Section A-Research paper
ISSN 2063-5346

THE IMPACT OF ChatGPT ON EDUCATION: A NEW ERA OF ARTIFICIAL INTELLIGENCE-ASSISTED LEARNING

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Summary

A documentary review was carried out on the production and publication of research papers related to the study of the variable CHATGPT, EDUCATION, ARTIFICIAL INTELLIGENCE. The purpose of the bibliometric analysis proposed in this document was to know the main characteristics of the volume of publications registered in the Scopus database during the first semester of 2023, achieving the identification of 130 publications. The information provided by this platform was organized through graphs and figures categorizing the information by Year of Publication, Country of Origin, Area of Knowledge and Type of Publication. Once these characteristics have been described, the position of different authors towards the proposed theme is referenced through a qualitative analysis. Among the main findings made through this research, it is found that the United States with 38 publications with the highest scientific production registered in the name of authors affiliated with institutions in that country. The Area of Knowledge that made the greatest contribution to the construction of bibliographic material referring to the study of CHATGPT,

EDUCATION, ARTIFICIAL INTELLIGENCE was Social Sciences with 80 published documents, and the Type of Publication most used during the period indicated above were Journal Articles with 62% of the total scientific production.

Keywords: CHATGPT, EDUCATION, ARTIFICIAL INTELLIGENCE.

1. Introduction

Over the past decade, AI has transformed every area of our lives and education is no exception. One of the most notable advances in this area is ChatGPT, a high-level language model created by OpenAI. With its ability to understand and generate text in a context-sensitive way, ChatGPT ushers in a new era of AI-powered learning. ChatGPT's impact on education is great. By providing powerful natural language interaction tools, the system is changing the way students, educators, and researchers process information and knowledge.

First, ChatGPT greatly improves the learning experience of students. The model provides detailed explanations and offers suggestions to help students understand complex concepts more effectively. In addition, ChatGPT can be tailored to an individual's learning style, provide personalized support, and encourage students to actively participate in their learning process. Secondly, teachers find ChatGPT to be a valuable ally in lesson planning and design. The model can inform campaigns and projects and create relevant and up-to-date learning content. By automating administrative tasks such as test grading and student feedback, ChatGPT allows teachers to focus on personalizing instruction and support.

In addition, ChatGPT facilitates educational research by efficiently researching and analyzing large amounts of information. Researchers can use the model to analyze and synthesize data, identify patterns and trends, and develop new knowledge for education. However, despite the benefits and opportunities that ChatGPT offers, it is also important to recognize the challenges and consider the ethical implications. Over-reliance on AI in the educational process raises questions about student autonomy, data protection and fair access to technology. It is critical to address these issues responsibly and ensure that AI is used as a complementary and enriching tool, rather than completely replacing human interaction in the classroom.

Overall, ChatGPT's impact on education ushers in a new era of AI-powered learning. This advanced language model enhances students' learning experience, supports the work of educators, and promotes educational research. As we move into the future, it is imperative to find the right balance between technology and human teaching, leveraging artificial intelligence to enhance and enrich the educational process. For this reason, this article seeks to describe the main characteristics of the compendium of publications indexed in Scopus database related to the variables CHATGPT, EDUCATION, ARTIFICIAL INTELLIGENCE, as well. As the description of the position of certain authors affiliated with institutions, during the first half of the year 2023

2. General Objective

Analyze from a bibliometric and bibliographic perspective, the elaboration and publication of research works in high impact journals indexed in Scopus database on the variables CHATGPT, EDUCATION, ARTIFICIAL INTELLIGENCE during the first semester of the year 2023.

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 CHATGPT, EDUCATION, ARTIFICIAL INTELLIGENCE. 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 search was performed through Scopus, managing to establish the parameters referenced in *Figure 1*.

3.1. Methodological design

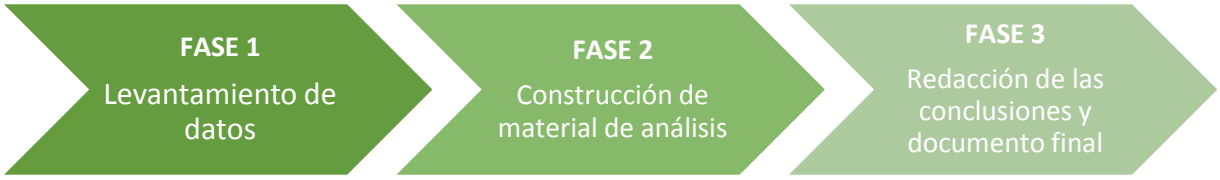

Figure 1. *Methodological design*
Source: Authors.

3.1.1 Phase 1: Data collection

Data collection was executed from the Search tool on the Scopus website, where 218 publications were obtained from the choice of the following filters:

- TITLE-ABS-KEY (chatgpt, AND education, AND artificial AND intelligence)
- Published documents whose study variables are related to the study of CHATGPT, EDUCATION, ARTIFICIAL INTELLIGENCE.
- Limited to the first half of 2023.
- Limited to Latin American countries.
- Without distinction of area 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.
- 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. Results

4.1 Co-occurrence of words

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

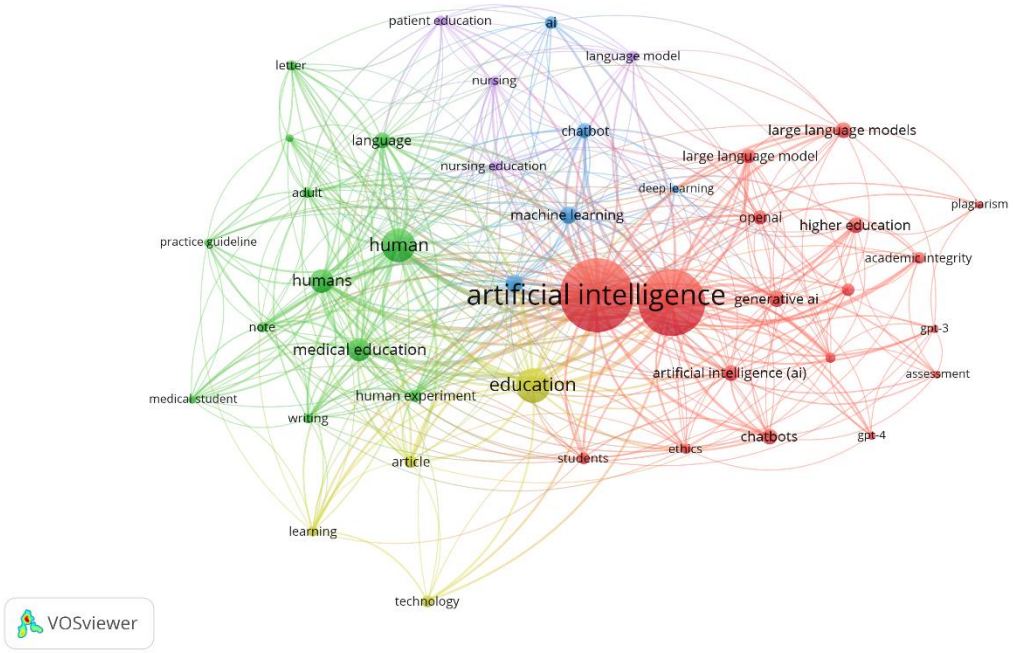

Figure 2. *Co-occurrence of words*
Source: Own elaboration (2023); based on data exported from Scopus.

Artificial Intelligence was the most frequently used keyword within the studies identified through the execution of Phase 1 of the Methodological Design proposed for the development of this article. Education is also among the most frequently used variables, associated with variables such as Higher Education, Big Data, Chatgpt. From the above, it is striking that, ChatGPT has ushered in a new era in AI-assisted education. With its ability to offer personalized learning, unlimited access to knowledge, and encouragement of creativity, this language model has transformed the way students learn and teachers teach. As we move towards an increasingly technological future, ChatGPT's impact on education promises to open new doors and possibilities for learning around the world.

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4.2 Distribution of scientific production by country of origin

Figure 3 shows how scientific production is distributed according to the country of origin of the institutions to which the authors are affiliated.

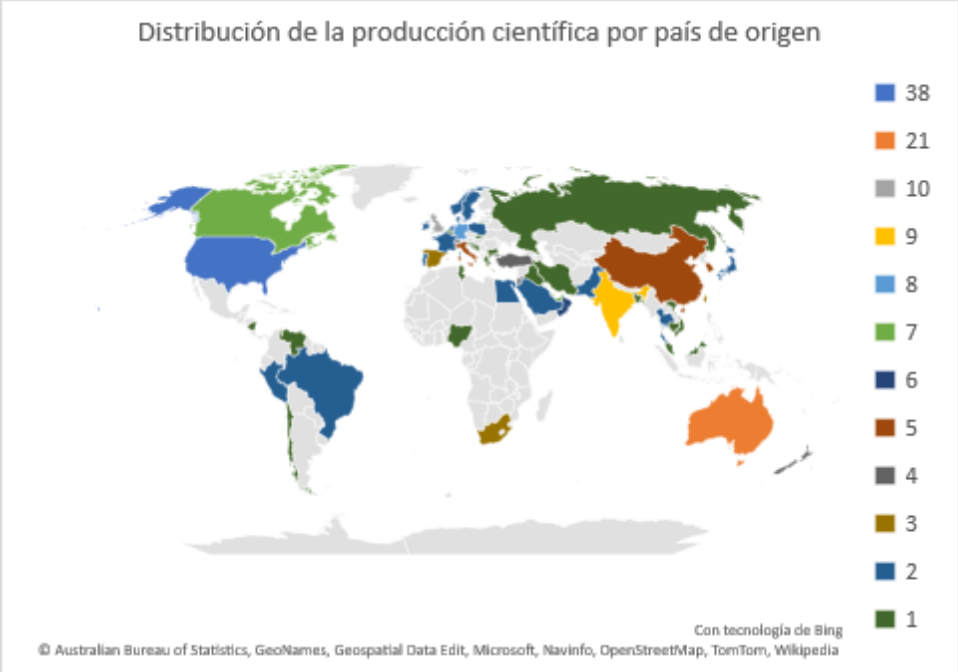

Figure 3. *Distribution of scientific production by country of origin.*
Source: Own elaboration (2023); based on data provided by Scopus.

Within the distribution of scientific production by country of origin, records from institutions were taken into account, establishing the United States, as the country of that community, with the highest number of publications indexed in Scopus during the first half of 2023, with a total of 76 publications in total. In second place, Australia with 21 scientific papers, and the United Kingdom ranking third presenting to the scientific community, with a total of 10 papers among which is the article entitled "The role of an open artificial intelligence platform in modern neurosurgical education: a preliminary study" This study aimed to show the reliability of ChatGPT by asking various questions to the chat engine, how you can contribute to neurosurgery education by preparing case reports or questions, and your contributions by writing academic articles. The results of the study showed that while ChatGPT provided intriguing and interesting answers, it should not be considered a reliable source of information. The absence of citations for scientific consultations raises questions about the credibility of the answers provided. Therefore, it is not advisable to rely solely on ChatGPT as an educational resource. With more updates and more targeted notices, it may be possible to improve its accuracy. In conclusion, while ChatGPT has potential as an educational tool, its reliability needs to be evaluated and improved further before it can be widely adopted in neurosurgical education.(Sevgi, 2023)

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4.3 Distribution of scientific production by area of knowledge

Figure 4 shows the distribution of the elaboration of scientific publications from the area of knowledge through which the different research methodologies are implemented.

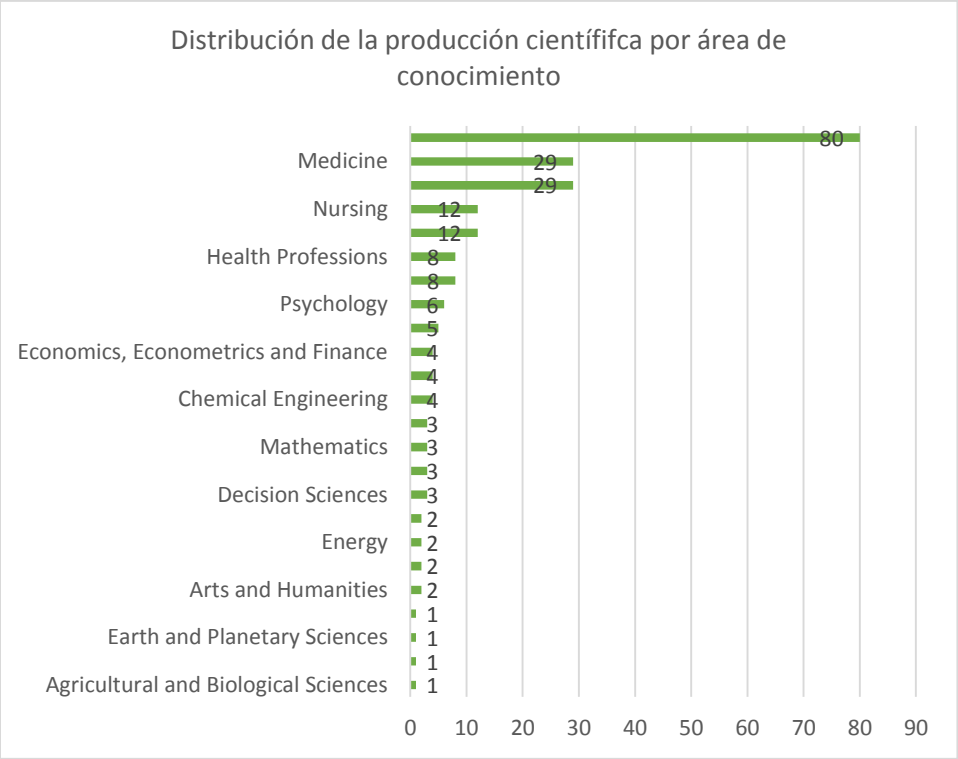

Figure 5. *Distribution of scientific production by area of knowledge.*
Source: Own elaboration (2023); based on data provided by Scopus

Social Sciences was the area of knowledge with the highest number of publications registered in Scopus with a total of 80 documents that have based their methodologies CHATGPT, EDUCATION, ARTIFICIAL INTELLIGENCE. In second place, Medicine with 29 articles and Computer Science in third place with 29. The above can be explained thanks to the contribution and study of different branches, the article with the greatest impact was registered by the Social Sciences area entitled "Evaluation of the viability of ChatGPT in medical care: an analysis of multiple clinical and research scenarios" This document aims to highlight the potential applications and limits of a large language model (LLM) in health care. ChatGPT is a newly developed LLM that was trained on a massive data set of text for dialogue with users. Although AI-based language models like ChatGPT have demonstrated impressive capabilities, it's unclear how well they will work in real-world scenarios, particularly in fields like medicine, where complex, high-level thinking is necessary. In addition, while using ChatGPT to write scientific papers and other scientific results may have potential benefits, important ethical concerns must also be addressed. Consequently, we investigated the feasibility of ChatGPT in clinical and research scenarios: (1) clinical practice support, (2) scientific output, (3) misuse in medicine and research, and (4) reasoning on public health issues. The results indicated that it is important to recognize and promote

education on the appropriate use and potential dangers of AI-based LLMs in medicine.(Cascella, 2023)

4.4 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.

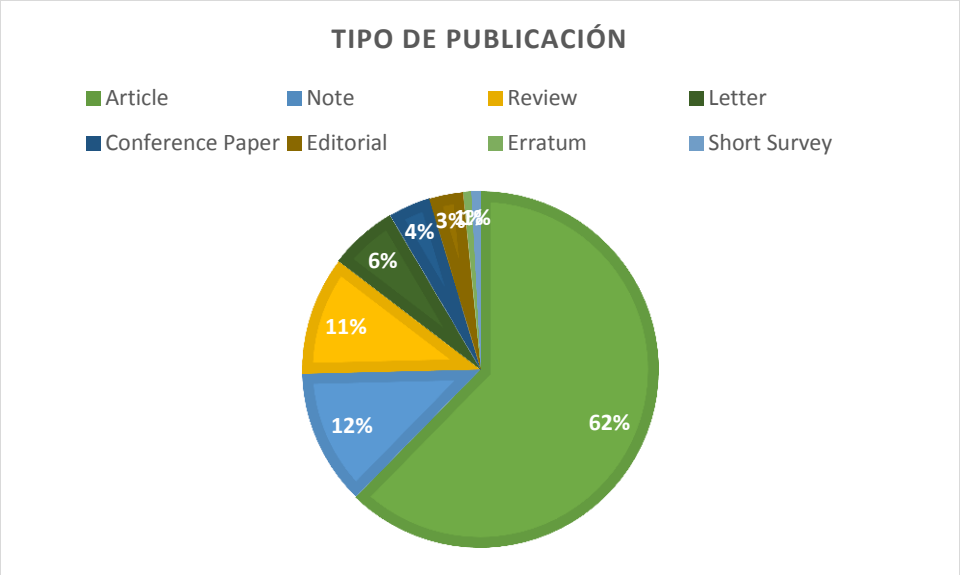

Figure 5. *Type of publication.*
Source: Own elaboration (2023); based on data provided by Scopus.

The type of publication most frequently used by the researchers referenced in the body of this document was the Journal Article with 62% of the total production identified for analysis, followed by the Notes with 12%. Conference Journal are part of this classification, representing 11% of the research papers published during the first semester of 2023 in journals indexed in Scopus. In this last category, the one entitled "And if the devil is my guardian angel: ChatGPT as a case study of the use of chatbots in education" stands out, this study examines ChatGPT in education, among the first users, through a qualitative instrumental case study. Conducted in three stages, the first stage of the study reveals that public discourse on social media is generally positive and there is enthusiasm regarding its use in educational settings. However, there are also voices that cautiously approach the use of ChatGPT in educational settings. The second stage of the study examines the case for ChatGPT through the lenses of educational transformation, quality of response, usefulness, personality and emotion, and ethics. In the third and final stage of the study, investigating user experiences across ten educational scenarios revealed several issues, including ChatGPT's deception, honesty and truthfulness, privacy deception, and manipulation. The findings of this study provide several research directions that should be considered to ensure safe and responsible adoption of chatbots, specifically ChatGPT, in education.(Tlili, 2023)

5. Conclusions

Through the bibliometric analysis carried out in the present research work, it was established that the United States was the country that has the largest number of records published for the variables CHATGPT, EDUCATION, ARTIFICIAL INTELLIGENCE Internal with a total of 38 publications in Scopus database. In the same way, it was established that the application of theories framed in the area of Social Sciences, were the most frequently used in the measurement of the impact generated by the implementation of ChatGTP in education, this artificial intelligence has opened the door to a new era of learning. This technology has proven to be an invaluable tool for students, teachers, and educators in general, providing immediate access to information, resources, and personalized support. ChatGPT has improved the efficiency and effectiveness of the learning process, helping students get quick and accurate answers to their questions, as well as access additional explanations and examples for better understanding. In addition, ChatGPT's ability to adapt to individual learning styles and provide personalized feedback has helped optimize students' academic progress. For creators, ChatGPT acts as a virtual assistant, providing additional assistance with lesson planning, creating educational content, and grading students. This frees up time and resources for educators to focus on more creative and strategic tasks, such as designing hands-on activities and encouraging active participation in class. However, it is important to note that ChatGPT, while a valuable tool, cannot completely replace the role of the teacher in the educational process. Human interaction, empathy, and the ability to adapt to students' emotional and social needs remain essential for rich and meaningful learning.

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