

Research on the Role Transformation and Adaptation Strategies of Teachers in Higher Vocational Colleges Driven by Artificial Intelligence

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Abstract: With the rapid development of artificial intelligence (AI) technology, the ecological environment of vocational education has undergone significant changes. As important subjects of education, teachers in higher vocational colleges are facing pressure to restructure their traditional roles. Based on this, higher vocational colleges need to leverage AI technology to promote the transformation of teachers' roles, help them adapt to the new educational environment, and thereby enhance the effectiveness of talent cultivation. From the perspective of teachers in higher vocational colleges, this study analyzes the problems faced in their role transformation and proposes specific adaptation strategies. It aims to promote the development of teachers in higher vocational colleges, accelerate the pace of their role transformation, and further contribute to the high-quality development of higher vocational education.

Keywords: Artificial intelligence; Higher vocational teachers; Role transformation; Adaptation strategies

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1. Introduction

With the increasing integration of AI technology, the traditional education system has gradually undergone systematic changes. Vocational education, including the approaches to cultivating technical and skilled talents, the construction of curriculum systems, and the arrangement of evaluation mechanisms, is closely aligned with the current industrial development status and is encompassed by the dual effects derived from AI. Based on this, in practical teaching activities, the relevant attributes, capabilities, and work content of teachers urgently need to be re-analyzed and modified. During the intelligent reform, some teachers in higher vocational colleges have more or less encountered problems such as cognitive lag and lack of initiative in integrating "resources", leading to obstacles in the advancement of modern educational methods in colleges and universities. Systematically exploring the process of role transformation and adaptation strategies of teachers in higher vocational colleges

driven by AI is of important academic and practical significance. This paper intends to present the current difficulties faced by teachers in higher vocational colleges in their role transformation, and propose feasible support systems and action directions in accordance with the development trend of education, providing reference for teacher training and educational reform in higher vocational colleges.

2. Main problems faced by teachers in higher vocational colleges in role transformation

The rapid advancement of AI technology has not only promoted the innovation and transformation of educational tools and resource forms but also brought new requirements for teachers' identity cognition, functional division, and career development direction. In the field of higher vocational education, teachers encounter many difficulties in responding to this transformation:

2.1. Ambiguous role cognition and unclear transformation direction

At present, the understanding of AI technology in the education sector mostly remains at the level of a "teaching auxiliary tool", lacking a profound understanding of the far-reaching impact of AI on curriculum design, teacher-student interaction methods, and the achievement of educational goals^[1]. Some teachers have not formed a complete awareness of role transformation, and have not fully recognized the importance and urgency of transforming from traditional knowledge transmitters to learning ecosystem builders, human-machine collaborative instructors, and innovative ability cultivators. This cognitive limitation has led to confusion in teachers' career development paths^[2].

2.2. Insufficient AI literacy and weak teaching application capabilities

Most teachers in higher vocational colleges have not received systematic AI theory and technical training. As a result, they are not proficient in new teaching tools such as various intelligent teaching platforms, data analysis tools, and virtual simulation systems, with low operational application levels^[3]. This greatly limits teachers' ability to use AI to assist personalized teaching, conduct process evaluation, and design cross-situational learning activities. Teachers also face difficulties in deeply integrating AI technology with their professional courses, lacking sufficient knowledge and experience accumulation to proactively develop and establish up-to-date new curriculum materials and teaching projects, which affects the quality improvement and innovative development of higher vocational education. This lack of ability also makes teachers unable to effectively guide and inspire students when faced with AI-related questions. At the same time, in the teaching process, teachers find it difficult to fully utilize AI technology to optimize teaching processes, such as real-time adjustment of teaching strategies based on students' learning data, accurate identification of students' weak links, and provision of targeted tutoring^[4], thereby affecting the overall improvement and innovative breakthrough of teaching quality in higher vocational education.

2.3. Lack of collaborative mechanisms and insufficient support for teaching innovation

Currently, higher vocational colleges have not established an efficient collaborative working mechanism of "professional teachers - AI technicians - enterprise mentors". Teachers often work independently in teaching and curriculum development, and it is difficult for them to obtain sufficient technical support, resource sharing, and in-depth cooperation opportunities for curriculum co-construction^[5]. At the same time, interdisciplinary and

cross-field teaching innovation communities have not been popularized and promoted. As a result, when teachers attempt to carry out innovative practices such as human-machine collaborative teaching and the development of intelligent training projects, they often lack stable team collaboration support and systematic institutional guarantees, which restricts the improvement of teaching quality and the innovative breakthrough of talent training models^[6].

2.4. Outdated evaluation system and lack of motivation for transformation

At present, the performance evaluation of teachers in higher vocational colleges still adopts traditional methods, mainly judging based on quantitative data such as classroom teaching hours, the number of published papers, and the level of scientific research projects. Although it can reflect teachers' basic workload to a certain extent, it is difficult to fully measure their contributions in practical operations such as intelligent teaching implementation, digital curriculum resource creation, and AI technology integration and innovation. The lack of a systematic assessment system and incentive policies limits the enthusiasm of some teachers to participate in educational informatization reform, which will have a negative impact on the overall quality improvement and sustainable development of higher vocational education^[7].

3. Role transformation and adaptation strategies of teachers in higher vocational colleges driven by AI

3.1. Construct a hierarchical and classified AI literacy development system

Teachers' AI literacy is a key factor driving role transformation. Colleges and universities should form a comprehensive system of "cognition - knowledge - skills - ethics" according to differences in disciplinary attributes and teachers' career development cycles, and implement differentiated training programs based on this framework. At the popularization level, universal AI education practice courses should be carried out for all faculty and staff, focusing on cultivating their awareness of intelligent teaching and teaching basic AI tool operation methods, thereby consolidating the foundation for digital application in daily classroom teaching^[8]. At the professional level, special seminars should be held for the person in charge of each department and core faculty to conduct in-depth exploration of professional course integration and renewal strategies, guiding teachers to explore teaching model innovation paths relying on AI technology, and further improving their interdisciplinary academic integration capabilities^[9]. At the top-level planning level, efforts should be made to cultivate a group of leading talents in teaching innovation who integrate AI technology with disciplinary characteristics, encouraging them to explore cutting-edge issues in intelligent education, systematically establish teaching paradigms that meet the needs of the times, and timely summarize and promote excellent practical results to play a typical leading role. Colleges and universities should incorporate AI literacy into a key part of the teacher career development system, establish a long-term training mechanism and professional certification system, and promote the continuous development of the teacher group in the intelligent educational environment. By regularly organizing AI teaching competitions and demonstration class display activities, teachers are encouraged to actively participate in the practical exploration of integrating AI technology with courses^[10]. At the same time, establish an inter-school resource sharing platform to promote the exchange of AI education experience between different colleges and universities and broaden teachers' horizons. In response to technical difficulties encountered by teachers in practical teaching, a dedicated technical support team was set up to provide timely and effective help. In addition, encourage teachers to participate in domestic and foreign AI

education seminars, understand the latest development trends, absorb advanced experience, and continuously improve their professional level. Through these measures, a virtuous cycle is gradually formed to promote the overall development of the teaching team in an intelligent direction ^[11].

3.2. Build an open and collaborative AI education platform

Colleges and universities should coordinate and integrate school-enterprise cooperation resources, and jointly build an intelligent education platform system integrating elements such as “technical tools, educational resources, data support, and service guarantees”, comprehensively promote the innovation of teaching models, and provide systematic support for the development of educational modernization. The main components of the platform include the following aspects: The integration of intelligent teaching tools should rely on a unified intelligent education platform. The platform should have functional modules such as dynamic learning situation monitoring, personalized learning path planning, immersive virtual practice environment, and diversified evaluation feedback. The purpose of the system is to help teachers improve the classroom teaching process, enhance teaching accuracy and interactive experience, and promote the improvement of teaching quality ^[12]. The construction of the curriculum resource sharing platform should focus on building an AI teaching case library, a high-simulation virtual practice resource library, and an interdisciplinary comprehensive curriculum module system, providing teachers with various high-quality teaching materials, and allowing them to carry out personalized adaptation and innovative development of resources according to actual conditions. In the construction of the teaching process data platform, it is necessary to comprehensively collect and conduct in-depth analysis of classroom teaching behavior data and student learning process data. With the help of data visualization and intelligent interpretation, provide teachers with objective and scientific empirical support, helping teachers accurately diagnose teaching problems and continuously improve teaching strategies and implementation plans. The online teacher development community should strive to create a cooperative platform across regions and institutions, encouraging educators to carry out various interactive activities such as experience exchange, teaching reflection, collective lesson preparation, and scientific research cooperation, and creating an open, inclusive, win-win, and sustainable professional growth ecosystem ^[13].

3.3. Create a “Teacher - AI - industry” collaborative development community

Build a multi-subject collaborative teacher development ecosystem, and steadily improve the professionalization level of the teaching staff through innovative mechanisms and cooperation platforms: Construction of on-campus interdisciplinary teams. Vigorously advocate and support the establishment of teaching innovation practice groups composed of subject professional teachers, AI R&D personnel, education experts, and other multi-subject participants. Relying on the integrated advantages of knowledge in different fields, collaboratively promote forward-looking curriculum design, innovative teaching methods, and the implementation of systematic reform pilots, so as to effectively integrate traditional classrooms with modern information technology ^[14]. School-enterprise collaborative teaching and research mechanism. Proactively cooperate with leading enterprises in the industry and technological innovation enterprises to jointly build an “AI + vocational skills” training and practice platform. Both parties should jointly develop dynamically updated and practically needed loose-leaf textbooks and digital teaching resources, carry out applied technology research and development and scientific research achievement transformation, and help teachers timely understand the cutting-edge trends in industrial intelligent transformation and the development of new formats. Regional teacher development alliance. Through the establishment of inter-school collaborative cooperation platforms, famous teacher guidance studios, thematic

seminars, practical training, and other methods, build an open and shared intelligent education ecological community. With successful teaching models and typical practical experiences as the main content of widespread dissemination, form a good atmosphere for teachers to interact positively, help each other, and develop together. At the same time, focus on building a long-term feedback and optimization mechanism to ensure the continuous vitality of the collaborative development community. By regularly conducting effect evaluations and demand surveys, timely adjust cooperation directions and key tasks, so that teachers can always maintain sharp adaptability and innovative ability in the dynamically changing educational environment.

3.4. Reform the teacher evaluation and incentive mechanism

Establish a teacher evaluation system matching the development of intelligent education, incorporate important factors such as AI teaching application capabilities, digital curriculum development achievements, and teaching innovation practices into the evaluation index system, and set up a special incentive mechanism for “intelligent teaching reform” to encourage teachers to actively embrace educational technology changes. In professional title evaluation, post appointment, performance distribution, and other links, fully recognize teachers’ contributions in intelligent education, so as to comprehensively mobilize teachers’ enthusiasm and initiative for transformation. Provide sufficient resource inclination, reasonable time guarantee, and continuous professional support for teachers participating in teaching reform, truly reduce the potential risks and actual burdens that teachers may encounter in the innovation process, and ensure the smooth progress of the reform^[15]. At the same time, pay attention to the dynamic adjustment of the evaluation mechanism, and regularly optimize evaluation standards and incentive measures in combination with the development trend of intelligent education and teachers’ actual needs. By introducing multiple evaluation subjects, such as student feedback, peer review, and industry expert evaluation, the study ensures that the evaluation results are more comprehensive and objective.

4. Conclusion

In summary, as a major source of technological innovation, AI is comprehensively changing the overall structure of the vocational education ecosystem. Teachers in higher vocational colleges must break through traditional barriers and achieve all-around development in terms of ideological improvement, ability enhancement, and collaborative improvement. Schools need to establish a complete chain support system, including literacy improvement, technology and community building, and mechanism innovation, enabling them to transform from one-way indoctrination to intelligent guidance. Only in this way can the maximum value of AI be exerted, cultivate technical and skilled talents that meet the needs of industrial transformation and upgrading, and drive vocational education towards a path of high-quality development. Higher vocational colleges also need to explore in-depth research on areas such as the planning of AI education evaluation indicators, the exploration of human-machine collaborative teaching methods, and the construction of intelligent codes of conduct, to provide practical implementation guidance and theoretical support for teachers to adapt to the digital environment.

Disclosure statement

The author declares no conflict of interest.

References

- [1] Wu X Q, 2025, Innovative Research on the Composition Model of Teachers' Intelligent Education Literacy in Higher Vocational Colleges — A Case Study of the Big Data Professional Group in Ezhou Polytechnic. *Talent & Intelligence*, (07): 169–172.
- [2] Hu M, Liu JJ, 2025, Reflections on the Role Transformation of Higher Vocational Teachers Under the Background of Generative Artificial Intelligence. *Modern Vocational Education*, (07): 57–60.
- [3] Chen SW, 2024, Practical Challenges and Direction Choices for the Teaching Development of Higher Vocational Teachers in the AI Era. *Vocational and Technical Education*, 45(35): 56–60.
- [4] Yang Z, 2024, Research on the Role Transformation and Ability Improvement of Higher Vocational Teachers in the AI Era. *Digital Communication World*, (11): 220–222.
- [5] Han Y, 2024, Research on the Development Path of AI-Enabled “Dual-Qualified” Teachers in Higher Vocational Colleges Under the “Double High” Background. *Taste · Classic*, (03): 87–89.
- [6] Wang Y, 2023, Research on the Improvement Strategies of Digital Literacy of English Teachers in Higher Vocational Colleges in the AI Era. *English Teachers*, 23(22): 51–54.
- [7] Yan YJ, 2023, Investigation and Analysis of the Current Situation of English Teachers' Use of AI-Assisted Teaching Tools in Higher Vocational Colleges. *Overseas English*, (16): 228–231.
- [8] Qiu J, 2023, Current Situation and Countermeasures of AI Technology Promoting the Improvement of Teaching Capabilities of Higher Vocational Teachers. *China-Arab States Science and Technology Forum (Chinese & English)*, (03): 138–141 + 146.
- [9] Liang CX, 2022, Innovative Paths for the Clusterized and High-Quality Development of Higher Vocational Teachers Under the Background of Educational Informatization 2.0. *Vocational Education Forum*, 38(09): 70–78.
- [10] Wen SY, 2022, Research on the Development and Application of Online Courses in Higher Vocational Colleges Based on AI Technology. *Science & Technology Economy Market*, (07): 142–144.
- [11] Ni M, 2021, Thoughts on Teaching Management of Higher Vocational Education Under the Background of AI Technology. *Invention & Innovation (Vocational Education)*, (06): 203–204.
- [12] Shang YQ, Pan WW, Tong H, et al., 2021, Research on the Essential Literacy and Realization Paths of Higher Vocational Teachers in the AI Era. *Scientific Consult (Education and Research)*, (20): 42–43.
- [13] Zhang WW, 2021, Professional Growth Paths of Higher Vocational Teachers Under the Background of the AI Era. *Journal of Hubei Open Vocational College*, 34(06): 21–22.
- [14] Ling SS, 2020, Current Situation and Countermeasures of Teaching Reform in Higher Vocational Accounting Majors Under the Background of AI — Based on a Survey of Enterprise Accountants and Accounting Teachers in Higher Vocational Colleges. *Guangxi Education*, (31): 64–67.
- [15] Yuan NY, 2020, Analysis of the Professional Development Characteristics of Higher Vocational Teachers Under AI. *Education Modernization*, 7(14): 100–102.

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