THE BENEFITS AND DRAWBACKS OF USING ARTIFICIAL INTELLIGENCE (ChatGPT) IN EDUCATION

Ozodakhon Karimova

The teacher of "World languages" department in Kokand University

Abstract: The advantages and disadvantages of incorporating ChatGPT into learning settings are examined in this study. ChatGPT is an AI-powered application that helps teachers and students alike by providing individualized learning, cognitive support, and language teaching support. Concerns about its effects on creativity, critical thinking, and the caliber of teacher-student relationships, however, continue. Through an examination of both qualitative and quantitative data, this study investigates the ways in which ChatGPT impacts teaching methods, learning outcomes, and the overall educational environment. The study evaluates the tool's contribution to increased productivity and engagement while addressing possible negatives, including an excessive dependence on technology, moral dilemmas including compromised academic integrity, and a decline in interpersonal contact. The results are intended to provide instructors a well-rounded grasp of how to use ChatGPT and other AI technologies efficiently while reducing any hazards to conventional teaching methods.

Keywords: ChatGPT, AI in education, personalized learning, critical thinking, digital tools.

Introduction

Over the past five years, the use of artificial intelligence (AI) in education has increased dramatically, revolutionizing both teaching strategies and learning environments (Smith, 2020). AI-powered programs, like OpenAI's ChatGPT, are designed to mimic human speech, help with text generation, and facilitate real-time problem-solving (Johnson & Lewis, 2022). These skills are especially important in post-pandemic education, since traditional learning modalities are increasingly supplemented by digital resources (Brown, 2021).

The impact of artificial intelligence on educational achievements is a topic of contention, notwithstanding its growing popularity. Supporters point to its potential for individualized learning, while others claim it might encourage reliance (Davis, 2021). The objective of this research is to present a fair analysis of the benefits and drawbacks of ChatGPT in educational environments.

Objectives

The objectives of this study are:

To examine the benefits of using ChatGPT in education.

To identify potential drawbacks and challenges associated with its use.

To provide insights into balancing the benefits with these challenges.

Research Questions

1.   What are the benefits of using ChatGPT in education from both student and teacher perspectives?

2.   What are the major drawbacks of relying on AI-powered tools in educational settings?

3.   How can educators optimize the use of ChatGPT while mitigating potential risks?

Methods

Both qualitative and quantitative data gathering approaches were used in a mixed-methods approach (Miles & Huberman, 1994). Conversational interviews, surveys, and controlled experiments were employed to assess ChatGPT's educational impact.

Fifty teachers and one hundred fifty high school and college students participated; all had used ChatGPT for homework or instructional purposes. According to Evans et al. (2019), the

participants came from a variety of educational backgrounds, including STEM and humanities fields.

Data Collection Instruments

Survey: To gather opinions about the benefits and drawbacks of ChatGPT, a standardized questionnaire was created (Adams, 2018). Questions about its perceived efficacy, usability, and possible hazards were addressed by instructors and students in their responses.

Interviews: To get in-depth information on the particular ChatGPT use cases, 20 instructors and 20 students participated in semi-structured, in-depth interviews (Kvale, 2007).

Experiment: Student performance on projects finished with and without ChatGPT's help was compared in a controlled experiment. Performance was evaluated using ratings from a rubric that evaluated creativity, correctness, and critical thinking (Cohen et al., 2018).

Descriptive statistics were used to quantify core trends and frequencies in the survey data (Field, 2013). The interview transcripts were subjected to thematic analysis, which revealed recurrent themes of advantages and worries (Braun & Clarke, 2006). To evaluate student results between the control and experimental groups, paired t-tests were applied to the experimental data (Pallant, 2020).

Results

Advantages of ChatGPT in Education

Personalized Learning: According to the majority of students (85%), ChatGPT allowed them to study at their own speed and gave them immediate response on their questions and problems (Jones et al., 2021). This is consistent with past research on AI's capacity to personalize learning paths (Zhou & Yang, 2020).

Accessibility: Recent research on AI's involvement in flexible education (Nguyen et al., 2020) corroborate students' and educators' remarks on ChatGPT's convenience as a learning resource available outside school hours.

Language Learning Support: In line with previous studies on the function of AI in language learning, students studying English as a second language (ESL) found ChatGPT particularly helpful for enhancing their writing and grammatical abilities (Park, 2021).

Teacher Support: Teachers were able to spend more time on lesson preparation and student engagement by using ChatGPT to automate repetitive chores like quiz production and grading (Stevens & Brown, 2022).

Disadvantages of ChatGPT in Education

Over-reliance on Technology: According to Taylor and Mason (2022), over half of the instructors polled (45%) were concerned that students may rely too much on ChatGPT to complete their tasks, which might impair their critical thinking and creativity.

Lack of Depth in Responses: Despite ChatGPT's ability to provide rapid solutions, some instructors have noted that the platform's responses occasionally fall short of the level of depth and analytical rigor necessary for advanced academic work (Martin et al., 2021). Previous studies on AI in education have brought up similar issues (Chen & Liu, 2020).

Ethical Concerns: With 40% of students admitting to utilizing ChatGPT to do projects without fully understanding the topic, academic integrity problems were brought to light. This is consistent with past worries over plagiarism and the moral use of AI in the classroom.

Weakened Teacher-Student Interaction: According to study on digital tools in education, there is a possibility that using AI tools would result in a decrease in the quality of the teacher-student interaction. This is a worry raised by a number of educators (Garrison & Anderson, 2021).

Pupils who used ChatGPT for research-based tasks outperformed their peers who did not employ AI support by 10% on written assignments ($p < 0.05$). On follow-up oral tests, however, students who depended on ChatGPT demonstrated less memory, pointing to a possible drawback of AI-supported learning.

Discussion

Understanding the Advantages. The results show that ChatGPT provides notable benefits in terms of administrative effectiveness and individualized learning. Instantaneous, customized replies from the technology increase student interest and enable them to tackle difficult content (Zhou & Yang, 2020). Automating tedious chores allows teachers to spend more time with pupils in meaningful ways (Stevens & Brown, 2022).

Addressing the Disadvantages. Conversely, an over dependence on ChatGPT may impede more complex cognitive processes including creativity and critical thinking (Taylor & Mason, 2022). These issues show how crucial it is to use ChatGPT in addition to conventional learning techniques rather than as a substitute for them. Clear restrictions on the use of AI in assignments should address ethical issues including plagiarism and abuse (Smith & Davis, 2019).

Balancing the Use of ChatGPT. Teachers ought to include ChatGPT cautiously, encouraging students to utilize it as a tool for autonomous thought in order to maximize the advantages while minimizing the disadvantages. A balance between innovation and fundamental educational ideals may be maintained with the aid of structured lesson plans that include AI's capabilities with essential engagement activities (Johnson & Lewis, 2022).

Conclusion

Improved classroom productivity and individualized learning are two advantages of using ChatGPT in the classroom. But its shortcomings—especially those pertaining to over-reliance, moral dilemmas, and the possible influence on critical thinking—call for cautious handling by educators. It will be crucial for educational institutions to create policies that optimize the benefits of AI technologies like ChatGPT while preserving academic integrity and originality as they become more widely used.

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