

Exploration and Application of AI Technology in the Curriculum System of E-commerce Specialty

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Keywords: AI technology, E-commerce, Curriculum system

Abstract: AI technology is currently a popular technology that has a significant impact on e-commerce, such as digital human livestreaming, AI drawing, AI video, and AI animation, all of which are closely related to the content in e-commerce courses. Students from higher vocational colleges are likely to enter business-related fields after graduation. Therefore, starting from the problems faced by AI technology in school teaching, I point out the issues, create conditions, and propose constructive methods for the teaching of AI technology in e-commerce majors, clearing obstacles and striving to cultivate skilled talents who can adapt to the changes brought by the application of AI technology in the e-commerce field.

1. Introduction

Nowadays, Artificial intelligence has crossed the reserve period of technical theory accumulation and tool platform construction.^[1] Entering the development stage of large-scale application and value release as the goal.

2. Analysis of the Application of AI Technology in E-commerce Teaching in Colleges

2.1 Current Status of the Application of AI Technology in E-commerce Teaching in Colleges

Due to the course content and practical nature of e-commerce teaching, there is significant overlap with AI technologies related to the internet. Some colleges, taking advantage of the convenience of the group company presenting in the software industry, directly introduce AI technology into teaching through enterprise ways. They even use images or videos generated by training AI models for competitions^[2]. This not only enhances students' skills in using AI, but also provides teachers with increasing amounts of empirical reference for using AI technology in classroom teaching.

2.2 Challenges Faced by AI Technology in E-commerce Teaching

Teachers usually learn about AI technologies through national, provincial, and school-level training programs, which are mainly conducted during winter and summer vacations. Due to quota

limits and class sizes, the coverage of these trainings is relatively limited. Therefore, the integration of AI technology into e-commerce teaching relies on the initiative course of teachers to learn about AI technology and consider how to integrate it with related courses. This type of exploration is closely related to the efforts and learning of teachers, and carries a significant component of proactive exploration by the teachers themselves, leading to a potentially challenging process^[3].

In this background, as higher education aims to cultivate professionals for society, e-commerce specialty need to incorporate new technologies into their curriculum for practical application, allowing students to access the latest AI technologies while still on campus. Currently, there are several issues that need to be resolved to integrate AI technology into courses:

(1) Students lack understanding of AI technology, so basic knowledge of AI technology needs to be popularized in the early stage.

Through communication with students, it was found that their awareness of AI technology began with their knowledge of ChatGPT, which they became familiar with through news introductions. However, students do not understand the theoretical knowledge and underlying logic involved in ChatGPT, only having a superficial understanding. If we are to incorporate AI technology into the curriculum, we need to provide an overall introduction to AI technology, covering its historical origins, development stages, and related subject knowledge. This will allow students to have a preliminary understanding of this emerging concept and grasp the basic concepts related to AI technology^[4]. However, the primary issue we face is determining which course within the entire e-commerce curriculum should include this introductory overview of AI technology.

(2) The Integration issues of AI Technology with E-commerce Courses

Currently, the application of AI technology in the field of e-commerce is specifically manifested in AIGC's ability to generate images from text. Courses that involve text-to-image generation include the image creation component in "Web Editing" and "E-commerce Visual Design"^[5]. These two courses are interrelated. How to reasonably arrange and integrate AI technology into these two courses is an urgent practical issue that needs to be considered, and it is also a crucial practical step for the integration of AI technology with e-commerce courses.

In 2024, text-to-video generation models emerged. The course related to video is "Web Editing", which involves chapters on video editing and processing. However, the AI technology used in text-to-video generation itself relies on internet image resources to create and switch between frames to produce a video. The images selected by AI technology are based on matching the textual content to corresponding picture content. This matching process inherently involves keywords and corresponding images. Currently, robots cannot achieve a perfect correspondence between textual keywords and internet images, resulting in logically incoherent video content generated from text, with frequent occurrences of text and images being disconnected. Issues like these need to be addressed during the process of teaching students.

(3) The issue of how to integrate AI technology with traditional software-based teaching

As a rapidly developing technology, AI integrates knowledge from robotics, deep learning courses, and other fields, making it capable of replacing image generation tasks in the "E-commerce Visual Design" course. The current AIGC technology differs visually from students creating original images using Photoshop software^[6]. Additionally, students in higher vocational colleges often have weaknesses in English and mathematics, so learning the coding involved in image generation through AIGC can be quite challenging for them. Therefore, when incorporating AI technology into the "E-commerce Visual Design" course, we need to find appropriate opportunities for seamless integration, ensuring it feels natural and effortless. At the same time, students should be made aware of the advantages and disadvantages of AI technology. They should be able to compare AIGC's image generation and processing capabilities with those of traditional Photoshop software and view AIGC technology as a tool within the "E-commerce Visual Design" course. It is

important that students do not abandon their original Photoshop skills after learning to generate images through AIGC coding, as this would be like picking up the sesame seeds and dropping a watermelon.

(4) The issue of a lack of textbooks and teaching resources for courses on the application of AI technology

AI technology has reached a stage of widespread application in various industries, but its application in higher education is still in the exploratory phase. There is a limited number of textbooks to choose from, with most of the available options being introductory texts such as "Introduction to Artificial Intelligence" and "Overview of Artificial Intelligence". For higher vocational college students, the textbooks that are more relevant to AI in e-commerce are "AI Drawing" and "AI Video", which focus on practical drawing and video production, making AI drawing and AI video creation simple and practical. However, there is a scarcity of textbooks that specifically combine AI with specific courses, posing significant challenges for teachers in applied teaching. At the same time, this also provides teachers with vast room for creativity and development^[7].

Currently, our online teaching resources are mostly systematized based on textbooks. For example, resources from platforms like Chinese University MOOCs, Learning Express, educational apps, and mini-program teaching resources often depend on textbooks for their structure. To establish a self-contained system suitable for online teaching, these resources typically require widespread promotion and repeated practical application in teaching, followed by revisions and enhancements to the online teaching resources. However, the lack of textbooks in the market slows down this process, resulting in scattered, disorganized, and fragmented teaching resources. Therefore, teachers need to strengthen the integration of these resources.

(5) The issue of assessment after applying AI technology in courses

The integration of AI technology into the e-commerce curriculum, even after the reform of teaching methods in the "rectification and reform in trilingual education", represents an innovation in teaching with new technology. However, this innovation needs to be explored in practice, and its specific effectiveness must be evaluated through peer teacher evaluations and student feedback. The application of new AI technology in the entire higher vocational education system is like being the first to try crab; there are not many real-life examples to refer to. Therefore, the assessment of curriculum reform, including how to design the evaluation criteria to measure the successful integration of this new technology, requires careful consideration, followed by practice, and then feedback to the course. Gradually, we can explore a mature and feasible path.

2.3 The necessity of teaching AI technology in E-commerce majors

In e-commerce majors education, due to the close relationship between the content of the curriculum system and courses such as "E-commerce Visual Design" regarding image generation, as well as courses like "Web Editing" and "Web Design and Development" concerning audio and video production, along with "Online Store Operation and Management" which directly relates to platforms and the internet, e-commerce majors are always more susceptible to the impact of new internet-related technologies compared to other majors. AI technology can directly generate images, videos, and other content, yet its application scope is relatively narrow. Therefore, the integration of e-commerce courses with AI technology is relatively tight, and there is an urgent need to introduce AI technology into e-commerce education.

With the development of society, AI digital humans have increasingly integrated into people's lives. In daily consumption, many platforms have introduced face recognition for payment. When conducting business at banks, operations such as face authentication and face login are directly used.

Returning to residential areas, face recognition has been adopted for access control. Even at home, face recognition is used for door locks. In the future, more and more areas will adopt face recognition for access control systems. As educators in the education industry, we always align talent cultivation with industry demands. Students in the heavily impacted e-commerce industry need to keep up with changes in the external society, familiarize themselves with the paths and methods for acquiring AI technologies, and become proficient in the AI model training process, so that they can utilize AI tools in their future careers. As teachers in the field of e-commerce education, we have the responsibility and obligation to bring this technology into the classroom and integrate it into teaching.

3. The Application of AI Technology in the Teaching of E-commerce Majors in colleges

3.1 Comprehensive layout, unified planning, and step-by-step progression

Currently, considering the characteristics of the courses and the applications in the industry and enterprises, AI drawing and image generation are the most accessible operations to introduce. These operations can be readily integrated with the course previously known as "Online Store Art Design," now called "E-commerce Visual Design," in the current e-commerce major's talent cultivation plan.

The next question is how to integrate AI drawing with "E-commerce Visual Design." Before the integration, the teaching logic of "E-commerce Visual Design" was to use the entire Photoshop software, starting from menus, submenus, and tools combined with the simplest cases, gradually transitioning from simple to complex operations. Through simple case-based teaching or task-based teaching methods, skill operations were integrated into specific, simple tasks, allowing students to learn the operations while completing the tasks. After class, students would repeatedly practice what they learned through assignments to enhance their operational skills.

The advantage of AI drawing is that it can generate images that match the trainer's text prompts. If the initially generated image is not satisfactory, the model can be further trained with step-by-step instructions for detailed modifications, ultimately producing a graphic that meets the user's needs. Therefore, drawing is a strength of AI.

Next, we can clearly identify the integration point between "E-commerce Visual Design" and AI drawing, which lies in the mature operation of AI drawing. In the graphic processing stage, there is a hybrid processing stage that combines existing graphics with AI technology, and this can be implemented through specific cases.

After successfully integrating "E-commerce Visual Design" with AI technology and completing the first semester of teaching, we can obtain first-hand feedback on the teaching reform of this semester, including student feedback, case studies, and teaching reflections. This feedback will provide practical insights for the second and third iterations of integrating "E-commerce Visual Design" with AI technology, allowing us to make grounded improvements and refine the application of AI technology in this course.

Once we have a successfully integrated course, the next one to schedule is "Web Editing," with a focus on video generation and video processing. Building on the successful integration of AI drawing with "E-commerce Visual Design," video generation and processing become more manageable to practice. The basic principles are the same: each image is controlled within 5 seconds, and by following a certain logic and meeting the requirements for the beginning and end, a complete video can be created. The logic behind AI's text-to-video capability is that AI technology utilizes existing short video clips or image materials from the internet to create a collage-style video. In this case, the video processing and generation in "Web Editing" can be introduced in the form of course, followed by AI text-to-video generation, and then refined using Premiere software to

enhance the AI-generated video.

As the ancients said, "Haste makes waste." While AI technology has improved human efficiency, it has also brought about security issues related to internet resources such as the copyright of images and videos on the internet. These risks need to be communicated to students as well, so that while they are mastering skills, they do not misuse AI's text-to-video function to achieve quick results without practicing their skills.

At this speed, "By taking one step at a time, one can travel a thousand miles." First, we should focus on the courses, gradually integrating them with AI technology one step at a time. Then, we can modify the question bank for skill assessments in the school's e-commerce major, followed by revisions to the school's e-commerce major talent cultivation plan and adjustments to the e-commerce major's training objectives, among other systematic tasks.

3.2 Concentrate on the courseware and teaching resources that have been verified through course evaluation, and select the best ones in batches for publication as textbooks for different courses

Based on the courseware obtained from the initial classes and the teaching resources used in the course preparation process, the e-commerce teaching team will collaborate to organize the materials and integrate the teaching resources on a course-by-course basis. They will then compile composite textbooks for courses such as AI Technology and "E-commerce Visual Design," AI Technology and "Web Editing," or further subdivided into AI Technology and Video Editing, AI Technology and Animation Processing, etc. These textbooks are intended for students majoring in e-commerce in higher vocational colleges, as well as those specializing in online marketing and e-commerce live streaming.

The compilation of textbooks is a year-long process that requires the joint efforts of the entire e-commerce teaching team. In the early stages of textbook compilation, it is necessary to collect a large amount of case studies and preliminary materials related to AI technology and its application in courses such as "E-commerce Visual Design," "Web Editing," and "Video Editing." This includes preparing a complete set of PPTs, materials, and cases as part of the preliminary preparation for online teaching resources, which involves a significant amount of work.

The compilation of textbooks requires the concentrated effort of the entire team, with one to two years dedicated to the creation of each textbook. Initially, the textbook serves as a school-based material for repeated practice, and based on feedback, the team moves on to the compilation of the next course's textbook. Throughout this process, AI technology and its large models in society are constantly evolving and upgrading, so the textbook development must keep pace with the changes in AI technology in the business world, undergoing upgrades and revisions accordingly. After the textbook is compiled, there are many subsequent time-consuming tasks, such as contacting publishers for publication.

The compilation of textbooks can be used by the entire e-commerce teaching team for professional title evaluation and can also be used by the school for applying to be included in the planned textbooks for vocational education. It is beneficial to individuals, teams, and the school.

3.3 The construction of a system for teaching assistances the integration of AI technology with courses, comprehensively promoting teaching

AI technology is currently a new field, and related companies have invested heavily in research and development costs that need to be recovered. Therefore, they often provide free usage for new users but with limitations, such as Wenxin Yige restricting free users to 10 usages per day, while foreign platforms like ChatGPT require new users to pay, with a lower initial fee and higher

subsequent charges. For web-based teaching that targets an entire class, it is necessary to purchase such services for each semester of the course. For graphic processing, domestic software like Wenxin Yige and foreign platforms like ChatGPT are used. For video processing, features like Douyin's text-to-video function are utilized. To produce high-quality videos, paid audio and material resources are required, which incur costs for the entire class. Therefore, schools need to purchase these services in their own name from Baidu or domestic software service providers as the foundational software for conducting courses.

3.4 Enhance the quality of the e-commerce teaching faculty to better serve e-commerce education

3.4.1 AI technology-related training to enhance teachers' knowledge, skills, and teaching abilities

Every summer and winter vacation, teachers are required to participate in provincial or national training programs. These training programs, through bidding processes, collaborate with well-regarded domestic training institutions and enterprises to provide teachers with the latest updates on AI technology in the industry. This is one of the excellent ways to enhance AI skills, although the number of spots allocated to each school each year is relatively limited.

Teachers can proactively learn AI-based courses such as AI drawing and AI video production on the Chinese University MOOC platform. They can then apply the skills and teaching methods they have learned to their e-commerce classroom teaching.

Furthermore, teachers can, on behalf of their schools, collaborate with e-commerce training institutions in their region or neighboring areas for training. By utilizing the practical training facilities of these institutions, resources can be mutually beneficial.

3.4.2 Classroom teaching enhances teaching skills, and teaching reflection in turn promotes teaching improvement

Practice is the sole criterion for testing. Whether it is good or not can be determined by trying it out in the classroom and observing the students' reactions. Even the best technology is only beneficial to students if they can learn and master it. During the classroom teaching process, teachers need to collect feedback from students after each class, including feedback on the difficulty level of cases, the operation process, the pace of progress (whether it is too fast or too slow), and the specific situation of students in each grade. This feedback forms the basis for teaching reflection, which helps to adjust subsequent classroom cases and progress, as well as to make adjustments to case selection, progress, and teaching plans for future semesters. These are invaluable first-hand practical materials that are tailored to the foundational level of students at the school.

3.4.3 College-enterprise cooperation for resource sharing to enhance the quality of talent cultivation

Students majoring in e-commerce have good employment prospects, whether locally or in regions like Shenzhen, Jiangsu, and Zhejiang. At the same time, e-commerce education needs to keep pace with the changes in the industry. E-commerce companies are adopting new technologies like AI-powered robotic customer service training and digital human live streaming, which are wide-ranging and cutting-edge. The initial purchase costs for such technologies are relatively high for schools. However, unlike businesses, schools cannot directly monetize the benefits. Therefore, schools can leverage opportunities for graduates to enter the workforce and for current students to gain practical experience in enterprises to strengthen technical cooperation, internships, and

employment partnerships with businesses. On the one hand, this allows schools to keep abreast of changes in enterprise demands and cultivate talent that meets the skill requirements of businesses. On the other hand, by utilizing internships and practical opportunities provided by businesses, students can gain real-world experience during their internship phase, enhancing their workplace skills.

4. Conclusions

The development of AI technology has impacted the entire e-commerce industry, which requires professionals to possess relevant skills. As higher education institutions that produce e-commerce talent, it is necessary to teach these industry-required skills to students through courses during their school years. This poses new requirements for today's e-commerce curricula and teachers, necessitating the incorporation of AI-related skills into the curriculum. Hence, this article is written from the perspective of schools, outlining how to integrate AI technology into courses and teach it to students.

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