Original Paper

Research on the Application of Smart Classroom Teaching Mode under the Background of AIGC: A Case Study of the "Online Store Management and Operation" Course

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Abstract

In the current era when the digital transformation wave is sweeping across the globe, China's higher education is facing unprecedented opportunities and challenges. Especially in the field of e-commerce, the traditional teaching mode of the "Online Store Management" course has been unable to meet the talent cultivation needs of the digital economy era. This article will, from the perspective of technology empowering education, deeply explore the innovative application of generative artificial intelligence (AIGC) technology in this course teaching. With the breakthrough development of technologies such as deep learning and natural language processing, AIGC technology has demonstrated strong content generation and intelligent interaction capabilities. This technological transformation not only reshapes the business operation model but also poses new requirements for education. In the "Online Store Management" course, AIGC technology can use virtual simulation technology to recreate the real e-commerce operation environment, can push differentiated teaching content based on student profiles, and can dynamically monitor learning effects and optimize teaching strategies. The deep integration of AIGC technology and the "Online Store Management" course not only can improve teaching quality but also can cultivate interdisciplinary talents who are adaptable to the development of the digital economy.

Keywords

AIGC, Smart Classroom, Online Store Management

1. Introduction

Since the first exposure to AI-generated artworks in university classrooms in 2015, AIGC technology has undergone nearly a decade of development. From the initial creation of poetry and the generation of popular songs, to the global explosion of ChatGPT in 2023, and the rapid advancement of domestic AI technology, generative artificial intelligence is reshaping various fields of human society. Education, as an important cornerstone of social development, is facing challenges in this technological revolution, but also enjoying unprecedented opportunities.

Currently, artificial intelligence technology has deeply permeated various industries in society, replacing traditional jobs while also providing new possibilities for educational innovation. However, the transformation of the education system often lags behind technological development, and this phenomenon is widespread globally. Especially in economically underdeveloped regions, due to limitations in infrastructure and resource allocation, the promotion of AI education applications faces greater resistance. The existence of this digital divide leads to significant regional differences in the application of AI technology in the education field.

At the teaching practice level, the application of AIGC technology is still in its infancy. Taking the "Online Store Management" course as an example, generative artificial intelligence can play multiple roles: Firstly, by simulating real business scenarios, it helps students gain more market-oriented practical experience; Secondly, by leveraging AI's data analysis capabilities, it enhances students' business decision-making skills; Finally, by using content generation technology, it enriches the teaching case library, keeping the course content up-to-date. These innovative applications not only improve teaching efficiency but also cultivate students' digital thinking and AI application abilities. The in-depth application of AIGC technology in the education field still faces many challenges. Issues such as technical ethics, data security, and academic integrity require educators to be cautious. When introducing AI technology into the "Online Store Management" course, it is necessary to establish a complete usage specification and evaluation system to ensure that the technology application not only promotes teaching innovation but also conforms to the essence of education.

In the context of the rapid development of the digital economy, "Online Store Management" is a core course for the e-commerce major, and its teaching quality directly affects the effectiveness of talent cultivation. Through an in-depth analysis of the existing teaching system, it was found that although this course has achieved certain results in improving students' comprehensive qualities, there are still many deep-seated problems that need to be addressed urgently. The analysis of the current teaching situation indicates that the main bottlenecks in the current course implementation are as follows: the teaching mode is rigid, which is still dominated by traditional theoretical teaching, lacking innovative practical links; the course content is lagging in update and unable to keep up with the technical iteration speed of the e-commerce industry; the teaching resources are single and unable to meet the individualized learning needs of students; the evaluation system is not perfect and unable to objectively reflect the real ability level of students. In response to these problems, this research proposes an

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innovative solution of deeply integrating AIGC technology into the course teaching. The application of AIGC technology mainly manifests in three dimensions: first, at the teaching content level, it uses AI generation technology to integrate the latest industry cases in real time and build a dynamic knowledge base to ensure the cutting-edge nature of the teaching content; second, at the teaching implementation level, it uses intelligent dialogue systems to achieve personalized tutoring and applying virtual simulation technology to create real business scenarios; finally, at the evaluation feedback level, it relies on big data analysis to establish a multi-dimensional ability assessment model to achieve precise diagnosis of learning effects. This technology-enabled innovative teaching model can not only significantly improve teaching efficiency, but more importantly, can cultivate students' digital thinking and innovation ability, enabling them to better adapt to the development needs of the future e-commerce industry. The research suggests that while promoting the application of technology, it is also necessary to improve the teacher training mechanism and teaching management system to ensure the organic unity of technology application and teaching goals.

2. The concept

2.1 The AIGC Technology

Artificial Intelligence Generated Content (AIGC) technology, as one of the most transformative digital innovations of the present era, is reshaping the paradigms of global content production and knowledge dissemination. This technology, through advanced architectures such as deep learning algorithms and Generative Adversarial Networks (GANs), can autonomously create digital content in various forms including text, visuals, audio, and multimedia (Liang Juan et al., 2025). In the process of educational modernization, AIGC technology is gradually demonstrating its strategic value as a catalyst for educational transformation.

From the perspective of the educational ecosystem, the integrated application of AIGC technology shows multi-dimensional potential for innovation: Firstly, through the construction of adaptive learning systems, it achieves precise matching of educational supply and student demands, promoting the large-scale implementation of the concept of individualized teaching; Secondly, it breaks through the geographical and temporal limitations of traditional educational resources, building a dynamic and updated digital educational resource library; Thirdly, by leveraging intelligent interaction interfaces, it redefines the mode of teacher-student interaction, enabling a qualitative change from lagging to real-time in the teaching feedback mechanism. These technology-enabled educational innovations not only respond to the urgent demands of the digital era for the transformation of the educational system, but also provide technical support for achieving the vision of high-quality education in the Chinese' sustainable development goals.

2.2 The Intelligent Classroom Teaching Model

In the research, the intelligent teaching model was divided into improved type(interactive type and ideal type) for progressive research. It is believed that the intelligent teaching model refers to the

linkage of teachers, students and technology, with the interest in the development of students' wisdom, focusing on the promoting effect of intelligent technology on the development of students' wisdom, and dedicated to building an ideal form of intelligent classroom (Ran, 2024). Subsequently, some scholars conducted model research from the perspectives of subject teaching and information technology. The intelligent teaching model is based on the teaching design of "constructivism" learning theory, using the thinking mode of "Internet +" and new-generation advanced technologies for development and application. Through the integration and innovation of technology and subject teaching, it reconstructs the teaching model and realizes the new information-based teaching model of "cloud-based construction, pre-learning after teaching, teaching based on learning, and intelligent development" (Liu et al., 2018). In the research on the application of the intelligent teaching model, the researchers analyzed the intelligent classroom and teaching model, and defined the intelligent teaching model as one constructed based on the learning theory of constructivism and the intelligent teaching environment, and which can be followed for a long time in the teaching implementation process as a relatively stable teaching procedure (Huang, 2024).

This study, based on the existing theoretical research results, innovatively proposes an intelligent teaching system applicable to the "Online Store Management" course. This teaching system adopts the modular design concept, systematically builds a teaching loop including four key links: pre-class intelligent preview, in-class intelligent interaction, post-class ability improvement, and dynamic evaluation throughout the process. As shown in Figure 2.1, this teaching model realizes the intelligent reconstruction of the teaching process through the deep integration of information technology and teaching practice.
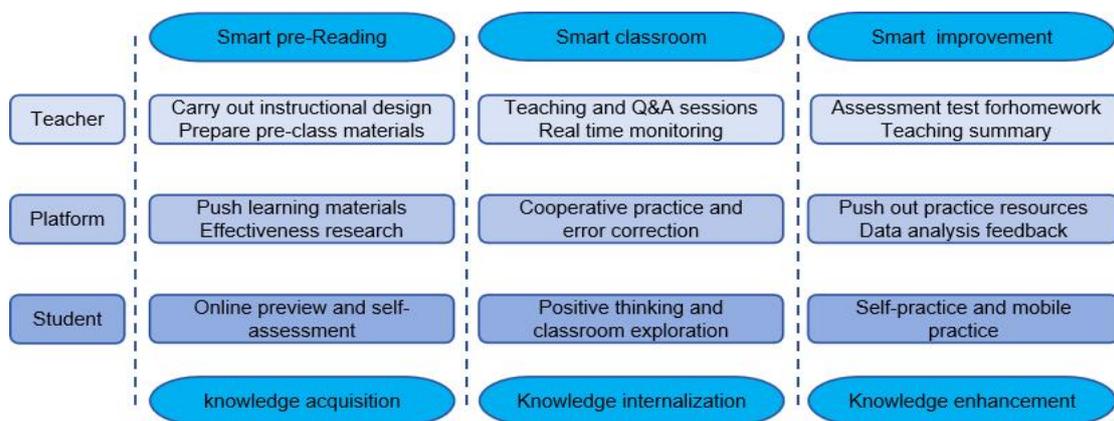

Figure 2.1 Intelligent Classroom Teaching Model

3. The Necessity and Feasibility of Applying AIGC Technology in the Intelligent Teaching of "Online Store Management" Course

3.1 Enhance Students' Participation and Boost Their Motivation to Participate

At present, there is a widespread problem of low student motivation in the field of higher education. This issue is particularly prominent in the practical-oriented "Online Store Management" course. The reasons for this include the limitations of the traditional educational model and the compatibility of the course design and teaching methods. To effectively improve this situation, educators urgently need to explore more innovative teaching strategies. The traditional teaching model overly emphasizes the dominant role of the teacher, often neglecting the students' active participation in the learning process. This one-way teaching method is difficult to stimulate students' enthusiasm for learning professional knowledge in the field of e-commerce. The introduction of modern teaching methods such as Project-Based Learning (PBL) can effectively guide students to conduct in-depth learning by creating real business scenarios, significantly enhancing their classroom participation. The AIGC technology can utilize its technical advantages in practical applications to establish interactive learning platforms, enhancing students' interest and attention in learning, enabling them to more actively and proactively participate in the training of online store management. AIGC technology can also be used to collect data on students' interests and hobbies, thereby providing more targeted personalized learning plans for students, increasing their interest in taking the "Online Store Management" course, and enabling more efficient student education work.

3.2 Offer Personalized Learning Experience

With the continuous deepening of educational informatization, the traditional standardized teaching model has become unable to meet the demands of modern education development. Especially in courses like "Online Store Management", the cognitive differences and learning demand diversification caused by individual differences among students have become increasingly prominent. This study proposes to introduce AIGC technology into the teaching system of the course, and construct a new intelligent and personalized teaching model.

The core dilemma currently faced by the teaching of the "Online Store Management" course lies in: teachers find it difficult to accurately grasp the knowledge mastery level and thinking characteristics of each student. The traditional "one-size-fits-all" teaching method not only fails to meet the learning needs of students at different levels, but may even suppress the development of students' innovative thinking. The limitations of this teaching model mainly lie in three aspects: homogenization of teaching content, singleity of training methods, and lagging of feedback mechanisms. Based on this, AIGC can automatically generate personalized teaching plans. For example, for students with weak logical analysis ability, the system will push classic business case analysis and mind mapping training; for students with insufficient market sensitivity, industry dynamic tracking and market simulation exercises will be provided. This precise teaching intervention can effectively improve learning efficiency.

3.3 Guide Students to Diversify their Thinking and Foster Innovation

From the perspective of actual teaching, teachers are often lacking in teaching materials. In most cases, they have to rely on their own reserves and make efforts to enhance their own cognition. From the students' point of view, the limitations of the teaching environment have severely restricted students' horizons, perspectives, thinking, and ideas. Therefore, introducing technologies like AI that make the world more equitable into teaching can play a significant role in promoting teaching to a large extent. Moreover, the core of guiding students to diversify their thinking and innovate lies in guiding them to analyze and study the same issue from different perspectives and dimensions. This will help students better evaluate a certain viewpoint or thing, improving their analytical and comprehension abilities, and greatly benefiting their online store management skills. During this process, the application of AIGC technology can collect, analyze, and organize various viewpoints and related materials through multiple methods such as big data collection. This not only encourages students to think comprehensively about the problem but also provides students with a more comprehensive and in-depth perspective. It enables students to organize a more comprehensive argument structure and assists students in managing their online stores more efficiently.

3.4 Provide Timely Feedback for Students' Learning

One of the prominent challenges currently faced in the education field lies in the lag and inefficiency of the teaching feedback mechanism. Especially in practical courses like "Online Store Management" that are closely related to market dynamics, the traditional teaching feedback model has failed to meet the demands of modern teaching. Teachers are confronted with a double predicament: they have to deal with heavy teaching tasks while also dealing with the pressure of course content updates brought about by market changes; meanwhile, students, under the dense course schedule, find it difficult to obtain timely and effective learning feedback. Therefore, introducing AIGC into teaching can help teachers promptly understand students' learning status through the timely feedback brought by the convenience of AIGC, guide students to adjust their own status in a timely manner, guide teachers to formulate more reasonable teaching strategies, and enable teachers to advance teaching work more efficiently. At the same time, the application of AIGC technology in teaching can better utilize its technical advantages to track students' learning situations, provide timely feedback when problems are identified, assist students in adjusting their own problems promptly, and integrate relevant learning materials to help teachers understand students' basic learning situations and provide more rich data support for the implementation of personalized teaching.

3.5 Improve Students' Ability of Information Retrieval and Processing

As a core course in e-commerce, "Online Store Management" differs significantly from traditional theoretical courses. Its prominent feature lies in the high standard requirements for students' information processing capabilities. In current teaching practice, students often adopt traditional data collection methods, which have obvious efficiency bottlenecks: on one hand, the information retrieval process is time-consuming and labor-intensive; on the other hand, the complexity of data screening and

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integration can easily lead to cognitive overload. This inefficient learning method not only consumes students' precious study time but also reduces overall learning efficiency. Through the empowerment of AIGC technology, students can focus their main energy on high-level thinking activities, such as business logic analysis and business strategy formulation, to cultivate core competencies. This innovative teaching model not only improves learning efficiency but also helps cultivate students' digital business thinking, laying a solid foundation for their future work in the e-commerce field. Educators should actively explore the integration path of AIGC technology and professional teaching, and construct a more effective new teaching model.

AIGC has positive effects on students' classroom participation and motivation, personalized learning, thinking expansion, timely feedback, and information retrieval and processing capabilities in the teaching of "Online Store Management". While bringing many conveniences and advantages to students, it also brings potential risks. Over-reliance on intelligent systems may cause students to gradually lose autonomy and innovation, accustomed to relying on technology to acquire knowledge and solve problems instead of exerting their own thinking and exploration abilities. Teachers may also reduce their teaching initiative due to excessive reliance on generative artificial intelligence products.

When dealing with the challenges of the use of artificial intelligence in the classroom, teachers need to design thematic learning tasks based on in-depth research of the teaching materials to stimulate students' critical thinking in teaching. The continuous update of teaching methods can not only change students' contemptuous attitude towards the learning of "Online Store Management" but also enable students to improve their autonomous learning ability and independent thinking ability while mastering knowledge. At the same time, teachers must correctly guide students to view and use intelligent technology with a critical attitude and perspective. Students should be made clear that artificial intelligence is merely an auxiliary tool in the learning process, and the occurrence and thinking of the real learning process still require self-reliance.

4. The Main Strategies of AIGC Technology in the Intelligent Teaching of the "Online Store Management" Course

Firstly, implement stratified teaching. Before conducting teaching activities, teachers should systematically diagnose students' knowledge reserve level, logical thinking ability, and learning potential through diversified assessment methods, including but not limited to standardized tests, classroom observations, and periodic assessments. Based on the diagnosis results, teachers can follow the educational principle of "teaching according to individual needs" and divide students into several homogeneous learning groups. Through this refined stratification strategy, not only can the appropriateness of teaching content be ensured, but also the learning potential of each level of students can be effectively stimulated, laying a solid foundation for the smooth implementation of subsequent teaching activities. It is worth noting that stratified teaching is a dynamic adjustment process, and

teachers need to conduct formative evaluations regularly and optimize the grouping plan in a timely manner.

Secondly, formulate individualized educational strategies. Based on the different characteristics of students, it should form groups appropriately to make the specific educational work more effective. Specifically, for students with weak foundations, the teaching focus should be on the training of basic knowledge and skills in network operation and management. Teachers can allow the more competent students in the group to guide the average students to raise corresponding questions, and under the guidance of the teacher, use AIGC technology to generate basic course content guidance for the less competent members in the group, gradually helping students build confidence in learning and stimulating their interest in learning. During this assistance process, it is also a kind of exercise for the more competent students, which can help them discover the problems they tend to overlook and correct them in the process of helping less competent students sort out basic knowledge. For students of medium level, they need to further improve their skills in network operation and management and critical thinking. Teachers can guide students to collect more abundant cases using AIGC, and guide students to conduct in-depth analysis and thinking from multiple perspectives and aspects. For high-level students, they can organize them to present wonderful debates in class, which is also an incentive for other students. They can also have logical confrontations with AI to find their own logical deficiencies, playing a role in rigorous logic and checking for deficiencies.

Finally, improve teaching methods. It should improve and optimize the adaptability of students to teaching methods. The individual differences in learning ability will also cause differences in the speed of students' progress. With giving students encouragement and support, it is also necessary to conduct timely guidance and adjustment of grouping according to the actual situation of students, helping students steadily improve their ability in online store operation and management.

5. The Application of AIGC Technology in Intelligent Teaching of the "Online Store Management" Course

5.1 The practical Objectives

During the actual research process of this paper, it is hoped to integrate AIGC technology into the intelligent teaching of the "Online Store Management" course, thereby enhancing students' critical thinking abilities. On this basis, the teaching objectives can be set in two specific directions. The first direction is the student ability development direction, which requires students to master the key points of the "Online Store Management" course through the teaching and the ability of carrying out discussion and critical thinking activities. The second direction is to cultivate students' deep analytical abilities, logical thinking abilities, teamwork abilities, and other deep-level abilities through the teaching process, laying a foundation for students' actual online store management.

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5.2 The Process of Instructional Design

First, the preparation stage for instructional design. It can search for theoretical materials on domestic large-scale journal paper websites such as CNKI, Wanfang, and VIP to prepare for the implementation of the specific teaching plan. In the research plan, the core issue of instructional design was determined, namely, conducting necessary analysis on the feasibility of AI entering the classroom. Specifically, the questions, such as how AI enters the classroom, in what way it enters the classroom, how it is presented in the classroom, what problems may arise during the presentation, and how to handle these problems, were made certain assumptions and arrangements. From the perspective of school teachers, they had multiple communications before the class, including the basic principles, operation methods, and specific applications of online store management. From the perspective of students' basic education, they gave basic explanations of the open class process and the new technologies used, so that students could understand the basic situation of the classroom. After-class task design, through simulation exercises and case analysis, can help students master how to use AIGC technology in online store management for idea expansion, content enrichment, self-practice and feedback.

Second, the implementation stage of the plan. In the classroom, it can use the combination of traditional teaching and AIGC to attempt to sort out the textbooks and provide guidance on online store management. Specifically, it should take the unified textbook of online store management as the course entry point, analyze the basic management ideas of online stores, and use AIGC to screen relevant cases of online store management. Through limited conditions and AIGC, it can extract and discuss the themes and knowledge points related to online store management. Finally, it can use AI to summarize the analyzed articles, compare the similarities and differences with traditional online store management cases, highlight thinking training, summarize online store management cases, and outline a basic idea suitable for students to carry out practical operations, allowing students to follow the path and implement online store management.

Third, the evaluation and reflection of the teaching plan. After the teaching implementation, from the actual classroom situation, the overall evaluation of students and teachers on the combined classroom of traditional and technology can be collected. Then it should conduct an overall assessment of the teaching process to analyze and verify the feasibility of using AI in the classroom. Through careful analysis of the problems that occurred in the classroom, it can combine the two to reach an effective conclusion, and make assumptions and preparations for a phenomenon that may become common in the classroom in the future, which helps to provide suggestions for future teaching activities with AI participation to ensure the practical effectiveness of AIGC technology in actual application.

6. Conclusion

With the rapid development of artificial intelligence technology and its deep penetration into the field of education, educators urgently need to establish effective protective mechanisms. The core of this mechanism lies in: not only should it make good use of the convenience brought by technological

innovation, but also must adhere to the fundamental mission of education - cultivating individuals with independent thinking abilities and sound personalities. Educational decision-makers should understand that artificial intelligence is always a teaching auxiliary tool, and any technological application must not undermine the autonomous decision-making rights of the educational subjects (teachers and students). This requires educators to establish a complete technical ethics review system, maintaining the leading role of teachers in all aspects of curriculum design, teaching implementation, and evaluation feedback, to ensure that education always serves the fundamental goal of human all-round development.

Acknowledgement

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