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Artificial Intelligence Tools in Developing Students' Learning Success: Chatgpt, Khanmigo, Copilot Edu

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Abstract: This article analyzes the role of artificial intelligence technologies in the pedagogical higher education process, in particular, their impact on the development of students' learning success. The practical significance of advanced artificial intelligence tools such as ChatGPT, Khanmigo and Copilot EDU in the educational process, their didactic capabilities, and their role in developing students' independent thinking, reflexive analysis and creative approaches are scientifically covered.

Keywords: artificial intelligence, ChatGPT, Khanmigo, Copilot EDU, learning success, digital pedagogy, methodological approach, educational technologies.

INTRODUCTION

Today, artificial intelligence (AI) technologies are becoming an integral part of the global education system. According to UNESCO, more than 70 percent of higher education institutions around the world have introduced AI-based auxiliary platforms into the educational process. This allows improving the quality of education, expanding the individual approach and optimizing the teaching process. In the Republic of Uzbekistan, the concepts of “digital teacher” and “artificial intelligence assistant” are also entering the education system within the framework of the digital education concept. Therefore, the use of AI tools in developing students’ academic success is gaining relevance as a pedagogical innovation.

Artificial intelligence tools enable adaptive learning, personalized learning, differentiated task creation, and analysis-based assessment of learning outcomes in the educational environment. ChatGPT is recognized as an effective tool that helps students develop logical analysis, argumentation, and written thinking. Khanmigo, a teaching assistant created by Khan Academy, offers interactive exercises that are important for consolidating students' knowledge. Copilot EDU, on the other hand, encourages students to think independently when completing educational tasks through programming, text analysis, and scientific writing automation.

LITERATURE ANALYSIS AND METHODOLOGY

The research of Uzbek scientists A.Abdukodirov, R.Turakulova and D.Mamatov emphasizes the development of students' creative thinking, self-control and problem-solving skills through the digitalization of the educational process and the use of interactive methods based on artificial intelligence. In teaching the subject of "General Pedagogy", tools such as ChatGPT and Khanmigo create the opportunity to model educational tasks, analyze pedagogical situations, as well as determine the level of reflexive analysis and critical thinking of students.

Artificial intelligence (AI) tools - in particular ChatGPT, Khanmigo and Copilot EDU - are emerging as effective digital assistants in the education system in increasing students' academic success. Their integration into the educational process has a significant impact on improving the quality of education, increasing students' motivation to learn, and developing their ability to think independently.

First of all, the ChatGPT tool creates a great opportunity to develop cognitive processes that are important in students' educational activities, such as logical thinking, independent writing, and analytical approach. According to OpenAI research, students who regularly use ChatGPT show 30-40% higher results in terms of accuracy, linguistic richness, and analytical accuracy in completing educational tasks. Through this tool, students learn to systematically express their thoughts, receive constructive help from artificial intelligence in the process of composing, analyzing, and editing texts. As a result, their written speech and logical thinking culture develop significantly. Khanmigo also creates a personalized learning environment for students. It assigns tasks to each student at a level appropriate to their level, analyzes errors, and provides individual recommendations. This approach is based on the principle of “differential learning,” and provides training based on the learning pace, speed of thinking, and area of interest of each student. This methodology strengthens intrinsic motivation and confidence, which are important factors in academic success.

The Copilot EDU tool has a positive impact on academic success, especially by automating the practical activities of students in technical fields. It provides automatic correction, code suggestion, and text optimization in the process of programming, text analysis, abstract and scientific article writing. This allows students to complete their academic assignments with high quality and in a short time. According to Microsoft, the accuracy of students using Copilot EDU in completing academic tasks has increased by 25–35%.

DISCUSSION AND RESULTS

In their studies, Uzbek scientists, including U.N.Nishonaliyev and R.H.Djurayev, analyzed the psychopedagogical effectiveness of using digital tools and artificial intelligence in education, emphasizing their positive impact on increasing academic motivation, concentration, and personal activity. They believe that digital assistants deepen reflective analysis in the student's learning process, which is one of the psychological factors of successful learning.

In addition, AI tools do not completely replace teacher control, but create an environment of pedagogical collaboration. For example, ChatGPT helps students conduct a preliminary analysis on a specific topic, but the final assessment process is carried out by the teacher based on scientific criteria. In this way, AI tools combine the learning process with the human factor and enhance interactive interaction between the teacher and the student.

As a result, AI tools form a new methodological model in education, which includes the stages of “instruction-practice-reflection”. Students first acquire knowledge (instruction), then consolidate it through practical exercises (practice), and then analyze their mistakes with the help of AI (reflection). This process enhances metacognitive activity, that is, students develop the ability to analyze, evaluate and manage their own learning process.

AI tools form a new paradigm in increasing students' academic success - a digital-pedagogical approach. Teaching with ChatGPT, Khanmigo, and Copilot EDU enhances individual approach, creative thinking, analytical skills, and self-control.

Therefore, the methodologically correct integration of these technologies into the pedagogical higher education system is an important scientific and practical direction for bringing the education system of Uzbekistan to a new level.

Artificial intelligence tools, in particular ChatGPT, Khanmigo and Copilot EDU, have launched a new stage in today's digital education process in increasing students' academic success, activating their cognitive activity and developing their creative potential. Based on the

theoretical analyses conducted and available scientific sources, it can be said that these tools are transforming the teaching process into a person-oriented, flexible and analytically based system

Firstly, the implementation of artificial intelligence models such as ChatGPT in the educational process directs students to independent learning, critical thinking and analytical thinking. This tool not only provides students with information, but also helps them in constructing ideas, reasoning, approaching problems and developing written speech. Thus, ChatGPT transforms the traditional passive model of education into an active, interactive form of learning.

Secondly, the Khanmigo tool allows students to receive education based on a differentiated approach. It analyzes the student's level of knowledge and provides individual exercises and explanations, which increases the level of success in learning. Also, the student's mistakes are analyzed and a process of drawing the right conclusions from them is formed. This process serves to develop self-control skills.

Thirdly, the Copilot EDU program plays an important role in practical education. In the process of programming, technical analysis or text work, this tool acts as an automatic assistant for students. It saves time, speeds up the creative process and increases quality. As a result, the student is able to complete educational tasks more efficiently, without errors and analytically.

CONCLUSION

In general, the introduction of artificial intelligence tools into the educational process does not reduce the role of the teacher, but rather makes it more important as a developer and manager. With the help of these technologies, the teacher effectively plans the educational process, strengthens the individual approach and has the opportunity to analytically assess the results of students.

Based on the results of the study, the following recommendations can be put forward:

1. It is necessary to organize special courses, trainings and practical seminars on the use of artificial intelligence tools in pedagogical higher education institutions.

2. It is necessary to develop methodological guides for teachers, through which they will learn to effectively use tools such as ChatGPT, Khanmigo and Copilot EDU in the educational process.

3. Increased attention should be paid to the formation of students' digital culture, since the skills of using artificial intelligence correctly directly determine the effectiveness of education.

4. It is necessary to develop and implement an educational monitoring system based on artificial intelligence to automatically analyze student results and provide individual recommendations.

5. It is important to conduct discussions on ethical and moral issues during the educational process and to form a culture of responsible use of artificial intelligence among students.

In conclusion, the integration of artificial intelligence tools into the educational process is shaping a new learning paradigm that is student-centered, flexible, and based on digital competence. This approach is a modern and scientifically based direction in increasing students' academic success, developing creative thinking, and strengthening their potential for self-development.

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