

Teaching in the Era of AI: Teachers' Perspectives of Utilizing ChatGPT in Education

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Abstract

The emergence of Artificial Intelligence (AI) in teaching has had a transformative impact on various aspects of education. AI tools, such as OpenAI's ChatGPT, have introduced innovative approaches to teaching and emphasized the necessity for personalised learning materials. Its application to teaching has heightened the significance of digitization, especially in the age of AI when technologies determine the future priorities of education. The integration of such technology has streamlined material development processes and provided a number of benefits. It has also accelerated the need to incorporate AI in classrooms to keep up with modern trends in pedagogy. With AI assistance, the education processes have become more efficient and productive. The objective of this paper is to explore the versatile use of ChatGPT as a valuable digital resource in teaching processes. The quantitative study, which was conducted with 50 university teachers in Georgia, examined teachers' perspectives on using AI in education. In particular, the research dealt with the ways university teachers utilize ChatGPT to design engaging and context-relevant materials. It also analysed teachers' perceptions of AI's potential to enhance their overall teaching experience. The study further explored the disadvantages that ChatGPT presented in the teaching and learning processes. By examining these areas, the study revealed a number of the affordances of ChatGPT as well as its potential limitations in educational processes.

Keywords: AI, ChatGPT, Artificial Intelligence, Digitalization of Education, 21st Century Teaching

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Introduction

It is an undeniable fact that the advancement in digital technologies has revolutionized the educational system. Digital tools have become an inseparable part of teaching and learning processes since they equip educators with advanced opportunities. The latter plays a crucial role in facilitating human work and classroom activities (Fitria, 2021). One such technological breakthrough that has gained significant recognition and importance is Artificial Intelligence (AI). The urgency to facilitate human work through the use of digital tools accelerated the necessity to incorporate AI into educational processes.

Although there is no precise definition of Artificial Intelligence, UNESCO's (2023) definition can be taken as an operational definition of AI which refers to "systems which have the capacity to process data and information in a way that resembles intelligent behaviour, and typically includes aspects of reasoning, learning, perception, prediction, planning or control" (p. 10). In other words, AI is the simulation of human intelligence that is processed by machines, in particular, computer systems. This latter can interact with the world and display intelligent behaviour resembling humans (Luckin et al., 2016). The term "artificial" denotes unreal or simulated whereas "intelligence" refers to the replacement of human intelligence that can be expressed in a number of ways such as creativity, emotional intelligence, knowledge sharing or critical thinking. Thus, AI has been designed to exhibit human-like intelligence (Fitria, 2021; Campesato, 2020; Joshi, 2019).

Recently, AI has actively been incorporated into the teaching and learning processes. It has the functionality to filter knowledge and generate appropriate content (Kostka & Toncelli, 2023). With the rapid growth of technology and globalization, AI has gained substantial influence on many educational sectors (Sok & Heng, 2023). implement innovation and promote advancement in teaching processes (Mai et al., 2024).

One of the forms of AI is ChatGPT which has largely been implemented into the teaching and learning processes recently. ChatGPT is referred to as OpenAI and has been developed by an American company. It is a web-based application that can generate context-related content as a response to the given prompts. It has the functionality to create tailored content adapted to the user's language proficiency and preferences. ChatGPT can also produce suitable content and engage in human-like conversations (Deng & Lin, 2022). Furthermore, its functions exceed beyond just exhibiting human-like intelligence. It can create short stories or novels within minutes (Fitria, 2021).

Many educators have highlighted the beneficial impact of using ChatGPT in education. It is thought that the latter has revolutionized the existing educational approaches and strengthened students' literacy skills (UNESCO, 2023). Acquisition of computer literacy skills has been significantly emphasized in the era of digital technology since they facilitate human interaction with machines (Kohnke, Moorhouse & Zou, 2023). Equipping students with digital abilities is thought to allow them to adapt to fast-developing technological advancement and prepare them for the future of digitalization (Fitria, 2021).

However, using ChatGPT has aroused controversy among educators regarding its application and use in the teaching and learning processes. Researchers argue that there is a threat of copying texts without critically analyzing an AI-generated text, leading to the potential for plagiarism (Halaweh, 2023). Educators should be concerned about students' assignments that might be produced using ChatGPT. For this reason, some schools have decided to block

ChatGPT to prevent students from plagiarizing content or applying incorrect referencing. However, researchers argue that the ban will not be an effective deterrent since ChatGPT is assumed to become an essential component in students' writing process as calculators and computers have revolutionized the field of science (Halaweh, 2023).

Despite the concerns raised, ChatGPT has paved its way in teaching by mitigating the teacher's burden of material creation. It has transformed the teaching process and made it more efficient. ChatGPT has massively dominated the teaching and learning processes and has created a potential for substitute teachers. It functions as a substantial assistant to the instructor with regard to material creation (Shin, 2018).

In light of the above-mentioned, the study aims to investigate university teachers' perspectives on utilizing ChatGPT in education. In other words, the paper draws on teachers' perceptions of using AI for materials creation. It highlights the benefits and potential challenges of using the app in the teaching process. By examining teachers' perspectives, the paper aims to assess the utilization of ChatGPT in teaching and the limitations encountered while using it. Furthermore, the paper draws on practical recommendations for using ChatGPT effectively. The paper aims to answer the following research questions: 1) What are university teachers' perspectives on using ChatGPT in their teaching processes? 2) What challenges do university teachers face while using ChatGPT in teaching?

Benefits of Utilizing ChatGPT in Teaching

Due to the rapid development of artificial intelligence, educators were exposed to digital tools at their disposal for immediate use. Despite all its benefits, a limited number of research studies were conducted on its application to teaching as it is still an undeveloped area of research. Atlas (2023) argues that ChatGPT is valuable for improving students' writing skills since it can generate texts and summarise information. It can save a considerable amount of time for teachers since ChatGPT can function as a personal tutor (Kostka & Toncelli, 2023). In other words, ChatGPT can provide personalized feedback based on students' needs. It can support one-to-one tuition tailored to students' levels, subject familiarity and pace. Furthermore, ChatGPT can give instant assistance with specific questions and topics that students may encounter in their assignment writing process. Besides, AI can explain concepts and provide step-by-step guidance to students' problems.

A research study conducted by Supiano (2023) confirms that utilizing ChatGPT in students' writing process results in improved learning outcomes. ChatGPT, functioning as a personal tutor, can mitigate the teacher's responsibility in the classroom leading to the implementation of more practical activities through collaboration. What is more, utilizing ChatGPT in the classroom can enable teachers to re-align their students' new experiences to the use of AI which is highly recommended by the U.S. Department of Education (Kostka & Toncelli, 2023). Furthermore, Rudolph et al., (2023) state that ChatGPT's functionality to generate human-like conversations can substitute teacher labour and increase the speed and efficiency of the teaching process.

Mai et al. (2024) claim that higher education can greatly benefit from implementing ChatGPT in an educational setting since it can design assignments, produce sample essays or provide translations in multiple languages. It also creates writing tasks from a single paragraph to a full research article. Atlas (2023) also suggests that ChatGPT can function as a writing aid in language acquisition processes or even administer activities. Furthermore, ChatGPT can

provide a customised learning experience for students. It can work as an editor and proof-reader providing grammar and spelling corrections to students' assignments. If teachers utilize ChatGPT for grading and assessment, it means that they will focus more on other aspects of teaching. The research study conducted by Kim, Park and Lee (2019) experimented using ChatGPT for essay grading. The findings revealed that ChatGPT can grade students' essays accurately with a correlation of 0.86 with human grades. Thus, ChatGPT can be used to provide accurate feedback similar to the instructor's.

Sharma and Yadav (2022) argue that ChatGPT can successfully be applied to teaching vocabulary by customizing wordlists for students. ChatGPT can instantly generate a list of vocabulary items, suggest synonyms and antonyms or other word relations. The app enables teachers to create quizzes where students can be asked to define words, use them correctly in sentences or choose the correct word for a given context. Moreover, ChatGPT can generate multiple-choice questions where students can select an appropriate word or the correct definition of a word.

Scholars also propose using ChatGPT to engage students in reading and critical thinking activities. ChatGPT can formulate reading passages tailored to students' levels and interests followed by a set of comprehension questions (Sharma and Yadav, 2022). Teachers can command the app to create a level-specific text with multiple-choice questions to assess students' reading skills or provide students with open questions to complete with short answers. Open questions can engage students in a conversation about a text and enhance their critical thinking skills. Thus, ChatGPT assists instructors in creating a reading resource and promotes critical thinking and a deeper understanding of reading.

The above-mentioned benefits of ChatGPT clearly suggest that the app can be utilized to create an adaptive learning environment tailored to individual learners' needs through personalized feedback and resources (Yang et al., 2013). Such an adaptive atmosphere enables teachers to base their teaching methods on students' preferences and requirements. Baidoo-Anu and Ansah (2023) claim that an adaptive learning environment can provide effective support to students leading to increased positive outcomes on their progress.

Drawbacks of Utilizing ChatGPT in Teaching

Although there has been a remarkable surge in scholarly attention to the benefits of using ChatGPT, the latter also poses some limitations. Samala et al. (2024) argue that ChatGPT has the potential for misinformation. The latter poses some risks of providing incomplete or incorrect data. Without human involvement, it may be difficult to detect or correct misinformation. This issue can present a significant challenge for teachers who may lack experience in monitoring or detect errors in ChatGPT responses. Similarly, Baidoo-Anu & Ansah (2023) claim that as ChatGPT's responses are not a product of collaboration with the teacher, the app may provide irrelevant feedback. ChatGPT may fully comprehend a student's work but might fail to give generic feedback. It is also argued that due to a lack of creativity that humans possess, feedback provided by ChatGPT may lack a deeper insight and focus on only being formulaic.

Although ChatGPT can provide quick and convenient responses, it cannot replace human interaction since it carries social and emotional benefits. Some students significantly benefit from personal attachment to the teacher. In other words, ChatGPT can generate a response but may struggle to establish emotional intelligence, missing the importance of student

frustration or excitement (Samala et al., 2024). Moreover, ChatGPT may provide insecure responses. It usually occurs when it is commanded to give responses on sensitive topics, therefore, it may often lack accuracy (Sharma & Yadav, 2022). Besides, ChatGPT's responses may present bias in its training data. If not managed appropriately, ChatGPT-generated content may lead to inappropriate and biased responses.

Methods

The present study took a quantitative approach to data collection and analysis. The data were collected through surveys that were administered online. The survey was generated by the researcher using Google Forms. The survey aimed to explore the versatile use of ChatGPT as a digital tool in the teaching process. It looked into the ways university teachers utilize ChatGPT design to create engaging and context-relevant materials. The first part of the survey focused on the demographic aspects of the participants. Part 2 of the survey investigated the reasons for using ChatGPT in education. It further dealt with the participants' perspectives on using ChatGPT for materials creation. The last part of the survey investigated the participants' overall experience using the app and its challenges. The survey questions were designed by the researcher but examined and analysed by two independent experts for content accuracy. Their invaluable feedback helped improve the content of the questionnaire.

Participants

The research sample consisted of 50 university teachers in Georgia. The majority of the participants were females (98%), whereas males constituted 2% of the research sample. The participants' teaching experiences varied from 0-5 years (12%) to over 20 years (28%). In total, 9 university teachers participated in the research, the majority of which worked at the International Black Sea University (44%). The rest of the participants were employed in other private and state universities such as Ivane Javakhishvili Tbilisi State University (18%), Ilia State University (6%), British University in Georgia (2%), Georgian Technical University (1%), Georgian National University (1%), The University of Georgia (1%) and Telavi State University (1%). The courses the participants delivered included Classroom Management, Stylistics, ICT in Education, Theories and Psychology, Academic Writing, Business English, General English, English Philology, Translation Studies, Practical English, English for Professional Purposes and Educational Technologies. The participants were asked to voluntarily participate in the study and reminded of their right to withdraw at any stage of the research. The information provided was strictly used within the scope of this research and has not been disclosed to the third party.

Procedure

The survey was administered at the end of the academic semester to reflect on teaching practices throughout the preceding semester. The questionnaire was distributed by email first, then via social media. The statements of the survey were organized using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Likert-style questionnaire allowed the participants to indicate their agreement with the statement on a metric scale. The data gleaned from the survey were analysed using Statistical Package for the Social Sciences (SPSS 24) as it is the most reliable statistical tool for all sorts of analytical data (Rahman & Muktadir, 2021).

Findings

The first part of the survey concerned the general use of ChatGPT and the creation of various types of resources. The findings revealed that the majority of the participants use ChatGPT weekly (36%), whereas 32% of the participants utilize it daily. The rest of the survey participants use ChatGPT rarely (24%) or monthly (8%). As regards the types of resources, a variety of responses were collected (see Table 1).

Types of resources	%
Quizzes and tests	74%
Educational Resources	56%
Worksheets	50%
Case studies	36%
Interactive activities (games, simulations)	32%
Tailored activities	32%
Customized learning activities	30%
Presentations	28%
Letters, emails, newsletters	22%
Special education resources	20%
Feedback and assessment	20%
Creative writing	20%
Reports/research articles	18%
Translation	12%
Differentiated instruction	12%
Multimedia content	4%
Special education resources	20%
Multimedia content	4%

Table 1: Types of resources created using ChatGPT

As seen in Table 1, most participants (74%) use ChatGPT to create quizzes and tests, and over 50% use the app to create worksheets. Little over 30% of the participants reported using ChatGPT for interactive and tailored activities in their classroom. The least used resources created by ChatGPT were revealed to be multimedia content (4%).

The second part of the survey investigated the participants' perspectives on utilizing ChatGPT for material creation in their teaching processes. The participants responded to the Likert-style statements (see Table 2).

#	ChatGPT for Material Creation	SD 1	D 2	N 3	A 4	SA 5	mean	Median	mode	St. dev
1	ChatGPT helps me create context-related resources.	4%	0%	12%	42%	42%	4.2	4.0	4.0	0.94
2	ChatGPT enables me to create personalised learning materials	0%	6%	18%	40%	36%	4.1	4.0	4.0	0.89
3	ChatGPT offers creative ideas for my classroom activities	2%	4%	20%	40%	34%	4.0	4.0	4.0	0.94
4	ChatGPT offers various classroom-engaging activities for my students.	2%	4%	20%	40%	34%	4.0	4.0	4.0	0.94
5	ChatGPT is easy and convenient to use for materials creation.	2%	4%	20%	36%	38%	4.0	4.0	5.0	0.96
6	ChatGPT helps me produce high-quality worksheets and quizzes.	0%	6%	36%	38%	20%	3.8	4.0	4.0	1.01
7	ChatGPT is helpful for generating differentiated instruction.	0%	6%	24%	40%	30%	3.9	4.0	4.0	0.89

Table 2: Utilizing ChatGPT for material creation

As can be inferred from Table 2, a significant majority of the participants (42%, $m=4.2$) strongly agreed that ChatGPT helps them create context-related resources for their classrooms (#1). Little under 40% of the research sample also agreed that ChatGPT enables them to create personalized learning resources (#2, $m=4.1$). Similarly, approximately 80% of the participants ($m=4.0$) agreed and strongly agreed that ChatGPT offers creative and classroom-engaging activities for their students (#4). The majority of the participants (42%, $m=3.8$) disagreed or remained neutral about the fact that ChatGPT produces high-quality worksheets (#6). Generally, the participants' responses were positive and consistent which can also be confirmed by mean scores ranging from 3.7 to 4.2. As regards standard deviation, it varied between 0.89 and 1.03 indicating that the participants' responses were not dramatically different across the statements.

The last part of the survey concerned university teachers' overall experience of using ChatGPT. As in part 2, the participants responded to the Likert-style statements (see Table 3).

#	Overall teaching experience	SD 1	D 2	N 3	A 4	SA 5	mean	median	mode	St.dev
1	ChatGPT helps me save a significant amount of time in creating teaching resources.	0%	4%	4%	42%	50%	4.4	5	5	0.75
2	ChatGPT always accurately creates educational resources	0%	8%	34%	42%	16%	4.3	4	5	0.87
3	ChatGPT is a reliable tool for creating teaching resources	0%	10%	28%	44%	18%	3.6	4	4	0.84
4	Using ChatGPT has improved my overall efficiency in resource creation.	2%	4%	18%	52%	24%	4.4	4	4	2.25
5	ChatGPT is easy to use for material creation.	2%	4%	20%	50%	24%	3.9	4	4	0.88
6	The content generated by ChatGPT is always relevant to my teaching objectives.	4%	6%	34%	46%	10%	3.5	4	4	0.91
7	ChatGPT has made my lectures more efficient	6%	0%	22%	48%	24%	3.8	4	4	0.99
8	ChatGPT has enhanced my overall teaching effectiveness.	6%	0%	28%	42%	24%	3.8	4	4	1.02

Table 3: Teachers' overall experience

Table 3 illustrates that over 90% of the participants agreed or strongly agreed that ChatGPT helps them save a significant amount of time. This can also be confirmed by the highest mean score ($m=4.4$). Various responses were observed with statement #2, 8% of the participants disagreed that ChatGPT always accurately creates educational resources, whereas 34% of them remained neutral. Similarly, the relevance of ChatGPT was questioned (#3) by 10% of the participants who disagreed with the statement, with almost 30% of them remaining neutral. Similar results were observed for question #6 to which 10% of the participants disagreed, or strongly disagreed, with 34 of them selecting neutral. This can also be confirmed by the lowest mean scores for these questions ($m=3.6$ for #3, $m= 3.5$ for #6). Notwithstanding some negative responses, the above statistics also reveal that ChatGPT improved the participants' teaching efficiency, 66% of them agreed or strongly agreed with the statement ($m=4.4$). Moreover, the majority of the research sample agreed or strongly agreed that ChatGPT makes their lectures more efficient and enhances their teaching effectiveness (#7; #8). The participants' responses were consistent which can be confirmed by the mean scores ranging from 3.5 to 4.4. As regards standard deviation, it varies between 0.75 and 2.25, indicating that the participants' responses were not dramatically different across the statements.

Apart from the above-mentioned questions, the participants were further asked to select the challenges they experienced while using ChatGPT for teaching purposes. Table 4 indicates the results:

Challenges	%
Fails to understand a command	54%
Limited customisation options	34%
Lack of accuracy	32%
Content containing errors	32%
Not often suitable for specific age group/level	23%
Sometimes takes time to generate context-related content	22%
Difficult to use	8%

Table 4: Challenges encountered while utilizing ChatGPT

As the above table demonstrates, most participants (54%) reported that ChatGPT fails to understand a command. The research sample also indicated limited customization options (34%) and lack of accuracy (32%) as drawbacks while using the app. An insignificant proportion of the participants (8%) reported ChatGPT as being difficult to use, indicating its easiness of use for the majority of the participants. Besides, 32% of the participants mentioned content errors (32%) as major challenges while using the platform.

As regards the last question (*#Which of the ChatGPT features would you like to see improved*), the following responses were observed: content accuracy - 54%, personalized content - 46%, creating various types of assessment - 34%, ability to easily make adjustments - 32%, generating content in multiple languages -32%, and creating differentiated activity - 26%.

Discussion

The findings of the study revealed that university teachers' perspectives of using ChatGPT were mostly positive. The participants reflected on using the app for creating various types of resources. It appeared that the most frequent use of ChatGPT was for creating teaching resources (84%), lesson planning and lecture slides (44%), whereas a small percentage of teachers used the platform for feedback and assessment (18%) and editing students' assignments (14%).

ChatGPT was also perceived as a platform for designing a variety of resources. According to the participants, the most common use of ChatGPT is for quizzes and tests (74%), followed by other educational resources and worksheets with 56% and 50% respectively. The participants also reported using ChatGPT for creating case studies (36%) or designing tailored or interactive activities (32%). The least common types of resources created by ChatGPT revealed to have been differentiated resources (12%) and multimedia content (4%). The latter can be explained by the fact that the basic ChatGPT app does not support multimedia content. ChatGPT 3.5, which comes as a free version, does not generate images.

The study also revealed that ChatGPT is useful for the creation of context-related and personalized resources. It also appeared that ChatGPT can provide creative ideas and engaging activities for the classroom (40%). However, the platform was also emerged as not always a reliable tool for creating teaching resources (10%), with some responses marked as neutral (38%). Most importantly, the survey showed that ChatGPT improves teachers' overall efficiency in material creation (52%) and makes their lectures more efficient (48%).

Despite the affordances of using ChatGPT, the research revealed a number of challenges that the participants had encountered while using the app. One of the drawbacks of ChatGPT, as it was shown, was the failure to understand a command (56%), followed by the restricted capability of customizing options (34%). It was also revealed that ChatGPT often lacks accuracy and contains content-related errors (32%). Sometimes, ChatGPT fails to create age- and level-specific resources (28%).

The findings of the study align with research conducted by Delgado et al. (2020), who assert that ChatGPT can contribute to improving class performance by providing learners with more personalized content. The researchers argue that ChatGPT helps diagnose achievement gaps by automatic grading of students' assignments. Addressing achievement gaps will increase students' involvement and develop their learning skills. Furthermore, AI will enable teachers to allocate their time in the analysis of generated insights into students' needs and personalize students' educational settings.

Another study conducted by Fitria (2021) on the use of Artificial Intelligence in teaching English suggests that AI has the potential to enhance foreign language education with the development of natural language. It creates a challenging and creative learning environment and acts as a tool to improve English language teaching. The scholar also argues that AI combines digital literacy and language literacy and is aimed at improving global competence in learning English. Personalized content provided by ChatGPT is also revealed to be a key to 21st-century digital learning.

Mukhallafi (2020) further states that utilizing AI in teaching improves the process of organizing and selecting appropriate content for learners. It diversifies sources according to students' levels and individualizes the self-study process. Wang (2019) also claims that AI promotes English language learning and changes the atmosphere in which English is taught. It provides a real simulation dialogue for the teaching enabling the better exploitation of words, spoken or written English. In other words, incorporating AI in teaching promotes the development of students' comprehension skills.

Recommendations

Most of the teachers regarded the use of ChatGPT in teaching as an ideal tool for educational resource creation and feedback provision. The participants also perceived AI as helpful for personalized and context-related sources. The findings also showed the teachers mostly use ChatGPT to create quizzes and tests, as well as lecture resources, case studies, interactive and customized learning activities. Notwithstanding some challenges that emerged, the participants' attitude towards utilizing ChatGPT was positive. For this reason, educators are recommended to experiment with using Artificial Intelligence in their teaching processes. The benefits of ChatGPT that emerged from outweigh the limitations it poses. Since there is an accelerated interest in the digitalization of educational processes, ChatGPT is recommended as a 21st-century alternative to paper-based resources. The present research has certainly highlighted its significance and the potential value in designing resources for teaching. Curriculum designers are also advised to redesign their existing curriculum by incorporating ChatGPT as an important digital platform for teaching and learning purposes.

Conclusion

The paper explored the university teachers' perspectives on using ChatGPT in teaching, highlighting its effectiveness in creating digital teaching resources. The study looked into teachers' experiences of using ChatGPT and the challenges they faced in the teaching process. The paper also reviewed AI as a significant 21st-century digital tool offering a number of benefits such as an adaptive learning environment, personalized content and a variety of resources. However, some challenges also emerged.

The present study employed a quantitative approach to investigate 50 university teachers across all universities in Georgia. The quantitative data were collected through surveys that were administered online. The results gleaned from quantitative data suggested that ChatGPT has a number of benefits in the teaching and learning processes. The majority of the participants perceived AI as an essential tool for material creation. Most of them viewed AI as ideal for lesson planning, teaching resources or creating lecture slides. The benefits also include context-related material creation and personalized content. Some participants also identified ChatGPT's feature to create engaging and various activities for the class. The participants also selected some challenges such as failure to understand a command, limited customizing options or content accuracy errors. The participants also commented on ChatGPT's features that require improvement. The majority of them mentioned content accuracy whereas creating differentiated activities ranked as less in need of enhancement.

Research Limitations

The present study has a number of limitations. One of the concerns is the small research sample which comprised 50 university teachers across Georgia. The small sample size limits the generalizability of the findings to the broader population in the education sector. Moreover, the majority of the participants belonged to the International Black Sea University which further restricts the generalizability of the results since the research had an uneven number of participants from other universities. The present paper presented a small-scale study into teaching in the era of Artificial Intelligence, aiming at assessing teachers' perspectives on utilizing ChatGPT for teaching purposes. Longitudinal research into the issue can provide a more comprehensive insight into the benefits and challenges of implementing ChatGPT in education.

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