

# Exploration of Teaching Reform in College Nursing Courses Based on Artificial Intelligence

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**Abstract:** With the rapid development of artificial intelligence technology, its application in the field of education is becoming increasingly widespread, bringing new opportunities and challenges to the teaching reform of nursing courses in universities. This article aims to explore the teaching reform strategy of nursing courses in universities based on artificial intelligence, analyze its application advantages in reconstructing the curriculum content system, innovating teaching methods and models, building an intelligent teaching environment, enhancing teachers' AI application ability, and constructing a diversified evaluation system. Corresponding countermeasures are proposed for the challenges that may be faced in the reform process, in order to provide reference for promoting the modernization transformation of nursing education.

**Keywords:** Artificial intelligence, College nursing, Teaching reform

## 1. Introduction

In today's era of rapid technological development, artificial intelligence technology is penetrating into various fields at an unprecedented speed, and the education sector is no exception. College nursing education, as an important platform for cultivating professional nursing talents, shoulders the responsibility of delivering high-quality nursing workers to society. However, the traditional teaching mode of nursing courses has some problems such as lagging content updates, single teaching methods, and lack of intelligent support in the teaching environment, which are difficult to meet the demand for talents in the modern nursing industry. In this context, the teaching reform of nursing courses in universities based on artificial intelligence has emerged as a key measure to promote the modernization and transformation of nursing education.

### The advantages of applying artificial intelligence in nursing course teaching in universities

The integration of artificial intelligence technology into nursing curriculum teaching in universities can improve teaching quality and efficiency from multiple dimensions. Firstly, in terms of personalized learning, AI systems can tailor learning paths, recommend learning resources, and provide targeted guidance for each student by analyzing data such as their learning behavior, knowledge mastery, and learning preferences. This enables personalized teaching and effectively solves the problem of individual differences that are difficult to balance in traditional "large class teaching", enhancing students' learning initiative and enthusiasm. Secondly, in the simulated practical teaching process, AI driven technologies such as virtual reality (VR), augmented reality (AR), and mixed reality (MR) can construct highly simulated clinical nursing scenarios, such as simulating the clinical manifestations of various diseases, emergency procedures, and nursing operations. By repeatedly practicing in a virtual environment, students can not only avoid risks in real operations, but also quickly improve their clinical skills and adaptability through real-time feedback and error correction, making up for the shortcomings of traditional training resources and single scenarios. Furthermore, AI assisted intelligent evaluation systems

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can objectively, accurately, and efficiently assess students' mastery of theoretical knowledge, standardization of operational skills, and case analysis abilities. Compared to traditional manual grading and skill assessment, intelligent evaluation can achieve automated grading, multi-dimensional analysis, and generate detailed evaluation reports, providing data support for teachers to adjust teaching strategies and students to improve learning, while reducing the burden of teaching evaluation on teachers. In addition, AI technology can integrate massive medical literature, clinical cases, and the latest information retrieval and knowledge update channels for teachers and students, helping them to timely grasp the latest developments in the discipline and broaden their academic horizons. Compared to traditional manual scoring and skill assessment, intelligent evaluation can achieve automated scoring, multi-dimensional analysis, and generate detailed assessment reports, providing data support for teachers to adjust teaching strategies and students to improve their learning, while reducing the burden of teaching evaluation on teachers [1].

## **2. Teaching Reform Strategies for College Nursing Courses Based on Artificial Intelligence**

### **2.1 Refactoring the curriculum content system**

Based on the development of artificial intelligence technology and the forefront of nursing disciplines, systematically review and reconstruct the existing nursing curriculum content. On the one hand, adding basic knowledge modules related to artificial intelligence, such as machine learning basics, big data analysis, intelligent medical device applications, etc., enables students to understand the basic principles and application scenarios of AI in the field of healthcare, and cultivate their AI literacy. On the other hand, deeply integrating AI technology into core courses of various majors, such as in "Internal Medicine Nursing", using AI case analysis systems to assist students in understanding the diagnosis and treatment logic of complex diseases; In "Surgical Nursing", the key points of nursing cooperation during the surgical process are demonstrated using AR technology; Introduce AI application cases such as intelligent scheduling and quality control in Nursing Management. Through this approach, the course content is made more relevant to clinical practice, highlighting practicality and innovation, and cultivating students' ability to use AI technology to solve practical nursing problems. At the same time, we should establish a dynamically updated curriculum content mechanism, adjust and supplement the teaching content in time according to the development of AI technology and nursing practice, and ensure the progressiveness and applicability of the curriculum [2].

### **2.2 Innovative Teaching Methods and Models**

Actively explore diversified teaching methods and models based on artificial intelligence. Promote blended learning mode, organically combining online AI assisted learning with offline classroom teaching and practical teaching. Online use of intelligent learning platforms to push micro courses, animations, virtual simulation experiments and other learning resources, guiding students to engage in self-directed and collaborative learning; Offline teachers focus on explaining key and difficult knowledge, case studies, skill enhancement, and value guidance. Introducing a teaching method that combines project-based learning (PBL) and case-based learning (CBL) with AI technology, setting up projects or cases oriented towards solving practical nursing problems, such as using AI tools to analyze nursing data for specific diseases, designing intelligent nursing plans, etc., encouraging students to actively explore and collaborate on innovation during project implementation, and enhancing their comprehensive application abilities. In addition, an AI based virtual tutoring system will be developed to provide students with 24/7 online learning support, answer learning questions, guide learning directions, and achieve the normalization of personalized learning tutoring.

### **2.3 Building an intelligent teaching environment**

Increase investment in the construction of intelligent teaching environments and create a teaching platform that integrates virtual simulation laboratories, intelligent classrooms, and AI training centers. Build a high-level virtual simulation nursing teaching center, equipped with advanced VR/AR/MR equipment and a rich virtual clinical case library, covering common disease nursing scenarios in multiple fields such as internal medicine, surgery, obstetrics and gynecology, pediatrics, etc., supporting students to engage in immersive, interactive learning and technical training. Upgrade traditional classrooms to intelligent classrooms, equipped with intelligent interactive whiteboards, facial recognition attendance systems, classroom interactive feedback devices, etc., to achieve intelligent management of the teaching process and

efficient interaction between teachers and students. Establish an AI nursing training center, introduce intelligent nursing robots, simulated patients, intelligent monitoring devices, etc., to enable students to work collaboratively with AI devices in a simulated real hospital environment, familiarize themselves with intelligent nursing processes, and cultivate their practical abilities and team collaboration spirit in an intelligent healthcare environment.

### **2.4 Enhance teachers' AI application capabilities**

Teachers are a key force in promoting teaching reform, therefore it is necessary to strengthen the training of AI technology application ability for nursing professional teachers. Develop a systematic teacher training plan, which includes basic knowledge of AI, operation of intelligent teaching platforms, development of virtual simulation teaching resources, AI assisted teaching methods and skills, etc. Encourage teachers to participate in domestic and international AI education seminars, advanced learning, and collaborative research projects, exchange and cooperate with experts in the field of AI technology and frontline personnel in medical institutions, and enhance their ability to deeply integrate AI technology with nursing teaching. Establish a teacher AI teaching innovation incentive mechanism, support teachers to carry out AI teaching reform research projects, develop AI assisted teaching resources and tools, commend and reward teachers who have outstanding performance in AI teaching applications, and stimulate their enthusiasm and creativity in participating in teaching reform.<sup>[3]</sup>

### **3. Challenges Faced**

In the process of promoting the teaching reform of nursing courses in universities based on artificial intelligence, there are many challenges faced. Firstly, there are challenges in terms of technology and funding investment. Building an intelligent teaching environment, developing high-quality AI teaching resources, and purchasing related software and equipment require significant financial support, which may pose certain economic pressures for some universities. At the same time, AI technology updates rapidly and requires continuous investment in equipment upgrades and technical maintenance. Secondly, there is a challenge in the construction of the teaching team. Currently, some nursing teachers lack sufficient awareness and application ability of AI technology, and lack experience and methods in effectively integrating AI technology into teaching, which makes it difficult to meet the needs of reform. Once again, there are issues of data security and ethics. When using AI systems to collect, analyze, and apply student learning data and clinical case data, how to ensure data privacy, security, and compliance, and avoid data leakage and abuse, is a key concern. In addition, excessive reliance on AI technology may lead to a weakening of students' proactive thinking and interpersonal communication abilities. How to strengthen the cultivation of students' humanistic care and professional qualities while utilizing AI technology is also an important issue facing reform. Moreover, over-reliance on AI technology may impair students' critical thinking and interpersonal communication skills. A key challenge in educational reform is how to balance AI adoption with fostering humanistic values and professional competencies<sup>[4]</sup>.

### **4. Conclusion**

In summary, artificial intelligence has brought unprecedented opportunities for the reform of nursing course teaching in universities. Through various explorations and practices such as restructuring the course content system, innovating teaching methods and models, building an intelligent teaching environment, enhancing teachers' AI application capabilities, and constructing a diversified evaluation system, it can effectively improve the teaching quality and efficiency of nursing courses, cultivate nursing professionals who are more in line with the needs of the times, have innovative abilities and practical skills. However, in the process of reform, there are also some challenges that need to be addressed with corresponding measures. I believe that in the future, with the continuous development and improvement of artificial intelligence technology, its application in nursing course teaching in universities will be more extensive and in-depth, injecting new vitality into the development of nursing education.

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