# The Role of GPT Chat in Writing Scientific Articles: A Systematic Literature Review

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**Abstract:** In general, the purpose of writing articles is to influence, educate, inform, convince, and entertain readers. Articles are usually published in media, such as bulletins, magazines, newspapers, or websites. Artificial intelligence is used to make scientific articles easier, namely GPT chat. The research aims to explain the role of GPT chat in writing scientific articles. A review is conducted on the state-of-the-art methods using the preferred reporting items for reviews and meta-analyses (PRISMA) guidelines. The results of this research examine that scientific articles themselves also consist of several types, namely research articles, non-research articles or review papers, and book reviews and obituaries. This open technology has several useful benefits for carrying out various daily tasks, namely: As a problem solver, answering difficult questions, completing math assignments and even essays, drafting articles, providing information, becoming a virtual assistant, working on coding, and helping customers. Service, Providing Suggestions, How to use chatGpt to write scientific articles starting from Preparing Research Materials, Brainstorming or Brainstorming sessions with ChatGPT, Conducting a literature review, Summarizing Research Articles, Gaps in the literature, Data analysis, Drawing outlines of Scientific Research papers, Editing and correcting scientific research, and Determine scientific research questions and edit and correct scientific research.

**Keywords:** ChatGPT; Scientific articles; Writing

## Introduction

Scientific articles are a means for scientists to publish research results so that they can be used wisely. Apart from that, scientific articles are one way for scientists to contribute directly to providing solutions to the problems they face (Makin & Orban De Xivry, 2019). Writing scientific articles also provides an opportunity for scientists to get input from other people from various countries (Simon et al., 2020). This data helps scientists get new ideas that can be implemented to produce more efficient and optimal solutions. The Indonesian government encourages students to contribute to providing solutions to existing problems, this can be seen from the Circular Letter of the Ministry of Education and Culture (Kemendikbud) through the Directorate General of Higher Education (Ditjen Dikti)

number 152/E/T/2012 dated 27 January 2012 (Disantara, 2020).

The circular stated that writing scientific articles is a requirement to graduate from undergraduate, master's, and doctoral programs. The requirements for an undergraduate or undergraduate program must be to produce scientific articles published in scientific journals (Turbek et al., 2016). Scientific articles are also part of scientific work, namely scientific works that present general facts and are written according to good and correct writing methodology (Aspers & Corte, 2019). Scientific articles can be original articles, mini-reviews, reviews, and short communications. In general, a scientific article has a structure consisting of the article title, name and email address of the author, abstract, introduction, materials, writing methods, findings, discussion, conclusions, and bibliography. At the very least, reading scientific articles that have been written

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can influence other people to find new ideas or ideas so that they can encourage the development of science (Darling-Hammond et al., 2020). This kind of thing is also a contribution to science. To help and make it easier to create scientific articles, the GPT (Generative Pre-training Transformer) Chat Phenomenon has been discussed a lot lately (Salvagno et al., 2023).

In this developing era, AI is becoming increasingly closely tied to people's daily lives. AI such as Chat GPT, which is an AI program based on the Open AI-Language Model, has been created to make it easier for humans to create words for writing various articles (Haleem et al., 2022). Examples are blog articles, news articles, and many more. This artificial intelligence can also be used in writing a thesis (Sheikh et al., 2023). GPT Chat will assist in providing access to knowledge and research for the thesis topic in question so that writing this research can be done quickly and efficiently (Javaid et al., 2023). Currently, there is a lot of discussion about the GPT Chat application, which stands for Generative Pre-Trained Transformer, which is an AI-based conversational robot that answers various questions. The use of this smart chatbot can be used to some extent to help students in writing scientific papers such as papers, theses, and theses (Kuhail et al., 2023). This research will examine the role of GPT chat in writing scientific articles. The contents of the study discuss types of scientific articles and GPT chat functions. How to use a chatbot to write scientific articles. Based on the background above, this research aims to examine the role of GPT Chat in writing scientific articles.

## Method

We conducted this research as a systematic review by following the PRISMA guidelines. The PRISMA guidelines provide several items that need to be considered in preparing a systematic review. In this study, we will mainly focus on several key items: ChatGPT, scientific articles, and writing. This helps form the basis of our assessment. Initially, we collected the latest studies on the role of GPT Chat in writing scientific articles, based on a few selected keywords. Then, we apply eligibility criteria to the collection. We only selected literature published in 2017 or later to provide an overview of recent trends. In addition, we

limit the types of literature, namely only literature in the form of journals and proceedings.

## Result and Discussion

Selected Reporting Items for Systematic Review (PRISMA) is the reporting technique used in this study. The research was carried out methodically during the necessary research phases. The information provided is comprehensive and impartial and aims to incorporate the results of relevant studies. The steps of a systematic literature review include developing research questions, searching the literature, screening and selecting relevant articles, screening and selecting the best research results, analyzing, synthesizing qualitative results, and preparing research reports. Writing the background and purpose of the study, collecting research questions, searching the literature, selecting articles, extracting articles, assessing the quality of the baseline study, and summarizing material are steps in the research process of a systematic literature review.
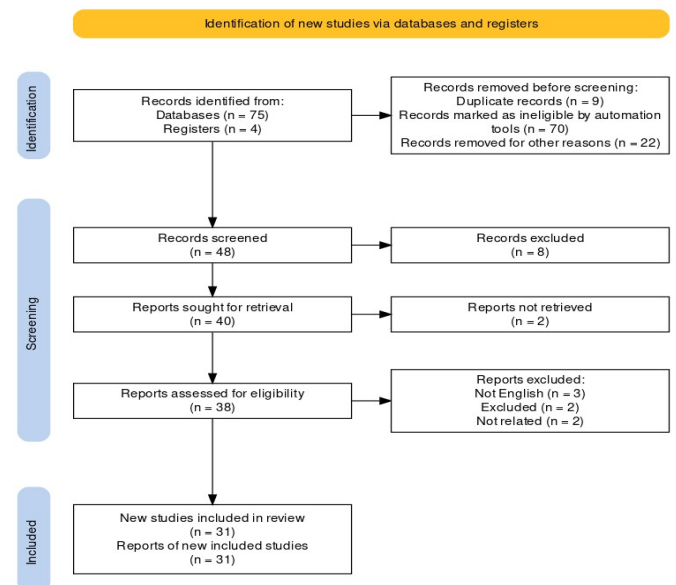


**Figure 1.** Flow process literature search based on PRISMA guidelines

Complete articles published in international journals from 2017-2023, indexed in databases and themed the role of GPT Chat in writing scientific articles.

**Table 1**. Scientific Articles

| Source | Types of scientific articles |
| --- | --- |
| (Mulia Al-Amien et al., 2022); | Research Result Articles |
| (Rotolo et al., 2022) | Non-Research Articles |
| (Lapeña & Peh, 2019) | Book Review |
| (Alfano et al., 2018); (Iefremova et al., 2018) | Obituary |
| (Ganesan, 2022) | Case Report |
| (Dommett et al., 2019) | Lecture |
| (Nurdaningsih et al., 2023) | Editorial |

Meanwhile, if you look at the type of scientific article itself, there are several types. There are what are called research articles, non-research articles, book reviews, and obituaries. We discuss reviews of each type as follows. Research articles are also called research articles. So, you will often find this article in journals. In terms of content, research articles are created to stimulate other research to produce new research. Apart from that, the results of this research can also be used to determine whether the theory or point of view regarding the problem under study is worthy of revisiting and whether it is worth continuing to follow or not. Non-Research Articles; There may be something unfamiliar with non-research articles. Non-articles are more familiarly called Pampers reviews, which are literature reviews or what we are familiar with as theoretical studies. In terms of content, theories, principles, concepts, and developments, they are much more diverse. Even related to the description of facts, they also vary.

Generally, these non-research articles are more often written by experts or at the request of the editor. Book Review; In book reviews, the focus is on analyzing and criticizing books that have been published. When reviewing a book, the author must be objective. Of course, the reviewer also has to read the book first to understand the plot and understand it easily. Obituary or what we familiarly call an article. Articles are the writings that we most often read and see on Google. There is something different about what is meant by the article (obituary). So an obituary is an article that focuses on reviewing the news of someone's death. This person can be a figure and a scientist. A case report is a report that analyzes a case by looking at the details, symptoms, diagnosis, and visible signs.

Case reports can also be interpreted as professional narratives because they provide feedback and a framework. Lectures are also included in the types of scientific articles. If the lecture is in oral form then it can be a speech. While lectures are written (usually they are written first before being given a speech). You can find lots of editorials in newspapers. Another name for editorial is editorial. Editorials contain the editor's opinions or views on certain events that are factual and currently hotly discussed. The editorial itself falls into the realm of opinion. The difference is that it is written by the editor as the official, factual view of the media. It is said to be factual because the writing process is not haphazard, it still prioritizes facts, logical arguments, and evidence.

**Table 2**. GPT chat

| Source | GPT chat function |
|---|---|
| (Yu, 2023); (Surameery & Shakor, 2023) | As a Problem Solver |
| (Cotton et al., 2023); (Kung et al., 2023) | Answering Difficult Questions |
| (Essel et al., 2022) | Completing Mathematics Assignments Even Essays |
| (Ray, 2023) | Drafting articles |
| (Peng et al., 2023); (Frosolini et al., 2023); (Biswas, 2023) | Providing Information |
| (Tlili et al., 2023) | Become a Virtual Assistant |
| (Lee et al., 2023) | Doing coding |
| (Cordero et al., 2022); (Mishra & Awasthi, 2023) | Helping Customer Service |
| (Fuchs, 2023) | Provide Suggestions |

This openAI technology has several useful benefits for carrying out various daily tasks, namely: As a Problem Solver; The first benefit felt by users is that GPT chat can provide solutions or solve problems. For example, a user asks a question about what AI technology is. After receiving a question from the user, this service can immediately identify the question being asked, and then look for the appropriate answer from the text that has been trained by AI. It doesn't stop there, the answers that have been found in the GPT chat will immediately adapt to the related topic. After finding a suitable answer, Chat GPT will adjust the answer to match the question the user asked. Later, the GPT chat service will display the answers requested by the user in text or voice form.

Answering Difficult Questions; The second benefit that users experience if they use GPT chat is that this service can provide answers to even difficult questions. It could be said that GPT chat currently has the same function as a search engine. The reason is that these two services can produce complex information. Apart from that, it is not uncommon for users to write questions that are quite difficult for humans to complete. So, using GPT chat is considered the right solution. For example, try to explain what cloud computing is to high school students. Interestingly, this type of chatbot will provide complete explanations in language that high school students understand. Completing Math Assignments Even Essays; Next is the use of GPT chat to produce good essays. It is not uncommon for users to use it to complete math assignments.

The method is easy, if the user wants to create an essay, they only need to enter instructions starting from the title, and number of words to the topic. Later, this

chatbot will produce essays according to the instructions written by the user. On the other hand, if the user wants GPT chat to solve complete math problems. The command is the same as above, the user enters a math problem into the chatbot service, then this service will process it until it finally gives the best answer. Drafting articles Then there is still the use of GPT chat, where this service can create several draft content articles according to user needs. Usually, this service is used to help with work such as content writers in writing or making references to scientific articles they are working on. It can even be used to create a content plan for one month. Provide Information; Basically, GPT chat was created as a service that can provide various useful information for human life. Among other things: providing information about the latest news, economic developments, stock prices, and much more.

This is what users often do to ask questions about the topics they want. AI tasks will provide accurate and detailed answers according to the topic. Become a Virtual Assistant; In carrying out daily life and tasks, it is not uncommon for people to need tools to help them complete their work. The emergence of this AI service is considered capable of becoming a human virtual assistant. Because it can help users carry out various tasks. As with AI technology, it can help users organize work or school schedules, then serve as a reminder for tasks that must be done, or answer questions asked by users. Doing coding; GPT chat can also do coding, the commands are the same as above, namely providing coding sequence instructions. Usually, this is related to errors when coding, this open AI technology easily finds these coding errors.

However, developers and programmers do not recommend coding with this service. The reason is that some of the code produced by AI does not match its accuracy. Apart from that, the resulting deployment process does not comply with existing limitations. Assisting Customer Service; In large companies, AI technology is used to help customer service performance. With this, customer service who have difficulty answering questions from customers will easily get accurate answers. Provide Suggestions; The last thing that users do on this service is ask for advice on problems that occur. AI can easily provide suggestions about various things that users need, and it is not uncommon for these suggestions to be closely related to the user's desires. Simple examples include recommendations for films currently showing, coffee shops that are suitable for young people, and many more. The service will provide appropriate advice.

**Table 3**. Use of GPT chat

| Source | How to use a chatbot to write scientific articles |
| --- | --- |
| (Castellanos-Gomez, 2023) | Compiling Research Materials |
| (De Angelis et al., 2023) | Brainstorming sessions with ChatGPT |
| (AlZaabi et al., 2023) | Define a scientific research question |
| (Budhwar et al., 2023) | Conduct a literature review |
| (Sundar & Liao, 2023) | Summarize Research Articles |
| (Grassini, 2023) | Gaps in the literature |
| (Roumeliotis & Tselikas, 2023) | Data analysis |
| (Snyder, 2019) | Outline a Scientific Research paper |
| (Fatani, 2023) | Edit and proofread scientific research |

How to use chatGpt to write scientific articles: Compiling Research Materials; Before using ChatGPT, collect and organize all research materials required for a scientific research paper. This includes articles, books, journals, and other sources that are planned to be used in the research. Brainstorming sessions with ChatGPT; The way to use ChatGPT is by brainstorming research topics. This step can use a variety of research topics in ChatGPT and compile a suitable final version. Define a scientific research question; The next way to use ChatGPT is to identify research questions or hypotheses discussed in the research paper. Conduct a literature review; The next way to use ChatGPT is to identify research questions or hypotheses discussed in the research paper. Summarize Research Articles; The ability to summarize is still borne by the ChatGPT user. This means that users must independently summarize the sources obtained from ChatGPT.

Gaps in the literature; Even though there are already reading sources, ChatGPT users still have to identify research gaps in the existing literature. Data analysis; The data analysis process is collected through survey methods. Then use ChatGPT to help analyze and interpret that data. Finally, the results of the interpretation will produce visualizations to support the findings of the scientific research being carried out. Outline a Scientific Research Paper; Organize a scientific research paper by creating an outline and logically organizing the argument. Researchers can use ChatGPT to create an introduction, methods, results, and discussion section of a paper using subject-specific commands and data input for each section. However, it

is still necessary to carefully check the content produced by ChatGPT. Edit and proofread scientific research; ChatGPT can be used to edit and correct scientific research, especially grammar, punctuation, and spelling errors. However, don't forget to double-check and review scientific research carefully. Note any necessary revisions of ChatGPT-generated content. This is to ensure the accuracy of the flow clarity and authenticity of the scientific research made. As is known, ChatGPT is a chatbot technology similar to a chat room, where users can send messages and chat with other users who are connected through the chat room. ChatGPT interactions are like chatting with other people via messages.

## Conclusion

GPT Chat is a text-based artificial intelligence program that can ease human work in various fields. This program allows you to look for answers, suggestions, and solutions, or solve problems more effectively. One of them functions in the creation of scientific work. GPT chat has functions and ways of working that make it easier for users.

### Author Contributions
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### Conflicts of Interest
The authors declare no conflict of interest.

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