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Research on the Cultivation Mechanism and Practical Exploration of "Key Teachers' Teaching Innovation Teams" in Vocational Colleges

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Abstract: Under the deepening implementation of the "Double High Project" in vocational colleges, the teaching innovation teams of key teachers have emerged as the core carrier for enhancing overall educational quality, strengthening professional connotations, and promoting the seamless integration of industry and education. Currently, the structural construction of vocational college teachers' teams is undergoing a critical transition from isolated "individual efforts" to collaborative "team education". Despite this positive shift, numerous colleges continue to encounter systemic challenges, including loose team selection criteria, fragmented operational frameworks, and insufficient motivational incentives. These persistent issues significantly restrict the release of optimal team efficiency and hinder pedagogical advancement. To address these critical gaps, this article systematically defines the core connotation and foundational formation principles of teaching innovation teams within the modern vocational education landscape. Furthermore, it comprehensively analyzes the prominent structural and administrative problems encountered during the team cultivation process. In response, this study constructs a robust, integrated cultivation mechanism encompassing four pivotal stages: "selection, operation, cultivation, and incentive". By combining theoretical frameworks with empirical practice, the research proposes actionable implementation paths designed to optimize team dynamics and institutional support. Ultimately, these strategic insights provide valuable references and practical guidelines for vocational colleges seeking to strengthen teacher team construction, elevate instructional standards, and effectively serve the broader goals of high-quality educational development.

Keywords: vocational education; key teachers; innovation teams; cultivation mechanism; educational development

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1. Introduction

With the comprehensive implementation of the "Double High" construction plan for Chinese characteristic high-level vocational schools and specialties, vocational education has entered a critical phase of quality enhancement and empowerment. This initiative imposes higher standards on the teaching staff of vocational colleges, requiring not only exceptional individual professional capabilities but also emphasizing the collective strength of team-based collaborative innovation, cross-disciplinary resource integration, and problem-solving in teaching practices. The traditional teaching and research model, which is centered on individual educators and operates in a decentralized manner, struggles to meet the systematic reform demands such as professional group development, curriculum system restructuring, upgrading of training facilities, and fostering deep collaborations between schools and enterprises [1, 2]. Consequently, transitioning from an "individual combat" approach to a "team education" model has become an essential strategy for vocational colleges in building their teaching workforce. This shift aims to address the growing complexity of educational reforms and ensure sustainable development in vocational education.

The teaching innovation teams, composed of key educators, prioritize teaching reform as their central focus, innovation as their driving force, and school-enterprise collaboration as their foundational support. These teams aim to consolidate high-quality teaching personnel and concentrate efforts on critical tasks such as professional development, curriculum design, classroom transformation, and technical service provision. Such teams are pivotal in improving the quality of talent cultivation. However, the development of teaching innovation teams in many vocational colleges remains in an exploratory phase, hindered by the absence of systematic, institutionalized, and sustainable cultivation mechanisms. Challenges include unclear selection criteria, lack of operational management frameworks, insufficient support for team development, and inadequate incentive structures [3]. Additionally, some teams merely adhere to formalities, resulting in low efficiency and failing to serve as exemplary models. To address these issues, this article delves into the intrinsic characteristics and defining features of teaching innovation teams, identifies the barriers to their cultivation, and proposes a scientifically grounded and practical cultivation mechanism. This framework aims to provide theoretical insights and actionable strategies for vocational colleges to establish high-level teaching innovation teams capable of driving educational excellence and fostering long-term institutional growth.

2. The Connotation and Formation Principles of Teaching Innovation Teams

2.1. Connotation of Teaching Innovation Teams

Vocational college key teachers' teaching innovation teams are structured with professional leaders or teaching masters at their core, supported by key teachers as the primary members. These teams transcend traditional boundaries of age, professional title, position, and school-enterprise collaboration, forming a cohesive unit focused on core tasks such as professional construction, teaching reform, technological innovation, and social services. The composition of these teams is characterized by a blend of generational expertise, with older teachers providing leadership through their extensive experience, middle-aged teachers serving as the backbone with their critical support roles, and younger teachers contributing fresh perspectives and innovative energy. This generational synergy ensures a dynamic and balanced team structure [4]. Furthermore, team members bring diverse expertise from areas such as theoretical teaching, practical teaching, curriculum development, training management, and enterprise technology. This diversity facilitates the seamless integration of theoretical knowledge with practical application, aligning teaching methodologies with industry standards. Additionally, the inclusion of enterprise technical experts and skilled craftsmen enhances the team's ability to align educational content precisely with industry demands, fostering a robust connection between vocational education and real-world applications.

Teaching innovation teams are designed to elevate both teaching quality and overall educational standards. Their primary focus is on driving teaching reform through a project-driven approach and fostering collaboration between schools and enterprises. These teams fulfill multiple roles, including teaching, research, curriculum development, skill inheritance, and social services. Unlike traditional research or teaching teams, teaching innovation teams emphasize innovation, practicality, collaboration, and professionalism, making them uniquely suited to the specific needs of vocational education. By integrating theoretical and practical expertise, these teams address the evolving demands of industries and ensure that vocational education remains relevant and effective. The project-driven model encourages team members to work on targeted initiatives that directly impact teaching methodologies and curriculum design [5]. Collaboration with enterprises further enriches the team's capabilities, as it allows for the incorporation of cutting-edge industry practices and technologies into the educational framework. This dual focus on innovation and practicality ensures that teaching innovation teams not only enhance the quality of education but also contribute to the broader goal of aligning vocational training with the dynamic needs of the labor market.

2.2. Formation Principles of the Team

The goal-oriented principle emphasizes that team formation must be intricately aligned with the overarching objectives of "dual high" construction, the development of professional groups, and the optimization of talent cultivation plans. This principle focuses on addressing the critical challenges and pain points associated with teaching reform [6, 7]. By clearly defining the overall objectives, phased tasks, and anticipated outcomes of team building, this approach ensures that the direction and tasks of team formation are both specific and actionable. This clarity prevents the occurrence of blind team formation or the establishment of vague and undefined goals. Furthermore, this principle underscores the importance of maintaining a strategic focus on achieving measurable outcomes that contribute to the broader institutional and educational goals.

The reasonable structure principle highlights the necessity of adhering to the foundational principles of vocational education teacher team construction. This involves optimizing various structural dimensions, including age distribution, professional title hierarchy, educational background diversity, and the balance between part-time and full-time roles. A well-structured team should integrate members from different generational cohorts, ensuring a blend of experience and innovation. The complementarity between senior professionals with high-level titles and younger, middle-aged key talents is essential for fostering a dynamic and collaborative environment [8]. Additionally, the integration of full-time educators with enterprise-based part-time teachers enhances the practical relevance of the team. This principle aims to establish a hierarchical and synergistic framework that leverages the strengths of diverse team members, thereby maximizing overall team efficiency and adaptability.

The task-driven principle is centered on the execution of specific teaching reform projects, course development initiatives, and technical service objectives. This principle mandates the clear delineation of team members' responsibilities, collaboration mechanisms, and achievement assessment standards. By fostering regular collaboration around core tasks, this approach ensures that the team operates with purpose and direction. It seeks to eliminate inefficiencies such as "reorganizing and establishing without effective operation" or the phenomenon of "having a team but no action." The principle emphasizes the importance of actionable and result-oriented team activities, ensuring that team building efforts translate into tangible and impactful outcomes. This structured approach not only enhances the operational effectiveness of the team but also aligns its activities with broader institutional goals, thereby reinforcing the value of collaborative efforts in achieving educational excellence [9].

3. Main Problems Existing in Team Cultivation

3.1. Broad Selection Mechanism, with Prominent Homogeneity of Members

Currently, the selection process for teaching innovation teams in vocational colleges often lacks a robust scientific framework, leading to an overemphasis on seniority, professional titles, and past achievements. This approach prioritizes factors such as teaching years and honors while neglecting critical attributes like teaching innovation capabilities, collaborative teamwork skills, practical expertise, and experience in school-enterprise partnerships. Consequently, the composition of these teams tends to be dominated by senior professional educators, with limited representation from younger key talents, enterprise-skilled workers, and individuals with cross-disciplinary, cross-professional, or cross-school-enterprise expertise. This imbalance undermines the diversity and adaptability required for fostering innovative teaching practices and addressing the dynamic needs of vocational education. Furthermore, the lack of inclusion of younger professionals and external experts restricts the infusion of fresh perspectives and novel methodologies, which are essential for driving sustained innovation within educational teams.

Additionally, the professional backgrounds and research focuses of team members often exhibit significant overlap, resulting in a pronounced homogeneity that hampers the

development of complementary innovation synergies. The absence of cross-disciplinary, cross-professional, and cross-school-enterprise integration limits the team's ability to address complex challenges and leverage diverse expertise effectively. In many cases, vocational colleges simplify the team selection process, foregoing open competition, comprehensive evaluations, and dynamic adjustment mechanisms. This has led to the establishment of a "lifetime system" for team membership, where positions are rarely re-evaluated or refreshed [10, 11]. Such practices hinder the entry of outstanding young educators into core teams, stifling the vitality and innovative potential of these groups. Without mechanisms for periodic review and adjustment, the rigidity of team structures prevents the incorporation of emerging talents and innovative ideas, ultimately constraining the evolution and effectiveness of teaching innovation teams.

3.2. Loose Operation Management, the "nominal Team" Phenomenon Is Widespread

The operation of teaching innovation teams often suffers from a lack of structured and standardized management mechanisms, which significantly hampers their effectiveness. In many cases, these teams only engage in concentrated activities during specific periods, such as when applying for projects or presenting results [12]. Outside of these instances, daily collaboration tends to be superficial and lacks substantive engagement. A major issue is the absence of clearly defined internal responsibilities within the teams. Without a clear person-in-charge responsibility system, a robust collaboration mechanism, or a regular meeting schedule, team members often work independently with minimal communication. This fragmented approach makes it challenging to establish a cohesive working pattern that could effectively drive teaching reform initiatives. Furthermore, the lack of a unified vision and accountability structure undermines the potential for meaningful progress in teaching innovation efforts.

Some colleges have failed to implement effective process management and supervision mechanisms for teaching innovation teams, which has led to significant inefficiencies. Without proper tracking and evaluation of team activities, project progress, and achievement outputs, the operational structure of these teams remains loose and unproductive. Additionally, the absence of a comprehensive assessment framework means that teams are not held accountable for their performance, further exacerbating inefficiencies. Another critical issue is the lack of information technology support in team building. Resource sharing, communication, and achievement management often rely on outdated offline methods, which are ill-suited to the demands of modern teaching innovation. This technological gap hinders the ability of teams to collaborate effectively and adapt to evolving educational needs. Consequently, some teams have devolved into "nominal teams" that exist primarily for project applications and honor selections, rather than serving as active contributors to teaching reform. These teams fail to fulfill their intended role as leaders in driving meaningful and sustainable changes in educational practices.

3.3. Insufficient Incentive and Guarantee,weakening Team Development Momentum

A significant challenge hindering the development of teaching innovation teams is the lack of effective incentive and support mechanisms. The disconnect between team-building achievements and individual career advancements, such as performance evaluations, professional title promotions, and salary adjustments, creates a gap in recognizing the contributions of team members. Faculty members often dedicate substantial time and effort to team activities, yet their contributions are not adequately acknowledged or rewarded. This lack of differentiation in rewards, irrespective of the quality or quantity of output, diminishes the enthusiasm and commitment of team members. Over time, this results in a decline in morale and a reduced willingness to actively participate in team initiatives, ultimately weakening the overall momentum of team development [13].

Additionally, colleges face significant limitations in providing adequate support for teaching innovation teams. These limitations include insufficient funding, inadequate access to venues, and a lack of resources for training, research, and external collaborations.

For instance, the absence of robust support mechanisms for teaching reform, course development, school-enterprise partnerships, and technological research and development creates substantial barriers to progress. Furthermore, there is a notable absence of specific incentive policies tailored to team achievements [14, 15]. Without performance-based rewards, innovation achievement recognition, or incentives for successful school-enterprise collaborations, team members often find their long-term efforts undervalued. Despite their selfless contributions, the lack of tangible rewards and recognition leads to a gradual decline in motivation. This erosion of enthusiasm makes it increasingly difficult to sustain the team's development and hinders their ability to achieve long-term success. Addressing these challenges requires a comprehensive approach that integrates financial support, resource allocation, and the establishment of clear, performance-based incentive structures to foster a sustainable and dynamic team environment.

4. Team Cultivation Mechanism Construction and Practice Pathways

To address the significant challenges in cultivating teaching innovation teams within vocational colleges, a comprehensive four-in-one mechanism has been developed. This mechanism encompasses selection and admission, operational management, cultivation and improvement, and incentive guarantees. By integrating these components, the framework aims to systematically enhance the quality and effectiveness of team development. Practical implementation within vocational colleges has demonstrated the viability of this approach, leading to the establishment of high-level teaching innovation teams composed of key educators [16]. These teams are designed to foster advanced pedagogical practices, drive curriculum innovation, and contribute to the overall academic excellence of the institutions. The mechanism also emphasizes continuous improvement through structured feedback loops and targeted professional development programs, ensuring sustained growth and adaptability in response to evolving educational demands.

4.1. Optimize Selection Mechanism: Establish a Dual-Dimension Admission Standard of "ability + Project"

The traditional qualification-oriented approach often limits the scope of teacher selection and development, focusing narrowly on credentials rather than practical capabilities. To address this, a dual-dimensional selection standard should be established, emphasizing both ability and project-based criteria. The ability dimension evaluates teachers' achievements in teaching reform, their capacity for developing innovative courses, effectiveness in guiding competitions, and their practical experience within enterprises. This ensures that educators possess the necessary skills to adapt to evolving academic and industry demands. Meanwhile, the project dimension mandates that teams align with provincial-level or higher teaching reform initiatives, professional group construction projects, and excellent course development efforts. By anchoring team formation to specific projects, this approach guarantees clear objectives, defined tasks, and robust institutional support, fostering a goal-oriented and collaborative environment. Such a framework not only enhances the quality of teaching but also strengthens the integration of academic and practical expertise, ensuring that educators contribute meaningfully to both institutional and societal progress.

To ensure fairness and transparency in the selection process, a standardized procedure should be implemented, encompassing personal application, departmental recommendation, comprehensive review, public announcement and appointment, and dynamic adjustment. This full-process management approach allows for thorough evaluation and accountability at every stage. External experts and enterprise mentors should be introduced into the review process to provide diverse perspectives and ensure alignment with industry standards. Special emphasis should be placed on recruiting young key teachers, skilled enterprise workers, and interdisciplinary composite talents, as these individuals bring fresh ideas and diverse expertise to the team [17]. Additionally,

a dynamic adjustment mechanism should be established to maintain team vitality. This mechanism involves annually removing unqualified members and incorporating outstanding talents, ensuring that the team remains adaptable and innovative. By prioritizing continuous improvement and inclusivity, this approach fosters a culture of excellence and collaboration, enabling institutions to respond effectively to changing educational and industry needs.

4.2. Improve Operating Mechanism: Implement the Team Leader System and Regular Management

Implementing the responsibility system of the team leader is essential for fostering a structured and efficient operational framework. This system involves selecting experienced professionals who possess strong innovation capabilities, exceptional organizational coordination skills, and expertise in their respective fields. These individuals, often professional leaders or teaching masters, are entrusted with the authority to manage the team effectively. Their responsibilities include overseeing team management, allocating tasks, utilizing funds judiciously, and conducting assessment evaluations. To ensure seamless collaboration, the internal roles within the team are clearly defined. The team is divided into specialized groups, such as the teaching research group, course development group, practical teaching group, and school-enterprise cooperation group. This division of labor ensures that each group focuses on its specific tasks, thereby promoting efficiency and achieving well-coordinated outcomes. By empowering team leaders and establishing clear responsibilities, the system aims to enhance both individual and collective performance, ultimately contributing to the overall success of the organization [6].

Establishing a regular operation system is critical for maintaining consistency and fostering continuous improvement. This system incorporates structured communication and reporting mechanisms, including weekly work communication sessions, monthly centralized discussions, and quarterly results reporting. These practices ensure that team members remain aligned on teaching reforms, project advancements, and problem-solving initiatives. Additionally, the creation of a team information management platform plays a pivotal role in integrating various resources, such as teaching materials, project progress updates, achievement archives, and communication records. This platform facilitates seamless online and offline operations, enabling efficient resource sharing and collaboration. To ensure accountability and adherence to objectives, the educational affairs and personnel departments of the colleges conduct regular inspections and evaluations of the team's operations. This process supervision ensures that the team's work is implemented effectively and that any challenges are promptly addressed. By combining structured communication, resource integration, and rigorous oversight, the regular operation system serves as a foundation for achieving sustainable progress and excellence in educational and organizational endeavors.

4.3. Strengthen Cultivation Mechanism: Promote School-Enterprise Collaboration and Project-Based Training

Establishing a dual-tutor training mode between schools and enterprises is essential for fostering a comprehensive development environment. In this model, internal tutors focus on guiding team members through teaching research and course reform, ensuring a strong theoretical foundation and pedagogical expertise. Meanwhile, enterprise tutors play a pivotal role in exposing members to technological research and development, practical teaching methodologies, and on-the-job training opportunities. This collaborative approach enhances members' practical skills and cultivates a heightened sense of innovation. To further strengthen this mechanism, project-based training should be implemented as a core strategy. By utilizing teaching reform projects, course construction projects, and technical service projects as practical carriers, institutions can organize diverse training activities such as collective lesson planning, course development, classroom innovation, and training design. These activities not only improve individual competencies but also elevate the overall team's ability to apply theoretical knowledge in

practical scenarios. Such initiatives are instrumental in bridging the gap between academic learning and real-world application, fostering a culture of continuous improvement and innovation within the team.

Promoting the integration of competition with teaching and training modes is a dynamic strategy for enhancing educational outcomes. Organizing team members to participate in provincial-level or higher teaching ability competitions, skills competitions, and course design competitions serves as a catalyst for professional growth. Competitions provide a platform for showcasing expertise, fostering innovation, and encouraging the exchange of ideas. Moreover, the results from these competitions can be systematically converted into valuable teaching resources, enriching the curriculum and improving instructional quality. Regularly arranging visits to high-quality vocational colleges and cooperative enterprises further broadens team members' horizons. Such visits allow them to draw on advanced experiences, adopt innovative practices, and refine their approaches to teaching and learning. By exposing the team to diverse perspectives and cutting-edge methodologies, institutions can significantly enhance the construction level and operational efficiency of their teams. This holistic approach ensures that team members remain at the forefront of educational innovation, equipped with the skills and knowledge necessary to address evolving challenges in the academic and professional spheres.

Improving the incentive mechanism is crucial for fostering a results-oriented culture and ensuring sustained team motivation. Establishing a system that directly links team achievements to individual performance evaluations is a strategic move to encourage collective and individual excellence. Core indicators such as teaching reform, curriculum development, technical services, and competition guidance should be integrated into evaluations for professional title assessments, merit awards, performance distribution, and position appointments. By assigning higher weight to team achievements, institutions can incentivize collaboration and innovation. Additionally, creating a special performance award for teaching innovation teams based on assessment results provides tangible recognition for outstanding contributions [5, 18]. Priority rewards for core members who demonstrate exceptional performance further reinforce the value of individual excellence within the team framework. This multifaceted approach not only motivates team members but also aligns their efforts with institutional goals, fostering a culture of accountability and achievement.

Increasing support and guarantees for team development is essential for sustaining long-term growth and innovation. Institutions should allocate dedicated funds annually for activities such as team training, course development, school-enterprise collaboration, and equipment procurement. These financial resources ensure that teams have the necessary tools and opportunities to excel in their roles. Furthermore, prioritizing support for teams applying for provincial-level or higher teaching projects and research topics provides additional avenues for professional development and recognition. Conducting regular selection and commendation of outstanding teaching innovation teams, leaders, and members serves to highlight exemplary contributions and inspire others. Publicizing and promoting successful team-building experiences creates a positive atmosphere that emphasizes the importance of collaboration and innovation [15]. By fostering an environment that values team achievements and provides robust support mechanisms, institutions can cultivate a culture of excellence and continuous improvement, ensuring that their teams remain competitive and forward-thinking in an ever-evolving educational landscape.

5. Conclusion

Key teachers' teaching innovation teams are the core driving force for vocational colleges to meet the "Double High" construction requirements, advance teaching reform, and enhance the quality of talent cultivation. Establishing a systematic and robust cultivation mechanism is essential to ensure the high-quality development of these teams. However, the current state of teaching innovation teams in vocational colleges reveals several challenges, including loosely defined selection criteria, inefficient operational

frameworks, and inadequate incentive structures. To address these issues, it is imperative to adopt a goal-oriented and problem-solving approach. This involves refining and optimizing the selection entry standards to ensure that only the most qualified individuals are chosen, developing a comprehensive and efficient operation management system to streamline team activities, and implementing targeted cultivation measures to enhance the skills and capabilities of team members. Furthermore, strengthening the incentive guarantee mechanism is crucial to motivate and retain talent, thereby facilitating the transformation of these teams from mere "formal establishments" to entities that operate effectively and collaboratively. This shift will enable a transition from reliance on "individual efforts" to fostering a culture of "team collaboration," ultimately driving innovation and excellence in vocational education.

The cultivation of teaching innovation teams represents a long-term, systematic endeavor that requires sustained effort and strategic planning. Vocational colleges must align their initiatives with their unique educational positioning and professional characteristics to ensure relevance and effectiveness. This involves continuously deepening reforms in institutional mechanisms to create an environment conducive to innovation. Strengthening collaboration with enterprises is another critical step, as it empowers teams with practical insights and resources, fostering a dynamic synergy between academic and industry expertise. Additionally, colleges should focus on dynamically optimizing team structures to ensure diversity and adaptability, enabling teams to respond effectively to evolving educational and societal needs. Enhancing the teaching innovation ability, technical service capacity, and social service contributions of these teams should remain a priority. Looking ahead, vocational colleges must integrate the construction of teaching innovation teams into their broader teacher training strategies. By continuously refining the cultivation system, they can build high-level teams characterized by strong political integrity, exceptional professional expertise, and advanced educational competencies. These teams will serve as a cornerstone for the high-quality development of vocational education, providing robust teacher support and contributing significantly to the establishment of a modern vocational education system tailored to the unique needs and aspirations of society. Such efforts will not only elevate the standards of vocational education but also ensure its alignment with broader developmental goals, fostering a skilled workforce capable of meeting the demands of a rapidly changing world.

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