

Does ChatGPT influence research fields in the same way? A Scientometric analyses

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Abstract:

Artificial intelligence has invaded our academic space since ChatGPT left. Students were interested in seeing the potential of many debates. The authors conducted a scientometric research to identify the areas in which the researchers published articles on Chat GPT. The Clarivate Analytics database was used, search by ChatGPT keyword. The 57 results were analysed using VOS Viewer. There are many PRO opinions on the use of Chat GPT in education, medicine, mathematics and other sciences.

Keywords: *ChatGPT, Artificial Intelligence (AI), Scientometrics, VOSViewer*

1. Introduction

Scientometry is an important tool for understanding certain aspects of research results. Bibliometry is the statistical analysis of books, journals, scientific articles and authors. The analysis of the frequency of words, the analysis of citations or the number of articles of certain authors were the basic elements for such statistical studies. In the modern period bibliometry was transformed from a simple study of bibliographic statistics into a distinct field of study

There are several advantages in implementing bibliometric analysis that makes it suitable for the evaluation of research: provide an evaluation of scientific production in a given research area over a period of time, using indicators to evaluate research performance.

VOSviewer is a free and open source software developed by University of Leiden, Netherlands. It is used for scientometrics analyses and for visualization research data.

2. Methodology

ChatGPT is the most popular chatbot for many reasons. First of all, it is a large linguistic model, which means that it has been trained on a massive set of text and code data. This allows it to understand and generate text with a greater accuracy and fluency than other chatbots.

Second, Chat GPT is accessible to the general public. It is freely available to anyone to use through the OpenAI website. This has made ChatGPT easier to know and use by people around the world.

Third, ChatGPT is regularly updated, improved response quality, can be fine-tuning and customised for specific use cases and domains.

Here are some of the features that contribute to ChatGPT's popularity:

- Natural language understanding, it has been trained on a massive amount of diverse text data, this helps to generate human-like responses.
- It has contextual understanding, is designed to maintain context through a conversation, it can remember and refer back to previous messages, allowing for more coherent and relevant responses.
- It can be used for a variety of tasks, including providing information, translating languages and generating creative content.

By accessing Clarivate Analytics, we have identified 57 results from the following fields: Internal General Medicine -9, Engineering Biomedical-7, Computer Science Artificial Intelligence -5, Education Educational Research -5, Education Science Discipline -4. (Fig.1).

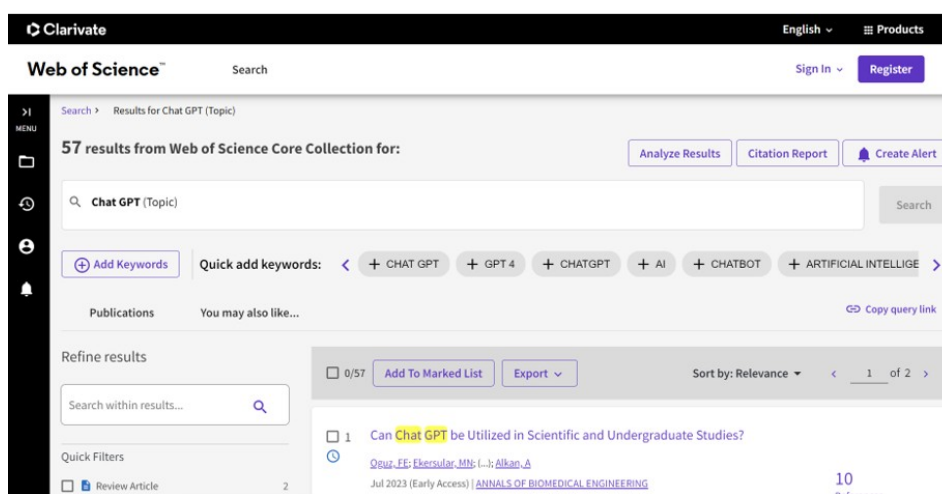


Fig. 1: Screenshot Clarivate Analytics searching keyword ChatGPT

The most productive authors who have so far managed to publish 2 works are Llyod, Nathan, Biswas, Som, Montagne, William, Yu, Hao.

3. Data analysis using VOSViewer

The most productive countries are USA, Spain, Italy, Germany, India. (Fig.2)

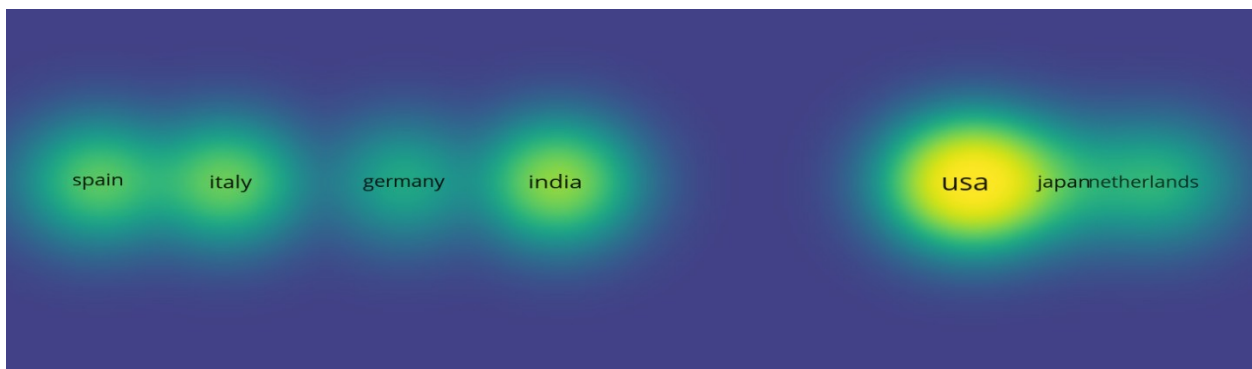


Fig. 2: VosViewer, Productive Countries Density Map

By analysing the co-occurrence on the keywords used by the authors, 299 keywords represented in the map in the fig were obtained. 3

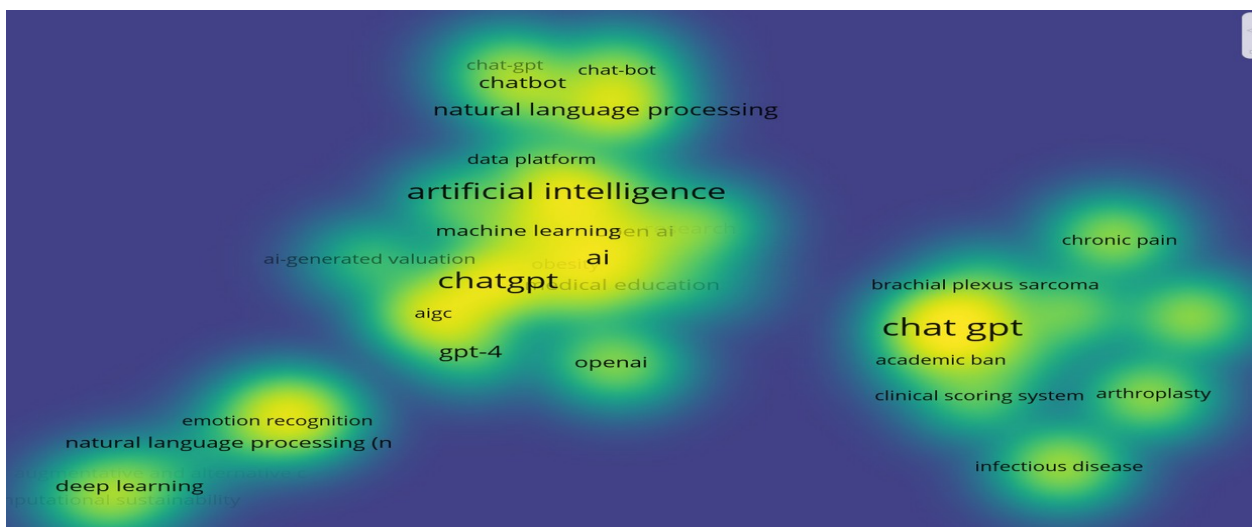


Fig. 3 VOSViewer Keyword Density Map

4. Conclusions

Artificial intelligence is used in the documentation process through ChatGPT. It opened up new approaches to its use in higher education.

By analysing the articles published in Clarivate Analytics, we came to the following conclusions:

A systematic review of AI research in higher education, published in 2023 by Cromton, identified gaps in the literature to be used as a spring ramp for future researchers, including new tools such as Chat GPT. (Cromton, 2023)

The application of AI in higher education has attracted significant interest in recent years, in particular due to the development of information and communication technologies. AI has become an essential tool in all academic fields, including language, engineering, mathematics and medical education. (Alajmi et al., 2020).

AI has become a key tool in all academic fields, including language education (Liang et al., 2021), engineering education (Shukla et al., 2019), mathematical education (Hwang & Tu, 2021), and medical education (Winkler-Schwartz et al., 2019).

Researchers have identified a number of potential benefits of using AI in higher education, including:

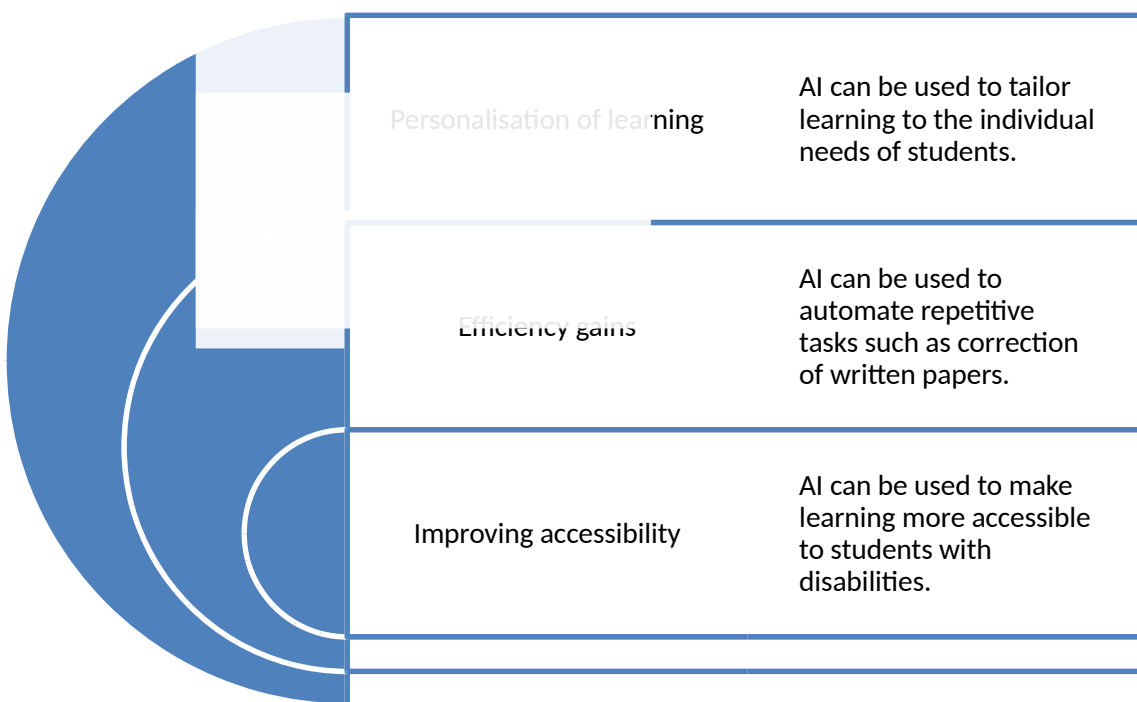


Fig.4: Benefits of using AI

AI can analyze large amounts of data to identify trends in student performance, helping educators to improve teaching methods and curriculum design.

But, AI in higher education sector should be accompanied by careful consideration of ethical implications, issues such data privacy, algorithm bias, and responsible and ethical use of AI technology, to ensure its positive impact of education.

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