Exploring Teacher Attitudes Towards ChatGPT: A comprehensive Review

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Abstract

This article explores teachers' attitudes towards ChatGPT, a language model created by OpenAI, and its potential implications for education. ChatGPT employs sophisticated machine learning methodologies to produce text replies that simulate human conversations, garnering millions of users in the days following its launch. ChatGPT has several benefits, yet it may encourage academic dishonesty and overuse of chatbots. ChatGPT's human-like answers and academic assignment help raise these concerns. This can boost productivity and help students immediately, but it also increases plagiarism and cheating concerns. Chatbots may also impair student's critical thinking, problem-solving, and autonomous learning. Using ChatGPT as a tool while encouraging academic integrity and self-reliance is vital. Effective implementation tactics, clear instructions, and effective monitoring can minimize these downsides and maximize ChatGPT's benefits in educational contexts. The study utilizes the Technology Acceptance Model (TAM) framework to assess teacher attitudes thoroughly. The framework considers factors such as perceived usefulness, usability, impact on student learning, and concerns about information security and ethical considerations. According to the literature review, teachers acknowledge the capacity of artificial intelligence (AI) tools such as ChatGPT to revolutionize classrooms into social-constructivist learning environments. Even so, there have been expressions of concern regarding time limitations and the necessity for chatbots to encompass subject matters beyond the prescribed curriculum. The student demographic has positively perceived ChatGPT, citing its engaging and beneficial qualities. However, it is also recognized that certain limitations are associated with the platform. The precision of ChatGPT's replies is contingent upon the caliber of the training data, and discrepancies and imprecisions have been detected. However, ChatGPT exhibits the potential to enhance student efficiency and address standardized test inquiries.

The review article's findings contribute to the existing body of knowledge by offering insights into teachers' attitudes toward ChatGPT. The research underscores the necessity for enhanced faculty training and consciousness to tackle issues related to academic misconduct. Additionally, it provides suggestions for the successful integration of artificial intelligence tools in educational environments, taking into account teachers' viewpoints. By comprehending teachers' perspectives towards ChatGPT, policymakers can formulate guidelines that promote the integration of AI tools in educational settings while also considering teachers' apprehensions. Furthermore, teachers can use discoveries to improve their instructional methodologies and encourage analytical thinking and creativity in student assignments.

Keywords: *ChatGPT, teacher attitudes, artificial intelligence, education, technology acceptance model, perceptions, educational practices, student engagement, implementation*

Introduction

The widespread adoption of artificial intelligence (AI) technologies has created innovative opportunities for transformation and growth in numerous fields. ChatGPT, a robust language model developed by OpenAI, is a notable advancement in artificial intelligence. ChatGPT employs sophisticated machine-learning techniques to generate text responses that resemble those of humans, giving users the experience of engaging in natural conversations. Within days of its release, more than a million users registered (Sundar, 2023). Its extensive information processing and natural language generation capabilities allow ChatGPT to communicate effectively with users, simulating conversations with a real person (Cousins, 2023).

In 2022, Vallance described ChatGPT, an open-source language model designed by OpenAI to produce natural and pertinent responses to user input. The GPT-3 model, the largest unsupervised language model available, serves as the foundation for the transformer architecture of the system. Advanced discourse management techniques enable nuanced and accurate conversations, as opposed to rule-based or keyword-matching chatbots, which are limited in their ability to have natural discussions (Vallance, 2022).

ChatGPT's adaptability makes it useful in various scenarios, including virtual assistants and customer service bots (Hughes, 2022). Its conversational features and humorous responses have rapidly attracted a large user base (Sundar, 2023): over a million individuals. However, new security concerns have emerged in tandem with its rising popularity.

Observers are intrigued by ChatGPT's meteoric rise to prominence as the fastest-growing consumer app to date (Ruby, 2023); the app is estimated to have 100 million monthly active users only two months after its release. Teachers are nevertheless concerned about the potential impact of ChatGPT on students, particularly in terms of plagiarism. The chatbot, which AI powers, can engage in in-depth conversations and offer assistance with assignments such as essay writing. Experts in the field, such as Zhai (2022), are concerned that students become overly reliant on chatbots such as ChatGPT, which could stunt their development as independent thinkers and restrict their creative output.

Teachers and educational institutions have responded to these concerns by putting measures to keep students safe when using ChatGPT. Some teachers have restricted chatbot access and

provided more detailed guidelines for assignments and evaluations to reduce plagiarism and foster critical thinking and student development (Zhai, 2022).

The ChatGPT platform has the potential to significantly transform the educational landscape by enabling ongoing bidirectional communication between teachers and learners through the utilization of machine learning and natural language processing. Iqbal et al. (2022, pp. 97-111) employed the Technology Acceptance Model to investigate teachers' viewpoints regarding ChatGPT. The study involved interviews with twenty professors affiliated with a private university in Pakistan, revealing a tendency towards cautiousness and negative attitudes among the participants. While acknowledging the benefits of reduced time spent on lesson preparation and grading, there were significant apprehensions regarding the prevalence of academic dishonesty, including cheating and plagiarism. The findings indicate a requirement for increased faculty education and awareness regarding ChatGPT to enable informed decision-making. To comprehensively evaluate the efficacy of ChatGPT in educational settings, future research endeavors should incorporate student input and employ quantitative methodologies. The study by K et al. (2018, pp. 1586–1597) highlights the significance of teachers' attitudes towards specific technologies, specifically chatbot technology, in determining its incorporation into classroom practices and its influence on student responses. This study examines teachers' perspectives regarding implementing chatbots for educational purposes in developing nations such as Kenya.

The Technology Acceptance Model (TAM) has gained significant traction as a means of comprehending users' willingness to accept and integrate novel technologies. Research conducted in the past has established that how users perceive a technology's usefulness and ease of use substantially impacts its adoption (Granić & Marangunić, 2019). Furthermore, scholars have expanded the Technology Acceptance Model (TAM) to encompass external factors that facilitate the adoption and implementation of technology in eLearning (Scherer et al., 2019).

Numerous studies have examined the adoption and implementation of eLearning platforms, such as Moodle, and their influence on behavioral intention. However, there needs to be more research that examines the application of the Technology Acceptance Model (TAM) to ChatGPT explicitly. This review article addresses the need for more information by examining teachers' perspectives on ChatGPT using the Technology Acceptance Model (TAM) framework. Research has indicated the advantages of incorporating artificial intelligence (AI) tools, such as chatbots,

in educational settings for instructional purposes. Teachers recognize the potential of technology, including ChatGPT, to revolutionize conventional classrooms into social-constructivist learning spaces. Nevertheless, there have been expressions of concern regarding time limitations and the necessity for chatbots to encompass subject matter beyond the established curriculum. Achieving a balance between pre-programmed content and search capabilities is a critical factor in ensuring the effectiveness of educational chatbots for teaching and learning purposes (Khao, et al., 2018).

An investigation has been conducted on the influence of ChatGPT on students' learning experiences. According to Shoufan's (2023) study, students perceive ChatGPT as an engaging, stimulating, and beneficial tool while recognizing its constraints. Teachers have a crucial responsibility to explore the potential of ChatGPT and guide students on how to use it effectively.

Notwithstanding the burgeoning fascination with ChatGPT and its prospective implications in education, it is crucial to contemplate its constraints. According to Qureshi (2023), discrepancies and inaccuracies have been identified in the code generated by ChatGPT. Moreover, Wang et al. (2023) have suggested that ChatGPT may encounter difficulties in accurately comprehending queries and may be unable to effectively employ knowledge to produce suitable solutions. The efficacy of ChatGPT's replies is significantly contingent upon the caliber of the data on which it underwent training, as per the findings of Khan et al. (2023).

Significance of study

This study can significantly benefit numerous individuals in the education sector. It accomplishes this in several ways, the first being that it contributes to the body of knowledge by thoroughly analyzing teachers' perspectives on ChatGPT, thereby shedding light on the complexities of implementing AI technologies in classrooms. Understanding the implications of AI tools in education is crucial, and this study's findings can aid researchers and practitioners. As a second advantage, this research assists educational supervisors and policymakers determine how to best implement artificial intelligence in classrooms and schools. Understanding how teachers feel about ChatGPT aids policymakers in crafting regulations that both allay teachers' fears and encourage the widespread adoption of AI tools for classroom use.
Teachers can also benefit from this research in the real world. Teachers can gain insight by analyzing their attitudes, perceptions, and concerns concerning ChatGPT to utilize AI tools to

improve teaching practices and develop critical thinking and originality in student work. The findings of this study can assist teachers in determining how to most effectively integrate artificial intelligence (AI) tools such as ChatGPT into their classrooms.

In conclusion, this research is significant because it can inform and guide the successful implementation of AI technologies in educational settings by considering teachers' perspectives and concerns. Using AI tools such as ChatGPT, stakeholders in the education sector can improve the quality of teaching and learning by addressing and mitigating the adverse effects of these factors.

Objectives of the study

- The study's primary objectives are as follows:
- To investigate and analyze teacher attitudes towards ChatGPT, including their perceptions, beliefs, and concerns regarding its use in educational contexts.
- To determine the factors influencing teacher attitudes toward ChatGPT, including perceived usefulness, usability, impact on student learning, and concerns related to information security and ethical considerations.
- To examine the potential implications of teacher attitudes toward ChatGPT for educational practices, including instructional strategies, assessment methods, and student engagement.
- To provide recommendations and guidelines for educational policymakers, supervisors, and designers to effectively integrate artificial intelligence (AI) tools such as ChatGPT into educational settings, considering teachers' concerns**.**

Literature Review

People are becoming more aware of the potential of artificial intelligence (AI) tools like Microsoft, resulting in a rise in popularity. ChatGPT is only one instance. The success of AI tools depends on their widespread adoption; therefore, it is crucial to understand how teachers feel about them. This literature review will examine prior research on the topic to understand better how teachers think about ChatGPT. It identifies the factors influencing students' perspectives and suggests ways to enhance instruction.

Several studies have examined how different technologies relate to TAM characteristics. For instance, Murillo et al. (2021) found that users' perceptions of Moodle's usefulness were significantly affected by the platform's ease of use, even though the ease of use had no direct

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effect on users' intentions to use the forum. There was a positive correlation between how useful people thought the platform was and how easy it was to use, but this was still the case. Intention to act was highly correlated with users' assessments of the content's usefulness. For example, Yang et al. (2021) found that people were more likely to adopt a technology if they thought it was easy to use, but they were not as convinced of its benefits if they felt it was helpful.

The field of education has witnessed a significant surge in interest in Artificial Intelligence (AI) in recent times. ChatGPT, a sizeable language model created by OpenAI, has gained considerable attention as a unique AI tool. As the incorporation of artificial intelligence (AI) technologies within education continues to proliferate, it is imperative to investigate teachers' perspectives on ChatGPT. The objective of this all-encompassing literature review is to scrutinize and assess the attitudes of teachers towards ChatGPT, with a focus on their opinions, convictions, and apprehensions regarding its implementation in academic settings.

Several scholarly investigations have examined the adoption and acceptance of novel technologies across various fields. According to the study by Granić and Marangunić (2019), the adoption of new technologies is significantly influenced by users' perceptions of usefulness and ease of use. Scherer et al. (2019) extended the Technology Acceptance Model (TAM) in the context of e-learning by integrating external factors to augment the acceptance of e-learning. The study conducted by Murillo et al. (2020) revealed that the construct of perceived usefulness (PU) has a direct impact on behavioral intention (BI), whereas perceived ease of use (PEU) exerts an influence on PU but not on BI. The study by Revythi and Tselios (2019) yielded comparable results, indicating that neither of the variables under investigation had a significant impact on BI. In contrast, Mailizar et al. (2021) discovered that there is no direct impact of perceived ease of use (PEU) on perceived usefulness (PU). The studies above offer significant perspectives on the determinants influencing user perceptions of technology.

Although research on ChatGPT is scarce, K et al. (2018) studied teachers' perceptions regarding integrating technology, specifically chatbot technology, in developing nations such as Kenya. The authors emphasized that teachers acknowledge the advantages of incorporating technology, such as chatbots, into pedagogical practices to enhance the teaching and learning experience. Nevertheless, apprehensions regarding temporal limitations and the need for chatbots to encompass subject matters beyond the prescribed syllabus were articulated. Effective education

delivery through chatbots requires a delicate balance between pre-programmed content and search capabilities.

Shoufan (2023) conducted a study to examine the effects of ChatGPT on education as students perceive it. The students' perception of ChatGPT was that it possessed interest, motivation, and helpful qualities. However, they also recognized its limitations. Educational professionals were recommended to investigate the potential of the technology and provide guidance to pupils on its proficient utilization. Additional investigation was urged to comprehend the variables that impact student receptiveness and establish a connection between human cognitive abilities and prior knowledge to elicit superior outcomes.

A study was conducted by Qureshi (2023) about the utilization of ChatGPT within undergraduate Computer Science courses. The results indicated that although ChatGPT improved students' academic performance, the code produced by the system displayed inconsistencies and inaccuracies. This underscores the significance of engaging in experiential and participatory learning while upholding scholarly honesty in applying artificial intelligence resources.

The study conducted by Wang et al. (2023) evaluated the efficacy of ChatGPT in facilitating educational tasks related to design, manufacturing, and engineering. The study revealed that ChatGPT exhibited remarkable proficiency in furnishing information, producing organized content, and suggesting preliminary resolutions. Nevertheless, the system needed help in accurately comprehending queries and exhibited inadequate knowledge utilization to produce suitable solutions. The study by Khan et al. (2023) investigated the potential of ChatGPT in medical education. It emphasized the crucial role of training data quality in determining the precision of its generated responses.

According to Fauzi et al. (2023), ChatGPT can enhance student productivity in higher education through various means, such as providing valuable resources, improving language skills, promoting collaboration, enhancing time management, and increasing efficiency. Notwithstanding, the authors advised against regarding ChatGPT as a substitute for interpersonal communication and the diligent endeavors of learners in attaining their educational objectives. The study conducted by Kung et al. (2023) assessed the efficacy of ChatGPT in answering medical exam questions, revealing a 60% accuracy rate. The results highlight the potential of ChatGPT in addressing standardized test questions.

Numerous academic investigations have also provided insights into the viewpoints of teachers. According to Aldosari's (2020) research, teachers exhibit favorable attitudes toward AI technologies as they perceive them as effective tools for enhancing their teaching abilities and expertise. Vincent-Lancrin and Van Der Vlies (2020) underscored the significance of artificial intelligence (AI) in augmenting teachers' comprehension of students' learning processes and providing avenues for facilitating learners. According to Gunawan et al. (2021), artificial intelligence (AI) can facilitate professional development for teachers by providing them with teaching evaluation models and recommendations for enhancing their instructional approaches. Durall and Kapros (2020) examined the function of artificial intelligence (AI) in evaluating students' learning capabilities, while Xia et al. (2023) observed that AI facilitates the monitoring of students' learning advancement and the collection of data.

In a study conducted by Firaina and Sulisworo (2023), a series of interviews were conducted with teachers to gain insight into their perceptions regarding implementing ChatGPT as a tool for facilitating learning. The results revealed that ChatGPT reduced users' quest for information, text translation, and knowledge enhancement. Notwithstanding, prudence was recommended, and individuals were urged to authenticate data from credible sources.

The assimilation of ChatGPT and analogous artificial intelligence technologies into education offers many advantages. However, it also presents a set of ethical and legal predicaments. The benefits of utilizing AI chatbots for customized learning and feedback were underscored by Adiguzel et al. (2023), who emphasized the importance of mitigating bias in AI algorithms and offering teacher training. The significance of cooperation among AI researchers, teachers, and students in creating efficient regulatory frameworks for the responsible and sustainable implementation of AI in education was underscored by Yu (2023).

The study conducted by Marron (2023) investigated the advantages and difficulties associated with incorporating ChatGPT technology in the context of tertiary education. The research examined the capacity of the discussed approach to facilitate the development of learning materials, collaborative assignments, and academic support while also tackling issues about intellectual honesty. Proposed strategies aimed at promoting responsible utilization of artificial intelligence in educational settings, particularly emphasizing the importance of employing practical pedagogical approaches.

This comprehensive literature review has analyzed teachers' perspectives regarding using ChatGPT within academic settings. The reviewed studies have provided insights into diverse aspects, such as users' perceptions, advantages, drawbacks, apprehensions, and the consequences of incorporating ChatGPT into educational methodologies. Various factors, including perceived usefulness, usability, impact on student learning, and ethical considerations, influence teacher attitudes toward ChatGPT. The results underscore the capacity for AI-driven language models such as ChatGPT to bring about significant change but also highlight the importance of careful deployment, successful teaching methods, and resolution of ethical and legal obstacles. The present review offers valuable insights and recommendations for educational policymakers, supervisors, and designers to facilitate the seamless integration of AI tools in educational environments while considering teachers' concerns.

Research Methodology

In the review article, secondary data sources were employed to gather instructor perspectives on ChatGPT. Studies, articles, academic papers, conference proceedings, and other relevant literature served as secondary data sources. By providing data, statistics, and theoretical frameworks, these materials helped teachers determine how they felt about ChatGPT, assisting them in resolving their attitudes. Researchers collected secondary data while examining previously published works to gain insight into how teachers used ChatGPT. Proper techniques, including database and search engine mining, as well as a systematic review of the existing literature, were employed. By synthesizing, organizing, and incorporating secondary data into the review article, it was possible to support or refute the findings of the primary data.

The utilization of various secondary sources permitted a comprehensive investigation into how teachers felt about ChatGPT. It facilitated a more in-depth exploration of the factors that shaped these perspectives and provided insights to help those with a vested interest in education integrate AI tools into classrooms effectively.

The theoretical weight and context of primary data, such as interviews and surveys, were enhanced by consulting secondary data sources, which also expanded the scope of the analysis.

Conclusion and Recommendation

Conclusively, this comprehensive review article has delved into teachers' perspectives regarding ChatGPT, a resilient language model created by OpenAI. The objective of the research was to explore and evaluate teachers' viewpoints, convictions, and apprehensions concerning the

utilization of ChatGPT in academic settings, along with scrutinizing the determinants that shape their attitudes and the probable consequences for pedagogical methodologies.

The results of this review indicate that teachers exhibit a sense of prudence and unfavorable dispositions towards ChatGPT. Teachers recognize the advantages of decreased time allocated to preparing and evaluating lessons. However, they have expressed notable concerns about academic misconduct, including fraudulent behavior and intellectual theft. Teachers express apprehension regarding the possibility of students excessively depending on chatbots such as ChatGPT, which may impede their growth as autonomous thinkers and restrict their imaginative capacity.

In response to these concerns, teachers and academic institutions have taken steps to mitigate the issue by imposing limitations on chatbot usage and furnishing comprehensive directives for assignments and assessments. The measures above are intended to mitigate plagiarism and promote the cultivation of analytical skills and academic growth among students.

The review above highlights the prospective impact of ChatGPT on the educational domain, as it facilitates two-way interaction between instructors and students by implementing machine learning and natural language processing techniques. It is imperative to consider the constraints of ChatGPT, such as incongruities and imprecisions in the produced code, along with its dependence on the caliber of the training data.

The article in review emphasizes the importance of comprehending teachers' attitudes towards ChatGPT to incorporate artificial intelligence tools in academic environments effectively. By thoroughly considering the viewpoints and apprehensions of teachers, those responsible for shaping educational policy, overseeing educational practices, and designing educational technologies can successfully integrate AI technologies into the educational landscape, enhancing the caliber of teaching and learning. The research aimed to explore teachers' perspectives, identify the factors that shape their attitudes, analyze the potential impact on educational practices, and offer suggestions for relevant stakeholders.

The study's importance stems from its contribution to the existing knowledge base on integrating artificial intelligence (AI) technologies in educational settings. The results of this study can provide valuable insights for scholars and professionals seeking to optimize the use of AI technologies by elucidating the intricacies and issues associated with ChatGPT. Moreover, the findings of this study can be utilized by educational administrators and policymakers to

formulate policies that not only alleviate teachers' apprehensions but also promote the integration of AI technologies.

Teachers may benefit from this study by scrutinizing their attitudes, perceptions, and apprehensions concerning ChatGPT. By comprehending these variables, teachers can integrate artificial intelligence (AI) resources into their pedagogical approaches, encourage analytical reasoning, and cultivate ingenuity in student assignments.

This review article employs secondary data sources, including studies, articles, academic papers, and conference proceedings, to collect instructor viewpoints on ChatGPT, focusing on methodology. The present review comprehensively investigates teachers' attitudes by synthesizing and organizing various secondary data sources. The amalgamation of firsthand data, such as interviews and surveys, with pre-existing data amplifies the theoretical significance and contextualization of the outcomes.

The article's literature review segment emphasizes utilizing the Technology Acceptance Model (TAM) to comprehend user perspectives regarding novel technologies. The factors that are considered to have a significant impact on the adoption of technology are the perceived usefulness and ease of use. Although research is scarce and specifically centers on ChatGPT, existing studies on integrating technology and students' viewpoints offer valuable insights into the determinants influencing attitudes toward artificial intelligence tools.

In conclusion, the present review article provides insights into the intricate and apprehensive nature of incorporating AI tools in education by examining teacher attitudes toward ChatGPT. This study offers researchers, practitioners, policymakers, supervisors, and teachers significant insights by considering teachers' viewpoints. The results of this research have the potential to provide direction for the effective integration of artificial intelligence (AI) technologies within educational environments, ultimately enhancing the caliber of pedagogical and learning encounters.

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