

Construction of Teaching Innovation Teams of “Dual-Qualification” Teachers in Mechanical and Electrical Majors under the School-Enterprise Cooperation Model

Jianming Feng*

Xinjiang Light Industry Technical College, Urumqi 830021, Xinjiang, China

**Author to whom correspondence should be addressed.*

Copyright: © 2025 Author(s). This is an open-access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), permitting distribution and reproduction in any medium, provided the original work is cited.

Abstract: With the advancement of economic globalization and the upgrading of industrial structures, the value of higher education in talent cultivation has become increasingly prominent. The construction of “dual-qualification” teacher teams is a crucial link in promoting educational work in colleges and universities. Schools should attach importance to teacher training to adapt to the current educational situation. Under the school-enterprise cooperation model, building “dual-qualification” teacher teams for mechanical and electrical majors helps ensure teaching mechanisms and provides support for the reform and innovation of higher education. Based on this, this paper conducts an in-depth study on the construction of teaching innovation teams of “dual-qualification” teachers in mechanical and electrical majors under the school-enterprise cooperation model, for reference.

Keywords: School-enterprise cooperation; Mechanical and electrical majors; “Dual-Qualification” teachers; Innovation teams; Teacher training

Online publication: October 21, 2025

1. Introduction

Against the backdrop of school-enterprise cooperation, schools and enterprises cultivate talents through cooperative models such as work-study alternation. This not only provides students with more opportunities for learning and practice but also delivers more high-quality talents to enterprises. To ensure the effective implementation of talent cultivation, schools and enterprises have built a “double-qualified” teaching team. This team imparts cutting-edge theories and practical skills to students, further promoting their all-around development. To deepen the process of teaching reform in colleges and universities, schools should strengthen school-enterprise cooperation, focus on the construction of teaching teams, and promote the high-quality development of higher education.

2. Connotation and characteristics of “Dual-Qualification” teachers

2.1. Connotation

“Dual-qualification” teachers refer to full-time and part-time teachers in the university who hold a teaching qualification and meet at least one of the following conditions:

- (1) Possessing an intermediate or higher professional technical title (including intermediate level) and professional qualifications in their field (such as being a professional skill assessor or holding industry-authorized qualification certificates), and having presided over or participated in on-campus teaching practice projects in the past five years, which are at an advanced level among similar institutions in the province.
- (2) Having more than two years of working experience in frontline positions of their profession in enterprises within the past five years, and being capable of guiding students in professional practice and training activities.
- (3) Having presided over or participated in applied technological research achievements in the past five years, which have been adopted by enterprises and achieved good benefits ^[1].

2.2. Characteristics

(1) Professionalism

A team of dual-qualification teachers should possess solid disciplinary knowledge, research expertise, practical experience, and industry-specific knowledge. They form a development community to carry out scientific and systematic teaching practices, providing stronger support and guarantees for educational work and promoting students’ all-round development.

(2) Collaboration

The shift from individual dual-qualification to team-based dual-qualification represents a transformation in the structure and functions of the teaching staff, with collaboration being the key to team building. Establishing a teacher community that shares knowledge and skills can break the limitations of traditional teaching, better realize the sharing of teaching concepts and methods, and achieve teaching goals through division of labor and collaboration.

(3) Innovation

High-quality education requires corresponding teaching organizations. Compared with traditional theoretical teaching, the teaching teams of university “dual-qualification” teachers have built their teaching organizations based on professional needs. They reconstruct professional teaching clusters according to industrial chain and value chain demands, thereby ensuring internal collaboration ^[2].

3. Significance of building a “Dual-Qualified” teaching team for mechanical and electrical majors under the school-enterprise cooperation model

The construction of a “dual-qualified” teacher team serves as an important approach to promote high-quality development of teaching. Meanwhile, “dual-qualified” teachers in colleges and universities are also a practical need for college students to improve their comprehensive quality and abilities. In the context of the information age, various cultures interweave, and students’ values and ways of thinking have also changed. For this reason, under the school-enterprise cooperation model, mechanical and electrical majors should attach importance to the construction of “dual-qualified” teacher teams, cultivate high-quality talents, and address the current issue of low

educational efficiency.

3.1. Deepening school-enterprise cooperation

Against the backdrop of scientific and technological innovation and development, manufacturing enterprises have begun to move towards digitalization and intelligence. However, talent training should not deviate from enterprise production, as this may lead to aimless educational reforms. In this context, it is necessary to strengthen the construction of teacher teams, establish a new-era school-enterprise cooperation education mechanism, and further tap the potential of school-enterprise cooperation through the sharing of resources such as information, technology, and talents, thereby promoting educational development. In the process of innovating teaching methods and models for mechanical and electrical majors, the team should construct an interactive talent training model, establish multi-party cooperation relationships, clarify the requirements of enterprises and industries for mechanical and electrical talents, and then carry out teaching work in accordance with talent training requirements, further strengthening students' practical abilities to provide support for the long-term development of enterprises ^[3].

3.2. Promoting educational reform

For higher education, teachers are an important educational force. Building a “dual-qualified” teacher team can fully integrate advanced theories with practice, continuously update teaching content, enrich educational and teaching experience, create innovative educational models, and put forward higher requirements for the implementation of educational reform. If colleges and universities want to achieve the goal of talent training, they need to build a high-quality “dual-qualified” teacher team to further improve the quality and effectiveness of teaching, adapt to the development requirements of the new era, and build a teacher team with teaching qualifications and professional skills, which is also conducive to the development of teachers' own quality and abilities. Therefore, the construction of a “dual-qualified” team in colleges and universities is particularly crucial ^[4].

3.3. Improving the quality of talent cultivation

Building a “dual-qualified” teaching team helps to enhance the innovation ability of teachers in mechanical and electrical majors, thereby ensuring the quality and effectiveness of teaching and achieving good talent cultivation results. The knowledge system of mechanical and electrical majors is relatively complex, involving rich teaching knowledge ^[5]. College students may encounter difficulties in the learning process. However, “dual-qualified” teachers have solid theoretical knowledge and rich practical operational abilities. By introducing new educational concepts and methods in teaching, they can help guide students at different levels to choose appropriate professional learning content and methods according to their career development needs, further cultivating talents with a solid foundation to better serve local development.

4. Paths for building an innovative teaching team of “Dual-Qualification” teachers in mechanical and electrical majors under the school-enterprise cooperation model

4.1. Establish alliance organizations and optimize talent cultivation work

For the teaching work of mechanical and electrical majors in colleges and universities, strengthening the construction of dual-qualification teaching teams requires focusing on cooperation between schools and enterprises, establishing a sound cooperative relationship, and thus implementing the requirements of industry-

education integration. Specifically, it involves introducing authoritative experts and technically competent backbones from the industry to serve as mentors in schools, building an educational team led by renowned teachers, promoting the construction of innovative teams, guiding teacher training, and forming a hierarchical teaching team. The teaching team can be divided into professional innovation teams, structured teaching teams, and craftsman teams ^[6].

The professional innovation team focuses on solving development problems in the mechanical and electrical industry and innovating professional talent cultivation methods. Through an integrated connection mechanism between schools and enterprises, talents with industry background and experience in the mechanical and electrical field are invited to form a teaching team with the school's backbone teachers. This enables in-depth discussions on key issues in teaching, ensuring that professional construction aligns with the needs of industrial transformation and upgrading. The structured teaching team is formed from the perspective of integrating positions and courses. It absorbs outstanding industrial mentors and backbone teachers to participate in professional curriculum development, further promoting the reform and innovation of teaching materials. To ensure the team's overall level, schools should promote the reform and innovation of mechanical and electrical teaching materials through school-enterprise collaboration. The structured team builds its faculty based on the alignment of positions and courses, widely recruiting industrial mentors and backbone teachers to teach according to production needs, thereby guaranteeing the quality and effectiveness of teaching. Additionally, schools should select high-quality, high-skilled talents from the industry as technicians through school-enterprise cooperation to form an integrated teaching team. The craftsman team is built by absorbing skilled craftsmen and master technicians from the industry, jointly forming a high-level educational team. They collaborate on a series of mechanical and electrical-related innovative practical activities, integrate professional teaching resources for talent cultivation, and achieve corresponding teaching goals ^[7,8].

4.2. Integrate talent resources and build diversified innovative teams

Schools should strengthen cooperation with enterprises, integrate various talent resources, and build a professional teaching team consisting of professional leaders, backbone teachers, industrial mentors, and skilled craftsmen. Through division of labor and collaboration, a team cluster is formed to ensure the structure and hierarchy of team talents, promote teaching work, and support professional team construction.

For the innovative teaching team of "dual-qualification" teachers, considering the varying knowledge levels, industry backgrounds, and work experience of team members, it is necessary to promote the reform of mechanical and electrical teaching and adopt diversified training models to improve the team's overall level, ensuring members remain in a good teaching state. Professional leaders should focus on the construction of team engineering projects, establish master studios, conduct new technology research and skill inheritance, and promote teachers' participation in various practical projects through school-enterprise cooperation to enhance their professional competence and teaching abilities. For teachers in the innovative teaching team, the "excellence in craftsmanship" training project should be actively implemented. This requires teachers to form complementary pairs, conduct in-depth research on talent demand in local advanced manufacturing clusters, gain a better understanding of current production conditions in enterprises, accumulate rich industry experience, and lay a solid foundation for their in-depth participation in the construction of mechanical and electrical majors ^[9-11].

4.3. Build online platforms to boost industry development cooperation

To ensure the comprehensive practical capabilities of the "dual-qualification" teacher innovation team, enterprises

should collaborate to establish an integrated online-offline service mechanism to support the team's innovative practices. On one hand, schools should strengthen cooperation with enterprises to build certification and training bases for teachers and students of mechanical and electrical majors, organizing them to participate in training and internships at these bases. This helps improve teachers' comprehensive qualities through training resources. Moreover, schools should effectively utilize various enterprise resources to deeply participate in technological research and development projects, arrange teachers to engage in scientific research and technology-related work, collaborate in upgrading enterprise mechanical and electrical equipment, promote enterprise technology and product upgrading, and further enhance teachers' research and practical capabilities. Colleges and universities should also focus on building talent cultivation bases, such as regional industrial robot centers, introduce local robot centers, establish mechanical and electrical technology and product research teams, carry out multiple technical research projects, and organize teachers and students to participate in mechanical innovation design competitions, providing more support for teaching. On the other hand, colleges and universities should effectively apply various information technologies to build online service platforms such as smart classrooms and smart campuses. They should use information-based reflection tools to assist teachers in teaching, thereby promoting professional teaching reform and ensuring teaching quality and effectiveness ^[12].

4.4. Strengthen system construction and promote teachers' all-round development

To effectively ensure the quality and effectiveness of teacher team construction, a more scientific and sound educational management system should be established. This system will encourage teachers to actively participate in teaching training and research activities, supervise their teaching work, and improve their professional competence. Establish a clear responsibility system to define the roles of members in the innovative teaching team, grant autonomy to teachers in various positions, and separate academic and administrative powers to ensure teachers' active participation in team construction activities. Colleges and universities should build a more scientific and improved school-enterprise cooperation management mechanism to ensure that both parties collaborate in building teacher teams, establish a two-way flow mechanism, and form a sound teacher structure system. In terms of teacher training and management, a clear division of responsibilities should be established to ensure multi-party participation in educational practice activities and the rationality of the teaching team ^[13–15].

5. Conclusion

To sum up, in the context of school-enterprise cooperation, building a “double-qualified” teacher team requires giving full play to the advantages of schools, as well as using enterprises' production environments and resources to train teachers. This can improve teachers' professional quality and abilities, enrich their theoretical knowledge, and enhance their professional skills through practical training, thereby enabling them to better guide teaching work. For the mechanical and electrical major, efforts should be made to build a teacher team based on the characteristics of industrial development, carry out differentiated training, improve the overall quality and capabilities of the team, and perfect the power and responsibility mechanism to urge teachers to continue learning and developing.

Disclosure statement

The author declares no conflict of interest.

References

- [1] Wang Y, Liu N, Wang L, et al., 2025, Research on the High-Quality Development of “Dual-Qualification” Teacher Teams in Vocational Education: Based on the Construction of School-Enterprise Cooperation Skill Master Studios in Higher Vocational Colleges. *Vocational Technology*, 24(3): 67–71 + 82.
- [2] Chen X, 2024, Research on the Construction of “Dual-Qualification” Teacher Teams in Higher Vocational Colleges from the Perspective of School-Enterprise Cooperation. *Journal of Liaoning Open University*, 2024(2): 34–37.
- [3] Mo J, Zhang Y, Zhong W, 2023, Analysis on the Construction Path of School-Enterprise “Dual-Qualification” Teacher Teams in Application-Oriented Undergraduate Universities: From the Perspective of Modern Industrial Colleges. *Vocational Education Development Research*, 2023(3): 75–83.
- [4] Qiao L, 2023, Construction of “Dual-Qualification” Teacher Teams in Higher Vocational Colleges under the School-Enterprise Cooperation Model. *Chinese & Foreign Corporate Culture*, 2023(5): 199–201.
- [5] Deng M, Feng Q, Liu J, et al., 2023, Research on School-Enterprise Cooperation Promoting the Construction of “Dual-Qualification” Teacher Teams: Taking the Tourism Management Major as an Example. *Journal of Innovation and Entrepreneurship Research and Practice*, 6(9): 74–76.
- [6] Yang W, Xing Y, Li G, 2023, Research on the Construction of “Dual-Qualification” Teacher Teams in Higher Vocational Colleges Based on School-Enterprise Cooperation. *Shanxi Youth*, 2023(7): 130–132.
- [7] Xu Y, Wang H, Han Z, 2023, Research on the Construction of “Dual-Qualification” Teacher Teams in Application-Oriented Undergraduate Universities Based on School-Enterprise Integration. *Intelligence*, 2023(6): 132–135.
- [8] Wu Z, 2022, Research on the Construction of “Dual-Qualification” Teacher Teams in Higher Vocational Colleges under the School-Enterprise Cooperation Model. *Screen Printing Industry*, 2022(Z5): 16–19.
- [9] Li H, 2022, Research on the Construction of “Dual-Qualification” Teacher Teams in Application-Oriented Undergraduate Colleges under the School-Enterprise Cooperation Model. *Policy & Scientific Consult*, 2022(15): 154–156.
- [10] Yu N, 2022, Research on the Construction of “Dual-Qualification” Teacher Teams in School-Enterprise Cooperation from the Perspective of Supply-Side Reform. *Chinese & Foreign Corporate Culture*, 2022(4): 219–220.
- [11] Li J, Chen P, 2021, Research on the Construction of “Dual-Qualification” Teacher Teams in Higher Vocational Colleges Based on School-Enterprise Cooperation. *Chinese & Foreign Corporate Culture*, 2021(11): 219–220.
- [12] Liu C, Zhang X, 2021, A Brief Analysis on the Construction of “Dual-Qualification” Teacher Teams in Higher Vocational Colleges Based on School-Enterprise Cooperation. *Modern Vocational Education*, 2021(45): 194–195.
- [13] Chen J, 2021, A Discussion on the Construction of “Dual-Qualification” Teacher Teams in Higher Vocational Colleges under the Background of School-Enterprise Cooperation. *Gansu Education Research*, 2021(5): 25–28.
- [14] Duan Q, Li Y, 2021, Multi-Channel Construction of “Dual-Qualification” Teacher Teams through School-Enterprise Cooperation. *Modern Vocational Education*, 2021(38): 128–129.
- [15] Tang S, 2020, Analysis on the Construction of “Dual-Qualification” Teacher Teams in School-Enterprise Cooperation under the Background of One Million Enrollment Expansion. *Quality and Market*, 2020(24): 165–166.

Publisher’s note

Bio-Byword Scientific Publishing remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.