Navigating the Role of ChatGPT in Education from the Perspectives of PhD Scholars

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Abstract

As an Open AI language model, ChatGPT generates one billion visitors per month. The specialists in ChatGPT ensure that it will explore all fields, especially the educational system, because of its natural language processing and provision of human-like responses. This innovative technology has the power to transform traditional educational approaches and create a more dynamic learning environment for students around the world. Some teachers and educators perceive it as an educational tool for supporting teaching and learning processes in the classroom. They are also seeking tremendous opportunities to include ChatGPT in the educational system. Moreover, they are also concerned about the ethical issues and challenges of using ChatGPT as an educational tool. The present study reveals the opportunities and challenges of ChatGPT in education from the perspectives of PhD scholars. The major findings on perceptions of ChatGPT in education highlight its ease of use, student-centric approach, personalized learning capabilities, and broad applicability for content creation as a pedagogical tool. However, challenges such as concerns about authenticity, ethical issues, impacts on critical thinking and creativity, and the necessity for teacher competence and training are also significant. In this study, a qualitative, semi-structured interview approach was employed for data collection, conducted with 30 PhD scholars chosen via a convenient sampling technique, and the data were analyzed using thematic analysis.

Keywords: Artificial Intelligence, Chatbot, ChatGPT in Education, Opportunities, Challenges

Introduction

The world and the lives of human beings have been orbiting around a digital explosion for recent years. The remarkable advancement in Artificial Intelligence (AI) has permeated every aspect of human life, like healthcare, transportation systems, education, and entertainment. The term AI has been around for several decades, and it was coined in the 1950s by computer scientist John McCarthy, one of the founding fathers of AI (Hassani et al., 2020). AI generally means building a computer program similar to human intelligence, such as reasoning, perception, decision making and natural language processing (Kahn & Winters, 2021). The world of AI is as diverse as it is fascinating, encompassing an array of technologies such as chatbots, ChatGPT, autonomous vehicles, image recognition systems, and machine learning algorithms. Chatbots or conversational algorithms have been familiar for years and used in everyday life in the case of e-shopping, booking a flight ticket, movie ticket and food delivery (Zemčík, 2019). A chatbot is a computer program in the form of a virtual email correspondent that can reply to messages from computer users

(Definition of Chatbot | Dictionary.Com). The idea of ELIZA, the first Chatbot, was raised from the thoughts of Alan Turing about how a computer program can be used to talk with a group of people (Adamopoulou & Moussiades, 2020). Now, it explores advanced chatbots by breaking the major limitations of traditional chatbots, like understanding and generating natural language and the ability to handle complex or unexpected user input. As an OpenAI language model, ChatGPT generates one billion visitors per month. The specialists in ChatGPT ensure that it will explore all fields, especially the educational system, because of its natural language processing and provision of human-like responses. This innovative technology has the power to transform traditional educational approaches and create a more dynamic learning environment for students around the world. Some teachers and educators perceive it as an educational tool for supporting teaching and learning processes in the classroom. They are also seeking tremendous opportunities to include ChatGPT in the educational system. Moreover, they are also concerned about the ethical issues and challenges of using ChatGPT as an educational tool. This paper discusses the most advanced and sophisticated chatbot, ChatGPT, from PhD scholars' perspectives. The present study reveals the opportunities and challenges of ChatGPT in education from the perspectives of PhD scholars. Here, the method used for data collection is a qualitative, semi-structured interview method, which was carried out on 30 PhD scholars selected through a convenient sampling method.

Brief Literature Review

ChatGPT: Overview

ChatGPT is a powerful, transformative, artificially intelligent tool developed by OpenAI based on recent advancements in AI and Natural Language Processing (NLP) (Dwivedi et al., 2023). The GPT (Generative Pretrained Transformer) was first introduced by OpenAI in 2018 as a language model (Ollivier et al., 2023). The third version of the GPT series, GPT-3, was released in 2020 (Dehouche, 2021), followed by GPT-1 and GPT-2 language models. ChatGPT is a derivative of GPT-3 specially designed for use in conversational interfaces such as chatbots. ChatGPT is a sophisticated AI language model used for various tasks, including language translation, content creation, and (Javaid et al., 2023) chatbot development, in all contexts of society. Like ChatGPT, there are more recent Chatbots such as BlenderBot, and GPT-4, also known as LaMDA, is the latest version of OpenAI's GPT series (O'Leary, 2023) released on March 14, 2023, and was considered a significant advancement from GPT-3.5 for ChatGPT, impressing observers.

ChatGPT in Educational Context

Education is constantly evolving with the latest trends in technology. OpenAI ChatGPT stands at the forefront of modern education, revolutionizing every aspect of the education sector. According to the available data, ChatGPT crossed one billion users worldwide in March 2023 (Ruby, 2023). The availability, accessibility, conversational interface, multilingual support, easiness of getting knowledge, etc., made it famous in different fields of society, especially the education sector. ChatGPT is gaining popularity and becoming appealing in the higher education sector (Baig & Yadegaridehkordi, 2024). Now, teachers, researchers, and professionals are seeking various opportunities to include ChatGPT to update the modern educational system. The limitless opportunities of ChatGPT can be leveraged to build new teaching approaches, boost student participation and teamwork, enhance learning,

promote hands-on and experiential learning, stimulate collaboration among students, improve the evaluation capabilities of instructors and innovate new assessment strategies (Firat, 2023a). Also, large language models have the potential to provide a wide range of opportunities for professionals and students at all levels of education (Kasneci et al., 2023) (from the elementary to higher education sectors). This includes strategies for personalized learning and asynchronous learning, helps in teacher lesson plan preparation and professional development, for research and writing, etc. Students prefer chatbots such as ChatGPT due to their various advantages in the educational experience (Ngo, 2023; Stöhr et al., 2024). They are motivated to use this human-like interface (Shoufan, 2023). For these reasons, many specialists in this field believe that ChatGPT will become a vital component of the educational system as soon as possible (Mhlanga, 2023).

Besides the wide opportunities the ChatGPT provides, there are serious challenges too (Gordijn & Have, 2023). They are reliability and accuracy of scientific work, overreliance on AI, quality control, large energy consumption and environmental impact, privacy and safety concerns of users (Ray, 2023), slowdown of real-time responses, the chance of misinformation, ethical issues (Lo, 2023), the digital divide, copyright issues, etc. Also, when considering the higher education system, there is much scope for plagiarized works on behalf of students without using their creativity and critical thinking, like submitting assignments and projects (Dehouche, 2021). But some strategies can be used by the teachers to prevent plagiarism, like close monitoring of work (originality, checking for sources, and citation), educating students on the bad effects of plagiarism, using plagiarism-checking tools, and providing clear-cut

guidance on how to use GPT-3 (Cotton et al., 2023). The further issues caused by ChatGPT are multilingualism and fair access to all, which are critical issues to consider; otherwise, it will create a significant digital divide and education gap worldwide (Kasneci et al., 2023). Research indicates that ChatGPT development remains nascent, focusing on natural language processing and comprehension, dialogue systems, speech processing and recognition, learning systems, chatbots, and response generation (Baber et al., 2023). However, OpenAI's research team is constantly working to improve the capabilities and reliability of ChatGPT and overcome the challenges (Sohail et al., 2023). If it's possible, AI will have a significant impact on the whole world of human beings in all aspects. Unfortunately, many educators and educational institutions are unaware of the effective integration of technology into their teaching (Redecker, 2017a). Studies are carried out on the perception of students and scholars on ChatGPT from Turkey, Sweden, Canada, and Australia. The study findings identified different aspects of ChatGPT (Firat, 2023b). However, students are still skeptical about using ChatGPT positively impacting academic purposes (Singh et al., 2023). As students' reliance on ChatGPT grows, educational institutions must thoughtfully explore its integration into the assessment procedure. It is essential to create evaluations that promote the responsible use of ChatGPT, safeguarding students' critical thinking skills and creativity in their writing assessments (Maheshwari, 2024). However, there are concerns about the authenticity and ethical aspects of the data generated by these. Faculty members in Pakistan typically have a negative perception of ChatGPT, voicing major worries regarding risks like cheating and plagiarism while recognizing advantages such as easier lesson planning and assessment. The

study shows that university teachers need additional information and training on ChatGPT to effectively decide on its application in education (Iqbal et al., 2023).

Research gap identified in the literature

While there is a growing body of research examining the perceptions of students, teachers, and educators regarding ChatGPT in various educational contexts, these studies remain limited and largely in their infancy. Notably, research specifically focusing on the perceptions of PhD scholars is scarce, and there is a significant lack of studies addressing these issues within the Indian context. The current study discusses PhD scholars' perspectives on the opportunities and challenges of ChatGPT in education through qualitative, semi-structured interview methods. Twelve open-ended questions were included and constructed by the researcher.

Research Purpose and Questions

The study is carried out to examine the PhD scholars' perception of the challenges and opportunities of ChatGPT in education. A semi-structured interview method was adopted to find out this. Which consists of the following questions.

1. Have you ever used ChatGPT as an educational tool? If so, what was your experience like?

2. What is your perception of the use of ChatGPT in the education system?

3. In what ways do you think ChatGPT can be utilized to enhance the teaching and learning process?

4. What challenges do you foresee in using ChatGPT in the education system?

5. How do you think the use of ChatGPT will impact the role of teachers in the classroom?

6. What precautions do you think should be taken to ensure the ethical use of ChatGPT in the education system?

7. What are your thoughts on the potential of ChatGPT to personalize learning and meet the individual needs of students?

8. How can teacher educators be trained to effectively incorporate ChatGPT into their teaching strategies?

9. In your opinion, what are some of the limitations of ChatGPT as an educational tool?

10. What do you see as the future of ChatGPT in the education system?

11. Do you have a positive/neutral/negative attitude about ChatGPT as an educational tool? Why?

12. Did you use ChatGPT for your research purposes? If yes, what are the ways ChatGPT will help you as a researcher?

Method

A qualitative approach and semi-structured interview technique were used to get the ChatGPT perception of PhD scholars.

Participants

For the study, convenient sampling methods were used. The sample consisted of 30 PhD scholars from the Kasaragod and Kannur districts.

Data Collection

Convenient sampling methods were used for the data collection process. The interview data was recorded as audio.

Data Analysis

After all interviews, thematic analysis was carried out for data analysis. For this purpose, the collected interview data was analyzed question by question, and then recurring themes were identified from the responses.

Result

30 PhD scholars of Kasaragod and Kannur University were selected for the interview. Only 17 PhD scholars (56.67%) tried ChatGPT, and 10 PhD Scholars (33.33%) are exploring its maximum potential as an educational tool. The users have good experience in one word. However, when further questions were asked, it revealed a wealth of information on the opportunities and challenges of ChatGPT. It is very exciting that the study found that 13 PhD scholars (43.33%) have never tried it, and they have very little awareness.

Discussion

Research Question 1: Have you ever used ChatGPT as an educational tool? If so, what was your experience like?

The 17 PhD Scholars are impressive, and they have good experience with the data getting beyond their thinking and don't think that much at all times. For them, more attractiveness is easiness in using and getting ideas very quickly. Many studies discuss the potential concern of how a chatbot like ChatGPT can help the researcher (Khlaif et al., 2023; Sallam, 2023; AlZaabi et al., 2023). However, some of them have had bad experiences with ChatGPT regarding the reliability and accuracy of the content.

Research Question 2: What is your perception of the use of ChatGPT in the education system?

Only a few PhD scholars are perceived at all levels of ChatGPT in the education system. The active users are interested in how ChatGPT responds to a particular question. They admit that the outstanding and attractive capabilities of ChatGPT to provide natural language have much to do with being an educational tool (Opara et al., 2023). Also, they pointed out its broad applicability to content creation, its benefits in getting new and vast ideas, and its immediate solution to a problematic question and language learning. On the other hand, they are very concerned about its limitations too. There are similar studies, like the perception of ChatGPT in education, which resembles all the above concerns (Chellappa & Luximon, 2024 such as ChatGPT, have contributed to their growing popularity in education. However, there is currently a lack of evidence regarding the perception of ChatGPT, specifically among design students. This study aimed to understand the product design (PD; Arguello et al., 2024).

Research Question 3: In what ways do you think ChatGPT can be utilized to enhance the teaching and learning process?

The PhD scholars believe that ChatGPT can potentially enhance the teaching-learning process in some way, and they suggested several forms for including ChatGPT. They are: ChatGPT can be used as a pedagogical tool, teachers can develop instructional devices based on that, and teachers can engage students actively by adopting different methods of teaching-learning process inside and outside the classroom with the help of ChatGPT. If a teacher is assisted correctly on how to use ChatGPT by the student for language learning, doing assignments, and solving problems using their brain, it will become a new trend in learning. Studies show how ChatGPT can be a supporting tool in the teaching-learning process (ElSayary,

2024resulting in the emergence of a "knowledge society." However, students and teachers have faced challenges in adapting to this digitalization. In the United Arab Emirates (UAE ; Baidoo-anu & Ansah, 2023; Ali et al., 2024).

Research Question 4: What challenges do you foresee in using ChatGPT in the education system?

Moreover, regarding the potential benefits of using ChatGPT, the PhD scholars are very concerned about the challenges and limitations of ChatGPT in the education system. If someone becomes too reliant on ChatGPT for their learning, it may hinder their creativity and limit their capacity for critical thinking. Especially if the students are not trained in using ChatGPT, it will lead to merely copying data for their assignments and homework (Adeshola & Adepoju, 2023). Other major challenges they foresee are a lack of ensuring authenticity and control of data provided by the ChatGPT. Because sometimes it provides limited ideas and less clarification for some topics, in some cases, bias and inaccuracies in the data also happen, and there is no provision to ensure the authenticity of data, so students should not rely on ChatGPT alone. Also, some of them suggest that blind dependence upon ChatGPT will cause a more negative impact on the teaching-learning process rather than good output (Farrokhnia et al., 2024). So, in the educational system, teachers have to train the students properly about how to use ChatGPT in a better way; otherwise, it will block the natural thinking capacity and creativity of students. There are studies which show that AI-based chatbots like ChatGPT's significant role in critical thinking (Essel et al., 2024; Suriano et al., 2025).

Research Question 5: How do you think the use of ChatGPT will impact the role of teachers in the classroom?

PhD scholars believe that the role of the teacher cannot be replaced by anything. However, there is concern that students may rely too heavily on ChatGPT for their educational needs if the teacher neglects them for their doubt clarification and less care in the classroom. Even if the teacher cares about students to some extent, due to its vast knowledge availability and ease of getting information, there is a possibility that they may prefer ChatGPT over their teachers. Not only these things but also ChatGPT's human-like response and free resource support for learning will sometimes affect the student's dependency on it rather than the teacher. For that, PhD scholars mentioned the importance of being a conscious and alert teacher even though AI is a machine and can't provide emotional support for students.

Research Question 6: What precautions do you think should be taken to ensure the ethical use of ChatGPT in the education system?

PhD scholars are unaware of the extent to which precautions can be taken for the ethical use of ChatGPT in the educational system. However, some of them suggested the importance of cross-checking the content delivered by ChatGPT by the teacher. Like when a student is submitting assignments and homework the teacher has to ensure that the student did the work and understands it.

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Research Question 7: What are your thoughts on the potential of ChatGPT to personalize learning and meet students' individual needs?

The PhD scholars are concerned about our current situation of a sizeable student-teacher ratio in a classroom. Because of this, teachers can't take care of everyone at a time, and then here they added the importance of ChatGPT for personalized learning. Because of the time limits, sometimes the students and their doubts were unknowingly neglected by the teacher inside the classroom. Here, the PhD scholars pointed out some attractive characteristics of ChatGPT that emphasize personalized learning to meet the students' needs. Through ChatGPT, the students get individualized doubt clarification at their own pace and time. Sometimes, in the classroom, some students are scared to ask doubts, and here, they can freely ask

their doubts to ChatGPT without fear. Also, they can choose their learning style while using ChatGPT.

Research Question 8: How can teacher educators be trained to effectively incorporate ChatGPT into their teaching strategies?

They are concerned about teacher educators' unawareness of technology integration in education, especially new trends like ChatGPT. Most teacher educators still stand with the traditional chalk-and-board classroom. To avoid this problem, they all suggested the authorities make proper provisions for pre-service and in-service training programs for teacher educators, including workshops, refreshment courses, expert classes, and online orientation courses at all teacher education levels. If the teachers are getting proper training on these challenging trends in the educational system, there is nothing to fear about the upcoming generation.

Research Question 9: In your opinion, what are some of the limitations of ChatGPT as an educational tool?

The limitations of ChatGPT, which was coined by PhD scholars, are that it works fully on a network-bound platform, and now the basic version is free. This causes the digital divide in our educational system, one of the significant limitations restricting equal and quality educational opportunities worldwide. The other limitations pointed out are that ChatGPT couldn't provide the latest and recent data, the problems with authenticity and ethical issues with information getting; while using ChatGPT, it calls for enquiry nature from the user, while communication, even if it supports natural language processing and conversational mode of learning it lacks emotional intelligence. It will restrict students' cognition if they

rely entirely on it. Also, it cannot provide much information on the Indian context, such as specified things.

Research Question 10: What do you see as the future of ChatGPT in the education system?

The PhD scholars pointed out that if ChatGPT were improved and updated on its limitations, in future, it would transform our educational system in all dimensions. Some scholars argue that it has much scope in the future in the higher education sector rather than the elementary level. It will enhance the possibilities of personalized learning to all extent in the higher education sector in the formal and non-formal education sectors.

Research Question 11: Do you have a positive/neutral/negative attitude about ChatGPT as an educational tool? Why?

Most scholars have a positive attitude towards ChatGPT and enjoy its use and support in education. No one is against ChatGPT as an educational tool because of its impressive wide range of information and ease of use. However, some scholars are neutral because they are concerned about the limitations and challenges. If ChatGPT were advanced, it would indeed have the potential to win the hearts of students, teachers, and education experts.

Research Question 12: Did you use ChatGPT for your research purpose? If yes, in what ways will ChatGPT help you as a researcher?

ChatGPT is a relatively new trend in education and research, but most scholars are still in the experimental stage regarding its use. Out of 17 PhD scholars, only 10 were use ChatGPT for research purposes. They found ChatGPT can be used to find related topics and

studies, collect literature reviews, find relevant references and get additional resources to develop their study.

Educational Implications

The following are the educational implications of the study based on the above findings.

- The study's findings highlight the importance of providing training programs for teacher educators on integrating AI-powered tools in the teaching-learning process.

- The study recommends the development of AI-supported teaching methodologies and instructional devices on behalf of researchers, teachers and experts in AI and education.

- The study also reveals the digital divide problem in the educational system. So, the authorities should take some actions that pave the way for all students equal access to AI advancements without any barriers.

- The study's findings, like AI-supported personalized learning, the wide applicability of AI in elementary education to higher education, and ethical aspects of AI in education, highlight the need for further research by experts in these areas.

Limitations

- The data is collected from only 30 PhD scholars of the Kannur and Kasaragod districts.

- Semi-structured interview methods were carried out for data collection.

- Convenient sampling methods were used for the study

Conclusion

Now, ChatGPT represents the revolutionary trend of AI applications

in all fields, especially education. The advanced features of ChatGPT, like NLP, instant access and availability of a wide area of information, are favoured by some PhD scholars, and they are aware of both the wide opportunities and challenges of ChatGPT as an educational tool. But the reality is exciting; here, most of the research scholars are still in the initial stage, and none are interested in experimenting with new technological innovations in simple featured artificial intelligence like ChatGPT. The concerns expressed by PhD scholars regarding the negative impact of ChatGPT on the academic field reflect a broader apprehension about the lack of awareness surrounding the controlled and constructive use of such chatbots in educational settings. This indicates a need for increased education and training to promote the responsible integration of AI tools in academia. The rapid adoption of ChatGPT, reaching over 100 million users within just two months of its launch, underscores a concerning situation in the Indian context where a significant portion of the global population engages with this technology without adequate understanding or guidance. This phenomenon raises critical questions about the implications of such widespread use, particularly in educational contexts, where the

potential for positive and negative impacts remains largely unexplored. At national and international levels, there are several frameworks, self-assessment tools and training programs for teacher educators to assess and support their digital competency in the field of education (Redecker, 2017b) educators require an increasingly broad and more sophisticated set of competences than before. In particular the ubiquity of digital devices and the duty to help students become digitally competent requires educators to develop their own digital competence. On International and national level a number of frameworks, self-assessment tools and training programmes have been developed to describe the facets of digital competence for educators and to help them assess their competence, identify their training needs and offer targeted training. Analysing and clustering these instruments, this report presents a common European Framework for the Digital Competence of Educators (DigCompEdu. So, there is an urgent need for awareness and training programs for teacher educators at all levels. It should ensure that the teacher educators are equipped with the skills and knowledge to effectively integrate new trends in technology into the educational system.

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