

# Practice of Large Language Models in Educational Informatization

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**Abstract:** Under the wave of the artificial intelligence era, educational informatization has become a crucial direction for educational reform in higher vocational colleges. However, some schools still adopt traditional teaching models, where teachers deliver lectures in class and students engage in learning activities according to uniform arrangements and requirements. While this facilitates teaching management, it fails to effectively stimulate the vitality of teachers and students, posing a disadvantage to long-term teaching practice. Therefore, it is imperative to actively overcome practical challenges and promote teaching transformation and upgrading. Against this backdrop, this paper analyzes the application directions of large language models (LLMs) in educational informatization, explores specific implementation paths through experiments, and discusses practical reflections. The goal is to optimize the practical application of LLMs by creating efficient teaching chains, improving teaching feedback, and enhancing information literacy, thereby endowing higher education with informatization and intelligence features and promoting transformative upgrades in the education sector.

**Keywords:** Large language model; Higher vocational education; Educational informatization; Teaching practice

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## 1. Application directions of large language models in educational informatization

Large language models (LLMs) have opened up a new phase of educational reform in higher vocational colleges, with their application research attracting widespread attention. Starting from curriculum content, teaching models, and faculty development, LLMs are reshaping the landscape of informatized teaching and injecting strong momentum into educational informatization. As a brand-new productivity tool for education and teaching, LLMs are primarily applied in the following directions:

First, accurately depicting student profiles to achieve personalized teaching. Through targeted question-and-answer interactions, LLMs can engage in one-on-one conversations with students to understand their learning progress and developmental needs, providing personalized learning resources and suggestions. In this process, LLMs can establish individual profiles for students, serving as a reference for teachers to adjust and improve teaching methods—using the most authentic feedback as data support for educational informatization<sup>[1]</sup>. By

accurately recording each student's learning trajectory, LLMs help them gain a more comprehensive and specific understanding of their own learning status.

Second, assisting teachers in teaching and expanding curriculum content. LLMs can generate personalized content based on teachers' input instructions, providing teaching materials that meet instructional requirements and efficient teaching reference models. This function saves teachers time and energy, allowing them to focus more on interacting with students and improving teaching practices. Through LLMs, teachers can open online channels for pre-class and post-class Q&A with students, breaking through the time and space limitations of traditional teaching to help students enhance and develop themselves<sup>[2]</sup>. Meanwhile, as an intelligent tool, LLMs can integrate with current industry developments to help teachers update teaching concepts, innovate teaching methods, and optimize teaching practices, ensuring that teaching activities keep pace with the times.

Third, conducting intelligent assessments to improve teaching effectiveness. LLMs can evaluate student assignments by understanding and generating human language, automatically carrying out assessment activities according to criteria input by teachers. They can not only determine whether students' answers are correct or incorrect but also assess the smoothness of their problem-solving approaches, the rationality of their thinking patterns, and the depth and breadth of their innovation. By comprehensively understanding students' assignment performance, LLMs provide teachers with precise and systematic evaluative data to help them grasp students' knowledge acquisition and individual strengths<sup>[3-4]</sup>. Based on insights into students' learning progress, LLMs can analyze their response content and habits, track their learning situations, and provide personalized feedback to teachers, helping them evaluate the effectiveness of their teaching methods and identify areas for improvement.

## **2. Practical paths and reflections on the application of large language models in educational informatization**

### **2.1. Practical paths of large language models in educational informatization**

#### **2.1.1. Creating an efficient teaching chain**

By introducing large language model-assisted classrooms with the goal of composite teaching, their practical effects can be evaluated. Practices have shown that the application of large language models runs through all links of teaching practice, serving both as a crucial bridge connecting pre-class and post-class stages and as a powerful tool for assessing teaching effectiveness. Pre-class preparation phase: Large language models can convey teachers' pre-class preparation instructions, helping students identify key and difficult points for preview<sup>[5]</sup>. Meanwhile, they provide rich learning resources to broaden students' learning perspectives and lay a foundation for better in-class learning. In this stage of developing students' interest, large language models can use interesting, intuitive, and vivid presentations to stimulate students' initiative and enthusiasm for learning. In-class practice phase: Teachers can understand students' preliminary learning status through the pre-class preparation profiles generated by large language models and leverage differentiated teaching methods to bring out different students' strengths<sup>[6]</sup>. During this process, teachers need to engage in in-depth discussions and exchanges with students. Additionally, large language models can generate relevant questions and provide reference cases based on the effectiveness of classroom activities, enhancing students' understanding and learning of related disciplines to improve their professional capabilities and literacy. Post-class summary phase: Large language models can generate practice assignments, assess learning effects based on students' completion rates, and formulate differentiated learning plans to address weaknesses and leverage strengths<sup>[7]</sup>. At the same time, teachers can understand students' learning status through the teaching feedback provided by large language models, using this

as a basis to optimize teaching designs and innovate teaching activities.

### **2.1.2. Improving relevant teaching feedback**

Large language models can comprehensively and accurately record students' learning data, helping teachers adjust and improve teaching activities through proactive feedback. Providing positive feedback to optimize teaching practices: Through large language models, students can obtain their learning profiles, enhance learning effects by actively searching for and accessing learning resources, and engage in positive communication with teachers. By interacting and exchanging ideas, they can gain a deeper understanding of subject characteristics, actively learn subject knowledge, and improve their logical thinking and problem-solving abilities. Meanwhile, teachers can optimize teaching according to students' developmental characteristics and needs based on the feedback data provided by large language models <sup>[8]</sup>. By enhancing the enthusiasm and initiative of both teachers and students, large language models can better serve educational informatization practices. Actively improving feedback and providing data support: As a new technology in informatized teaching, large language models have a relatively high threshold for use, requiring users to possess certain information literacy and practical capabilities <sup>[9]</sup>. Therefore, some students need relevant training to optimize the efficiency and effectiveness of using large language models. At the same time, during the application process, students need to understand the principles of large language models, such as the generation of learning content and resources, the setting of learning paths, and the provision of learning suggestions. Only through continuous feedback improvements can students learn more efficiently and achieve self-improvement and development.

### **2.1.3. Enhancing digital literacy of teachers and students**

Teachers, as the implementers of educational informatization, must develop a clear understanding of large language models (LLMs) to effectively use auxiliary teaching tools and improve teaching effectiveness. Meanwhile, as the main body of classroom activities, students should also enhance their digital literacy to adapt to the changing educational forms in the new era and achieve all-round development of comprehensive literacy <sup>[10]</sup>. Therefore, in the practical application of LLMs in informatized teaching, both teachers and students need to master certain hands-on skills to maximize the value of this tool. This requirement urges teachers and students to take the initiative to enhance their digital literacy by participating in LLM-related training, understanding potential issues that may arise during usage, and learning how to address them. This not only improves their ability to use LLMs but also helps them keep pace with the development trend of the digital era <sup>[11]</sup>.

## **2.2. Teaching reflections on the application of large language models in educational informatization**

Engaging with the practical application of large language models (LLMs), understanding their effects on teaching informatization, and conducting timely reflections and improvements are essential to effectively leverage their positive role and provide momentum for educational transformation and upgrading. Based on the analysis of the above practical paths and combined with the characteristics of higher education, the following reflections can be drawn:

First, breaking homogeneity and providing precise services. As generative artificial intelligence, LLMs have certain stylized features in their thinking patterns and methods, and the content they provide may lack originality. This could lead to homogeneous teaching suggestions for different teachers and similar learning recommendations for different students, resulting in a lack of realism and innovation in teaching practices <sup>[12]</sup>.

To address this, it is crucial to establish correct concepts about science and technology. Teachers should properly guide students to use the content generated by LLMs as a reference while encouraging independent thinking and learning.

Second, broadening channels to avoid information cocoons. LLMs can accurately capture teachers' teaching characteristics and students' learning preferences through algorithmic technologies to generate tailored content. However, this may also cause LLMs to only search for and provide information within their users' preferred ranges. Therefore, teachers should use LLMs as auxiliary tools while always putting people first, understanding students' learning situations and real-world needs to better carry out teaching practices.

Third, identifying authenticity to avoid information misleading. Content generated by LLMs may contain untrue or inaccurate information. As non-human intelligence, LLMs cannot make correct judgments or identifications, potentially reducing the efficiency and effectiveness of their use. Teachers should take the initiative to verify the content provided by LLMs and guide students to develop independent thinking skills to avoid being misled by false information. Meanwhile, LLMs should undergo regular testing and updates to improve the authenticity and accuracy of information and ensure the quality of information output.

Fourth, establishing safety awareness to prevent information leakage. The personalized services provided by LLMs rely on teachers' teaching data and students' learning data, necessitating legal and compliant data collection. Teachers and students should foster awareness of information security, adopt proper measures for data protection, and avoid malicious leaks or attacks<sup>[13]</sup>. LLM developers should also improve the transparency of their tools, allowing users to understand their working principles and enhancing trust in the technology. In summary, the analysis of practical paths and reflections on LLMs play a significant role in promoting educational informatization and can serve as a reference for current related research<sup>[14]</sup>. Only through continuous summarization and reflection can we correctly utilize intelligent tools to create a positive cycle where technology empowers education and education supports technological advancement.

### 3. Conclusion

In summary, large language models (LLMs), with their powerful language processing capabilities and algorithmic advantages, have become a robust driving force for educational informatization, bringing unprecedented development opportunities to the field of education. However, it is essential to recognize that LLMs are not a panacea and still have certain limitations<sup>[15]</sup>. Looking to the future, the application of intelligent achievements in education reflects the overall progress of society. As technology continues to advance and applications deepen, LLMs will play an increasingly important role in education, contributing to the construction of a higher-quality and more efficient educational system.

At the same time, we must establish correct concepts of technological ethics, optimize the practical pathways for LLMs in educational informatization, and closely integrate technological development with teaching upgrades. Only in this way can we better serve social development and ensure that the light of technology truly illuminates the future of education.

### Disclosure statement

The author declares no conflict of interest.



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