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REVOLUTIONIZING EDUCATION WITH CHATGPT: ENHANCING LEARNING THROUGH CONVERSATIONAL AI

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ABSTRACT

The development of conversational artificial intelligence (AI) has brought about new opportunities for improving the learning experience in education. ChatGPT, a large language model trained on a vast corpus of text, has the potential to revolutionize education by enhancing learning through personalized and interactive conversations. This paper explores the benefits of integrating ChatGPT in education in Thailand. The research strategy employed in this study was qualitative, utilizing in-depth interviews with eight key informants who were selected using purposive sampling. The collected data was analyzed using content analysis and the software NVivo. The study's results indicated that ChatGPT can provide personalized learning experiences by adapting to individual student needs and preferences. Its ability to understand natural language and context can also facilitate more meaningful interactions between students and the system. Additionally, ChatGPT can assist with administrative tasks such as grading and feedback, allowing educators to focus on more personalized and meaningful interactions with students. Furthermore, ChatGPT can serve as a valuable tool for remote learning, providing students with the ability to access educational resources and support outside of traditional classroom settings. The paper also discusses potential ethical considerations in utilizing AI in education, such as data privacy and bias. Overall, this paper argues that the integration of ChatGPT in education has the potential to enhance the learning experience for students by providing personalized, interactive, and efficient support.

Keywords: Artificial Intelligence (AI), ChatGPT, Education, Thailand

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INTRODUCTION

Education is an essential pillar of modern society, and advancements in technology have paved the way for exciting innovations in the field. When compared to the twenty-first century, the educational sector 50 years ago was no longer adequate for success in college, career, and citizenship. It is difficult to prepare students for work, citizenship, and life in the twenty-first century. Globalization, innovation, migration, international competition, changing markets, and transnational environmental and political challenges all add to the urgency of developing the skills and knowledge students will need to succeed in this century (Devi, Annamalai, & Veeramuthu, 2020; Limna, Siripipatthanakul, & Siripipattanakul, 2021). Technology has become an integral part of modern society and has impacted many aspects of life, including education (Erstad & Sefton-Green, 2020). In addition, literacy growth, combined with recent technological advancements, has resulted in the expansion of technology in education. From millennials to Gen-Z, these are the generations entering the classroom today, and they all share distinct characteristics that define their age. These generations do not perform well as passive learners because they expect to be actively engaged in their learning. As a result, today's education must embrace technology, and teachers must incorporate technology into their students' learning (Limna et al., 2022; Siripipatthanakul et al., 2023a). The use of technology in the classroom has the potential to enhance the learning experience for students. Digital tools can provide personalized learning opportunities, facilitate collaboration among students, and offer access to a wealth of information (Ahmadi & Reza, 2018; Martin & Ertzberger, 2020). Moreover, digital technologies can enhance learning outcomes in education. Digital tools, such as online learning platforms, gamification, and virtual and augmented reality, can provide students with personalized learning experiences, facilitate collaboration and communication, and offer access to a wealth of information (Alshammari et al., 2020; Siripipatthanakul et al., 2023b). Digital technologies can also help bridge the gap between traditional classroom learning and real-world applications, preparing students for future careers in technology-driven industries (Dahlstrom, Brooks, & Bichsel, 2014; Lei & Gupta, 2010). Thus, the ability to use technology should be considered one of the essential qualifications for both teachers and students (Siripipatthanakul et al., 2023a).

The Chat Generative Pre-Trained Transformer (ChatGPT or ChatGPT Playground) is an artificial intelligence (AI) tool developed by OpenAI that allows for the generation of text based on user prompts. It has been specifically designed to comprehend natural language and produce intelligent and pertinent responses to user inquiries. The model has been trained on vast amounts of data, but the training only goes up to 2021, and therefore, it may not be knowledgeable about events that occurred after that time. OpenAI is expected to update the model soon to incorporate more recent data. Since its launch in November 2022, the ChatGPT tool has attracted a significant amount of attention and has amassed 100 million users in just two months. OpenAI has introduced a new subscription plan that costs $20 per month and provides unrestricted access to ChatGPT, particularly during peak periods, as well as quicker response times (Halaweh, 2023). To enhance the learning experience for students, ChatGPT is one of the most promising developments in education technology is the integration of conversational AI (Atlas, 2023; Dwivedi et al., 2023). According to a report by Markets and Markets, the market for AI in education is expected to grow from USD 537 million in 2018 to USD 3.7 billion by 2023, with conversational AI being a significant contributor to this growth (Markets and Markets, 2019). ChatGPT is a large language model trained on a vast corpus of text and capable of understanding natural language and context. It can provide personalized learning experiences for students by adapting to their needs and preferences. For example, ChatGPT can assess a student's progress and adjust the level of difficulty of the material presented accordingly. It can also provide immediate feedback on students' work and assist with administrative tasks such as grading and record keeping (Marino, Gamage, & Alahakoon, 2021). In addition to its potential benefits for traditional classroom settings, ChatGPT can also serve as a valuable tool for remote learning, providing students with access to educational resources and support outside of the classroom (Ma, Chen,

& Liu, 2021). Its capabilities for natural language processing and contextual understanding can facilitate meaningful interactions between students and the system, allowing for more engaging and interactive learning experiences. This qualitative study seeks to contribute to the ongoing conversation on the integration of AI in education, with a focus on the unique context of Thailand. By doing so, the researchers hope to shed light on the potential impact of ChatGPT on the Thai education system and offer insights into its responsible implementation.

Literature Review

ChatGPT is a natural language processing (NLP) model developed by OpenAI, based on the GPT architecture originally designed for language generation tasks such as machine translation and summarization. Unlike traditional AI that is useful for discriminative predictions, ChatGPT is a generative AI designed to generate new content or ideas and express them in real-time conversations. Compared to other generative AI models that are text-to-image, such as OpenAI's DALL-E, ChatGPT is a text-to-text generative AI. One of ChatGPT's key features is its ability to maintain a conversational style with a consistent persona or identity throughout a conversation, enabling it to engage in more realistic natural dialogues rather than simply providing unrelated responses. To achieve this, ChatGPT was trained on a vast dataset of conversational text, including chat logs, forums, and social media posts. It is capable of generating human-like responses to prompts and questions, making it a useful tool for a variety of applications (Brown et al., 2020; Qadir, 2022). ChatGPT gained over one million subscribers within a week of its initial public release on November 30, 2022. ChatGPT astounded the world with its sophisticated ability to perform remarkably complex tasks. ChatGPT's extraordinary abilities to perform complex tasks in the field of education have elicited mixed reactions from educators, as this advancement in AI appears to revolutionize existing educational practices (Baidoo-Anu & Owusu Ansah, 2023).

The application of AI in academia is a hot topic in the field of education. ChatGPT is an AI tool that provides a variety of benefits, including increased student engagement, collaboration, and accessibility. However, it raises concerns about academic integrity and plagiarism. Cotton, Cotton, and Shipway (2023) investigated the benefits and drawbacks of using ChatGPT in higher education and the potential risks and benefits of these tools. They also considered the challenges of detecting and preventing academic dishonesty, as well as strategies that universities can use to ensure ethical and responsible use of these tools. Among these strategies are the development of policies and procedures, the provision of training and support, and the use of various methods to detect and prevent cheating. While the use of AI in higher education presents both opportunities and challenges, the paper concluded that universities can effectively address these concerns by taking a proactive and ethical approach to the use of these tools.

In the inception of using ChatGPT, Sok and Heng (2023) concluded that this sophisticated generative AI tool has a high likelihood of being beneficial to students, educators, and researchers. These include creating formative and summative evaluations, improving pedagogical practices, assisting personalized students, creating academic outlines, and brainstorming ideas for articles or essays. However, it is critical to remember that such a transformative AI tool is not without flaws, which include the risk of academic integrity, biased evaluation among students, factual inaccuracies, and over-reliance on AI, which can result in limited development of important life skills. As a result, these issues must be addressed in order for this AI tool to be used effectively for education and research.

Sallam (2023) reviewed ChatGPT's utility in healthcare education, research, and practice, as well as its potential limitations. ChatGPT is a promising, if not revolutionary, tool for scientific research in academic writing as well as the research process itself. ChatGPT was specifically mentioned in several sources as an efficient and promising tool for conducting comprehensive literature reviews and generating computer codes, thereby saving time for research steps that require more human intelligence (e.g., the emphasis on experimental design). ChatGPT can also be used to generate high-precision queries for comprehensive systematic reviews. Furthermore, the utility of ChatGPT includes an improvement in

language and a better ability to express and communicate research ideas and results, ultimately speeding up the publication process by making research results available sooner. This is especially important for non-native English speakers who are conducting research. Given the existing English editing services provided by several academic publishers, such a practice may be acceptable. As a result, this can aid in the promotion of equity and diversity in research.

METHODOLOGY

The current study adopted a qualitative approach as a research strategy, consisting of four fundamental stages: research design, data collection, data analysis, and report writing (Limna, Siripipattanakul, & Auttawechasakoon, 2022). Qualitative research methodology aims to understand individuals' or groups' decision-making and actions, as well as to explain specific phenomena's occurrence (Siripipattanakul, Siripipatthanakul, Limna, & Auttawechasakoon, 2022). In-depth interviews, a valuable qualitative data collection method, provide comprehensive responses to research topics and yield precise information to meet research objectives (Woodeson, Limna, & Nga-Fa, 2023). To conduct in-depth interviews and examine relevant survey questions from secondary data to obtain primary data results, the present study employed the documentary method. In addition, the study utilizes purposive sampling to select a sample of eight key informants. Purposive sampling is a widely recognized qualitative research technique that involves the deliberate selection of a sample that best suits the study's objectives based on the researchers' expertise. This method seeks to amass comprehensive knowledge about a particular population or phenomenon of interest (Siripipatthanakul et al., 2022). Moreover, to be eligible for participation in the study, the individuals had to satisfy three inclusion criteria, including being at least 18 years of age, being Thai students located in Pathum Thani, Thailand, and having recent knowledge and experience in using ChatGPT. Content analysis, a systematic and objective approach to describing and quantifying specific phenomena from verbal, visual, or written data, was employed to analyze the data, as recommended by Namraksa and Kraiwanit (2023). NVivo, a qualitative data analysis tool used to organize and analyze large data sets, was also utilized, as recommended by Limna, Siripipatthanakul, Siripipattanakul, and Auttawechasakoon (2022).

RESULT

Referring to the interviews, opinions on ChatGPT and education vary, as with any emerging technology. Some educators and researchers see ChatGPT as a powerful tool for enhancing the learning experience for students. They argue that it can provide personalized feedback, facilitate collaboration, and offer access to a vast amount of information, which can lead to more efficient and effective learning outcomes. They also point out that ChatGPT can be used to create engaging and interactive learning environments that can help students develop critical thinking and problem-solving skills. However, others have expressed concerns about the use of ChatGPT in education. They argue that it can be difficult to ensure that the responses generated by ChatGPT are accurate and reliable. There are also concerns about the potential for students to become overly reliant on technology and to neglect other important aspects of learning. Some critics have also raised ethical concerns, such as the potential for ChatGPT to perpetuate bias and stereotypes if the training data used to develop the model is biased. Overall, it is clear that ChatGPT has the potential to revolutionize the field of education, but it is important to proceed with caution and to consider the potential benefits and drawbacks of its implementation carefully.

"ChatGPT has the potential to be a valuable tool for education, as it can provide personalized learning experiences, facilitate collaboration among students, and offer access to a wealth of information.

Its ability to generate human-like responses to prompts and questions can also enhance the effectiveness and efficiency of teaching and learning."

"ChatGPT is beneficial. For example, ChatGPT can improve student collaboration by allowing you to collaborate on projects and assignments regardless of your physical location. Additionally, not only can ChatGPT provide you with access to a wealth of information and resources, allowing you to broaden your knowledge and explore new topics, but it can also provide you with real-time feedback on your work, allowing you to identify areas for improvement and adjust your learning accordingly."

"Whether or not ChatGPT is "good" for education ultimately depends on how it is implemented and integrated into the learning experience. Educators and institutions must carefully consider the potential benefits and challenges of using ChatGPT in education and evaluate its effectiveness and impact on student learning. Additionally, proper training and support must be provided to educators and students to ensure they can effectively utilize the technology."

NVivo Analysis

The interpretation and analysis were based on NVivo. The following images depict the word frequency query – word cloud and text search – word tree.

Figure 1. Word Cloud

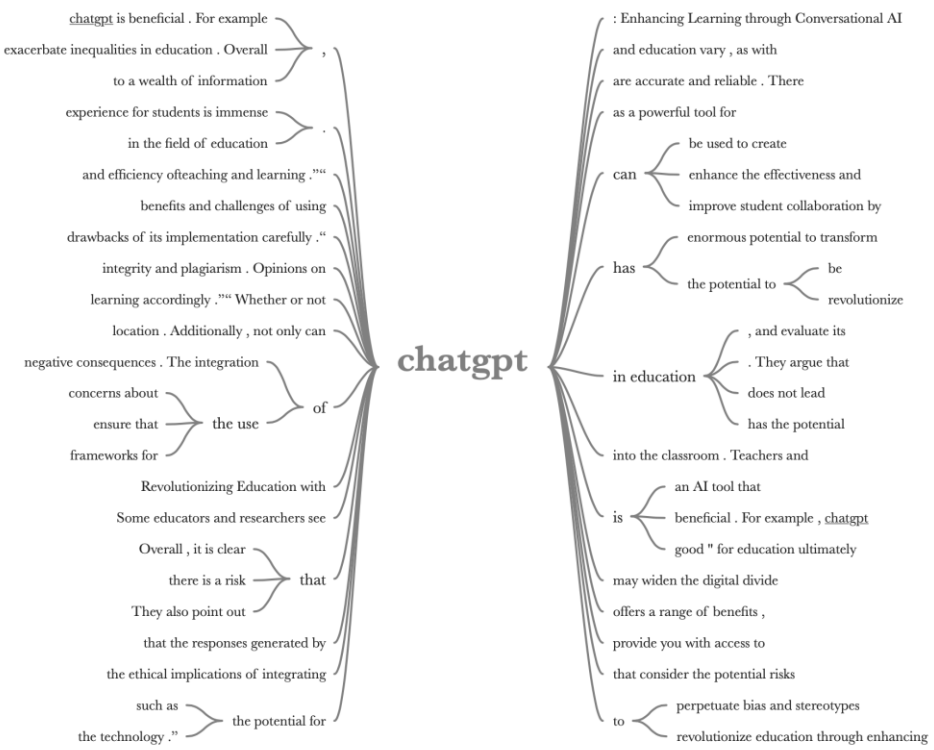

Figure 2. Word Tree (ChatGPT)

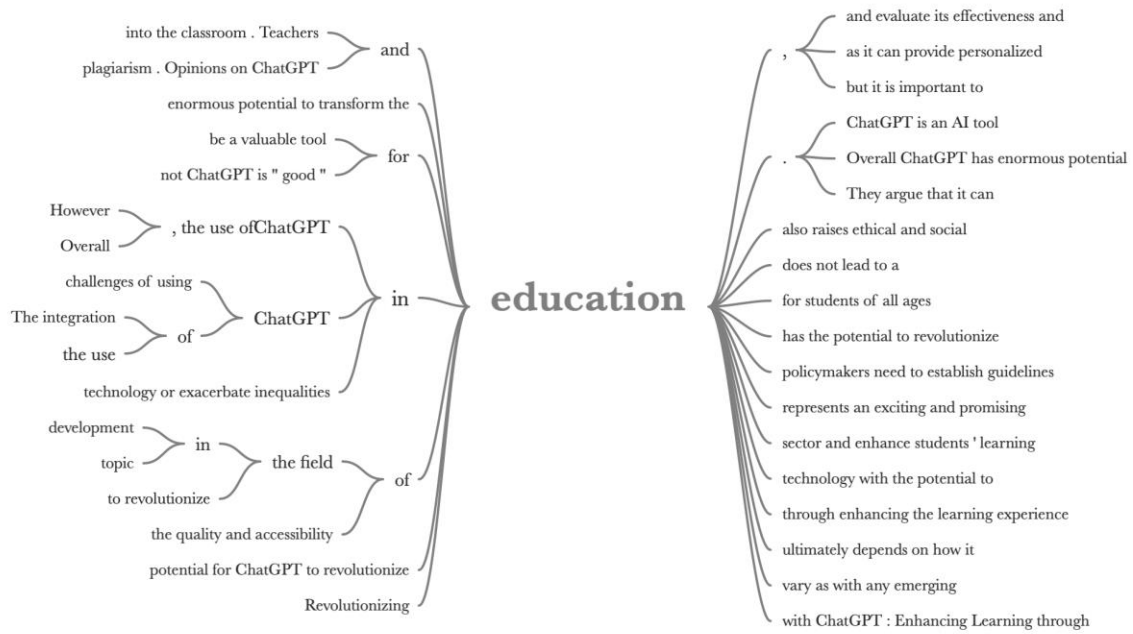

Figure 3. Word Tree (Education)

DISCUSSION

The potential for ChatGPT to revolutionize education through enhancing the learning experience for students is immense. ChatGPT offers a range of benefits, including personalized feedback and support, facilitation of collaboration, and access to vast amounts of information. As a result, students can develop critical thinking skills and be better prepared for the technology-driven job market. Saravanan and Chakrabarty (2021) confirmed the potential benefits of using ChatGPT, a conversational artificial intelligence tool, in education. According to Baidoo-Anu and Owusu Ansah (2023), ChatGPT and other generative AI are already pushing educational boundaries and ushering in a significant paradigm shift in current educational practice. Since its public release, educators have written extensively about the potential implications for teachers, students, and policy. Some educators have already begun testing ChatGPT's efficiency by incorporating it into their educational activities (e.g., research, teaching, and assessment) and discovered that by automating certain tasks and processes, ChatGPT is able to save time for other important activities such as spending more time with students.

However, the use of ChatGPT in education also raises ethical and social concerns. One concern is the potential for over-reliance on technology, which may lead to a lack of critical thinking and problem-solving skills. Additionally, there is a risk that ChatGPT may widen the digital divide by creating a technological gap between students who have access to the technology and those who do not. To address these concerns, it is essential to consider the ethical implications of integrating ChatGPT into the classroom. Teachers and education policymakers need to establish guidelines and frameworks for the use of ChatGPT that consider the potential risks and benefits. It is important to ensure that the use of ChatGPT in education does not lead to a dependence on technology or exacerbate inequalities in education. According to Bridgeman and Shipman (2021), the incorporation of ChatGPT in a variety of settings raises ethical and social concerns. One source of concern is the possibility of students becoming overly reliant on technology, resulting in a lack of critical thinking and problem-solving skills. Slaughter and Rhoads (2021) are also concerned that ChatGPT has the potential to exacerbate social inequalities, such as the digital divide, by creating a technological divide between those who have access to technology and those who do not. Halaweh (2023) argued that AI and chatbots are neither good nor bad in and of themselves, but they do deserve more attention in terms of their potential for misuse, such as in higher education. While these technologies have the potential to greatly improve our lives and various industries, they also have the potential to be used for nefarious purposes such as assignment cheating or other unethical practices. As AI and chatbots evolve, it is critical that we consider the implications of their use and take steps to prevent their misuse. This could entail enforcing strict policies and regulations, as well as educating people about the importance of ethical behavior when using these technologies.

Overall, ChatGPT has enormous potential to transform the education sector and enhance students' learning experiences in a variety of ways. However, it is crucial to recognize the ethical and social implications of its use and to take appropriate precautions to ensure that the benefits of this technology are realized without causing any negative consequences.

CONCLUSION

The integration of ChatGPT in education has the potential to revolutionize the learning experience for students. With its ability to provide personalized feedback and support, facilitate collaboration, and offer access to a wealth of information, ChatGPT can enhance the effectiveness and efficiency of teaching and learning. However, there are also potential challenges and ethical considerations that need to be

addressed, such as the need for proper training and support for educators and students to effectively utilize the technology, and the risk of creating a digital divide between those who can afford the service and those who cannot. Overall, the use of ChatGPT in education represents an exciting and promising development in the field of education technology, with the potential to significantly enhance the quality and accessibility of education for students of all ages and backgrounds.

Limitations and Recommendations for Future Research

The limitation of this study is that the respondents were solely students in Pathum Thani, Thailand. As such, this province alone may not provide a representative sample of the entirety of Thailand. Therefore, we recommend expanding to additional areas to obtain a more comprehensive representation of the country. Moreover, further research is necessary to fully explore the potential of ChatGPT in education and to develop effective implementation strategies. Additionally, a quantitative study, such as a survey questionnaire, should be considered to better understand the general relationships between the phenomena on a larger sample size.

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