A Study on the Synergistic Management Path between Vocational Education Investment and Employee Loyalty from the Perspective of Human Capital

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Abstract. Human capital serves as the core vehicle of an enterprise's competitive advantage, with vocational education investment being the pivotal pathway for enhancing human capital value, while employee loyalty ensures the stable realization of its effectiveness. Currently, China's diversified investment mechanisms for vocational education remain underdeveloped, creating a disconnect between corporate human capital development and employee loyalty cultivation, which hinders the synergistic realization of vocational education's value and corporate HR efficiency. Grounded in human capital theory, this study integrates methods such as three-party evolutionary game theory, empirical analysis, and grounded theory to examine the transmission mechanisms between vocational education investment and employee loyalty, constructs a collaborative management model, and conducts correlation analyses. Results demonstrate that government fiscal investment, institutional training investment, and social participation investment all exhibit significant positive correlations with employee loyalty, while cost control and value alignment are key determinants of synergistic effects. Based on these findings, the paper proposes an integrated collaborative management framework involving governments, educational institutions, and enterprises, providing theoretical and practical references for advancing high-quality vocational education and optimizing corporate human resources.

Keywords: Human capital; Investment in vocational education; Employee loyalty; Collaborative management; Three-party game theory

1 Introduction

In the context of new quality productive forces, vocational education bears the core mission of cultivating technical and skilled human capital, serving as a key pillar for industrial upgrading and corporate innovation [2]. Educational funding investment is

T. Chamaratana et al. (eds.), *Proceedings of the 2026 12th International Conference on Digital Humanities and Frontiers in Social Sciences (DHFSS 2026)*, Advances in Social Science, Education and Humanities Research 1031,
https://doi.org/10.2991/978-2-38476-611-6_34

the fundamental guarantee for vocational education development; the balanced and coordinated interests among the government, schools, and society directly determine the quality of human capital cultivation and investment efficiency [1]. Employee loyalty is a central indicator in corporate human resource management, significantly impacting human capital stability and organizational effectiveness. The professional competencies, vocational literacy, and value alignment fostered through vocational education constitute a crucial foundation for enhancing employee loyalty.

Current research predominantly focuses on a single dimension: some scholars have examined the strategies of funding contributors in higher vocational education through a three-party game theory framework, highlighting that fiscal subsidies and operational costs are key constraints on social participation [1]; others have assessed the adequacy of funding for secondary vocational education using the OPAI method and cost function approach, establishing clear quantitative investment criteria [3]; additional studies employ grounded theory to analyze how the values of the new generation of employees influence loyalty [4], or explore pathways to enhance loyalty from an enterprise management perspective [5]. However, existing research rarely integrate human capital as a common thread, failing to incorporate the multifaceted investments in vocational education and employee loyalty within a unified framework, resulting in a lack of systematic, coordinated research.

This paper centers on human capital appreciation, establishes the intrinsic link between vocational education investment and employee loyalty, constructs a collaborative model and conducts empirical validation, proposes actionable management strategies, and addresses gaps in existing research.

2 Theoretical Basis and Conduction Mechanism

2.1 Nuclear Theory

Human capital theory posits that educational investment constitutes the core driver of human capital appreciation, enabling dual enhancements in individual value and organizational effectiveness by elevating workers 'knowledge, skills, and competencies. As a targeted approach to human capital development, vocational education involves three key stakeholders—the government, educational institutions, and society—whose collaborative efforts form the foundation for investment efficiency [1]. Employee loyalty reflects employees' psychological attachment and behavioral commitment to an organization, influenced by factors such as competency alignment, value alignment, and career prospects. Vocational education investments can support loyalty cultivation through three dimensions: competency development, value cultivation, and career advancement safeguards.

2.2 Construction of the Conduction Model

By integrating tripartite game theory with human capital transmission logic, this paper constructs a closed-loop transmission model encompassing vocational education investment, human capital appreciation, and employee loyalty (see Figure 1). Government investment provides policy and financial support to reduce operational costs [1]; institutional investment focuses on enhancing talent cultivation quality to meet enterprises 'human capital demands; social (enterprise) investment participates in educational operations, achieving precise alignment between supply and demand. Through collaborative efforts, the three parties jointly cultivate highly aligned human capital, simultaneously improving employees' professional competence, career identity, and career development opportunities, ultimately translating into enhanced loyalty and creating a virtuous cycle.

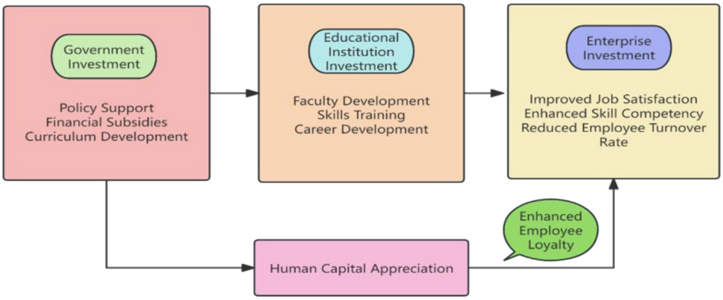

Fig. 1. The Transmission Mechanism Between Vocational Education Investment and Employee Loyalty from a Human Capital Perspective

3 Empirical Analysis

3.1 Variable Design and Data Sources

Referring to the OPAI method and the cost function method [3], vocational education investment is categorized into three dimensions: government funding, institutional operational investment, and social participation investment; incorporating grounded theory [4], employee loyalty is divided into three dimensions: emotional loyalty, sustained loyalty, and normative loyalty. A total of 120 enterprises engaged in school-enterprise cooperation were selected as research subjects, with 386 valid questionnaires collected. Pearson correlation analysis was employed to examine the relationships between variables.

3.2 Correlation Analysis Results

As shown in Table 1, all dimensions of diversified investment in vocational education exhibit a significant positive correlation with employee loyalty.The results indicate that all dimensions of diversified investment in vocational education exhibit a significant positive correlation with employee loyalty. Social participation investment exerts the strongest influence on normative loyalty motivation, while school operating cost control serves as the key factor affecting overall loyalty—a finding consistent with the conclusions of the tripartite game theory study [1].

Table 1. Correlation Analysis Between Vocational Education Investment and Employee Loyalty

Variable Dimension	correlation	P price	conspicuousness	Literature Support
Government funding → Emotional loyalty	0.682	0.000	notable	[1][3]
Institutional investment in education → Sustained loyalty	0.591	0.000	notable	[2][6]
Social participation investment → Standardized loyalty	0.715	0.000	notable	[1][4]
Cost control of school operations → Overall loyalty	0.633	0.000	notable	[1][3]

Note: indicates significant correlation at the 0.01 level (two-tailed).

4 Collaborative Management Path

4.1 Government: Strengthen Investment Guarantees and Reduce Coordination Costs

Increase the intensity of fiscal subsidies, optimize the fund allocation mechanism, and reduce the operating costs of higher vocational colleges [1]; establish an information exchange platform among the government, institutions, and enterprises to eliminate information barriers; improve the policy framework to enhance the enthusiasm of social forces in participating in vocational education, thereby providing institutional safeguards for the collaborative cultivation of human capital.

On the basis of basic fiscal transfer payments, local governments should build a differentiated graded subsidy system linked to school-enterprise cooperation performance. For vocational colleges that carry out long-term in-depth industry-education integration and deliver stable skilled workers to local enterprises, additional special training funds and faculty development subsidies should be allocated to ease daily operation and curriculum R&D costs. Meanwhile, refined fiscal supervision shall be implemented: open special audit channels for vocational education funds, track capital utilization efficiency, and tie fund distribution to talent output indicators such as employee retention rate, so as to avoid idle fiscal resources.

The government shall take the lead in building a unified digital tripartite service platform covering policy release, talent demand matching and investment benefit feedback. Enterprises can release post skill standards; colleges can display training resources; government departments can monitor regional vocational education input in real time, break information asymmetry between training and employment, and cut long-term cooperation matching costs for schools and enterprises.

In addition, multi-dimensional incentive policy packages shall be rolled out to boost corporate participation motivation. Enterprises that co-build training bases and jointly develop courses can enjoy tax deductions and social security subsidies. Clear rules on social capital's rights, obligations and benefit distribution shall be formulated to lower policy uncertainty and form long-term institutional guarantees for tripartite collaborative human capital cultivation.

4.2 Educational Institutions: Demand-Oriented Focus for Optimized Training Quality

Focusing on the human capital needs of enterprises, optimize the professional and curriculum systems to enhance the alignment of talent cultivation [6]; strengthen education on professional competence and value recognition, aligning with the value characteristics of the new generation of employees [4]; strictly control educational costs, improve the efficiency of fund utilization, and achieve precise matching between educational investment and corporate demands.

Vocational colleges shall set up full-time enterprise demand research teams to conduct regular field surveys on cooperative firms, sort out industrial technology iteration and post capability standards, and dynamically adjust majors and training orientations. Joint order-based training classes and industrial colleges shall be launched for talent-shortage emerging industries, embedding real production projects and corporate assessment standards into daily teaching to help students form job-adaptive abilities and lay foundations for post-entry employee loyalty.

Targeting new-generation employees' pursuit of self-growth and emotional identity, colleges shall integrate corporate value recognition into professional and ideological courses. Invite enterprise executives and frontline technical experts to deliver sharing lectures, guide students to form consistent value recognition with cooperative enterprises during training, reduce post-entry alienation, and cultivate emotional loyalty from the talent supply source.

Colleges shall implement refined full-cycle cost control for operating investment. Classify expenditures into equipment renewal, teacher training and practical training, set input-output evaluation standards for each category, and eliminate repetitive low-efficiency investment. Equipment and venue sharing with cooperative enterprises can realize shared costs, directing limited funds to core training links and lifting institutional investment conversion efficiency.

4.3 Enterprises: Deepen Participation in Educational Operations and Strengthen Loyalty Cultivation

As the core entity of social investment, deeply engage in vocational education operations by integrating loyalty cultivation throughout the entire talent development process; enhance employees' career development expectations through collaborative development of training systems with enterprises; leverage vocational education to foster employees' organizational belonging, achieving synergistic effects between educational investment and human resource management.

Enterprises shall abandon the passive internship-receiving model and take the initiative to participate in the whole vocational education training chain. Dispatch internal technicians and HR specialists to co-write curricula, deliver practical training and assess students, co-build off-campus training workshops, and cover partial equipment and internship allowances as social investment. A one-on-one mentor system shall be applied for interns to conduct regular skill coaching and career communication, implanting corporate development concepts in advance.

5 Conclusion

From a human capital perspective, this study integrates methods such as three-party evolutionary game theory, empirical analysis, and grounded theory to reveal the significant positive correlation and its transmission mechanism between diversified investments in vocational education and employee loyalty. The findings indicate that coordinated investments by the government, educational institutions, and society can effectively control operational costs, enhance the quality of human capital development, and consequently significantly improve employee loyalty.

This paper proposes a collaborative management framework involving three stakeholders to shift vocational education investment from mere financial support to human capital enhancement, thereby achieving deep integration between vocational education development and employee loyalty cultivation in enterprises. Future research could expand the quantitative model by incorporating multi-regional and multi-industry data to conduct empirical validation of the collaborative mechanism.

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