Original Research Article

A study on the application scenarios and ethical considerations of generative artificial intelligence (AIGC) in vocational college e-commerce education

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Abstract: With the rapid development of artificial intelligence technology, the application of generative artificial intelligence (AIGC) in the field of education has gradually attracted widespread attention. This paper delves into the specific application scenarios of AIGC in vocational e-commerce education, Through literature reviews and case analyses, the paper details how AIGC can enhance teaching effectiveness by real-time updating of educational resources, generating personalized learning content, providing intelligent tutoring and Q&A support, and constructing virtual practical teaching environments. Additionally, this paper conducts an in-depth analysis of the ethical issues that may arise during the application of AIGC. The research aims to provide theoretical support and practical guidance for the digital transformation of vocational e-commerce education, promote the healthy and sustainable development of AIGC technology in the education sector, and drive innovation and transformation in educational models.

Keywords: generative artificialintelligence; vocational e-commerce education; application scenarios; ethics

1. Introduction

Vocational e-commerce education serves as a crucial pathway for cultivating professionals who can meet the evolving needs of the industry, bearing the responsibility of supplying the sector with high-quality technical and skilled talent[1]. These professionals must not only possess solid professional knowledge but also strong practical skills and innovative thinking to adapt to the rapidly changing industry environment.the application of AIGC has also raised a series of ethical issues. If these issues are not properly addressed, they will have a negative impact on teaching quality and student development[2]. Therefore, conducting in-depth research on the application scenarios and ethical considerations of AIGC in vocational e-commerce education holds significant theoretical and practical significance. By exploring the effective application of AIGC technology in teaching, we can optimize teaching content, enhance teaching efficiency, innovate teaching models, and provide students with a higher-quality learning experience[3]. Simultaneously, by conducting an in-depth analysis of the ethical issues that may arise during the application of AIGC and proposing corresponding strategies and recommendations, we can ensure the healthy and sustainable development of AIGC technology in the education sector, promote innovation and transformation in educational models, and provide strong support for the high-quality development of vocational e-commerce education.

2. Current status and demand analysis of vocational college e-commerce education

2.1. Characteristics of vocational college e-commerce education

The core objective of vocational college e-commerce education is to cultivate application-oriented talents with solid professional knowledge and practical skills to meet the demand for high-quality technical and skilled personnel in the e-commerce industry. This objective determines that vocational college e-commerce education has distinct characteristics of practicality, applicability, and innovation. The curriculum is comprehensive, covering various aspects such as e-commerce fundamentals, online marketing, e-commerce operations, and e-commerce security. It not only requires students to master solid theoretical knowledge but also emphasizes the cultivation of their practical operational skills[4]. For example, in online marketing courses, students not only learn theoretical knowledge but also acquire practical skills such as search engine optimization (SEO) and social

media marketing through hands-on exercises.

2.2. Challenges faced by vocational e-commerce education

Although vocational e-commerce education has achieved certain results in cultivating applied talents, it still faces numerous challenges. teaching methods are relatively monotonous and lack attention to students' individual needs. Traditional classroom teaching models are teacher-centered and struggle to meet the diverse learning needs of students. To gain a deeper understanding of the current state and issues in vocational e-commerce education, this study collected the opinions and suggestions of faculty and students from multiple vocational colleges through questionnaires and interviews. The survey results show that faculty and students generally believe that slow updates to teaching content, monotonous teaching methods, and insufficient practical opportunities are urgent issues that need to be addressed in current teaching. Many students expressed a desire for courses to be more closely aligned with industry realities, incorporating teaching content on emerging technologies and business models. Teachers, on the other hand, suggested strengthening school-enterprise collaboration, introducing more real-world cases and projects to enhance students' practical skills and innovative capabilities. These feedback points provide important entry points for the application of AIGC technology in vocational e-commerce education and also clarify the direction for educational reforms.

3. Application scenarios of AIGC in vocational e-commerce education

3.1. Optimization of teaching content

AIGC technology can generate personalized learning content for each student based on their learning progress, interests, and mastery of knowledge. This personalized learning approach meets the diverse learning needs of students and enhances learning outcomes. For students with weaker foundations, AIGC can provide foundational knowledge reinforcement materials and practice exercises to help them solidify their basics. For students progressing at a faster pace, AIGC can offer advanced knowledge and cutting-edge research materials to meet their learning needs. For example, AIGC can analyze students' learning preferences and knowledge mastery based on their behavioral data on the learning platform, and generate personalized learning paths and content recommendations[5]. This personalized learning experience not only enhances students' learning motivation but also helps them better master knowledge and improve their overall competence.

3.2. Innovation in teaching methods

AIGC technology can generate a virtual e-commerce operational environment, including virtual stores, virtual markets, and virtual customers, providing students with a highly realistic practical platform. Students can perform practical operations in the virtual environment, such as store decoration, product listing, marketing promotion, and customer service. This virtual practical teaching method not only reduces the cost of practical teaching but also enhances the flexibility and safety of students' practical operations. For example, students can experiment with different marketing strategies in the virtual environment and observe their effects without worrying about the risks involved in actual operations. Through this approach, AIGC technology can enhance students' learning interest and engagement, improve their practical skills, and foster innovative thinking.

4. Ethical considerations of AIGG inthical consideartions of AIGG in vocational e-commerce education

4.1. Academic integrity issues

While the introduction of AIGC technology into vocational e-commerce education has brought numerous conveniences to teaching, it may also give rise to a series of academic integrity issues. The most prominent of these is that students may use text generated by AIGC directly as assignments or papers, leading to plagiarism. Such behavior not only violates academic ethics but also severely impacts teaching quality. To address this issue, on one hand, technical measures should be implemented for prevention, such as developing specialized detection tools that can identify AIGC-generated content and screen students' assignments and papers to ensure that submitted work is their own original work. On the other hand, educational guidance is equally crucial. Schools should strengthen academic integrity education during the teaching process by offering specialized academic ethics

courses and hosting academic integrity lectures to ensure students fully understand the severe consequences of academic misconduct and cultivate proper academic ethics. Only by combining technical prevention with educational guidance can we effectively prevent academic misconduct and uphold the bottom line of academic integrity.

4.2. Data privacy and security issues

In the application of AIGC technology, students' and teachers' personal information and learning data are at risk of privacy leaks and security threats. This data includes not only basic information such as students' names and contact details but also sensitive information such as their behavioral data during the learning process, assignment content, and exam scores. If such data is leaked or misused, it can cause severe harm to individuals. Therefore, effective privacy protection measures must be implemented throughout the collection, storage, use, and sharing of data. For example, data encryption technology can be employed to ensure data security during transmission and storage[6]; anonymization can be applied to remove personal identifiers from data, reducing the risk of leakage; and strict access controls can be enforced, allowing only authorized personnel to access relevant data. As data managers, schools and educational institutions should assume responsibility and obligations for data security management, establish sound data security management systems, and conduct regular security audits and risk assessments to prevent data security risks, ensure the lawful and compliant use of data, and protect the privacy and rights of teachers and students.

5. Startegies for the application of AIGG in vocational e-commerce education

5.1. Establishing a sound legal and policy framework

Against the backdrop of rapid advancements in AIGC technology, national and local governments urgently need to establish and refine laws, regulations, and policies governing the application of AIGC in the education sector. These legal frameworks should clearly define the scope of AIGC technology usage, establish regulatory standards, and delineate responsible parties, thereby providing a robust legal foundation for the integration of AIGC into vocational e-commerce education. For example, specific regulations should be enacted to standardize the application of AIGC in areas such as educational data privacy protection and academic integrity, and to strengthen supervision of educational institutions and AIGC service providers to ensure their lawful and compliant operations. Through these measures, ethical risks associated with the application of AIGC technology can be effectively mitigated, and the fairness and safety of the educational environment can be safeguarded. In addition, laws and regulations should also cover intellectual property protection for AIGC technology in education, clarify the copyright ownership of generated content, and prevent unauthorized use and dissemination.

5.2. Strengthen teacher training and capacity building

Teachers play a key role in the application of AIGC[7]. Therefore, it is crucial to strengthen teacher training and improve their understanding and application of AIGC technology. Through specialized training, seminars, workshops, and other forms of education, teachers can systematically learn the principles and operational methods of AIGC technology and master how to use AIGC to optimize teaching content and innovate teaching methods. Additionally, teachers should be equipped to address ethical issues arising from AIGC. Furthermore, teachers should be encouraged to actively participate in AIGC-related teaching research and practical exploration to continuously improve their professional competence and teaching standards, thereby better adapting to the demands of digital teaching.

6. Conclusion

Generative artificial intelligence (AIGC) presents unprecedented opportunities for vocational e-commerce education. By optimizing teaching content, innovating teaching methods, and diversifying teaching evaluation approaches, it can significantly enhance teaching quality and students' learning experiences. However, the application of AIGC also raises numerous ethical issues, such as academic integrity, data privacy, and algorithmic bias, which require the utmost attention from educators, policymakers, and technology developers. By establishing a sound legal and policy framework, strengthening teacher training and capacity building, improving

technical supervision and evaluation mechanisms, and reinforcing ethical education and digital literacy development for students, we can fully leverage the advantages of AIGC technology while effectively mitigating its ethical risks. This will promote the digitalization and intelligent development of vocational e-commerce education, providing strong support for cultivating high-quality talent to meet the needs of the new era of the e-commerce industry.

About the author

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