

Original Research Article

Research on the reform and practice of computer course teaching in vocational colleges under the background of digital transformation

Fentian Li

The Tourism College of Changchun University, Changchun, Jilin, 130607, China

Abstract: In order to adapt to the needs of digital transformation for the training of computer talents in vocational colleges and solve problems such as the disconnection between course teaching and industry and the solidification of models, this article conducts practical research on the reform of computer course teaching. The study sorted out the urgency of reform, and clarified the difficulties such as lagging curriculum content and insufficient digital literacy of teachers. Based on the idea of "determining teaching based on job position, promoting learning through practice, and promoting reform through evaluation", the reform was promoted from the four aspects of content, model, teachers, and evaluation. Practice has proven that the reform effectively improves the adaptability of courses to positions and students' digital skills.

Keywords: digital transformation; computer basics; vocational schools; teaching reform

1. Introduction

Today, with the accelerated penetration of the digital economy and the iterative upgrading of industrial intelligence, digital transformation has extended from the industrial field to the education field, becoming the core engine and must-answer question rather than an option to promote the high-quality development of vocational education. As a key link between the education chain and the industrial chain, vocational education shoulders the important mission of cultivating "digital, compound, and high-skilled" technical talents. Its digital transformation process is directly related to the quality of talent supply and the effectiveness of industrial upgrading in the development of my country's digital economy. As the core basic courses and skills empowerment courses for various majors in vocational colleges, computer courses are not only the core carrier for cultivating students' digital literacy, but also an important bridge between digital technology and professional positions. The quality of their teaching directly determines whether vocational college graduates can adapt to the digital needs of industry positions in the new era and whether they can achieve high-quality employment and career development in the wave of the digital economy^[1].

Judging from the current practical situation, computer course teaching in some vocational colleges still uses the traditional teaching model, which is difficult to adapt to the dual needs of digital transformation and industrial upgrading. On the one hand, course content updates lag behind, focus too much on test-taking needs, and are out of touch with cutting-edge technologies such as cloud computing, artificial intelligence, and big data, and the practical applications of industry positions, resulting in a "disconnect" between the skills students learn and the needs of enterprises; on the other hand, the teaching model is solidified, and the indoctrination teaching of "teachers talk, students listen" is still common, and there is a lack of immersive and interactive practical teaching scenarios, making it difficult to stimulate the interest and initiative of vocational college students in practical learning^[2]. In addition, issues such as uneven distribution of practical training resources, insufficient digital literacy among teachers, and a single evaluation system further restrict the improvement of computer course teaching quality and fail to meet the digital economy's training requirements for high-quality technical and technical talents.

With the rapid development of artificial intelligence technologies such as DeepSeek, and the in-depth advancement of the concept of "integration of vocational and general education, integration of industry and education, and integration of science and education", the reform of computer course teaching in vocational colleges is imminent. The reform of computer course teaching in the context of digital transformation is not simply a matter of technology application or content update, but an all-round reconstruction of teaching

concepts, curriculum systems, teaching models and evaluation mechanisms, a deep integration of digital technology and teaching practice, and a connection between industry job requirements and the entire process of talent training^[3]. Nanning Sixth Vocational School's practical exploration of digital intelligence job-ready courses and the introduction of AI tools to empower teaching provide useful reference for the reform of computer courses in vocational schools and prove that students' digital skills and job adaptability can be effectively improved through teaching reform.

Based on this, this article is based on the background of digital transformation, combined with the current situation and dilemma of computer course teaching in vocational colleges, focusing on the core ideas of "determining teaching based on position, promoting learning through practice, and promoting reform through evaluation", and explores the practical path of computer course teaching reform, aiming to solve outstanding problems in traditional teaching and build a new digital teaching system that adapts to industry needs and fits student development^[4]. By integrating high-quality digital teaching resources, innovating teaching models, and improving teachers' digital literacy, the study achieves co-frequency resonance between computer course teaching and the development of the digital economy and industry job demands. It provides theoretical support and practical reference for vocational colleges to cultivate high-quality technical and technical talents with digital literacy, practical ability, and innovation ability, and assists the digital transformation and high-quality development of vocational education.

2. The urgency of teaching reform of basic computer courses

2.1. Information technology develops rapidly, and the original course content seriously lags behind the needs of the times

At present, new generation information technologies such as artificial intelligence, big data, cloud computing, Internet of Things, and mobile Internet have been deeply integrated into all fields of society. Traditional basic computer courses have long been focused on basic knowledge of computer hardware, Windows operations, Office software, etc., and have obviously failed to keep up with the pace of technological development. There is a clear disconnect between the knowledge students learn in school and future career scenarios and social information applications^[5]. The course content is outdated, the system is solidified, and updates are slow. It is no longer able to meet the basic requirements for talents' digital literacy in the new era. The reconstruction and upgrading of course content is imminent.

2.2. The starting point of students' information literacy is significantly different, and unified teaching is difficult to teach students in accordance with their aptitude

With differences in regional educational resources, family environments, and learning experiences, the computer foundation of college freshmen shows great imbalance. Some students have strong information retrieval, software use and network application capabilities, while some students still remain at the simple operation level. The traditional "one-size-fits-all" and "step-by-step" teaching model cannot meet the improvement needs of students with better foundations, nor can it take care of the learning rhythm of students with weak foundations, resulting in low learning efficiency and lack of interest in learning. Only through teaching reform and the implementation of hierarchical teaching and classified guidance can we truly realize teaching students in accordance with their aptitude^[6].

2.3. The ability requirements of employers have been upgraded, setting higher standards for digital skills and comprehensive literacy

When recruiting, modern industries and companies no longer only value basic office software operations, but also emphasize students' information acquisition and screening abilities, data processing and analysis abilities, digital tool application abilities, problem-solving abilities, and team collaboration abilities. However, traditional basic computer courses focus on "operational skills training" and ignore the cultivation of thinking training and application ability, resulting in students who can only operate but not apply, and can only imitate and not innovate. Curriculum reform is a key measure to improve students' employment competitiveness and meet society's demand for high-quality applied talents.

2.4. The digital transformation of education is in full progress, and traditional teaching models are difficult to adapt to modern teaching requirements

With the widespread application of new models such as smart classrooms, online teaching platforms,

blended teaching, flipped classrooms, and task-driven teaching, the traditional classroom model based on "teachers teaching and students practicing" has become single and inefficient^[7]. Students' learning habits tend to be more fragmented, autonomous, and interactive, and it is difficult for traditional classrooms to stimulate learning initiative. Promoting teaching reform and building a new teaching model that integrates online and offline, process-based evaluation, and diversified assessments have become an inevitable choice to improve teaching quality and efficiency.

2.5. Curriculum positioning is not compatible with talent training goals, and there is an urgent need to shift from tool courses to quality courses

In the context of higher education in the new era, computer basics is no longer a simple "tool course", but a core general education course that improves all students' information literacy, computational thinking, and innovation abilities. However, most colleges and universities still position it as a "software operation course", emphasizing skills but not thinking, emphasizing application but not theory, and emphasizing results but not process, which does not match the school's goal of cultivating compound and innovative talents^[8]. Only through systematic teaching reform can the status and educational value of courses be truly enhanced.

3. Practical paths for computer course teaching reform under the background of digital transformation

Computer courses in vocational colleges thoroughly implement the spirit of the National Education Work Conference, strictly implement the requirements of the "14th Five-Year Plan for Digital Economy Development", actively promote the in-depth integration of digital technology and classroom teaching, carry out digital transformation teaching practices, and reconstruct a new digital teaching ecology.

3.1. Build a new model of digital teaching

The teaching model is an overall teaching method in which teachers guide students to achieve teaching goals in a specific way. New digital teaching models, improve the quality of talent training, fully expand new scenarios of digital application of vocational education, integrate digital teaching throughout the entire process of computer course teaching and learning, follow the rules of students' professional ability formation and cognitive development rules, based on digital teaching conditions, starting from the needs of computer positions, combined with actual teaching conditions, theory and practice go hand in hand, the trinity of "teaching, learning, and doing", according to different teaching content, explore teaching models such as PBL, online and offline hybrid teaching based on Learning Communication, divided classrooms, and scaffolded teaching. Build a new digital teaching model and implement action-oriented teaching with real work cases as the teaching carrier, organically combining imparting knowledge, cultivating abilities, improving quality and shaping personality. The computer teaching model must be consistent with the teaching objectives.

3.2. Build a digital course ideological and political library

Under the guidance of the implementation concept of digital transformation to empower ideological and political courses in colleges and universities, focusing on the main battlefield of course construction, in accordance with the relevant requirements of the "Guidelines for the Construction of Ideological and Political Curriculum in Colleges and Universities", combined with the integration points of digital transformation to empower ideological and political courses in colleges and universities, based on the characteristics and advantages of computer majors We should deeply explore and refine the ideological value and spiritual connotation contained in the courses, build a digital professional course ideological and political library, and condense the ideological and political main line of the "three spirits and three consciousnesses" (craftsman spirit, labor spirit, scientific spirit, law-abiding awareness, integrity awareness, and innovation awareness). Grasp the main channel of classroom teaching, select ideological and political education carriers according to teaching tasks and teaching processes, and integrate ideological and political elements through story introduction, case analysis, report interpretation, animated videos, etc., optimize the ideological and political content of the course, improve the ideological and political education effect of the course, and realize core values. At the same time, we cultivate students' awareness of data security, privacy confidentiality, integrity and law-abiding; help students establish a scientific and dialectical computer thinking model; cultivate students' rigorous and meticulous spirit of great country craftsmen who strive

for excellence; enhance their sense of professional happiness and identity, educate and guide students to improve their spiritual cultivation and value pursuit, and achieve the goal of educating people.

3.3. Digitization of teaching content

Teachers should pay close attention to the latest developments and practical needs of computer talents in the era of digital transformation, and actively learn new knowledge, new methods, new software and other cutting-edge knowledge about digital technology. On the other hand, professional teaching standards based on digital transformation and professional talent training plans for digital development are formulated, combined with the requirements of the computer skills competition and 1+X professional skill level standards, and the on-the-job course competition certificate is highly integrated to build digital competency teaching content.

3.4. Accurately analyze academic data, formulate three-dimensional teaching goals, and clarify key points

In the era of digital transformation, students' academic status should be accurately analyzed based on big data and the educational role of big data should be fully utilized. With the help of questionnaires and online tests, students' learning behavior data are collected throughout the entire process through Xuexuetong. According to the students' learning situation, Bloom's goal taxonomy is set to complete the construction of a three-dimensional teaching goal system.

3.5. Build a digital intelligent comprehensive evaluation system

Teaching effect evaluation is the touchstone of course teaching quality. Based on the characteristics of the course, we analyze the positions of computer majors, clarify the requirements for job knowledge, ability, and literacy, and build a "three-element and five-dimensional" digital intelligent comprehensive evaluation system, that is, the evaluation of school teachers, corporate teachers, and students on the five dimensions of theoretical knowledge, professional skills, communication expression, teamwork, and professional ability, forming a process evaluation that combines intelligent evaluation with subjective evaluation. At the same time, a high-quality platform is used to collect student behavior data, fully understand the academic situation at all stages before, during and after class, and understand, master and evaluate students' learning foundation, learning status and learning results. Let data empower learning analysis, achieve learning-based teaching, teach students in accordance with their aptitude, and use evaluation to promote teaching. Conduct a comprehensive evaluation of students' professional abilities to effectively improve "teaching" and "learning".

4. Conclusion

Based on the background of digital transformation, this article focuses on issues such as the disconnection between computer course teaching in vocational colleges and industry needs and the solidification of teaching models, and conducts practical research on teaching reform. This article mainly promotes reform from four aspects: Optimizing course content, innovating teaching models, strengthening teacher construction, and optimizing evaluation mechanisms. Practice has shown that the reform has effectively improved the adaptability of courses to positions, enhanced students' digital skills and job adaptability, and achieved resonance between education and industry. This reform still has problems such as insufficient integration of cutting-edge technologies and insufficient school-enterprise collaboration. In the future, we will focus on shortcomings, deepen the integration of industry and education, continue to optimize the teaching system, and help implement the digital transformation of vocational education.

Fundings

Changchun University School of Tourism's 2024 Vocational Education and Adult Education Teaching Reform Research Topic[1] ("Research on the Reform and Practice of Computer Course Teaching in Vocational Colleges under the Background of Digital Transformation");

Jilin Province's key self-funded higher education research projects in 2025 [JGJX25C313] (Research on the reform of hybrid teaching model of basic computer courses based on OBE concept under the background of artificial intelligence);

Scientific research project of Jilin Provincial Department of Education [JJKH20260528SK] (Practical

research on the ideological and political construction of computer courses under the "BOPPPS + divided classroom" teaching model).

References

- [1] Guo Xiangyu, Zhou Haiyan. Evaluation of higher vocational education school-enterprise community with a shared future System research[J]. Education and Occupation, 2023(5): 73-78.
- [2] Zhang Siqi, Kuang Ying. The new positioning, characteristics and promotion strategies of the integration of science and education in vocational education [J]. Vocational Education Forum, 2023, 38(5): 5-12.
- [3] Tan Qianfang. Research on strategies to improve the quality of online courses in higher vocational colleges [J]. Journal of Higher Education, 2023, 9(10): 84-88.
- [4] Wu Linglin. Research on strategies to improve the quality of online courses under the background of digital transformation - taking computer courses in higher vocational colleges as an example [J]. Journal of Hubei Open Vocational College, 2024, 37(24): 153-155.
- [5] Xu Shuangshuang, Li Chunyu. Thoughts on the teaching of basic computer courses in higher vocational colleges based on curriculum standards [J]. Journal of Liaoning Higher Vocational Schools, 2021, 23(06): 47-51.
- [6] Xu Ziyuan. Exploration and practice of digital transformation of electronic information major courses in vocational colleges - taking the electronic information comprehensive project course as an example [J]. Electronic Components and Information Technology, 2025, 9(11): 281-284.
- [7] Wei Ying. Exploration of service innovation paths for computer application technology professional groups in higher vocational colleges under the background of digital transformation [J]. Computer Knowledge and Technology, 2025, 21(22): 118-121.
- [8] Wang Chunying. Research on strategies to improve the digital teaching capabilities of higher vocational teachers in the era of digital intelligence [D]. Guangdong Technical Normal University, 2025.