analysis, the existing digital divide and its effects on education were evidenced, social inequality was framed as a factor of educational impossibility, the circumstances of the pandemic revealed the virtues of the technological world and its access tools. India was the country with the highest number of publications registered in Scopus during the same period with a total of 75 documents, 25 more than the United States, which ranked second. The foregoing allows us to infer that Indian and American researchers have shown much more interest based on the latent need in overcrowded cities where the proliferation of diseases such as COVID-19 in the midst of a pandemic is not an impediment to the achievement of quality basic education; confinement as the main enemy, experiences its fruits with the difficulties in the acquisition and use of ICTs, however, the above has not been an obstacle for authors worldwide to seek alternatives for the reduction of this scourge. The decisive presence of the state, the complete disposition of the faculty, the incessant performance of the student and the continuous support of the community will be essential to arrive at models of education cohesive with the current technological world. It is expected that, through the grouping of the data and considerations of different authors recorded in this text, research regarding the aforementioned variables will be encouraged and that the generation and construction of new knowledge supported by the findings made previously.

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