

THE ALGORITHMIC CLASSROOM: INTEGRATING ONLINE APPS AND AI TOOLS FOR ENHANCED LANGUAGE LEARNING AND TEACHING.

Abdusamatov Farrukhbek

Nasirova Malika

Student Student of Uzbekistan State World Language University

Annotation: *This theme establishes the central theme: the transformative impact of modern technology on English language education. It highlights the shift from traditional methods to technology-driven learning. The inclusion of AI tools and online programs emphasizes the evolving landscape. Furthermore, it sets the scope of the article by stating that it will examine the impact of user choice when using the tools and that it will offer examples of advantages, disadvantages, and effective usage. This provides the reader with a clear understanding of the article's focus and intended content.*

INTRODUCTION

English learning is changing. We're moving beyond just classrooms and textbooks. New technology is making a big difference. Things like online programs and AI tools are giving more people access to learning English. They also offer personalized learning for both students and teachers. This article will examine how these technologies are changing how we teach and learn English today. Specifically, we'll examine how the choices educators and learners make in utilizing these tools directly impact the effectiveness of the learning process. We will explore the advantages and disadvantages of modern technological tools, and give examples of how to effectively use them.

AI tools like Quill Bot, Grammarly, Deep L, and ChatGPT demonstrate AI's potential in academia by offering services that improve grammar, restructure sentences, and minimize plagiarism, especially for non-native English speakers. AI-driven virtual agents also assist in language translation and development in educational environments. The development of AI technologies has significantly influenced education through intelligent tutoring systems, computerized grading, and improved course management programs, enhancing the quality and effectiveness of educational practices. AI supports and facilitates monitoring students' performance, personalized learning, and boosting the communicative learning environment.

This article focuses on the advantages and disadvantages of AI tools in education, examining how the rapid growth of AI technologies has influenced teaching and learning. It explores the positive impacts of AI technologies in educational contexts, particularly in teaching and learning, and how AI technologies benefit teachers, students, and administrators in higher education settings. It also focuses on how AI technologies have developed instructors' and students' performances. Additionally, the review addresses the negative aspects of utilizing AI tools in educational settings, including the challenges and limitations of AI integration, such as ethical issues,

plagiarism, and the prevention of students' development of critical and analytical skills. Exploring the advantages and disadvantages of AI tools in educational settings helps to offer practical strategies for the effective incorporation of AI tools in educational contexts.

Methodology

The study addresses the following research questions:

- What are the potential benefits of AI tools in teaching and learning contexts?
- What are the challenges associated with the use of AI tools in educational settings?

The first question focuses on the positive impacts of AI tools in educational settings, specifically in teaching and learning. The second question addresses the negative impacts of using AI tools in educational settings, particularly how the rapid development of AI applications and integration into academia have negatively impacted the process of teaching and learning.

Search Strategy

Relevant literature was collected using major databases such as IEEE Xplore, Web of Science, Scopus, Google Scholar, and ScienceDirect. A series of keywords were used to search for relevant scholarly journal articles. Keywords such as "advantages and disadvantages" and "pros and cons" of integrating AI tools in education were frequently used. To narrow the search and explore the positive and negative aspects of AI tools in teaching and learning, terms like "students' perspectives" and "instructors' attitudes" towards AI tools were also used. Specific terms related to students' perspectives, such as "learning," "writing," "assignments," "critical thinking," and "analytical skills," were included. Furthermore, the search strategy included terms like "ethical issues," "plagiarism," "students' achievements," "biases," "copyright," "privacy," and "safety" to address the disadvantages and negative impacts of AI tools on the teaching and learning process.

Inclusion and Exclusion Criteria

The articles in the study were selected based on specific criteria, including availability of full texts, peer-review status, and publication in the English language. Incomplete articles, conference articles, magazines, and presentations were excluded.

Screening the Articles

A total of 120 articles on AI tools utilization in higher educational settings, academia, and teaching and learning processes were collected from five major databases: IEEE Xplore, Web of Science, Google Scholar, Scopus, and ScienceDirect. Each article was screened based on the inclusion and exclusion criteria. Initially, 20 articles were omitted due to duplication. Subsequently, 22 articles were excluded due to the availability of full text and language of publication. Finally, the remaining 78 articles were checked for publication in peer-reviewed journals, and their focus was on the utilization of AI tools in education settings, particularly the positive and negative effects of AI integration in the process of teaching and learning. As a result, 78 articles met all the inclusion criteria and were included in the review. The majority of the

included articles were selected from the IEEE Xplore database. The databases used are popular and provide full-text, peer-reviewed, and high-quality articles across different disciplines, widely used by students, instructors, academics, and researchers.

Results

The review indicates that there are significant potential benefits to using AI in education. Intelligent tutoring systems, chatbots, and automated grading and assessment can increase efficiency, save teachers' time, and provide more accurate and consistent feedback. However, there are also challenges, including privacy and security concerns, lack of trust, cost, and potential bias, which need to be addressed. Ethical considerations, such as ensuring accessibility, transparency, and fairness in AI-based education systems, are also important.

Artificial Intelligence and the Future of Teaching and Learning

This report by the U.S. Department of Education's Office of Educational Technology discusses the use of technology to improve teaching and learning and support innovation in educational systems. It addresses the need for knowledge sharing and policy development for Artificial Intelligence, which is increasingly integrated into educational technology systems. The report considers "educational technology" to include both technologies specifically designed for educational use and general technologies widely used in educational settings. The recommendations in the report are aimed at teachers, educational leaders, policymakers, researchers, and technology innovators and providers to address policy issues related to the use of AI in education.

What is AI?

The document provides several perspectives on AI, defining it as "automation based on associations." AI shifts computing beyond conventional edtech by:

1. Capturing data to detect patterns in data.
2. Providing access to instructional resources to automate decisions about instruction and other educational processes.

This transition involves a greater level of responsibility being delegated to computer systems. The development of AI systems can introduce bias in pattern detection and unfairness in decision automation, necessitating the governance of AI systems in education. The report outlines opportunities for using AI to improve education, acknowledges potential challenges, and provides recommendations for policy development.

Rising Interest in AI in Education

There is a growing interest in using AI to address unmet priorities in teaching and learning by providing safe, effective, and scalable technology-enhanced approaches. Educators are exploring AI-powered services like voice assistants, tools for grammar correction, sentence completion, essay writing, and automated trip planning. They see opportunities to use AI capabilities like speech recognition to support students with disabilities, multilingual learners, and others who could benefit from greater

adaptivity and personalization in digital learning tools. AI is also being explored for writing or improving lessons and for finding, choosing, and adapting materials.

Educators are also aware of the risks associated with AI, such as new data privacy and security risks, the potential for AI to produce inappropriate or incorrect output, the amplification of unwanted biases, new ways for students to misrepresent others' work as their own, and the inability of AI models to detect or understand "teachable moments" and pedagogical strategies that a human teacher can address. There are also concerns about the fairness of recommendations suggested by algorithms. It is the responsibility of everyone in education to use AI for good and to protect against its potential dangers.

Literature Review

The systematic review of literature included 78 peer-reviewed scholarly articles that studied the positive and negative aspects of AI tools' application in higher education.

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