

AI IN HIGHER EDUCATION AND SKILL DEVELOPMENT

Vikramkumar Vithhalbhai Gohel

Ph.D Scholar

P.G Department of Sociology

Sardar Patel University

Abstract

Artificial intelligence is bringing profound changes to higher education by reshaping teaching models, learning methods, and professional development for teachers. This study analyses the challenges and solutions associated with integrating AI into higher education through problem-oriented analysis and data comparison. The findings suggest that intelligent education has strong development potential and is perceived positively by students. Cultivating creativity, critical thinking, and autonomous learning is essential to prepare students for the intelligent era. Active AI-based teaching and research can promote lifelong learning and advance the sustainable development of higher education. For college teachers, the study and application of artificial intelligence is an important and necessary means to achieve professional development. It is more important to train students to take independent self-study exams and focus on applying social skills, so that students can better adapt to the coming era of intelligence. Therefore, the purpose of this article is to analyse the problems and solutions in the process of developing higher education and improving teaching skills based on artificial intelligence, and the development of higher education. This article will use specific problems and specific analysis research methods to compare data and draw conclusions. The research results show that in the information-based learning innovation created by knowledge sharing, learning goals and methods are constantly changing and students believe that the development potential of intelligent education is good, which tests the possibility of artificial intelligence technology in the development of college education. Therefore, active teaching and research on (AI) artificial intelligence is an embodiment of cultivating lifelong learning ability, improving rich teaching skills, continuously summarizing experience, actively improving and cutting relevant transformation programs, and jointly promoting the rapid development of higher education under artificial intelligence.

Keywords: Artificial Intelligence (AI), Higher Education; Intelligent Education, Autonomous Learning, Teaching Skills, Lifelong Learning

Introduction

Artificial intelligence (AI) has emerged as one of the most transformative technologies of the twenty-first century, significantly influencing economic growth, social development, and educational systems worldwide. With rapid advancements in data analytics, machine learning, and digital platforms, AI is reshaping how knowledge is created, delivered, and applied. Higher education, as a key driver of talent cultivation and innovation, is increasingly integrating artificial intelligence to enhance teaching effectiveness, learning outcomes, and skill development.

In the context of the knowledge-based economy, traditional higher education models are no longer sufficient to meet the demands of rapidly changing industries. Artificial intelligence offers new opportunities to personalize learning, improve academic assessment, and support intelligent teaching systems. Through adaptive learning platforms, virtual laboratories, and intelligent tutoring systems, AI enables students to develop critical skills such as problem-solving, creativity, critical thinking, and autonomous learning. These competencies are essential for graduates to remain competitive in the era of digital transformation.

Furthermore, artificial intelligence plays a crucial role in aligning higher education with workforce skill requirements. By analysing labour market trends and learner data, AI supports the development of skill-oriented curricula and enhances the connection between academic learning and practical application. For educators, the adoption of AI technologies promotes professional development, encourages innovative teaching methods, and improves educational governance. As higher education institutions continue to embrace artificial intelligence, they contribute to building an intelligent, inclusive, and lifelong learning system that supports sustainable social and economic development.

Background of Artificial Intelligence in Education

Artificial Intelligence is defined as the capability of computer systems to perform tasks that typically require human intelligence, including reasoning, learning, decision-making, and problem-solving. In the context of higher education, AI applications range from intelligent tutoring systems, adaptive learning platforms, and automated grading systems to virtual laboratories, predictive analytics, and administrative support tools.

Artificial intelligence

Artificial intelligence is a specific branch of computer science. Through research and development, it can simulate, extend, and expand the theory, method, technology, and application system of human intelligence. The research scope of this field is wide, including language processing, language image recognition, and intelligent robot. Since the advent of artificial intelligence technology, it has been deeply studied by scholars all over the world. The theory and technology research are becoming more and more mature, and the application field is also expanding. In the future, the scientific and technological products brought by artificial intelligence will be the aggregation of human intelligence. To some extent, artificial intelligence can carry out digital simulation of the information process of human consciousness and thinking and even surpass human in thinking ability class. At the same time, artificial intelligence is a science with great development potential. It not only involves the digitization of science and engineering such as computer knowledge but also needs to master sociology, psychology, and philosophy, involving many fields as well. The important purpose of developing artificial intelligence is to make computer combined with mechanical equipment competent for some complex work which usually needs human intelligence and greatly reduce the burden of human beings. With the development of society, the application level of artificial intelligence will change constantly.

Higher education

Higher education generally refers to the professional education and vocational education carried out by students on the basis of completing secondary education. It is the main social activity of training senior specialized talents and vocational personnel. Generally, high-level learning, research, social activities, and other educational contents are completed with the help of schools and other carriers. Higher education is one of the important parts in the education system. With the rapid social change, the demand for high-level talents continues to grow, and higher education ushered in rapid development. Individuals are more urgent to receive higher education opportunities, and gradually from elite education to popular education. With the increase of the number of audiences, the competition in the education industry is also increasing. The development of modern science and technology and production require higher education to be more and more integrated as a whole, which is reflected in higher education as the integration of courses. It is to make basic education and professional education, application research and development research permeate each other and cross carry out, and train students to adapt to the needs of social development and have

the skills to solve complex issues. Nowadays, every country develops higher education vigorously and strictly controls the teaching achievements. Its importance lies in enhancing the level of social productivity and promoting the dual development of economy and culture. The continuous reform of higher education in the curriculum reserves a large number of follow-up talents for the society.

Teaching skills

Teaching skill is the embodiment of a teacher's comprehensive quality, which measures whether he can successfully complete the established teaching tasks, achieve the teaching objectives, and use reasonable teaching methods. At the same time, it is the perfect unity of teachers' creativity and teaching requirements to have insight into students' psychological characteristics, learning characteristics. On the surface, teaching skill is an effective way for teachers to promote students' learning in teaching activities. From the deep analysis, it is a token of teachers' professional personality and professional accomplishment and a Wireless Communications and Mobile Computing 3 important sign of teaching ability. Every teacher has different teaching styles and different teaching levels. To master teaching skills, teachers' teaching skills include teaching design, classroom teaching, homework correction, and after-school guidance, teaching evaluation, teaching research, etc. Artificial intelligence technology can integrate teacher technology scientifically and can exert these skills systematically and effectively. Teachers use the existing theoretical knowledge of teaching, through practice to form a stable and complex teaching behaviour system. On the basis of teaching theory, the advanced teaching skills of automation level can be achieved through repeated consolidation exercises, so as to form stable teaching skills. Teaching skill is a necessary teaching skill for teachers.

Skill Development and the Role of Artificial Intelligence in Higher Education

Skill development is a fundamental outcome of education, reflecting both the knowledge acquired and the practical competencies students gain during their academic journey. Higher education institutions carry the responsibility of ensuring that graduates possess the necessary skills to progress in their learning paths, whether through further studies or by entering the workforce. Effective skill development extends beyond theoretical understanding to include the ability to apply knowledge in practical and meaningful ways. For instance, students should not only comprehend scientific concepts, such as the interaction between water and salt, but also demonstrate their understanding through laboratory

experiments. Similarly, in literature studies, students should be able to interpret plots, such as in Shakespeare's Hamlet, and relate them to overarching themes.

Skill development encompasses three primary categories: cognitive, technical, and interpersonal skills. Cognitive skills involve understanding concepts and applying critical thinking to solve complex problems. Technical skills, often referred to as "hard skills," mathematical problem-solving, or using specialized software. Interpersonal skills, or "soft skills," cover areas such as communication, teamwork, time management, and self-discipline, which are essential for collaborating effectively and navigating both academic and professional environments. These three skill categories are interconnected, as interpersonal skills often support the development of cognitive and technical abilities.

Artificial intelligence (AI) has emerged as a powerful tool for enhancing skill development in higher education. AI applications, including intelligent tutoring systems, adaptive learning platforms, and AI-powered educational software, can provide timely, personalized, and actionable feedback to students. For example, AI writing tools can assist language learners by scaffolding their development and guiding them toward improved writing proficiency. Despite its benefits, the integration of AI in education presents challenges. Misuse of AI, such as submitting AI-generated content without proper citation or bypassing independent learning requirements, can undermine skill development and academic integrity. Educators can transform these challenges into opportunities by teaching students about ethical authorship, proper attribution, and responsible use of AI tools. This approach ensures that students not only gain technical proficiency but also develop critical thinking and ethical decision-making skills.

In the contemporary educational and professional landscape, the responsible use of AI has the potential to accelerate skill development, enhance learning experiences, and better align higher education outcomes with workforce demands. By thoughtfully integrating AI into curricula, institutions can cultivate graduates who are not only knowledgeable but also skilled, adaptable, and prepared to contribute meaningfully to society.

Problems in the Development of Higher Education

The teachers are not professional, and their concept understanding is not comprehensive. Artificial intelligence education can intuitively and comprehensively display concepts and meanings to students. In many colleges and universities, facing the lack of practical application perspective of this new science and technology, teachers can only explain the concept and meaning, the teaching method is single, and they are aware of the

necessity and feasibility of integrating artificial intelligence technology into teaching. In the process of teaching, students' autonomy is greatly enhanced, and teachers are easy to blur their own positioning without adjusting their teaching skills. Artificial intelligence is different from other majors. It is closely related to social development. The development speed and variability of the major are increasing.

There is a wide range of professional connections, and it is difficult to teach artificial intelligence technology. Each teacher's teaching method and student's learning method are also different, which cannot be generalized. Therefore, in the face of the complexity of the education system, it is required that the integration process of artificial intelligence technology should be combined with different scenarios to improve the adaptability and clearly understand the shortcomings of technology development and the difficulty of in-depth application of education system. These problems can be solved by the emotional computing technology of artificial intelligence technology, that is, the ability to understand and convey text information and voice information. Artificial intelligence is becoming more and more mature in the field of speech and text.

Conclusion

Artificial intelligence not only optimizes teaching skills but also leads to the reform of higher education evaluation mechanism and the system innovation of cross domain and cross-regional coordination of school running resources. The maturity of artificial intelligence technology has led to the reform in the field of education, updated the concept of higher education, innovated the mode of running a school, and optimized the personnel training system. At the same time, it combines the new technology to carry out life-long education, borderless education, intelligent campus construction, and so on, making people's value realization and ability promotion highly integrated.

Artificial intelligence has completed the function of low-level teaching in higher education. At present, the application of intelligent auxiliary teaching system in colleges and universities is more and more extensive. In the specific teaching links, through data collection and analysis, classification and matching can understand students' learning situation in all aspects and at multiple levels, and establish an effective communication bridge between teachers and students. It helps college teachers design teaching plans, collect teaching materials, answer questions online, test and evaluate teaching, and reduces the burden of daily work.

Artificial intelligence technology will be faster and faster. We need to grasp the development context, study and judge the development trend of industry demand, take the initiative to seize opportunities, actively respond to challenges, and work together for the development of higher education in the new era.

REFERENCES

- Allawi, M. F., Othman, J., Mohammad, E., Firdaus, M. H., & El-Shafie, A. (2018). Synchronizing artificial intelligence models for operating the dam and reservoir system. *Water Resources Management*.
- Cao, K., Xu, J., & Zhao, W. Q. (2019). Artificial intelligence on diabetic retinopathy diagnosis: An automatic classification method based on grey level co-occurrence matrix and naive Bayesian model. *International Journal of Ophthalmology*.
- Chemouil, P., Hui, P., Kellerer, W., Li, Y., & Zhang, Y. (2019). Special issue on artificial intelligence and machine learning for networking and communications. *IEEE Journal on Selected Areas in Communications*.
- Hong, J. Y., Ko, H., Mesicek, L., & Song, M. B. (2019). Cultural intelligence as education contents: Exploring the pedagogical aspects of effective functioning in higher education. *Concurrency and Computation: Practice and Experience*.
- Vashistha, R., Chhabra, D., & Shukla, P. (2018). Integrated artificial intelligence approaches for disease diagnostics. *Indian Journal of Microbiology*.
- Yang, X., Li, H., Ni, L., & Li, T. (2021). Application of artificial intelligence in precision marketing. *Journal of Organizational and End User Computing*.