

Research on the Fiscal Investment Mechanism for Higher Vocational Education in Hubei Province

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Abstract: Based on Hubei Province's strategic needs to build a modern vocational education system and serve the development of the "51020" modern industrial clusters, this paper focuses on the innovation and transformation of the fiscal investment mechanism for higher vocational education. First, it reviews the main characteristics and achievements of the current fiscal investment in higher vocational education in Hubei Province. It then conducts an in-depth analysis of the prominent problems and structural challenges faced by the current mechanism in terms of performance management, integration of industry and education, regional balance, and sustainability. To provide forward-looking solutions, the paper proposes several recommendations: establishing a differentiated and dynamic investment mechanism based on professional clusters, a new financial support mechanism for industry-education integration, a linkage mechanism between performance evaluation and resource allocation, a system of special transfer payments for vocational education, implementing a combination of "finance-banking-land", and promoting whole-process digital governance.

Keywords: Higher Vocational Education in Hubei Province; Fiscal Investment; Integration of Industry and Education; Performance Evaluation

1. Introduction

Vocational education is a vital component of the national education system and human resources development. It shoulders the important responsibilities of cultivating diverse talents, passing down technical skills, and promoting employment and entrepreneurship. Developing high-quality vocational education holds irreplaceable strategic significance for building a

leading nation in education and talent, as well as driving high-quality economic development.

As a pivot of the national "Rising of Central China" strategy and a key node where the Yangtze River Economic Belt meets the "Belt and Road" Initiative, Hubei Province is making every effort to build the "51020" modern industrial clusters (i.e., 5 trillion-yuan pillar industries, 10 five-hundred-billion-yuan advantageous industries, and 20 hundred-billion-yuan characteristic industrial clusters) to accelerate the construction of a pioneer area for the national new development paradigm. Realizing this grand blueprint urgently requires the support of a large-scale, well-structured, and high-quality workforce of skilled talents. As the primary front for cultivating skilled talents, the development level of higher vocational education and the efficiency of its fiscal investment mechanism directly bear upon the success or failure of Hubei's strategic goals.

In recent years, Hubei Province has attached great importance to the development of higher vocational education. Fiscal investment has grown continuously, and investment channels have become increasingly diversified, initially forming an investment model with Hubei characteristics. However, facing a new stage and a new mission, the current fiscal investment mechanism still faces deep-rooted structural contradictions in terms of resource allocation efficiency, performance management precision, the depth of industry-education integration, and regional coordinated development. It struggles to fully meet the urgent demands of industrial transformation, upgrading, and innovation-driven development.

Based on the actual conditions and development strategies of Hubei Province, and by systematically reviewing the current status, analyzing problems, and drawing upon advanced experience both at home and abroad, this paper aims to propose a reform plan for the fiscal

investment mechanism that is forward-looking, highly innovative, and practically feasible. The core intent of this study is to drive a strategic shift in fiscal investment from "securing basic needs" to "incentivizing excellence," from "one-way blood transfusion" to "collaborative blood-making," and from "average-volume investment" to "performance orientation." By doing so, it aims to construct a modern governance system that can fully stimulate the vitality of governments, institutions, enterprises, and society, injecting strong and lasting momentum into the high-quality development of higher vocational education in Hubei, thereby providing solid talent and intellectual guarantees for the construction of Hubei's pioneer area.

2. Analysis of the Current Status of Fiscal Investment in Higher Vocational Education in Hubei Province

2.1 The System Is Becoming Increasingly Robust, and Investment Objectives Are Clearly Defined

Hubei Province has established a relatively clear framework for fiscal investment in vocational education. The Implementation Opinions of the Provincial People's Government on Promoting the High-Quality Development of Modern Vocational Education clearly state the overall goal of "basically building a modern vocational education system with Hubei characteristics by 2025." It also proposes specific quantitative indicators, such as "including more than 10 higher vocational colleges in the national 'Double High Plan' (High-level Vocational Schools and High-level Professional Clusters Construction Plan), and building more than 20 provincial-level high-level schools and more than 50 high-level professional clusters." This top-level design provides a well-defined direction for fiscal investment.

In terms of funding guarantee standards, Hubei has fully implemented the per-student allocation system for public vocational schools and defined a specific baseline for per-student funding. Specifically, it ensures that the per-student allocation standard is no less than 8,000 yuan for secondary vocational schools (including technician schools) and no less than 12,000 yuan for higher vocational colleges [1]. Concurrently, it proposes to "explore the establishment of a differentiated per-student allocation system for vocational education based on broad

professional categories" [2], laying the foundation for the precise allocation of resources.

2.2 Funding Guarantee Efforts Continue to Intensify, and a Diversified Investment Structure Is Beginning to Take Shape

At the national level, the funds from the Modern Vocational Education Quality Improvement Plan serve as a crucial financial source. In 2025, the national budget for this fund reached over 31.2 billion yuan, from which Hubei Province, as a major province for vocational education, received a corresponding allocation. This funding explicitly requires prioritizing support for implementing the per-student allocation system, establishing a differentiated per-student allocation system based on broad professional categories, improving school operating conditions, and promoting the integration of industry and education alongside the construction of the "Double High Plan".

At the local government level, besides safeguarding per-student funding, Hubei Province actively expands various funding channels to support the development of basic vocational education capabilities. For instance, national budgetary investment has been utilized to support the construction of public practical training bases, such as the Yingcheng Public Practical Training Base Project, which was approved for a 20 million yuan special investment. Even more notably, the ultra-long-term special government bonds—an emerging financial instrument—have been successfully deployed. The "Advanced Manufacturing Teaching Equipment Upgrading Project" of Hubei Science and Technology Engineering Technician School successfully secured 23.45 million yuan from the 2025 government bond funds to purchase advanced practical training equipment for intelligent manufacturing and industrial robotics. This demonstrates Hubei's innovative exploration in expanding funding sources for vocational education.

2.3 Investment Focuses on Priorities, Exhibiting a Clear Industry-Oriented Direction

Hubei Province's fiscal investment in vocational education is shifting from "securing basic needs" to "promoting high quality" and "strengthening unique characteristics," with fund allocations

tilting significantly toward key areas.

Key Project Construction: Funds are heavily concentrated on "Double High Plan" schools and high-level professional cluster development. The central government supports each high-level professional cluster with up to 10 million yuan annually, and the provincial fiscal department provides matching funds to support provincial-level high-level schools and professional clusters.

Improving Practical Training Conditions: Investment emphasizes upgrading practical teaching conditions, as exemplified by the aforementioned public practical training bases and equipment upgrading projects. These projects emphasize alignment with regional industrial demands; for instance, the project in Xiangyang directly serves the high-skilled talent needs of the local "144" industrial clusters and the "6+2" key industrial systems.

Faculty Team Construction: The Implementation Opinions of the Provincial People's Government on Promoting the High-Quality Development of Modern Vocational Education explicitly prioritizes strengthening the team of "dual-qualification" (both academic and professional) teachers as a core task, with corresponding fiscal funds providing robust support.

2.4 Budgetary and Performance Management Mechanisms Are Gradually Being Established

In managing higher vocational education fiscal funds, Hubei Province has initially formed a full-process performance management framework spanning budget preparation, execution, supervision, and evaluation. On one hand, the Administrative Measures for Modern Vocational Education Quality Improvement Plan Funds in Hubei Province require "establishing and improving a budget performance management mechanism, scientifically and reasonably setting performance targets in accordance with regulations, conducting performance monitoring and evaluation against these targets, strengthening the utilization of evaluation results, ensuring public disclosure of performance information, and improving the efficiency of capital allocation and utilization." It also mandates "using evaluation results as an important basis for budget arrangements, refinement, and management improvement."

On the other hand, the practices of local colleges

reflect this trend. For instance, Hubei Water Resources and Hydropower Vocational and Technical College explicitly demands that "spending must be evaluated for effectiveness, and inefficiency must be held accountable," requiring both the completion of annual performance targets and an actual increase in budget execution efficiency. This marks a transition away from the traditional mindset of "prioritizing fund allocation over management."

3. Prominent Problems Facing the Fiscal Investment in Higher Vocational Education in Hubei Province

Despite the notable achievements in Hubei Province's fiscal investment in higher vocational education, an in-depth analysis of the current situation reveals several deep-seated contradictions and problems. These issues constrain the efficiency of fund utilization and limit the capacity of vocational education to serve industrial development.

3.1 Total Fiscal Investment Needs Improvement, Remaining Perennially Below the National Average

In 2023, the national average proportion of government fiscal educational funds out of the total revenue of higher vocational education in China was 67.37%. As shown in Figure 1, Hubei Province fell below this national average (a trend also reflected in historical data), with its proportion standing at 64.04%, which is 3.33 percentage points lower than the average. This indicates that, compared to other provinces nationwide, Hubei Province underutilizes national fiscal resources to support the development of higher vocational education.

For a long time, government fiscal educational funds have served as the dominant component of higher vocational colleges' funding structures across provinces, playing an irreplaceable role in elevating teaching quality, expanding educational resources, and optimizing the educational environment. However, Hubei's performance on this key indicator has historically failed to reach the national average, which undoubtedly poses a challenge to the development of higher vocational education in the province.

3.2 Diversified Financing Mechanisms Require Refinement, and Investment Sustainability Needs Strengthening

Although a diversified financing pattern has begun to emerge, fiscal funds (including per-student allocations, alongside central and provincial special funds) remain the absolute mainstay for the operation and development of higher vocational colleges. This over-reliance on fiscal appropriations makes the development of vocational education in Hubei highly vulnerable to the sustainability of government financial capacity and arrangements.

The proportion of revenue that colleges generate independently through school-enterprise cooperation, technical services, and social training remains low, and the attraction and utilization of social capital and financial tools are insufficient. Although individual industry-education integration projects, such as the "Auto Valley" in Wuhan, have seen practical training equipment investments reach tens of millions of yuan, such success stories remain a minority. They rely heavily on fiscal funds and large enterprise backing, failing to form a pervasive, diversified investment mechanism. Although some institutions recognize this problem and attempt to diversify revenue by deepening school-enterprise cooperation, offering technical services, and pursuing the "dual-twenty-million" targets, establishing a sustainable, self-sustaining investment mechanism remains a major challenge.

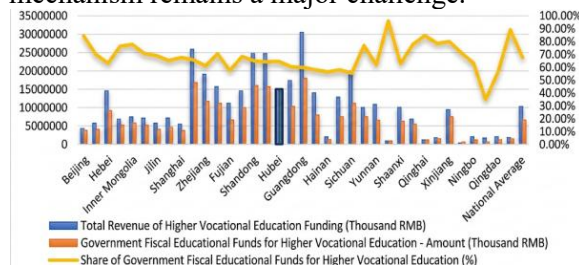


Figure 1. Higher Vocational Education Funding Status by Province in 2023

3.3 Dynamic Alignment between Fund Allocation and Industrial Demand Needs to Be Elevated

Although the Implementation Opinions of the Provincial People's Government on Promoting the High-Quality Development of Modern Vocational Education proposed exploring a "differentiated per-student allocation system based on broad professional categories," the inertia of the "per-capita allocation" baseline remains powerful in practice. The linkage mechanism between fund allocation, regional industrial structures, and changing market

demands lacks sensitivity and precision [3].

Lack of a Dynamic Adjustment Mechanism: For majors related to strategic emerging industries urgently needed by Hubei Province (such as integrated circuits, artificial intelligence, and bio-manufacturing), funding allocated under current standards is often insufficient to support high-quality operations due to high equipment costs and rigorous faculty requirements. Conversely, some majors with talent saturation or low relevance to traditional industrial upgrading may continue to consume large amounts of resources based on historical baselines.

Lagging Response: Industrial technologies iterate rapidly, yet adjustments to majors, updates to teaching equipment, and curriculum reforms in vocational colleges are constrained by the cyclical nature of budget preparation and approval. Consequently, colleges often fail to respond to market changes in a timely manner, leading to a disconnect between cultivated talents and actual job requirements [4]. This resource mismatch and rigidity reduce the macro-level benefits of fiscal investment.

3.4 The Performance Evaluation System has Room for Optimization, and Its Incentive-Constraint Functions Need to be Strengthened

Although the concept of performance management has been established, an effective mechanism of "incentive compatibility" has not yet fully formed.

Scientific and Comprehensive Indicator Setting Needs Improvement: Current performance evaluations tend to focus on basic output indicators such as the "employment rate." They pay insufficient attention to and lack assessments of outcome-based indicators that better reflect talent cultivation quality and economic contribution (such as the alignment rate of graduate employment, starting salary levels, long-term career development, corporate satisfaction with graduate capabilities, and the actual economic benefits generated by technical services) [5].

Weak Rigid Linkage Between Performance Results and Budget Allocation: Performance evaluation results exert limited leverage on subsequent annual budget arrangements; "incremental adjustments" are easy to execute, whereas "baseline budget adjustments" face heavy resistance. Failing to fully achieve a

robust incentive and hard constraint system of "rewarding high performance and penalizing poor results" leaves some colleges lacking external pressure and intrinsic motivation to continuously upgrade education quality and efficiency [6]. Research indicates that the construction of regional industry-education consortia faces a similar dilemma where "the goal achievement rate of fiscal subsidies needs further improvement" [7].

3.5 The Depth of Industry-Education Integration Needs Extension, and School-Enterprise Collaboration Mechanisms Require Innovation

The phenomenon of "enthusiastic schools but indifferent enterprises" remains a universal conundrum in vocational education. At its root lies the lack of an institutionalized investment mechanism that effectively mobilizes enterprises' enthusiasm for sustained investment. **The Return Mechanism for Corporate Investment Needs Refinement:** Enterprises incur significant human, material, and financial costs when participating in vocational education, such as co-building practical training bases or industry academies and hosting student internships. However, because mechanisms governing property rights definition, revenue distribution, and risk-sharing remain incomplete—coupled with the externalities inherent in student cultivation—enterprises struggle to secure direct, rapid, and substantial economic returns, dampening their willingness for deep involvement.

The Risk-Sharing Mechanism Needs Clarification: Enterprises face multiple risks in collaborations, including student internship safety, leakage of technical secrets, and uncertainty regarding project investment returns. Currently, Hubei Province has not established a province-wide, effective risk compensation fund or insurance mechanism for school-enterprise cooperation [8], causing many enterprises, particularly small and medium-sized ones, to shy away from deep engagement. Fiscal optimization must be leveraged to exploit the funding leverage and public-welfare guidance functions of fiscal subsidies.

3.6 The Level of Precision in Budget Management and Execution Needs to Be Enhanced

At the micro-level, budget management and

project execution within vocational colleges still exhibit vulnerabilities that compromise the efficiency of fiscal fund utilization.

Disconnect Between Budget Formulation and Execution: Some schools exhibit a pattern of "prioritizing application over execution." Insufficient validation during budget preparation leads to "rushed year-end spending" or fund stagnation [9]. Conversely, delayed budget releases or complex procurement processes can lag execution progress, preventing funds from transforming into effective expenditures in a timely manner.

Suboptimal Procurement and Asset Management: Irregular procedures, excessively restrictive technical parameters, or unfair evaluations in the government procurement process not only diminish capital efficiency but can also trigger legal disputes. A typical case occurred when the information technology construction project of Tianmen Vocational College was ruled invalid due to complaints regarding the bidding results. Furthermore, the revitalization and utilization of existing assets are inadequate; allocations for new assets often tend to "build new setups from scratch" rather than prioritizing resolution through internal adjustment, reallocation, or sharing.

4. Recommendations for Optimizing the Fiscal Investment Mechanism for Higher Vocational Education in Hubei Province

4.1 Establish a Differentiated and Dynamic Investment Mechanism Based on Professional Clusters

Establish a matching mechanism between professional clusters and industrial demands: Form a dynamic adjustment system for majors that aligns with the development needs of the "51020" modern industrial clusters in Hubei Province. Special funds for structural optimization of majors should be established to prioritize supporting the development of professional clusters that closely interface with key industrial clusters, such as optoelectronic information, new energy and intelligent connected vehicles, and high-end equipment manufacturing. For majors corresponding to the province's strategic emerging industries, the baseline per-student allocation standards should be moderately increased. Conversely, for majors associated with traditional industries where the talent supply tends to be saturated, a gradual

funding reduction strategy should be implemented, thereby guiding institutions to consciously optimize their programmatic layouts.

Establish a differentiated per-student allocation system: Building upon the existing system, this paper proposes exploring a three-dimensional differentiated allocation model based on broad professional categories, cultivation costs, and employment quality. Output indicators, such as employment rate, job-major alignment, starting salary level, and enterprise satisfaction, should be incorporated as weighting factors in the allocation, with a specific proportion assigned as an adjustment coefficient. Additional reward-based performance funding should be granted to professional clusters undertaking major integration of industry and education projects at or above the provincial level.

Establish early warning and exit mechanisms for majors: Construct a professional programmatic risk prevention and control fund to provide transition cost compensation for majors that need to be phased out or transformed due to industrial restructuring, thereby supporting teacher retraining and the updating of practical training equipment. A yellow-card warning should be issued, accompanied by reductions in enrollment quotas and funding allocations, for majors that show low alignment with provincial industrial development and whose employment rates fall below the average for two consecutive years. For majors falling below this standard for three consecutive years, a red-card exit procedure should be triggered, and fiscal support should be terminated.

4.2 Construct a New Financial Support Mechanism for Industry-Education Integration

Establish the Hubei Vocational Education Industry-Education Integration Special Fund: The provincial fiscal department should provide equity to set up a parent fund, attracting state-owned and social capital to jointly establish the Hubei Provincial Industry-Education Integration Special Fund. Operating under market-oriented mechanisms, the fund should primarily invest in industry-education infrastructure projects with stable returns, such as school-enterprise co-built internship and training bases, industry academies, and technological innovation platforms. The fund should design structured

products with senior and subordinate tranches, guaranteeing a baseline rate of return for social capital that exceeds market interest rates to enhance the attractiveness of projects to social investors.

Establish an innovative mechanism for special bonds in vocational education: Expand the scale of special bonds issued for vocational education. Within the existing framework, an innovative "bond + loan + investment" linked financing model should be introduced. Priority should be given to supporting high-quality projects, such as Yichang Technician College, which have been approved for central government ultra-long-term special bond funds [10], to create replicable financing templates. Explore a "project revenue bond" model, using the future returns of school-enterprise cooperation projects—such as training base equipment leasing income, vocational skills training income, and technical service income—as the repayment source for the bonds.

Explore the establishment of a risk compensation mechanism for school-enterprise cooperation: Set up a provincial-level school-enterprise cooperation risk compensation fund to mitigate risks such as project failures, investment losses, and student internship accidents that may arise during collaboration. Establish a tiered risk assessment system to design differentiated compensation ratios and premium standards based on project types and risk levels, thereby reducing the uncertainty of school-enterprise partnerships.

4.3 Establish a Linkage Mechanism between Performance Evaluation and Resource Allocation

Construct a multi-dimensional evaluation system: This system should encompass basic performance, industrial alignment performance, and social contribution performance. Basic performance focuses on the quality of talent cultivation and resource utilization efficiency; industrial alignment performance assesses indicators such as the match between majors and industries and the depth of school-enterprise cooperation; social contribution performance measures contributions to regional economic development, rural revitalization, and skills upgrading.

Establish a rigid linkage mechanism between performance evaluation results and budget allocation: Vocational colleges ranking in the

top 20% of performance evaluations should be granted a 15%–20% upward reward in their budget allocation for the subsequent fiscal year. For institutions ranking in the bottom 10%, budget deductions should be executed, and a rectification and accountability procedure should be initiated. For colleges ranking in the bottom 5% for three consecutive years, the institutional leadership team should be reorganized and the programmatic structure reshuffled.

Implement performance tracking and dynamic adjustments: Implement a performance tracking mechanism consisting of "quarterly monitoring, annual evaluation, and a comprehensive three-year review," and establish a red/yellow card early-warning system for the achievement of performance targets. A yellow card should be issued to projects with a performance target completion rate below 70%, requiring the relevant personnel to be interviewed and remediation plan implemented. A red card should be issued to projects with a completion rate below 50%, resulting in the clawback of unutilized funds and reductions in subsequent budgets.

4.4 Establish a System of Special Transfer Payments for Vocational Education

Establish the Hubei Provincial Special Fund for High-Quality Development of Vocational Education: Serving as a provincial fiscal special project expenditure, it should adopt a competitive allocation model combining the "factor method" and the "project method." The factor method primarily considers objective indicators such as the demand for industrial talent and the scale of enrolled students in different localities, while the project method supports specific proposals through open evaluation and selection, focusing on practical training condition upgrades, "dual-qualification" teacher cultivation, and digital construction.

Build a brand for vocational education talent cultivation: Implement a support plan of "one school, one brand, one characteristic" to cultivate 10 Hubei vocational education brands with national influence. Special funds should prioritize supporting unique majors related to the inheritance and innovation of traditional Hubei culture (such as Chu Cuisine, Chu Art, and Chu Opera), alongside emerging majors integrated with modern industries, thereby promoting the fusion of "Jing-Chu Culture + Modern Technology."

Establish a long-term mechanism for poverty alleviation through skills training: Generalize the successful experience of the "One Village, Multiple College Students Initiative" across the entire province. Establish a special project for cultivating skilled talents for rural revitalization, using flexible schooling systems, delivering education to rural areas, and implementing work-study alternation to train skilled talents who are willing to return, capable of staying, and effective in their roles. The special fund should provide full tuition waivers and living allowances for students in majors related to rural revitalization, increasing the financial aid standard by 20% on top of the current baseline.

4.5 Implement a "Finance-Banking-Land" Combination

Implement a combination of fiscal and taxation incentives: For enterprises deeply involved in the integration of industry and education, implement a combined incentive of "tax reductions + fiscal subsidies + preferential financing." Enterprise investments allocated to vocational education can be deducted before tax at a rate of 150%. Facilities such as training bases and laboratories co-built by enterprises and colleges should enjoy reductions or exemptions from urban land use tax and real estate tax.

Innovate the comprehensive development model of vocational education parks: Innovate an integrated development model combining "vocational education parks + industrial parks + urban functional zones" to revitalize existing vocational education resources through land swaps, comprehensive development, and functional integration. Support urban campuses that enjoy advantageous locations but face restricted development space to construct new campuses in suburban areas through land swaps; a portion of the land from the original campus can be used for commercial development, with the proceeds reinvested into the construction of the new campus.

Establish a cross-departmental collaboration mechanism: Form a vocational education coordination working group comprising departments such as education, finance, human resources and social security, development and reform, and natural resources. Establish a quarterly joint meeting system to coordinate and dismantle barriers in the development of vocational education. Implement a tailored,

differentiated support strategy of "one rule for one school" to customize support measures for different types of vocational colleges.

4.6 Promote Whole-Process Digital Governance

Construct a province-wide data warehouse to eliminate information silos: Aggregate all data regarding personnel, finances, assets, and operations across higher vocational colleges in the province. All vocational colleges receiving provincial fiscal support must connect to the platform through standardized interfaces, unifying data standards and definitions.

Fiscal fund flow tracking: Leverage the immutable characteristics of block chain technology to record every node of allocation, disbursement, and utilization of fiscal funds (from per-student funding to special bonds), ensuring that "wherever money goes, the flow is visible."

Industrial talent data alignment: Connect the platform with the industrial talent demand databases of the Provincial Department of Economy and Information Technology and the Provincial Department of Human Resources and Social Security to obtain real-time recruitment needs and salary levels for key industries and key positions, providing dynamic and precise evidence for programmatic adjustments.

Build an intelligent decision-support module to drive the precise allocation of fiscal resources: Deeply integrate data analysis into the core links of budget preparation and resource allocation. Establish an early-warning mechanism for major settings, utilizing algorithmic models to calculate an "industrial alignment index" for each major in real time. This index integrates multi-dimensional data such as "graduate employment alignment," "corporate personnel shortage," and "provincial employment retention rate," automatically triggering yellow or red card warnings for majors whose indexes remain low over long periods, thereby providing data support for dynamic major optimization and differentiated funding allocation. Design a budget formulation simulation system where colleges can input different professional construction plans when preparing the subsequent year's budget; the system will simulate and calculate the corresponding performance funding allocation based on historical performance and industrial indexes, assisting institutions in more rational internal

resource planning.

Implement whole-process dynamic performance monitoring to strengthen project execution management: Transform traditional post-hoc evaluations into full-lifecycle management. Construct a "digital portrait" for every fiscally supported key project (such as training bases and industry academies), dynamically displaying core performance indicators like budget execution progress, phased achievements, and equipment utilization rates. Enable intelligent warning and supervision functions; the system will automatically monitor anomalous statuses, such as "budget expenditure progress lagging behind scheduled nodes" or "slow advancement of key performance indicators." It will then issue warning prompts to project implementation units and competent departments via the management platform, urging timely improvements and forming a closed-loop management mechanism from monitoring to rectification.

Acknowledgments

This research was funded by: 1. Research Project of the Chinese Society of Educational Development Strategy: Research on the Policy System for Promoting the Growth of Skilled Talents (ZLB20250734). 2. Research Project of the Special Committee on Smart Psychological Education, China Association For Educational Technology: Curriculum Development in Higher Vocational Education Based on the Concept of Positive Education (ZHXLKY2025019). 3. Industry-Education Integration Research Project of the China Business Accounting Institute: Research on the Cultivation Path and Safeguard Mechanisms for Digital Finance Craftsman Talents in Higher Vocational Education under the Background of Industry-Education Integration (CBAICJ20260061). 4. Key Project of the Educational Research Planning Program of the China Adult Education Association: Research on Adult Teaching Models and Innovative Pathways Based on the Metaverse(2025-0388ZB). 5. Scientific Research and Innovation Team Development Program of Wuhan City Polytechnic(2024WHCPTD01).

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