THE EFFICIENT USE OF ARTIFICIAL INTELLIGENCE IN ENHANCING THE RESEARCH COMPETENCE OF PROSPECTIVE EDUCATORS

Musoyeva Aziza Botirovna

Samarkand state institute of foreign languages,

Associate professor (PhD),

Email: musoeva@samdchti.uz

Abstract: *This article explores the importance of Artificial Intelligence (AI) in the current digital age, facilitating easy access to educational and training resources for both instructors and students. This paper examines the fundamental properties of artificial intelligence (AI) and their potential impact on the academic process. Studies on the use of artificial intelligence in language education indicate both advantageous and disadvantageous elements. This article examines both views, concluding that artificial intelligence should be used judiciously and only when it does not adversely affect educational and professional pursuits.*

Keywords: *artificial intelligence (AI), research competence, future teachers, platforms, academic integrity, overreliance, digital age, transformation.*

Introduction

The advent of Artificial Intelligence (AI) has catalyzed a profound revolution across all domains, particularly in higher education. The worldwide transition to AI integration in many sectors is significantly impacting Uzbekistan's education system, requiring thorough analysis. This phenomenon is particularly evident among scholars and students engaged in research who use AI services for writing. This article will analyze the advantages and disadvantages of using AI and assess its effectiveness in enhancing the research skills of both students and educators.

The term artificial intelligence (AI) was initially introduced during a scientific conference held in Hanover, New Hampshire, in 1955. Initial research on artificial intelligence (AI) during the 1980s focused on its capabilities in speech recognition, computer vision, and natural language processing (NLP). Currently, artificial intelligence (AI) is recognized as a significant catalyst for innovation and transformation in education. AI possesses the capability to improve learning outcomes, broaden access to education, and elevate the overall quality and efficiency of educational systems [1, 52].

Subsequently, other scholars examined the concept of AI and its application across various domains, including education. However, there is no common definition for this. Researchers define Artificial Intelligence (AI) as robots exhibiting "human-like intelligence," defined by cognitive capacities, learning, adaptability, and decision-making capabilities [2, 55]. The phrase "human-like intelligence" is crucial since it indicates that it is not human, but resembles human characteristics. Some AI systems are currently

more intelligent and efficient than the human brain, proving to be rather useful in our rapidly evolving environment.

Currently, educators and students engaged in academic writing use systems such as ChatGPT, Grammarly, ProWritingAid, Quillbot, and others for idea generation, assignment completion, presentation preparation, grammar and fluency checking, and paraphrasing. These platforms facilitate task creation for educators, so affording them more time to interact with students; yet, they simultaneously diminish flexibility and creativity.

These platforms, particularly citation and reference management tools like Zotero, EndNote, Mendeley, and RefWorks, facilitate the management of citations and the creation of bibliographies, thereby assisting students, educators, and researchers in streamlining their research processes. Research and writing assistance tools include ChatGPT, which provides explanations, brainstorming, and content suggestions for academic purposes; Scholarcy, which summarizes research papers and extracts essential points and references; and Paperpal, which offers real-time feedback on grammar, style, and structure specific to academic writing.

Extensive study has shown the varied impact of AI on academia. One study demonstrated that AI facilitates the customization of learning experiences, enabling adaptive learning pathways to address individual student needs [3, 36]. A study indicates that AI may transform research capabilities and facilitate innovative educational approaches [4]. Nonetheless, it may be said that in some instances, AI leads to excessive dependence, resulting in challenges and breaches of academic integrity, among other issues.

The study by Chaushi et al. (2024) examines many benefits and cons of AI use in education, which we will highlight below:
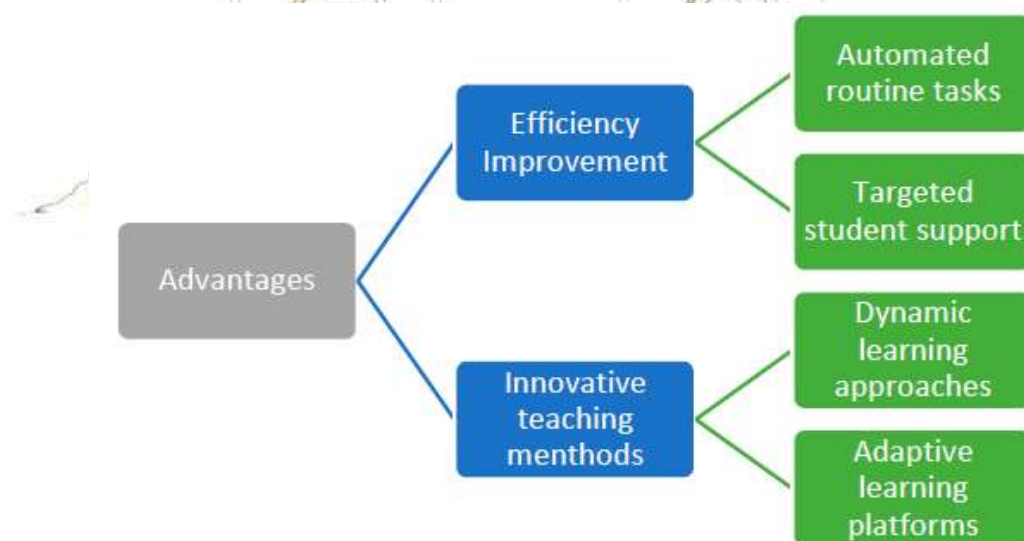

Figure 1. Advantages of AI use in Education (Chaushi et al., 2024)

An essential benefit of AI in education is personalized learning, enabling tailored information delivery that aligns with the unique needs and learning preferences of each student [5, 265]. It improves educational efficiency through the automation of routine

processes. Automated grading systems, administrative procedures, and data analysis enhance time efficiency for instructors, enabling them to focus more on personalized education and student support [6]. This allows educators to deliver more accurate and timely feedback to students.

Innovative teaching approaches driven by AI offers a considerable advantage. AI-driven solutions offer dynamic and interactive educational methods, such as virtual simulations, adaptive learning platforms, and intelligent tutoring systems [7, 174]. These strategies enhance student engagement, encourage critical thinking, and cultivate a more adaptable and responsive learning environment [6].

The integration of AI in education presents several problems, including technological issues pertaining to data security and privacy, as well as ethical dilemmas and concerns over academic integrity, among others. Chaushi et al. (2024) delineates the following limitation:
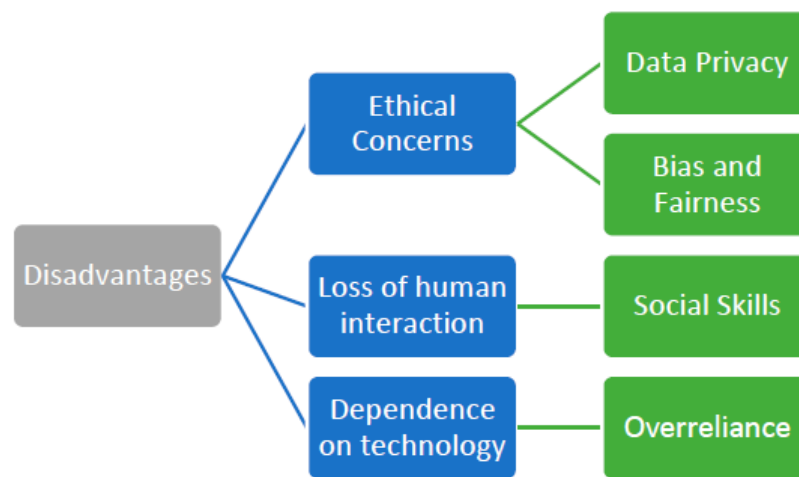

Figure 1. Disadvantages of AI use in Education (Chaushi et al., 2024)

On the other hand, an overdependence on AI presents ethical concerns, including data privacy and bias, which are notable disadvantages of utilizing AI, especially with tools like ChatGPT and Copilot for brainstorming. Research indicates that biased algorithms can inadvertently disadvantage specific student groups, thus perpetuating educational disparities [8, 130]. ChatGPT, developed by OpenAI, is a conversational agent skilled in human-like interactions and delivering interactive, customized learning experiences. It stands out among AI resources for its exceptional performance [9, 538].

These platforms provide information, although their credibility is questionable, and they lack citations for the offered content. Furthermore, the lack of human interaction is an additional drawback, possibly resulting in a decline in social skills, as persons who depend on AI for all facets of their lives may only communicate with AI, therefore ignoring interpersonal relationships. Excessive use of AI may result in overdependence.

Although enhancing the research proficiency of future educators is sometimes challenging [10, 160], we must exercise clarity and caution in the use of AI throughout research endeavors. It is essential to instruct our students on the proper use of AI platforms, since some citation generators enhance the reliability of our study.

In our rapidly evolving world, it is essential to prepare for emerging technologies in the near future by enhancing our digital competencies. Lacking digital competence may hinder our ability to effectively demonstrate our talents and intelligence when faced with challenges. The conclusion can be drawn that the effective application of artificial intelligence in improving the research capabilities of future educators is crucial in today's digital landscape. The study recommends the availability of guides and seminars for instructors, researchers, and students to effectively utilize artificial intelligence in their academic and professional pursuits.

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