

Role of ChatGPT in the Essay Writing of Students: A Systematic Review of Literature

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Abstract

The growth and integration of Artificial Intelligence (AI) in the educational sector have been controversial. Recently, a new development called Chat Generative Pre-training Transformer (ChatGPT) has been gaining popularity, particularly among students. Consequently, the issue related to the use of ChatGPT for language acquisition, particularly in writing, is emerges. The advantages and disadvantages of ChatGPT have not been specifically addressed in writing, and research on this issue is still very limited. This study aimed to identify the advantages and disadvantages of ChatGPT in the essay writing of students by employing a systematic review of literature. Google Scholar was the main online database that was used. The screening and identification of articles utilized the inclusion-exclusion criteria and a PRISMA flowchart guide which yielded six (6) articles that were analyzed for the review. Through the Repertory Grid, the contrasts and similarities of the articles were identified. The findings of the study disclosed that one advantage of ChatGPT provides automated feedback. Further, the disadvantages of ChatGPT are the risk of plagiarism and the dependence and reliance of the students on the tool. While ChatGPT provides advantages and disadvantages in the essay writing of students, there are many considerations regarding the usage of this AI tool.

Keywords: Artificial Intelligence; ChatGPT; Role; Advantage; Disadvantage

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INTRODUCTION

The emergence of artificial intelligence (AI) in the 21st-century education is becoming popular gaining a lot of users in any field of specialization. Artificial intelligence refers to intelligent devices and software that can reason, absorb, gather knowledge, interact, control, and distinguish between objects (AlAfman et al., 2023). It also represents a computational approach to developing intelligent software and systems that can solve complex problems by adopting human intelligence and working in the ways of the human mind. The history of AI dates to 1956 when the terminology was first introduced at the conference “Dartmouth Summer Research Project on Artificial Intelligence.” AI technology is commonly used for job automation, algorithm bias, and technological developments such as maps and navigation, automatic vehicles, robots like Sophia, chatbots, and many more. However, AIs can also be used in many fun and exciting ways. It helps humans in varied ways which is why it is also known as a technology “adopting human intelligence” (Fitria, 2023).

Today, AI technology has a big impact on the academe. Many technological innovations have been imagined to be the end of traditional education because of a euphoric and irrational infatuation with technology (Rudolph, 2018; Kefalaki et al., 2022). Cope et al. (2020) stated that AI-powered assessment applications hold the greatest potential for bringing about transformative education changes. In addition, the use of student-facing AI applications offers exceptional potential for improving intelligent student support systems and scaffolding student learning in adaptive and personalized ways (Zawacki-Richter et al., 2019). Apparently, with these innovations, some educators are not open to the idea that technology can assist in modern education.

Meanwhile, there is another growing subfield of research in which AI-powered applications are used to support students in the acquisition of writing skills (Rudolph et al., 2023). In November 2022, one of the latest AI developments was launched which is the Chat Generative Pre-training Transformer (ChatGPT), an online artificial intelligence (AI) chatbot developed by an Open AI. Its popularity skyrocketed for its extensive human-like ability to answer questions, either factual or opinionated. Dergaa et al. (2023) stated that

ChatGPT is able to create outputs which remarkably resemble human-written tests. The functions vary from composing an email, generating a report, summarizing, translating a text, and writing an essay.

It is evident that prior to the introduction of ChatGPT, a number of AI-based writing tools had already been developed to facilitate English writing practices and to enhance writing skills, as well as promote self-directed learning by users, particularly in higher education (Nazari et al., 2021; Zhao, 2022). It is in this area that educators and pundits are concerned that ChatGPT will disrupt and inevitably bring about the end of writing (Rudolph et al., 2023). Writing is considered an important language skill and an essential productive activity specifically for second and foreign English (ESL/EFL) language learners (Hussin et al., 2015). It is also common knowledge that ESL/EFL writing has always been viewed as a complex process (Challob et al., 2016).

Improvements in the availability and affordance of technology have augmented the utilization of technology-enhanced learning strategies in L2 writing (Mannion et al., 2019). Many aspects of second language (L2) writing have been digitalized in pedagogy for instance implementing web-based collaborative activities in L2 writing classrooms (Bikowski & Vithanage, 2016) using interactive e-feedback for students' writing (Saeed & Al Qunayer, 2022), incorporating corpus-assisted error resolution to improve writing (Crosthwaite et al., 2020).

On the other hand, with ChatGPT's features, the demand from students is high. Considering that one of the assessments teachers give their students to measure what the children know about the lesson is to write essay questions about it. English writing courses have been found to be one of the most difficult subjects for most ESL/EFL English teachers (Tso, 2002; Hung, 2003). Yang (2007) added that even writing short sentences is a difficult task for them. Instances such as this led to people's opinions on using ChatGPT being divided. Concerns about plagiarism are raised but at the same time, some consider it as a scientific breakthrough.

The advantages and disadvantages of ChatGPT for language acquisition, particularly in writing, are one of the issues that arise. The true potential of ChatGPT is still unknown as a result of the incomplete investigation of this

matter by a variety of recent studies (Karthikeyan, 2023). For instance, Barrot's (2023) research endeavors to address the potential and drawbacks of ChatGPT in second language writing; however, it fails to conduct a thorough analysis of the advantages and disadvantages of incorporating ChatGPT into writing. Similarly, Berriche et al. (2024) and Mizumoto et al. (2024) conducted research on the use of ChatGPT based on writing style and writing accuracy using ChatGPT. Furthermore, Al-Khreshah conducted research that generally explored teachers' perspectives regarding the integration of ChatGPT in English language teaching.

These studies, although general in nature, have not specifically addressed the advantages and disadvantages of ChatGPT in the context of writing. Consequently, the objective of this research is to address resolve this gap by conducting a systematic review of the literature to address the question "What are the advantages and disadvantages of ChatGPT for the essay writing of students?". This investigation is designed to present the benefits and drawbacks of ChatGPT in order to determine its function in the composition of student essays through a systematic literature review.

METHOD

Design

This study employed a Systematic Review of Literature (SRL) as a research strategy which aims to identify and evaluate research-relevant studies on the role of ChatGPT in essay writing. SRL involves a systematic search for studies and aims for a transparent report of study identification, leaving readers clear about what was done to identify studies, and how the findings of the review are situated in the relevant evidence (Cooper et al., 2018). Systematic Review of Literature (SRL) has several process steps which are defined differently in the literature (Fink 2014; Gubam 2008, Transfield et al. 2003). The following SLR steps are adapted in this research:

1. Defining research questions
2. Selecting databases and other research sources
3. Defining search terms
4. Merging hits from different databases
5. Applying inclusion and exclusion criteria
6. Perform the review

7. Synthesizing results

Data Gathering Tools

The database that was used in this study was only the advanced search option and related articles of Google Scholar. The web search engine "Google Scholar" enables users to search scholarly and academic literature across a wide array of subject areas (Al Husaeni & Nandiyanto, 2023). The researchers tried other databases like Eric and EBSCOhost but yielded zero related articles.

The keywords and phrase "role of ChatGPT in essay writing" was searched resulting in multiple articles. Utilizing inclusion-exclusion criteria, these articles and their parts were intensively and thoroughly filtered and screened. The narrowed parameters involved the type of research, results of the study, language, database, and time frame were considered during the screening process. The study also employed the guideline from the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) 2020. PRISMA (Moher et al., 2009) aims to ensure that review methods and findings are described in sufficient detail. The guideline was developed by a consortium of systematic reviewers, methodologists, and journal editors to address evidence of incomplete reporting in systematic reviews (Moher et al., 2007).

Tabel 1. Eligibility Criteria used in the study.

Parameters		Inclusion Criteria	Exclusion Criteria
Type of Research		Primary research and peer-reviewed published research journals	Book reviews, Thesis/Dissertation
Results of the Study		Full-text research journals that dealt with the Role of ChatGPT in the Essay Writing of Students	Research journals with incomplete parts from abstract to conclusion
Language		Research journals that used English as a Medium of Writing	Research journals that did not use English as a Medium of Writing
Data Base		Google Scholar, Eric, and other	Database not accessible to the researcher

	databases accessible to the researcher	
Time Frame	Research journals published within 2022 to present	Research journals published before 2022

This study also incorporated and utilized a matrix or grid to classify and compare the data from the eligible articles. This is utilized to obtain themes for the current study. The literature review grid consists of (1) title, author, year published; (2) objectives; (3) methodology; (4) result and discussion; (5) conclusion; and (6) recommendations.

Data Gathering Process

The search from the Google Scholar database resulted to $n=1040$ articles. The articles were screened removing 7 duplicates, and 403 articles were marked as ineligible as filtered by the time frame 2022-2023. The remaining $n=603$ articles were further screened for their titles, abstracts, and relevance to the topic excluding $n=583$ records. Then, only $n=47$ articles remained for the full-text screening. Apparently, only $n=6$ articles remained which are included in the review.

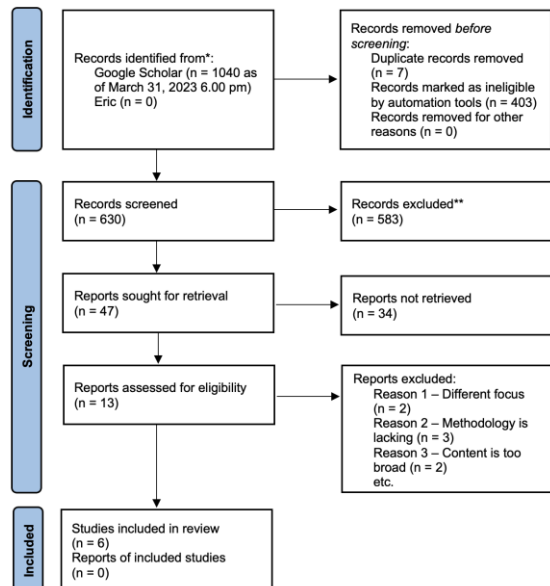


Diagram 1. PRISMA flowchart utilized in the study

Data Analysis

The analysis of data was expressed through thematic analysis and ontological categorization of papers into themes and sub-themes (Jones et al., 2011). The theme construction in this review is based on the

principles of the thematic analysis process in qualitative research (Braun & Clarke, 2006). In this manner, themes stand for the fundamental and most comprehensive concepts that indicate a holistic perspective of the selected articles (Braun & Clarke, 2006; Jones et al., 2011).

RESULTS AND DISCUSSION

Advantages of ChatGPT in Essay Writing *Provides automated feedback*

ChatGPT's ability to generate responses to varied questions in a few seconds highlights its ability to provide automated feedback, so long as there is a stable internet connection. At the same time, in the absence of human assistance, intelligent feedback (Karthikeyan, 2023; Rudolph et al, 2023) can reinforce students' writing autonomy by helping them to recognize their errors, identify incorrect patterns and reformulate them (Nazari et al, 2021). In the aspect of essay writing, three out of the six studies (Karthikeyan, 2023; Rudolph et al., 2023; and Subaveerapandiyan et al., 2023) highlighted the ability of ChatGPT to assist and improve writing skills through grammar correction and improvement of sentence construction. The generated response can be used by the students as their reference in constructing their essays. Writing is the output of reading.

As the students read the response generated by ChatGPT to the essay question they have asked, they are gaining not just the content but also the manner by which the sentences are constructed in order to deliver the thought to the readers. The language used by ChatGPT is almost mimicking human language naturally and freely (Whannel, 2022). Because of this, the students are able to converse freely while being conscious of the construction of their sentences.

In essay writing, as it is part of academic writing which must be formal, this is not practiced. Baidoo-Anu (2023) also mentioned that ChatGPT can be trained to grade student essays. With this, students are able to make their outputs be proofread before they submit them to their teachers. Another study by Kim et al. (2019) showed that a generative model like ChatGPT which was trained on a dataset of human-graded essays could accurately grade essays written by high school students.

Results of the study have also shown that the model was able to identify key features of well-written essays and was able to provide

feedback that was similar to that provided by human graders. Simply seeking assistance from ChatGPT to proofread an essay, it immediately provides various versions of corrections and enhanced ideas. The speed of generating responses by ChatGPT is an added advantage as it saves time in providing corrections. One factor is that it can feed new ideas to the students because it has the ability to explain the correction in the student's text. The correction it provides follows grammar that is easy to understand (Fitria, 2023). Additionally, ChatGPT can be used as a preliminary step to write student assignments as the chatbot can assist in generating ideas thereby providing a template (AlAfnan et al, 2023). If used ethically, the responses can give students insights on how to approach writing statements, therefore, guiding them on how they will improve their content. As part of this, it can be argued that intelligent tutoring systems (ITS) are one of the most promising benefits of AI when it comes to transforming education (Rudolph et al., 2023).

Disadvantages of ChatGPT in Essay Writing ***Risk of Plagiarism***

While ChatGPT has its advantages, it also comes with certain drawbacks or disadvantages. One of the most prevalent concerns about using ChatGPT is it threatens essays as an assessment method (Rudolph et al, 2023) which affects academic integrity. The reason behind this is the tendencies of students simply copy the generated response of ChatGPT and submitting it as their own work. In relation, all of the six studies (AlAfnan et al., 2023; Dergaa et al., 2023; Fitria, 2023; Karthikeyan, 2023; Rudolph et al, 2023; and Subaveerapandiyan et al, 2023) that were thematized emphasized the risk of plagiarism in the usage of ChatGPT.

In this modern world, plagiarism has been one of the common cases in most schools. Some students are courageous enough to steal written works from books or online sources in order to claim it as theirs for the purpose of satisfying their requirements. On the other hand, Cotton et al (2023) stated that AI essay writing systems are designed to generate essays based on a set of parameters or prompts. Based on how ChatGPT is used, its workflow can always regenerate information according to amended requirements. With the fact that it is a free-access AI tool and has the ability to produce human-like texts and answers, and is capable of generating essays on any topic, it can be a threat to teachers, and schools.

The study of Fitria (2023) concluded that ChatGPT can answer all questions on various topics such as English essays including descriptive text about Solo, My Family, recount text about personal experiences and unforgettable moments, resolution 2023, and future career. Upon reading the essays made by ChatGPT, it integrated the two types of voices which are active and passive voice. This suggests that the aforementioned tool may serve as a time-saving device for writing, as it allows students to request the tool to generate an essay which they can simply duplicate. However, this poses a significant risk of widespread plagiarism across all educational levels. This can lead to students easily outsourcing answers and ideas for their essay requirements presenting it as their own work (Karthikeyan, 2023; Rudolph et al, 2023; Subaveerapandiyan et al, 2023).

Moreover, results from these studies discussed that students could copy their written assignments to ChatGPT as it can generate passable prose in seconds without triggering any plagiarism detector. This means that students could potentially use these systems to cheat on their assignments by submitting essays that are not their own work (Dehouche, 2021). As a result, educators may find it difficult to adequately assess the student's understanding of the material when the student is using a chatbot application to provide answers to their queries.

Dependence or reliance of students on ChatGPT

Since the emergence of AI, a lot of tools namely Grammarly and Quillbot have been very helpful in the academic writing of students. However, learners have been very dependent on these tools. Making errors in written work no longer feels intimidating for some individuals because they feel assured that there are resources available to rectify their grammar, verb forms, and other such errors. Then, as part of the features of ChatGPT which can rapidly and easily provide information and respond to answers, it potentially reduces students' engagement in independent critical thought depending on ChatGPT (Subaveerapandiyan et al., 2023; Karthikeyan, 2023; AlAfnan, et al, 2023). High school students generally have 8 subjects. Each subject has its own requirement or competency to accomplish. Therefore, the subjects will have to require outputs from the students. Once requirements from the subjects come in bulk, students tend to look for a way to complete their requirements quickly and

conveniently. This leads to the utilization of available AI products that can help students finish their tasks.

In the context of essay writing, English is not the only subject that requires an essay output. A unique ChatGPT style of writing and answering will encompass students' memory thereby bringing down the creativity of students (Pearl, 2022). Efficiency is decreased when students purely depend on technology and relying on the model to generate ideas and text can lead to lowering of cognitive level and creativity of students. In connection, the human experience and emotions play a crucial role in the process. This is because the responses generated by the chatbot application may not accurately reflect the student's true level of understanding (Cotton et al, 2023). The ability to convey emotions and feelings through writing is one of the things that set human writing parts from the machine-generated text.

While it is true that there are many tools available to help correct grammatical errors and other mistakes in written output, it is still important to strive for accuracy and clarity in one's writing.

CONCLUSION

ChatGPT has been making a significant impact and changes in the academe and offers many opportunities and challenges in various fields since its release. Through this systematic review of literature, further analysis of the advantages and disadvantages of ChatGPT in the essay writing of students was conducted. From the thematized articles, the results yielded one advantage and two disadvantages. Most of the articles emphasized the ability of ChatGPT to provide automated feedback in the essay writing of students. As for the disadvantages, this study discussed the risk of plagiarism and the dependence or reliance of students on ChatGPT.

With this, the challenge now is for teachers to utilize and incorporate this AI tool in the teaching and learning process and to distinguish between a student's own written output and the responses generated by a chatbot application making it difficult to evaluate the quality and accuracy of the essay produced.

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