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Educational innovation driven by artificial intelligence: the impact of DeepSeek on teachers' teaching models

Jingjing Wang[1,2], Kou Heung[1]*

1.Sehan University, South Korea 58447, Korea
2.Linyi City Lanshan district art painting art training School Co.,Linyi City, Shandong Province 276000, China

Abstract: With the rapid development of artificial intelligence technology, DeepSeek, an innovative tool, is significantly changing teachers' teaching models. This paper discusses how DeepSeek is used in classroom teaching, and analyzes its role in reshaping classroom roles, promoting personalized customization, improving the accuracy of teaching evaluation, and expanding educational resources. At the same time, a series of strategies are proposed to further improve teaching effectiveness, such as optimizing teaching content and teacher role interaction, promoting the construction of an intelligent collaborative teaching ecosystem, and using data-driven decision-making mechanisms as an aid. Through these reforms, the collaborative work between teachers and AI will promote the continuous development and innovation of future education.

Keywords: Artificial Intelligence; DeepSeek; Educational Innovation; Teaching Model

Introduction

Artificial intelligence has emerged and become the core driving force for promoting educational reform. DeepSeek, as an innovative AI technology tool, has broad application potential in the education sector. DeepSeek can not only reshape the interaction model between teachers and students, but also carry out personalized teaching based on students' learning characteristics to improve teaching effectiveness and students' learning experience. In addition, the introduction of AI makes teaching evaluation more accurate and real-time, and at the same time opens up a new way for the acquisition and use of educational resources. However, the teaching model change driven by AI requires teachers to collaborate with technology and build reasonable strategies and mechanisms to ensure the quality of education.

1. Educational innovation driven by artificial intelligence: The impact of DeepSeek on teachers' teaching models

1.1 Reshaping classroom roles and interactive models

With the widespread application of artificial intelligence technology, especially AI tools like DeepSeek, traditional classroom teaching methods are undergoing a profound change. Teachers are no longer the only transmitters of knowledge, but have become guides and collaborators in the learning process. DeepSeek uses intelligent data analysis and interactive platforms to allow teachers to provide more accurate teaching support based on students' learning conditions, interests and needs. As time goes by, the roles of teachers have become increasingly diverse, and the traditional role of "lecturer" has gradually been replaced by the roles of "guide" and "collaborator". With DeepSeek, teachers can adjust teaching strategies and content through real-time system feedback, which can not only improve teachers' teaching ability but also enhance students' sense of participation and initiative. AI can dynamically adjust the course content according to the learning progress of each student, and evaluate the students' understanding in real time, so as to adjust the teaching strategy in time. This personalized teaching model breaks through the traditional static classroom teaching model and shifts to a more flexible, interactive and personalized learning method. In addition, the way teachers and students interact has changed. DeepSeek has the ability to use natural language processing technology. It can not only understand the questions raised by students and give appropriate answers, but also generate corresponding teaching content according to the context in which students are located. Such intelligent interaction allows students to participate more actively in classroom discussions and learning, and even after class, they can continue to learn and review through intelligent tools.

1.2 Promote personalized customization of teaching content

The application of AI technology, especially DeepSeek technology, provides the possibility of personalized customization of teaching content. In the traditional teaching model, teachers generally teach according to fixed textbooks and teaching progress. Such a "unified" teaching method is difficult to take into account the different needs of each student. However, DeepSeek can customize the most suitable learning content for each student through big data analysis, machine learning and other methods to promote their personalized development. First, DeepSeek comprehensively analyzes students' learning data, can determine the advantages and disadvantages of students' learning process, and then recommend personalized learning materials, exercises, etc. This content adjustment based on the individual learning process of students enables students to practice in a targeted manner at their weak points of knowledge, thereby avoiding the mismatch of learning progress caused by the unified teaching progress in traditional teaching. Second, DeepSeek can provide diversified learning resources based on students' interests and learning styles to further improve their learning interest and autonomous learning ability. For example, AI can guess whether students are interested in or like certain subject content from their historical learning records, and then recommend relevant learning materials. This type of intelligent recommendation method not only increases students' enthusiasm for participating in learning, but also significantly enhances their learning effects. In addition, DeepSeek also provides students with a more flexible and diverse learning path through real-time feedback and adjustment. Students can choose the appropriate learning depth and speed based on their personal learning progress without being bound by a fixed teaching plan.

1.3 Improve the accuracy and efficiency of teaching evaluation

DeepSeek significantly improves the accuracy and efficiency of teaching evaluation with a high degree of integration of AI technology. Traditional teaching evaluation generally relies on teachers' subjective judgment and regular examinations. This type of evaluation method often has its limitations and it is difficult to fully and real-time reflect students' learning situation. In addition, DeepSeek can collect multi-dimensional data on students' learning behaviors, answering situations, and classroom participation in real time with the help of deep learning algorithms and data analysis technology to achieve more accurate and scientific evaluation. First, DeepSeek can monitor students' learning status at all stages in real time through intelligent data analysis. Through automated scoring and analysis, the AI system can provide timely feedback on students' learning effects, and give students accurate learning reports based on their error types, answering speed, and knowledge points. This data-driven evaluation method allows teachers to learn about various problems that arise in students' learning at the first time, and then make personalized learning plans for students without waiting for regular test scores. Second, the DeepSeek evaluation system focuses on students' mastery of knowledge and can evaluate students' learning process. For example, AI can determine whether students actively participate in classroom interactions and whether they can conduct self-driven learning by analyzing their learning behaviors. This enables teachers to have a more comprehensive understanding of students' learning attitudes, learning habits, and psychological states, and provides a scientific basis for the formulation of teaching decisions below.

1.4 Expanding the scope of educational resource acquisition and application

Traditional educational resources have limitations, such as geographical, time, and teacher resources. In particular, high-quality educational resources are more difficult to obtain in remote areas. DeepSeek combines AI technology with the Internet platform to break through the above limitations and provide students with richer educational resources worldwide. First, DeepSeek can integrate the world's high-quality educational resources into one platform with the help of cloud platforms, big data analysis and other technologies, so that all students with network connections can easily access them. These include a variety of teaching videos, interactive courses, after-class exercises, online discussions and tutoring, and other resources, which students can freely choose and learn according to their learning needs. While improving the utilization rate of educational resources, this resource sharing platform also provides students in more regions with access to high-quality educational content. Second, DeepSeek uses intelligent recommendation algorithms to automatically push relevant learning materials based on information such as students' learning progress, interests and needs. Teachers can also quickly obtain the latest teaching methods, teaching materials and research results with the help of the DeepSeek platform, and keep track of cutting-edge developments in the field of education

to promote the improvement of teaching quality and professional level. Finally, DeepSeek can also help teachers manage educational resources more deeply through accurate data analysis of schools and teachers through intelligent learning management systems.

2. Educational innovation driven by artificial intelligence: DeepSeek's application strategy in teachers' teaching models

2.1 Building an intelligent collaborative teaching ecosystem

DeepSeek believes that establishing an intelligent collaborative teaching ecosystem is one of the core strategies for promoting educational innovation. Its main purpose is to use artificial intelligence technology to enhance efficient communication and cooperation between teachers and students. Traditional teaching models are mostly teachers who pass knowledge to students in a one-way manner. However, with the continuous introduction of AI technology, the educational ecosystem is becoming more and more open and interactive, and the role of teachers has gradually changed from the traditional position of "teaching and solving doubts" to "guide" and "collaborator". The establishment of this ecosystem not only provides personalized learning support for students but also data-driven decision-making support for teachers. In the intelligent collaborative teaching ecosystem, AI technology can analyze students' learning behavior, interests and performance data in real time, so as to accurately identify students' learning difficulties and adjust teaching content and methods based on this information. With the help of these real-time feedback, teachers can adjust teaching progress and strategies to help students break through knowledge barriers in a more targeted way. The AI system enables teachers to adjust their teaching plans in a timely manner by accumulating learning data, continuously optimizing students' learning paths, recommending appropriate learning resources, and providing teachers with detailed learning reports. For example, using the intelligent technology platform, teachers can track students' mastery of various knowledge points and identify which students perform poorly in specific areas and which students have better mastery. Teachers can provide students with targeted supplementary exercises, personalized tutoring, or resource recommendations based on the information provided by the AI system. At the same time, students can also interact and cooperate with each other on the platform to jointly solve learning problems, further strengthen the collective learning atmosphere, and cultivate a spirit of cooperation.

2.2 Develop cognitive-enhanced lesson preparation tools

In the traditional lesson preparation process, teachers are generally required to design course content based on textbooks, syllabi, and their own experience, but this method is often limited by time and energy, and it is difficult to provide personalized support to each student. With the help of AI and big data technology, cognitive-enhanced lesson preparation tools can effectively assist teachers in improving the efficiency and quality of the lesson preparation process. The tool uses AI technology to realize the automatic generation of teaching content, activity design, resource recommendation, and other content. Teachers can input information such as teaching objectives, course content and student characteristics; the AI system will automatically provide teachers with information about teaching materials, learning tasks and interactive activities based on a large number of teaching resource libraries. The system can not only provide teachers with the content of textbooks, but also recommend appropriate expansion resources, case analysis and practical activities based on students' learning conditions and interests. By using intelligent algorithms to analyze teaching data, the system can also provide teachers with analysis of students' cognitive levels, which is conducive to teachers to adjust teaching progress and methods more accurately. For example, teachers can use the teaching outline generated by AI to quickly understand which knowledge points are more difficult for students to master, which content can be deepened or practical activities, etc., in order to achieve the purpose of optimizing teaching design. AI can also automatically generate evaluation tools that match students' cognitive levels, and assist teachers in adjusting teaching strategies in a timely manner based on classroom interaction and homework performance feedback information.

2.3 Designing an immersive hybrid learning environment

The immersive hybrid learning environment is a core application of DeepSeek in the field of educational innovation. Its purpose is to achieve educational innovation by combining virtual reality, augmented reality and artificial intelligence, creating an interactive learning

space for students and improving the learning experience. Traditional teaching generally uses classroom lectures as the main method, and most students are in a state of passively accepting knowledge. The immersive hybrid learning environment uses technology to simulate real-life scenes, allowing students to practice operations in a virtual environment and enhance learning immersion and participation. In this learning environment, combining AI technology with VR/AR equipment can bring students an immersive learning experience. Students can complete tasks and operations in virtual scenes; the AI system evaluates students' performance through real-time data feedback and dynamically adjusts learning paths and learning content according to learning conditions. Through simulation experiments, virtual laboratories or situational learning, students can not only deepen their understanding of complex concepts, but also apply the knowledge they have learned to practice and enhance their practical operation capabilities. For example, in a professional field, through immersive learning, students can experience the ability to simulate actual operation environments, complete experimental operations in virtual laboratories, or simulate solving real problems. The AI system will record students' operation data based on behavior and choice in real time and give students personalized learning suggestions. In addition, this hybrid learning environment can combine traditional classrooms with online learning platforms, and recommend personalized learning content and interactive activities in an AI way, making the learning process more colorful.

2.4 Implementing a data-driven teaching decision-making mechanism

In the DeepSeek application strategy, the data-driven teaching decision-making mechanism occupies a core position. Its main purpose is to provide teachers with more accurate teaching decision-making suggestions through data collection and analysis. Traditional teaching decisions usually rely on teacher experience and classroom perception, but this method is difficult to fully capture the multidimensional data and changes in the student learning process. The introduction of AI technology combined with big data analysis enables teaching decisions to obtain more comprehensive, accurate and timely feedback from data. In the data-driven educational decision-making process, the DeepSeek platform can collect various learning information of students in real time, including their academic performance, completed homework, participation in class, learning behavior, etc., which helps teachers to have an overall understanding of students' learning status. Through the AI system to process and analyze the data, it can show teachers the students' learning trends, knowledge mastery and classroom interaction, which helps teachers identify students' learning obstacles and knowledge blind spots to adjust teaching strategies. For example, the AI system can predict the areas of students' learning difficulties based on students' historical grades and classroom performance, and thus provide improvement suggestions to teachers. Teachers can use these materials to adjust teaching content and progress during the teaching process, guide individual students to learn in a targeted manner, and improve the overall teaching effect by changing teaching methods. At the same time, AI can also analyze the impact of different teaching methods, which helps teachers to clarify which teaching activities can promote students' learning and which strategies need to be improved.

2.5 Cultivate the future educational ability of human-machine collaboration

DeepSeek believes that cultivating the future educational skills of human-machine collaboration is one of the key strategies to promote educational innovation. Its core goal is to use artificial intelligence technology to cooperate with educators to improve the overall quality and effectiveness of education. Under this strategy, teachers and AI cooperate to promote teaching effects while developing students' learning ability in a human-machine collaborative environment. The key to human-machine collaboration is that educators can flexibly apply AI tools to promote teaching. On the basis of being familiar with the functions of the AI platform, teachers can use the data analysis, teaching design, and interactive suggestions it provides to optimize the teaching process. AI technology helps teachers understand the learning status of each student through continuous collection and analysis of student data, and then provide personalized guidance and support to students. Teachers are no longer a simple knowledge transmitter, but have become learning guides and supporters of students. With the assistance of AI, they can better understand students' needs. The cooperation between teachers and AI in the teaching process is not only reflected in the application of technical tools, but also in the way of interaction between teachers and students in the classroom. AI can assist teachers in providing personalized feedback, which is conducive to students getting timely learning suggestions in and out of class. The collaboration between teachers and AI can not only improve their own teaching quality, but also pay more attention to the learning progress of each student and implement

efficient and differentiated teaching.

Conclusion

Under the tide of AI-driven educational innovation, DeepSeek has brought profound changes to the teaching model of teachers and students. With the help of intelligent teaching tools and accurate data analysis, it can provide students with personalized learning experience while further liberating teachers' teaching ability. With the increasing development of educational technology, future education will pay more attention to human-computer collaboration and innovative practice, which requires both technical support and the adaptation and improvement of teachers' abilities.

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