

RESEARCH ARTICLE

Use of Artificial Intelligence in Education: The Korean Experience

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Abstract

This article analyzes the application of artificial intelligence (AI)-based educational technologies in the Republic of Korea. Artificial intelligence plays an important role in personalizing and optimizing the educational process. The measures being implemented in Korea within the framework of the "Artificial Intelligence in Education Strategy" are aimed at offering educational content in accordance with students' individual needs. In harmony with the pedagogical theory of adaptive learning, AI-based systems help increase students' motivation and improve educational effectiveness. However, issues related to teachers' acceptance of new technologies and data privacy are also relevant. Based on the Korean experience, the article shows the factors necessary for the successful implementation of artificial intelligence in the field of education.

KEYWORDS

Artificial intelligence, educational technologies, Republic of Korea, adaptive learning, pedagogical theory, educational effectiveness, individual needs, innovative approaches..

INTRODUCTION

At a time when artificial intelligence (AI) is bringing revolutionary changes to the field of education, it provides opportunities to make learning processes more effective and personalized. The Republic of Korea, with its advanced technological infrastructure and innovative approaches, is recognized as one of the leading countries in the introduction of artificial intelligence into the education system. This article scientifically analyzes the application of artificial intelligence-based educational technologies in the Republic of Korea, the pedagogical theoretical foundations of AI-based adaptive learning, and its impact on educational effectiveness. The integration of artificial intelligence into the educational process makes it possible not only to take into account students' individual needs, but also to renew teachers' pedagogical

strategies. The Korean experience demonstrates successful approaches to the development of education with the help of artificial intelligence and may serve as an example for other countries. By deeply analyzing the role of artificial intelligence in education and aspects related to its pedagogical theory, the article shows what opportunities are being created to improve educational effectiveness.

Main Part

Artificial intelligence (AI) is a technology that enables computer systems to replicate human intelligence, and it is used in solving complex problems, analyzing data, and automating learning processes. The use of artificial intelligence in the field of education helps optimize the teaching process by taking into account students' individual

needs. This, in turn, serves to improve educational effectiveness and ensure students' success.

Adaptive learning is educational content and methods presented in accordance with students' level of knowledge, abilities, and learning styles. As emphasized by Wang Tzu-Hua, adaptive learning systems created with the help of artificial intelligence provide an individual approach to students. This approach encourages students to participate more actively in the educational process. Adaptive learning systems, taking into account students' individual needs, provide them with customized materials and resources. If a student faces difficulty with a particular topic, the system may offer this student additional support materials or alternative learning methods. This process helps strengthen students' knowledge and develop their self-assessment skills. Adaptive learning methods also serve to increase students' ability to learn independently. Students have the opportunity to study materials at a time and under conditions convenient for them, which increases their motivation and strengthens their interest in the educational process. Artificial intelligence-based adaptive learning systems not only help organize the educational process effectively, but also serve to fully reveal each student's potential. This approach is of great importance in modern education and plays an important role in ensuring students' individual development. The application of artificial intelligence in education benefits not only students but also teachers. With the help of artificial intelligence, teachers can monitor students' achievements and provide them with individual advice. This helps further improve pedagogical strategies. The integration of artificial intelligence into the education system makes it possible to make educational processes more qualitative and personalized. This, in turn, serves one of the main goals of modern education — to fully reveal each student's potential.

The Republic of Korea is carrying out large-scale measures in the application of artificial intelligence in the field of education. In 2020, the Korean Ministry of Education developed the "Artificial Intelligence in Education Strategy" [2]. Within the framework of this strategy, the introduction of AI-based educational technologies in schools and universities is intended. For example, the "AI Tutor" system was developed to provide individual assistance to students; it assesses their level of knowledge and personalizes the learning process [3].

The pedagogical theory of adaptive learning is an approach aimed at taking into account students' individual differences.

This approach is mainly derived from the theories of constructivism and differentiation. Constructivism encourages students to participate actively and provides the opportunity to use their personal experiences [4]. This approach helps students discover knowledge themselves and connect new information with their own experience. The theory of differentiation requires teachers to apply appropriate approaches for students of different levels [5]. This theory gives teachers the opportunity to personalize the educational process, taking into account each student's needs and abilities. Artificial intelligence-based adaptive learning systems make it possible to assess students' abilities in real time and provide educational content accordingly. This approach not only provides materials that meet students' individual needs, but also helps develop their self-management skills [6]. Adaptive learning systems ensure students' active participation in the educational process and have a positive impact on their personal development. These approaches help improve the quality of education and increase students' motivation; as a result, the educational process becomes more effective and interactive.

The impact of artificial intelligence-based adaptive learning systems on educational effectiveness in Korea has been confirmed by many studies. For example, in a study conducted by Lee and Kim, it was found that the results of students using AI-based educational systems improved significantly compared to students receiving education through traditional methods [7]. In addition, AI-based systems increase students' motivation by providing them with individual support. Personalized approaches that help students achieve success increase their self-confidence and, as a result, improve educational effectiveness [8].

Discussion and Results

The application of artificial intelligence-based educational technologies in Korea is becoming beneficial not only for students but also for teachers. Teachers are gaining the opportunity to organize lessons more effectively by using AI systems. However, there are also some problems in applying artificial intelligence in education. For example, some teachers may have difficulty accepting new technologies [9]. In addition, issues of data privacy and security are also relevant. The introduction of artificial intelligence-based educational technologies in the Republic of Korea is of great importance in making the educational process more effective and personalized. AI-based adaptive learning systems, in harmony

with pedagogical theories, take into account students' individual needs and offer educational content accordingly. For the successful implementation of artificial intelligence in the field of education, it is necessary to train teachers and develop technological infrastructure. In the future, the application of artificial intelligence in education is expected to expand further.

Conclusion

The use of artificial intelligence (AI) in education creates the opportunity to make learning processes more effective and personalized. AI technologies, for example, play an important role in identifying students' individual needs, analyzing learning styles, and providing them with adapted materials. This approach makes the educational process more interactive and interesting, increases students' motivation, and ensures their active participation in the learning process. With the help of artificial intelligence, it is possible to simplify the processes of assessing students and monitoring their development for teachers. This gives teachers the opportunity to plan their lessons more effectively and pay more attention to students' needs. AI in education not only improves the quality of knowledge delivery, but also supports students' individual development. The application of artificial intelligence in education is expected to become one of the main components of the education system in the future. This process serves to make education more innovative and effective, and also creates a solid foundation for students' future success.

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