

DEVELOPMENT TRENDS OF INTELLIGENT AUTOMATION SYSTEMS IN DIGITAL EDUCATIONAL PLATFORMS

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Abstract: Intelligent automation systems in digital learning platforms are analyzed from both theoretical and practical perspectives in terms of their development trends. The study examines the integration of artificial intelligence, machine learning, and Big Data technologies into educational platforms and highlights their role in automating learning processes. It also explores adaptive learning systems, automated assessment mechanisms, intelligent recommendation systems, and digital algorithms for managing educational processes. The impact of intelligent automation systems on the quality, efficiency, and management of education is scientifically evaluated. The results indicate that AI-based automation systems in digital education platforms have significant future development potential and play a strategic role in optimizing the learning process.

Keywords: digital education, intelligent automation, artificial intelligence, adaptive systems, Big Data, machine learning, learning platforms, automated assessment, recommendation systems, smart education

Main Part

The development of intelligent automation systems in digital educational platforms is considered one of the most significant innovative directions of the modern education system. In recent years, as a result of the digitalization of educational processes, traditional management and teaching mechanisms have increasingly been replaced by automated systems based on artificial intelligence. This transformation contributes to improving educational quality, ensuring efficient use of resources, and optimizing the learning process. Intelligent automation systems encompass adaptive learning platforms, automated assessment mechanisms, learning analytics, and recommendation algorithms.

From a theoretical perspective, intelligent automation is closely associated with artificial intelligence domains such as machine learning, deep learning, and big data analytics. Through these technologies, systems can analyze user behavior, determine learners' knowledge levels, and provide personalized educational content. As a result, an individualized learning trajectory is created for each learner, making the educational process more flexible and effective.

From a practical standpoint, intelligent automation systems are widely implemented in Learning Management System (LMS) platforms. These platforms facilitate the management of educational activities, distribution of learning materials, automatic grading of assessments, and analysis of learning outcomes. Furthermore, chatbots and virtual assistants provide real-time support to students by responding promptly to their questions. This significantly enhances the interactivity of the learning process.

One of the prominent development trends is the integration of learning analytics and big data technologies. Through this approach, large volumes of educational data are processed to predict students' academic performance. This enables the early identification of learning challenges and supports timely intervention. In addition, such systems provide educators with analytical reports that assist in informed decision-making.

Moreover, intelligent automation systems are transforming pedagogical processes. Teachers are no longer viewed solely as providers of knowledge; instead, they are becoming managers and analysts

of the learning process. Artificial intelligence reduces teachers’ workloads, allowing them to focus more on strategic and creative activities. At the same time, collaboration between humans and technology is fostering the emergence of a new pedagogical model.

Overall, the development of intelligent automation systems in digital educational platforms plays a crucial role in improving educational quality, optimizing management processes, and strengthening personalized learning approaches. In the future, the continued advancement of these systems will contribute to the widespread implementation of the “smart education” concept and support the digital transformation of the global education system.

Conclusion

The development of intelligent automation systems in digital educational platforms demonstrates that modern education is advancing to a new level in terms of quality and efficiency. The conducted analysis confirms that automated systems based on artificial intelligence, machine learning, and big data technologies play a significant role in optimizing educational processes.

With the support of intelligent systems, the management, assessment, and analysis of learning activities become considerably more efficient, while subjectivity arising from human factors is reduced. This contributes to greater objectivity and accuracy in educational practices. Furthermore, adaptive learning systems take into account the individual characteristics of learners and facilitate the creation of personalized learning trajectories.

The findings indicate that intelligent automation systems not only enhance the quality of education but also reduce teachers’ workload by enabling them to focus more on analytical and managerial functions. As a result, effective collaboration between humans and technology is strengthened within the educational environment.

Overall, the widespread implementation of intelligent automation systems in digital educational platforms accelerates the digital transformation of education and creates a solid foundation for the advancement of the “smart education” concept. In the future, these systems are expected to become one of the key factors in improving educational quality and increasing global competitiveness.

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