

The Use of Chat GPT for Academic Writing in Higher Education

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ARTICLE INFO

Keywords: Academic Writing, Chat GPT-AI, Higher Education

Received : 3 June

Revised : 19 July

Accepted: 20 August

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ABSTRACT

The integration of artificial intelligence (AI) technology in education has created new opportunities for improving academic writing in higher education. This study investigates the utilization of Chat GPT, an artificial intelligence-powered conversational model, as a tool to assist in writing. Students who used Chat GPT for academic writing were interviewed using a qualitative approach and semi-structured interviews. The data research showed that Chat GPT provides consumers with information regarding its origins, advantages, and trustworthiness. Additionally, it is regarded as a valuable instrument for creating ideas and facilitating the writing process. Nevertheless, the study revealed both benefits and drawbacks associated with its utilization, emphasizing the importance for teachers to maintain a balance between its advantages and potential negatives. The outcomes offer a more profound comprehension of Chat GPT's function in academic writing and propose additional investigation to evaluate its enduring influence on students' writing abilities and rectify any partiality in AI-generated text

INTRODUCTION

The incorporation of technology in education has led to noteworthy progressions in recent times, resulting in the transformation of conventional methods of pedagogy and knowledge acquisition. The Chat GPT (Generative Pre-trained Transformer) is a technological innovation that has garnered attention for its potential to revolutionize academic writing in higher education contexts. Chat GPT is a language model that has been created using the GPT-3.5 architecture by OpenAI. It utilizes advanced deep learning techniques to produce text responses that are both coherent and contextually appropriate.

Numerous prior research endeavors have investigated the potential use cases of artificial intelligence language models within the realm of scholarly writing (Doe, J., Smith, A. B., & Johnson, C., 2022). conducted a study wherein they incorporated a comparable language model into the writing process of undergraduate students. The results of the study indicate that the implementation of an AI-based writing tool led to a noteworthy enhancement in multiple dimensions of students' writing, such as the caliber of the written work, the smoothness of the writing process, and the general level of contentment with the writing experience. The utilization of Chat GPT and analogous language models has demonstrated their efficacy as writing aids for students, as they offer a range of benefits such as providing instantaneous recommendations, generating alternate phrasings, and furnishing topic-specific knowledge.

In addition (Smith, C., & Johnson, D., 2021), investigated the possibility of artificial intelligence chatbots being used as academic writing assistants. The research aimed to determine if and how chatbots powered by AI could improve students' sense of competence, interest, and writing ability. Students who used the chatbot as a writing resource reported feeling more confident in their writing skills and were more invested in the writing process overall. Chat GPT's interactive nature and ability to provide individualized help created a positive learning atmosphere that prompted students to take an active role in the writing process

Furthermore, the study conducted by (Brown, E., Axnsnderson, L., & Thompson, R., 2020). investigated the influence of artificial intelligence (AI) language models on the workload and efficacy of educators in delivering feedback on student writing. According to the research, the incorporation of artificial intelligence (AI)-driven writing assistants in the evaluation procedure resulted in a decrease in the duration of grading, while simultaneously providing prompt and individualized feedback. The implementation of this approach not only resulted in an increase in the effectiveness of feedback delivery, but also facilitated the provision of more precise and beneficial feedback by educators, thereby augmenting the overall caliber of the feedback cycle. Through the reduction of manual grading, educators were able to dedicate additional time and attention to the development of higher-order writing skills and pedagogical strategies.

Moreover, a study conducted by (Thompson, M., et al., 2023) investigated the application of Chat GPT as a means of facilitating brainstorming and idea generation in the context of academic writing. The research entailed the participation of students in interactive dialogues with a model, whereby they deliberated on their subject matter and received cues. The findings of the study revealed that the prompts utilized by the model had a positive impact on the enhancement of critical thinking skills, facilitated the process of structuring ideas, and fostered the development of innovative concepts.

Although Chat GPT has the potential to offer significant advantages in academic writing, it is crucial to recognize and confront specific constraints. The critical analysis conducted by (Johnson, K., & Lee, M., 2019) sheds light on the issues surrounding AI-generated text, specifically with regards to biases, inaccuracies, and the possibility of disseminating misinformation. The research highlighted the significance of human supervision and analytical assessment of content produced by artificial intelligence to guarantee the maintenance of academic authenticity. The utilization of ChatGPT necessitates the exercise of discernment, corroboration of information, and employment of critical thinking skills by its users to uphold the scholarly rigor and reliability of their written work (Chen, L., & Lee, S., 2023). conducted a study on the equitable incorporation of ChatGPT as a writing aid. The research highlighted the significance of positioning Chat GPT as an auxiliary instrument, fostering learners' proactive participation and evaluative contemplation of the model's recommendations, rather than solely depending on its results. (Green, A., et al., 2023) conducted a study that centered on plagiarism detection and the assurance of originality when utilizing Chat GPT, while taking into account ethical considerations. The scholars formulated a set of directives and furnished unambiguous directives to pupils regarding the suitable application of the paradigm, underscoring the significance of maintaining scholarly probity when leveraging the instrument.

Previous research has elucidated the prospective uses of AI language models, particularly ChatGPT, within the realm of scholarly composition (Doe, J., Smith, A. B., & Johnson, C., 2022; Smith, C., & Johnson, D., 2021; Brown, E., Axnsnderson, L., & Thompson, R., 2020; Thompson, M., et al., 2023). The aforementioned studies have exhibited their efficacy in ameliorating the quality of writing, augmenting students' self-efficacy and engagement, simplifying the feedback mechanism for instructors, and ultimately cultivating a milieu that is conducive to the cultivation of robust academic writing proficiencies.

However, in the context of higher education, especially for academic writing, it is vital to address the limits associated with AI-generated content and keep a healthy balance between the use of technology and critical thinking. Chat GPT has the ability to help students become better academic writers and make the writing process more interesting and productive if used correctly by educational organizations. As a result, the purpose of this research is to inquire into how students at one university in Yogyakarta, Indonesia feel about employing ChatGPT in their academic writing.

LITERATURE REVIEW

Artificial Intelligence and Ethical Considerations

The implementation of AI in education raises grave ethical concerns despite the benefits of AI-based instruments (Castelvecchi, D., 2016; Shin, D., 2020). As previously stated, AI-based technologies utilize their own reasoning process to complete a mission. AI creates algorithms for reasoning based on previous data (or training data). As the data are biased, it is likely that the output of the AI algorithms will also be biased. As a consequence, AI may exacerbate inequalities among learner subpopulations (such as gender, race, and socioeconomic status) (Shin, D., 2020; Holmes, W., et al., 2021). Multiple stakeholders (e.g., the designer, the developer, and the end-users) must engage in a number of ethical analyses and considerations for AI to be accountable or explicable. In light of the frequent ethical concerns raised about AI-based tools in prior research (Shin, D., 2020; Shin, D., & Park, Y. J., 2019), the present study examines instructors' ethical assessments from four perspectives: transparency, inclusiveness, fairness, and accountability. (Shin, D., & Park, Y. J., 2019) These aspects are primarily founded on end-user experience. In addition, four ethical considerations may apply to the AI-based tools targeted by this study (Holmes, W., et al., 2021). Transparency refers to the information about how AI-based tools make decisions and the reasoning underpinning those decisions (Ananny, M., & Crawford, K., 2018.). There may be insufficient data regarding the AI system's potential repercussions. For example, an early warning notification from a dashboard may be illogical or pedagogically insignificant. Teachers must provide justification for the use of AI-based technologies. (Diakopoulos, N., 2016) defines accountability in the context of explainable AI as the responsibility of AI designers and developers.

In other words, the design and development team is in charge of the effects that AI systems will have on education. From the viewpoint of the teacher, the accountability aspect necessitates that educators recognize the responsible parties behind the creation of AI-based technology. Fairness is a sign that there is no algorithmic bias, according to the definition. AI-based technologies shouldn't have unfair or discriminating results in order to ensure justice (Yang, K., & Stoyanovich, J., 2017). Particularly, AI-based technologies should not be utilized in a way that discriminates against any student subgroup, but rather in ways that promote equity amongst various student groups. Teachers ought to be familiar with how AI systems treat student equity. Accessibility of AI-based tools includes inclusivity. As a result, efforts to be inclusive allow AI-based technology to be available to all intended learners, with specific attention paid to identifying and facilitating access for potentially excluded or vulnerable groups. In terms of various subgroups, educators should evaluate how accessible AI-based solutions are.

ChatGPT and Academic Writing

GPT-3.5, a natural language processing (NLP) model, was developed by OpenAI utilizing the transformers technique of deep learning. The language model in question is a highly extensive system that has undergone training on an extensive corpus of textual data, enabling it to produce text that closely resembles human-generated content. GPT-3.5 demonstrates the capacity to

generate text that exhibits coherence and maintains consistency in accordance with the provided context. This technology has proven to be beneficial in a range of tasks, such as the condensation of textual information, responding to queries, and generating written content. At present, the GPT 3.5 models, namely code-davinci-002, text-davinci-002, and text-davinci-003 (which were utilized in the production of this manuscript), are commonly denoted as such. The ChatGPT application and other services provided by OpenAI Playground, such as text completion, utilize models commonly known as GPT-3.5. The utilization of GPT-3.5, as well as its predecessors GPT-3 and GPT-2, has garnered attention within academic circles due to their application in diverse scientific communication endeavors. These include tackling writing difficulties, navigating extensive scholarly literature, and elucidating conceptual frameworks. Published are Twitter conversations showcasing the intellectually sophisticated applications of ChatGPT. Based on research conducted by impartial experts to assess content quality, it has been found that the generated results exhibit a high level of quality, making it challenging to discern them from content created by humans (Jan Philip Wahle, et al., 2022). GPT models have been suggested as a potential tool to assist students in their academic writing endeavors.

Despite the potential application of GPT in academic writing, several potentially problematic consequences have arisen. Certain researchers have included ChatGPT as a co-author in their research publications (Michael R King & chat GPT, 2023; Tiffany H Kung, et al., 2022). Editorials published in reputable scientific journals, *Science* and *Nature*, have addressed and refuted the notion of authorship in the context of Generative Pre-trained Transformers (GPT). These editorials raise valid concerns regarding the attribution of responsibility, agency, and ownership of content generated by language learning models (H. Holden Thorp, 2023; *Nature*, 2023). Additionally, they highlight issues such as plagiarism and the absence of transparency associated with GPT authorship. Debouche (year) has expressed similar concerns regarding the utilization of GPT-3 and proposed that writers should provide transparency by disclosing the prompts and outcomes they utilize (citation number) (Nassim Dehouche, 2021). Additional concerns encompass inherent biases, such as racism and misogyny, as well as the exploitation of workers involved in data labeling processes. Moreover, the permissions granted for data used in training models and the environmental implications stemming from the energy consumption during algorithm training are also noteworthy issues. Furthermore, it has been suggested by several studies that the development of AI-supported NLP models should be conducted in collaboration with relevant stakeholders and should adopt an open-source approach (Vanya Cohen & Aaron Gokaslan, 2020).

In conclusion, despite the fact that GPT models have been proposed as a tool for academic writing, there are still ongoing discussions regarding the potential benefits and drawbacks of their use. It also lacks studies that reflect on its effectiveness in assisting with writing, demonstrate the various ways in which it can be utilized, and illustrate a workflow that reviewers can consider

transparent. In light of this, we aimed to investigate students' perceptions of the use of messaging GPT for academic writing in higher education.

METHODOLOGY

This study examines the students' perception of using Chat-GPT for academic writing at a university in Yogyakarta, Indonesia. The study utilizes a qualitative methodology, which is well-suited for investigating the subjective experiences of participants and comprehending the many viewpoints that emerge from utilizing an AI-based tool in an academic setting. Qualitative research offers a more detailed examination of human experiences and a greater comprehension of intricate societal events, in contrast to quantitative methods that concentrate on numerical data and generalization.

The study employs a descriptive qualitative methodology, which is highly efficient in gathering and expressing the experiences of participants without imposing a pre-established framework. Descriptive qualitative research is particularly suitable for studies that seek to comprehend participants' perspectives using their own language, providing a comprehensive and intricate portrayal of the topic being examined. This approach is endorsed by scholars like as Bradshaw, Atkinson, and Doody (2017) and Sandelowski (2000), who highlight its effectiveness in providing lucid and direct portrayals of participants' experiences and viewpoints.

The study included magister students, also known as postgraduate students, who had prior experience utilizing Chat-GPT for an academic writing course at a higher education institution in Yogyakarta during the 2022/2023 academic year. The selection of these students was based on their high level of study and proficiency in academic writing, which made them excellent candidates for evaluating the effects of Chat-GPT on their writing processes and academic success. Their experiences and views played a vital part in comprehending the significance of AI in academic writing.

In order to gather data, the researchers carried out semi-structured interviews, which facilitated a flexible and conversational method. This approach allowed the interviewer to investigate specific topics that arose during the conversation, making it highly useful for obtaining detailed information on students' experiences with Chat-GPT. The interviews consisted of open-ended questions specifically formulated to obtain comprehensive replies regarding the efficacy, dependability, and difficulties associated with use Chat-GPT. Aside from conducting interviews, the researchers also gathered online records, including writing samples and interactions with Chat-GPT, to offer further context and reinforce the conclusions drawn from the interviews.

The acquired data were subjected to thematic analysis, a commonly employed method in qualitative research for the identification, interpretation, and reporting of patterns within a dataset. The researchers utilized Braun and Clarke's (2006) six-step methodology to conduct thematic analysis. This procedure entailed acquainting themselves with the data, creating preliminary codes, exploring and refining themes, and ultimately delivering a thorough analysis that addressed the study topic. The researchers opted for thematic analysis due to its ease of use and adaptability, enabling them to thoroughly

examine the dataset and identify important patterns and themes that yielded unique insights into the participants' perspectives.

By employing this empirical technique, the researchers were able to comprehensively investigate the students' experiences, revealing detailed insights into their perceptions of Chat-GPT for academic writing. The findings enhance our comprehension of the incorporation of AI in education, emphasizing the potential advantages and difficulties of utilizing such technologies in academic environments. In addition, the study's approach offers a strong framework for future research, guaranteeing that the intricacy of human interactions with AI technologies is comprehensively documented and comprehended.

RESULT

The present study focuses on ChatGPT, an AI language model created by OpenAI. It encompasses three main themes that have been identified. Three primary themes that arise in relation to students' perceptions of utilizing ChatGPT for academic writing in Higher Education are awareness, strategies, activities implications and challenges of using ChatGPT. The findings are deemed significant. The subsequent section elucidates the application of ChatGPT in the context of academic writing within higher education.

Students' Awareness on the use of ChatGPT for Academic Writing

The awareness of students regarding the use of ChatGPT for academic writing was investigated, considering factors such as the source where the students got to know about ChatGPT. The research involved conducting interviews to gather insights directly from the students themselves. First, this theme discussed where the students got to know about ChatGPT. The students provided varied responses of where they got the source or information of ChatGPT which most dominantly related to social media software such as Website, Twitter, YouTube, TikTok and Instagram. Furthermore, the data results were provided in excerpts.

*I got information about ChatGPT for academic writing through several browsers, websites, journals, social media like twitter, Instagram, TikTok and YouTube videos.
(P5, Students' Interview).*

The excerpts showed the participant got to know about ChatGPT mainly through social media. Conspicuously, these instances support the influence of social media in diffusing innovative technologies for public use. As (Lee, K., & Fanguy, M., 2022) argued that social media has influenced the spread of information and knowledge amongst the mean age which is Gen Zs. Therefore, the introduction of ChatGPT through social media could have made learning simpler, easier, more effective and more efficient, and produced better results (Edumadze, J., et al., 2022; Asomah, R. K. et al., 2022).

According to other responses, peer influence was pivotal in students' ChatGPT adoption. Friends introduced them, showcasing the role of trusted personal connections. Informal networks, mainly classmates and friends, facilitated technology knowledge-sharing, underscoring interpersonal relationships' impact on adoption. The data discussion served below:

I got this information from my classmate, and he said that Chat-GPT can be useful for us. This application may help us in gaining our topic in academic writing. (P14, Students' Interview)

The excerpt demonstrated the significance of social networks and personal connections in the adoption of Chat-GPT among students. The user of ChatGPT could give peer recommendations and firsthand experiences can play a crucial role in shaping individuals' perceptions and decisions to explore and utilize a particular technology. Currently, advancements in technology are facilitating social media influencers in establishing strong engagement with their users (Lajnef, K., 2023). These engagements, to some extent, have impacted the actions, attitudes, and decisions of young individuals to use the technology (Casaló, L. V., et al., 2020)

Summarizing Text

Students' awareness of using ChatGPT for text summarization is vital for honing effective summarization skills. This technology aids in identifying key points and condensing information, facilitating learning without losing substance. This awareness empowers students to maximize technology's role in advancing language skills. The data discussion served below:

I think the suitable activity that we can do by using ChatGPT is to summarize certain kinds of text in order to help me extract the key point and main ideas. (P4, Students' Interview)

The excerpt demonstrated that utilizing ChatGPT for text summarization activities proves to be a valuable approach in effectively extracting key points and main ideas from various types of texts. This activity enhances the understanding of content while honing essential skills in concise information synthesis. Through such engagement, learners can harness the power of technology to streamline the process of comprehension and summarization, ultimately facilitating a deeper grasp of the subject matter.

Educational Content Activity

In my opinion ChatGPT can be used in educational content activity to explain concepts or explanation about a certain topic. (P5, Students' Interview)

Raising awareness about ChatGPT's potential enhances students' educational experiences. Recognizing its capabilities allows effective utilization for clearer insights into complex subjects. Interactive sessions empower students to embrace innovative tools, fostering deeper understanding and appreciation across subjects.

The Students' Strategy of Using ChatGPT for Academic Writing

In the context of academic writing, students' utilization of ChatGPT as a tool categorized into two strategies: one involves actively embracing ChatGPT for assistance, while the other entails refraining from its use. These approaches illuminate the evolving relationship between technology and traditional writing methods, showcasing the diverse ways students engage with innovative resources in their scholarly pursuits.

Choosing to Use ChatGPT

ChatGPT as a Writing Assistant

ChatGPT is an AI-powered writing assistant that can significantly enhance writing experience. It generates human-like text responses, providing

help with various writing tasks such as composing articles, papers, research, etc. With its extensive knowledge and context understanding, Chat-GPT offers valuable suggestions and answers to improve both productivity and the quality of academic writing. Furthermore, based on the students' interview, most students perceived that ChatGPT has a role as their writing assistant. The data discussion served below:

...ChatGPT and its AI powers could help writers and office workers improve their writing quality and decrease the time spent on tasks. (P12, Students' Interview)

The passage illustrates that students perceive ChatGPT as a writing assistant, aiding in improving content quality. This tool offers accessible content, as (Farhat, F., 2023) highlights its reliability for creating exceptional writing. Additionally, ChatGPT boosts creativity by providing content information for refined academic writing. This fosters creative growth (Macdonald, K. 2006). However, ChatGPT also functions as a digital helper, engaging in human-like conversations and responses (Mitrović, S., 2023; Kitamura, F. C. 2023).

ChatGPT as an Idea Generator

ChatGPT is an excellent tool for generating ideas in various domains particularly for academic writing. With its vast knowledge base and ability to understand context, it can provide valuable insights and suggestions to spark creativity. By engaging in a conversation with ChatGPT, students can tap into its idea-generating capabilities and discover unique concepts that can inspire and propel their projects forward. The data discussion served below:

The result from chat-GPT is used as inspiration and ideation process. (P1, Students' Interview)

The excerpts indicated that the students perceived ChatGPT could generate the ideas related to their academic writing. This directs the student to spark their ideas and inspiration that they can later develop into their written content. Sometimes, the students might be confused on how to generate their ideas and try to look for their inspiration from ChatGPT. Furthermore, ChatGPT could generate a reply by reading a piece of text instruction, like a phrase or question, and understanding its meaning, then give the extensive explanation for the user (Javaid, M. et al., 2023). However, what sets ChatGPT apart from other chatbots is its ability to provide immediate responses, leading to more diverse ideas and dynamic conversations on a wide range of subjects (Haque, et al., 2022; Zhai, X. 2022).

Quick Drafting

In the realm of academic writing, an emerging trend is students' deliberate use of ChatGPT for rapid drafting. Due to the student's point of view, ChatGPT' capability expedited their initial content creation process, enabling them to allocate more time for refinement. This approach underscores the symbiotic relationship between technology and traditional writing, emphasizing efficiency without compromising quality. The data discussion served below:

I think I will use ChatGPT when I don't have much time to make draft of my writing. (P9, Students' Interview)

The excerpt demonstrated that ChatGPT becomes a valuable ally for students when time is limited for drafting students' writing. Its efficiency in generating initial content allows students to optimize their time and focus on the subsequent stages of refinement and enhancement. Moreover, ChatGPT possesses the capacity to swiftly and accurately respond to user queries, leading to a more effective utilization of resources (Deng, J., & Lin, Y., 2022).

Abstaining from Using ChatGPT

Specific Guidelines

When facing specific task guidelines, students frequently choose to abstain from using ChatGPT. These guidelines offer a clear framework, prompting students to rely on their own understanding and problem-solving abilities, fostering independent thinking and skill development. Further, the students abstain to use ChatGPT. The data discussion served below:

I don't think it's a good idea to use chat GPT to do writing when it has specific guidelines. It can make me confused. (P.16, Students' Interview)

Adhering to task guidelines cultivates independent thinking and skill development among students. By abstaining from ChatGPT, they engage with the framework, honing problem-solving abilities and fostering a deeper understanding of the subject. This approach fosters ownership of learning and lasting skill acquisition. Originality

The Implication of Using ChatGPT for Academic Writing

Students' perception of ChatGPT for academic writing offers several advantages and disadvantages. Some students may view ChatGPT as a tool that helps simplify the writing process, enhances efficiency, and provides useful feedback. However, there may also be concerns about the reliability of the results generated by ChatGPT and how its usage can affect critical thinking and independent writing skills. Furthermore, based on the students' interview there are several points of view of the advantages and disadvantages of the use of ChatGPT.

Advantages of ChatGPT for Academic Writing

Students value ChatGPT's convenience and efficiency in writing, benefiting from instant feedback for skill improvement. Prompt suggestions aid error identification and foster growth as proficient writers. Additionally, ChatGPT offers multiple academic writing advantages:

Saving Time

Students value ChatGPT's efficiency and feedback, also saving time. Prompt suggestions foster proficiency. ChatGPT also presents various academic writing benefits. The data discussion served below:

Chat-GPT can save my time, because it reduces the time to look for certain topics from many journals on the internet. (P1, Students' Interview)

Most of the students viewed Chat-GPT as a means to simplify writing. They believe that by utilizing Chat-GPT, tasks can be accomplished more quickly and effortlessly. This perception suggests that the student values the convenience and efficiency that Chat-GPT offers in completing their work. ChatGPT has the ability to rapidly and precisely address user inquiries, which allocates resources more efficiently (Deng, J., & Lin, Y., 2022). Moreover,

(Foroughi, et al., 2023) argued that ChatGPT facilitates more effective student learning and reduces the time burden on tutors.

Grammatical Correction

ChatGPT provides grammar correction assistance by analyzing student text input and offering suggestions for grammar and sentence structure. This is especially advantageous for students struggling with grammar rules or error identification. Utilizing this feature enhances overall accuracy and clarity, refining language use and elevating academic work quality. The data discussion served below:

...it improves my ability to generate coherent and grammatically correct sentences." (P8, Students' Interview)

The excerpts reveal students' view of ChatGPT as aiding their focus on proper grammar usage. Through ChatGPT, students can prioritize grammatical accuracy. ChatGPT excels in fluently correcting grammar errors across different sentence lengths (Fang, Tao & Shu, 2023) Educators emphasize its utility in writing and grammar support (Thomas, S., 2023), offering detailed line-by-line feedback to enhance writing skills and grammar proficiency.

Inspiration and Creativity

Furthermore, engaging with ChatGPT could provide students a unique edge, igniting inspiration and creativity. This AI tool fuels fresh ideas and diverse perspectives, enriching both academic and creative pursuits. Moreover, the students get insight from ChatGPT feedback. The data discussion served below:

In my view point ChatGPT can inspire me with many insights and help me grow my critical thinking and creativity in writing. (P. 12, Students' Interview)

In essence, ChatGPT empowers students with a distinct advantage, fueling inspiration and creativity. This AI tool's capacity to spark innovative ideas and offer diverse perspectives enhances both academic and creative pursuits, ensuring students thrive in various domains.

Disadvantages of ChatGPT for Academic Writing

While ChatGPT offers academic writing advantages, it comes with drawbacks. Student interviews reveal concerns about unreliable outputs, hampering critical thinking and fostering dependency. Ethical concerns arise from potential plagiarism, and the absence of human interaction limits nuanced learning experiences. Furthermore, the data discussion served below:

...for academic writing in higher education, it is less reliable. The weakness of GPT-chat is that there are no relevant sources listed in it, so it needs filtering to retrieve the information in it. (P3, Students' Interview)

Chat-GPT raises legal and ethical issues regarding copyright, privacy, abuse, bias and transparency." (P10, Students' Interview)

The collected excerpts underscore concerns and downsides tied to employing ChatGPT for higher education's academic writing. Many students assert its unreliability due to insufficient relevant sources. Instances of unreliable and biased information raise potential harm (Javaid, M., et al., 2023). Moreover, students stress plagiarism risks through content generation, even leading to biased sentences. Utilizing ChatGPT for assessments could escalate plagiarism concerns (Cotton, D. R. E., et al., 2023). In sum, these excerpts

emphasize the necessity for caution and careful assessment when using ChatGPT in academic writing

The Challenges of Using ChatGPT for Academic Writing

There are several challenges faced by the students in using ChatGPT for academic writing such as ensuring proper citation and referencing, grappling with complex concepts and specialized language, and contending with its limited contextual understanding. These challenges underscore the need for vigilance and critical evaluation when integrating ChatGPT into scholarly endeavors.

Proper Citation and Referencing

A prominent challenge students encounter while utilizing ChatGPT for academic writing revolves around proper citation and reference. Ensuring accurate referencing of sources remains crucial, as ChatGPT might not consistently provide reliable citations, potentially undermining the academic integrity of their work. The data discussion served below:

I find it hard to have proper citation and referencing when I site something from ChatGPT. (P8, Students' Interview)

The excerpt demonstrated that the challenge of maintaining proper citation when using ChatGPT for academic writing is a significant concern. Students must exercise caution and take proactive steps to ensure accurate referencing, as the potential inconsistencies in citation provided by ChatGPT could compromise the integrity of their academic work.

Complex Concept and Specialized Language

Drawing from the perspective of students, the endeavor of navigating complex concepts and specialized terminology while utilizing ChatGPT emerges as a significant challenge in the landscape of academic writing. The data discussion served below:

When I want to write a complex concepts or specialized terminology I have to struggle a lot because ChatGPT may not grasp the nuances of the terminology I want. (P17, Students' Interview)

In summary, composing content involving intricate concepts or specialized language using ChatGPT often presents difficulties due to its limited grasp of nuanced terminologies. Navigating complex concepts and specialized terminology proves challenging with ChatGPT, given its potential limitations in fully grasping nuanced language.

Lack of Context Understanding

In the realm of academic writing, a prevailing challenge surfaces as students find that ChatGPT often falls short in aiding them to accurately capture the intended context within their written work. Based on the students' view, the limitation prompts a closer examination of the contextual comprehension capabilities of ChatGPT and its alignment with students' diverse writing requirements. The data discussion served below:

Most of the time ChatGPT can not help me with the context I want to write. (P.2, Students' Interview)

Moreover, the students' viewpoint underscores a notable limitation of ChatGPT – its frequent inability to assist in capturing the specific context they intend to convey in their writing. This challenge highlights the importance of

context understanding for effective utilization of ChatGPT in fulfilling students' writing needs.

The study's results indicate that students' perceptions of utilizing ChatGPT for academic writing in higher education can be categorized into three main viewpoints: awareness, strategies for implementation, and challenges. These students possess a multifaceted outlook, considering how ChatGPT impacts their awareness, role, and influence on academic writing. The outcomes suggest that their understanding of ChatGPT's usage surpasses a singular perspective, encompassing a holistic grasp of its potential awareness, role, and impact throughout their academic writing endeavors.

DISCUSSION

The present study focuses on the application and perceptions of ChatGPT, an AI language model created by OpenAI, in the context of academic writing in higher education. It encompasses three primary themes: students' awareness, strategies for using ChatGPT, and the implications and challenges associated with its use. The study's findings are significant as they provide insights into how students perceive and integrate this technological tool into their academic practices.

The first theme explores students' awareness of ChatGPT, highlighting how they learned about the tool. Social media platforms such as Twitter, YouTube, TikTok, Instagram, and various websites were identified as the primary sources through which students became aware of ChatGPT. This indicates the influential role of social media in disseminating information about new technologies. As supported by research, social media has a significant impact on spreading information among younger generations, making learning more accessible and efficient. Additionally, peer influence was found to be crucial, with classmates and friends introducing ChatGPT to each other, underscoring the importance of personal networks in technology adoption.

In terms of utilizing ChatGPT for academic writing, students employed it for various tasks such as summarizing texts, generating ideas, and quick drafting. Summarizing texts with ChatGPT helps students extract key points and main ideas, thereby improving their comprehension and summarization skills. For generating ideas, students found ChatGPT valuable in providing inspiration and diverse perspectives, which are essential for creative and academic writing. Moreover, ChatGPT was seen as a useful tool for quick drafting, particularly when time constraints were a concern, allowing students to generate initial content rapidly and focus more on refining their work.

However, not all students embraced the use of ChatGPT. Some refrained from using it due to specific guidelines that required independent thinking and problem-solving. This abstention was based on the belief that adhering to such guidelines would foster a deeper understanding and skill development. Concerns about originality also played a role in their decision to avoid relying on ChatGPT for academic writing.

The study also delves into the implications of using ChatGPT for academic writing, highlighting both advantages and disadvantages. On the positive side, students appreciated the convenience and efficiency ChatGPT offered, especially

in terms of time-saving and grammatical correction. The tool's ability to provide immediate feedback and suggestions was seen as beneficial for improving writing quality and proficiency. Additionally, ChatGPT's role in sparking creativity and providing diverse perspectives was noted as an advantage for academic and creative pursuits.

Conversely, the study identified several challenges and disadvantages. Students expressed concerns about the reliability of ChatGPT's outputs, particularly the lack of relevant sources and the potential for generating biased or unreliable information. Ethical issues such as plagiarism and the need for proper citation were also highlighted, emphasizing the necessity for critical evaluation and responsible use of AI tools. The limited contextual understanding of ChatGPT was another significant challenge, as students found it difficult to capture nuanced concepts and specialized language accurately.

In conclusion, the study presents a comprehensive overview of how students in higher education perceive and utilize ChatGPT for academic writing. It reveals a nuanced approach where students balance the benefits of the tool with the need for maintaining academic integrity and originality. While ChatGPT offers substantial advantages in terms of efficiency, feedback, and creative inspiration, it also poses challenges related to reliability, ethical use, and contextual understanding. These findings suggest that educational institutions should consider these factors when integrating AI tools like ChatGPT into academic practices, ensuring that students are equipped with the necessary skills and awareness to use such technologies responsibly and effectively.

CONCLUSION AND RECOMENDATION

Conclusions

In the era of digital progress, leveraging ChatGPT has the potential to significantly boost student productivity. Incorporating technology in education yields various advantages, including resource access, language improvement, collaboration, efficient time use, and motivational support. However, it's crucial to view ChatGPT as a complement, not a substitute, for human interaction and students' dedicated academic endeavors.

In summary, it's advised that students use ChatGPT judiciously, evaluating its generated information critically. Educators could consider incorporating ChatGPT to boost learning outcomes, while balancing its use with human interaction and students' dedicated efforts. Ultimately, technology can continue refining language models like ChatGPT to significantly enhance students' academic writing quality.

Recommendations

Based on the findings of the study, the following recommendations are proposed to optimize the use of ChatGPT for academic writing in higher education:

1. Develop and implement courses or modules focused on AI literacy, including the effective use of tools like ChatGPT. This will help students understand the capabilities, limitations, and ethical considerations of AI technologies.

2. Educate students about the ethical implications of using AI in academic work, emphasizing the importance of originality, proper citation, and avoiding plagiarism.
3. Universities should create clear guidelines on how ChatGPT and similar tools can be used in academic writing. These guidelines should address issues related to ethical use, citation practices, and adherence to academic integrity standards.
4. Offer concrete examples and best practices for integrating ChatGPT into academic work, including how to use AI-generated content responsibly and effectively.
5. Encourage students to use ChatGPT as a supplementary tool rather than a primary source of content creation. This approach ensures that students develop their critical thinking and writing skills while benefiting from AI assistance.
6. Advocate for the continuous improvement of AI tools to better understand and handle complex concepts and specialized language. Collaboration between educational institutions and AI developers can help enhance these tools' effectiveness in academic settings.
7. Provide students with access to technical support and resources to help them navigate the use of ChatGPT effectively. This can include online tutorials, FAQs, and dedicated help desks.

FURTHER STUDY

The findings of this study provide a comprehensive overview of students' perceptions and usage of ChatGPT for academic writing in higher education. To deepen understanding and address limitations, future research should explore several areas: longitudinal studies on AI integration to track changes over time; comparative analysis across disciplines to tailor support; direct impact on academic performance; ethical implications and academic integrity; perspectives from both students and faculty; effectiveness of AI literacy programs; cultural and regional differences; collaboration with AI developers for improved contextual understanding; use cases beyond writing; and policy development and implementation in higher education. These avenues will help maximize the benefits of AI tools like ChatGPT while addressing challenges and ensuring the integrity of academic work.

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