

# DEVELOPMENT OF A LEARNING ORGANIZATION MANAGEMENT MODEL IN HIGHER VOCATIONAL COLLEGES IN SHANDONG PROVINCE\*

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Received 21 May 2026; Revised 5 June 2026; Accepted 7 June 2026

## Abstract

The objectives of this research were to: 1) study the level of learning organization management in higher vocational colleges in Shandong Province; 2) study the exploratory factor analysis of the learning organization management model in higher vocational colleges in Shandong Province and 3) study the relationship between factors and entrepreneurship education in universities of Jiangsu Province; 4) Propose a development of learning organization management model in higher vocational colleges in Shandong Province. For a population of 95 higher vocational colleges in Shandong Province, the required minimum sample size was 76 higher vocational colleges. Therefore, 76 higher vocational colleges were selected as the sample for this study and the respondents in this study consisted of 550 administrators and teachers from higher vocational colleges in Shandong Province. The quantitative data were analyzed using percentages, means, standard deviations and the exploratory

Citation:



\* Hao Zhou, Thada Siththada and Suttipong Boonphadung. (2026). Development Of A Learning Organization Management Model In Higher Vocational Colleges In Shandong Province.

Modern Academic Development and Promotion Journal, 4(4), 1095-1111.;

DOI: <https://doi.org/10.>

<https://so12.tci-thaijo.org/index.php/MADPIADP/>

factor analysis. In addition, qualitative data were obtained through in-depth interviews with nine experts in educational administration, guided by a semi-structured interview protocol. The qualitative data were analyzed using content analysis to explore institutional perspectives and validate the quantitative findings.

The results showed that the overall responses to all 114 questionnaire items were at a high level, indicating that higher vocational colleges in Shandong Province demonstrate strong practices in learning organization management and a positive institutional environment that supports continuous learning and development. This suggests that administrators, teachers, and staff have a shared perception of effective organizational practices aligned with modern educational management. The Exploratory Factor Analysis (EFA) identified eight key factors, confirming a clear and well-structured model, including 1) Learning Leadership (LL), 2) Shared Vision (SV), 3) Continuous Learning Culture (CLC), 4) Team Learning Unity (TLU), 5) Embedded Knowledge System (KS), 6) System Connectivity (SC), and 7) Data-Driven Policy (DDP). These factors reflect the essential components of a learning organization and demonstrate strong internal consistency among the variables. Overall, the findings support the validity and robustness of the proposed model, showing that these eight dimensions effectively represent a comprehensive learning organization framework.

**Keywords:** Development of a Learning Organization, Learning Organization Management Model, Chinese Higher Vocational Colleges

## Introduction

In the context of rapid globalization, digital transformation, and the restructuring of industrial sectors, higher vocational education has become increasingly vital in preparing a skilled workforce that aligns with the demands of

contemporary economies. In Shandong Province, higher vocational colleges play a significant role in producing technically competent graduates to support regional economic growth and industrial modernization. However, these institutions are currently confronted with various challenges, including the need to enhance educational quality, strengthen organizational adaptability, and improve management effectiveness in an increasingly complex and dynamic environment. The concept of a learning organization provides a robust theoretical foundation for addressing these challenges. A learning organization emphasizes continuous learning, knowledge sharing, collaborative problem-solving, and adaptive capacity at both individual and organizational levels (Watkins & Marsick, 2021). In the era of knowledge-based economies, educational institutions are required to transform into learning organizations in order to remain competitive and responsive to rapid changes (Fullan, 2020). In higher vocational education, the application of learning organization principles can foster innovation, enhance teaching effectiveness, and support the professional development of educators and administrators.

Despite the recognized importance of learning organizations, many higher vocational colleges in Shandong Province continue to rely on traditional management approaches, which may limit their ability to respond effectively to evolving external demands. Common issues include inadequate knowledge management systems, limited collaboration among staff, insufficient integration of digital technologies, and a lack of shared organizational vision. These challenges hinder institutional performance and reduce the capacity for sustainable development (OECD, 2019). Furthermore, leadership has been identified as a critical factor in driving organizational learning and fostering a culture of continuous improvement within educational settings (Hallinger & Kulophas, 2020). Importantly, the development of higher vocational education in China has been strongly emphasized as a key strategy for national

development. The Chinese government has implemented policies to modernize vocational education systems, enhance the integration between education and industry, and promote innovation-driven development. Initiatives such as the modernization of vocational education and the strengthening of school–enterprise cooperation aim to improve workforce readiness and support economic transformation (Ministry of Education of the People’s Republic of China, 2019). Additionally, China’s long-term education reform agenda highlights the importance of building a high-quality, lifelong learning system that fosters talent development and global competitiveness (State Council of the People’s Republic of China, 2021). These policy directions underscore the critical need for higher vocational colleges to adopt innovative management approaches, such as learning organization models, to align with national priorities. To address these issues, there is a pressing need to develop a comprehensive management model that integrates learning organization principles into the administrative practices of higher vocational colleges. This study aims to develop a Learning Organization Management Model specifically tailored to the context of Shandong Province. The proposed model incorporates key components, including learning leadership, shared vision, continuous learning culture, team learning, knowledge management systems, system connectivity, data-driven decision-making, and student-centered quality management. These components are expected to operate synergistically to enhance organizational effectiveness and improve educational outcomes.

Moreover, the development of this model is expected to contribute both theoretically and practically to the field of educational administration. From a theoretical perspective, the study extends the application of learning organization concepts within vocational education contexts. From a practical standpoint, it provides a structured framework that can guide administrators in transforming their institutions into adaptive and innovative learning organizations. Additionally, the use of empirical validation techniques, such as structural

equation modeling, ensures the reliability and validity of the proposed model (Hair et al., 2022; Kline, 2016).

## Objectives

1. To study the level of learning organization management in higher vocational colleges in Shandong Province.
2. To study the exploratory factor analysis of the learning organization management model in higher vocational colleges in Shandong Province.
3. To Propose a development of learning organization management model in higher vocational colleges in Shandong Province.

## Literature Review

The concept of a learning organization has been widely discussed as a strategic approach for improving institutional effectiveness in educational settings, particularly in vocational education. Recent studies emphasize that learning organizations enhance adaptability, innovation, and knowledge sharing, which are essential in responding to rapid technological and economic changes. In higher education, especially vocational colleges, the integration of organizational learning practices has been linked to improved teaching quality, institutional performance, and workforce readiness. Researchers have highlighted that fostering a culture of continuous learning and collaboration among educators significantly contributes to sustainable organizational development (Tynjälä, 2019; Ellström, 2021).

In the context of vocational education, the importance of aligning institutional practices with labor market needs has led to increased attention on organizational learning frameworks. Studies indicate that leadership, collaboration, and knowledge management systems are critical factors influencing the effectiveness of vocational institutions. For instance, strong

leadership supports professional development and innovation, while collaborative practices enhance team learning and problem-solving. Moreover, the integration of digital technologies and data-driven strategies has been identified as a key driver in modernizing vocational education systems and improving decision-making processes (Cedefop, 2020; Guo & Lamb, 2020).

Despite these advancements, several research gaps remain, particularly in the development of comprehensive models tailored to specific regional contexts. In China, although vocational education reforms have been extensively implemented, there is still limited empirical research that integrates learning organization principles into a unified management model for higher vocational colleges. Existing studies often focus on individual components rather than a holistic framework. Therefore, this study addresses this gap by developing a structured learning organization management model that incorporates multiple dimensions, providing both theoretical and practical contributions to the field of educational administration (Pan & Chen, 2021).

## Methodology

### 1. Research Methodology

This study employed a mixed-methods research design, integrating both quantitative and qualitative approaches to develop a Learning Organization Management Model for higher vocational colleges in Shandong Province. The quantitative approach was used to examine the structure and relationships of variables, while the qualitative approach provided in-depth insights and supported the validation of the model. The integration of both methods ensured a comprehensive understanding of learning organization practices within the institutional context.

## 2. Research Steps

The research was conducted in several systematic steps. First, relevant theories and previous studies were reviewed to identify key variables related to learning organizations. Second, a conceptual framework was developed based on eight latent factors. Third, a questionnaire was designed and validated by experts to ensure content validity. Fourth, data were collected from respondents in higher vocational colleges. Fifth, quantitative data were analyzed using statistical techniques, including Exploratory Factor Analysis (EFA), to identify the underlying structure of the variables. Finally, qualitative data were collected through in-depth interviews with experts to refine and validate the proposed model.

## 3. Data Collection

Quantitative data were collected using a structured questionnaire consisting of 114 items, administered to administrators, teachers, and staff in higher vocational colleges. The sample was selected using appropriate sampling techniques to ensure representativeness. In addition, qualitative data were obtained through in-depth interviews with nine experts in educational administration. A semi-structured interview protocol was used to guide the discussions, allowing flexibility to explore key issues related to learning organization management and institutional practices.

## 4. Data Analysis

The quantitative data were analyzed using percentages, means, standard deviations, and Exploratory Factor Analysis (EFA) to examine the structure and relationships among variables. The results were used to identify key factors and validate the measurement model. In addition, qualitative data were analyzed using content analysis, which involved coding, categorizing, and interpreting the data to explore institutional perspectives and support the validation of the

quantitative findings. The integration of both quantitative and qualitative results enhanced the reliability and validity of the study.

## Results

Present the analysis results, including a detailed description of the data analysis process, followed by the results and their interpretation. For results presented in tables or figures, provide accompanying explanations, rather than just displaying the tables or figures without context.

### Part 1 Results of Demographic data of the Respondents

The demographic data were collected from a total of 550 respondents, consisting of administrators and teachers from higher vocational colleges in Shandong Province. The analysis was conducted using frequency and percentage to describe the general characteristics of the sample.

**Gender:** The results showed that female respondents accounted for 62.00% (341 persons), while male respondents accounted for 38.00% (209 persons). This indicates that females represent the majority of personnel in the sample.

**Age:** Most respondents were aged 30–39 years, accounting for 40.00% (220 persons), followed by those aged 40–49 years at 30.00% (165 persons). Respondents aged above 49 years accounted for 20.00% (110 persons), while those under 29 years old represented 10.00% (55 persons). This shows that the majority of participants were in the mid-career stage.

**Highest Education Level:** The majority of respondents held a Master's degree, accounting for 50.00% (275 persons), followed by Bachelor's degree holders at 30.00% (165 persons). Those with a Doctoral degree accounted for 15.00% (83 persons), while respondents with postdoctoral qualifications represented 5.00% (27 persons). This reflects a high level of educational attainment among respondents.

Work Experience: Most respondents had 5 – 10 years of experience (35.00%, 193 persons), followed by 11–15 years (30.00%, 165 persons). Those with more than 20 years of experience accounted for 15.00% (83 persons), while respondents with 16–20 years represented 10.00% (55 persons) and less than 5 years accounted for 10.00% (54 persons). This indicates that the majority of respondents had moderate to extensive professional experience.

## **Part 2 The results of the level of learning organization management in higher vocational colleges in Shandong Province,**

The overall responses to all 114 questionnaire items were at a high level. This indicates that administrators and teachers perceived the implementation of learning organization management practices in their institutions positively. The high level of responses reflects strong agreement across all dimensions, suggesting that higher vocational colleges demonstrate well-developed practices in leadership, collaboration, continuous learning, and quality management aligned with the learning organization framework.

## **Part 3 The Results of the exploratory factor analysis of the learning organization management model in higher vocational colleges in Shandong Province.**

The results of the Exploratory Factor Analysis (EFA) revealed that the Learning Organization Management Model in higher vocational colleges in Shandong Province consists of eight components, which together explain a high proportion of the total variance, accounting for 79.622%, indicating a very strong model in educational administration research. This demonstrates that the study effectively captures the structure of learning organization management. The eight factors are described as follows:

Factor 1: Learning Leadership (LL). Learning Leadership demonstrated the highest explanatory power among all components, indicating its central role in the development of a learning organization. This component reflects the ability

of institutional leaders to promote organizational learning, support professional development, and drive innovation. It serves as a foundational mechanism for strengthening learning organization practices and enhancing institutional effectiveness.

Factor 2: Shared Vision (SV). Shared Vision emphasizes the importance of establishing a common direction and collective commitment among administrators, teachers, and staff. A clearly articulated and shared vision fosters organizational alignment, strengthens collaboration, and supports sustainable institutional development in higher vocational colleges.

Factor 3: Continuous Learning Culture (CLC). This component highlights the significance of cultivating an environment that encourages lifelong learning, reflective practice, and ongoing professional improvement. A strong learning culture enhances adaptability and supports continuous organizational development.

Factor 4: Team Learning Unity (TLU). Team Learning Unity reflects the collaborative nature of organizational learning. It emphasizes teamwork, knowledge sharing, and collective problem-solving processes, which contribute to improved performance and institutional effectiveness.

Factor 5: Embedded Knowledge System (KS). Embedded Knowledge System underscores the importance of structured systems and digital technologies for managing organizational knowledge. This includes knowledge storage, accessibility, and integration, which are essential for sustaining institutional learning and innovation.

Factor 6: System Connectivity (SC). System Connectivity represents the institution's ability to establish effective internal and external linkages. In higher vocational colleges, strong connections with industry, community, and stakeholders are crucial for ensuring the relevance and applicability of educational programs.

Factor 7: Data-Driven Policy (DDP). This component highlights the role of data and empirical evidence in supporting decision-making, strategic planning, and policy development. Data-driven approaches enhance transparency, accountability, and the overall quality of institutional management.

Factor 8: Student-Centered Quality Management (SCQM). Student-Centered Quality Management focuses on placing students at the core of institutional processes. It emphasizes learning outcomes, student development, and quality assurance, ensuring that educational management aligns with the needs of learners and labor market expectations.

Overall, the first factor, Learning Leadership (LL), was identified as the most significant factor, reflecting the crucial role of administrators in promoting organizational learning, supporting professional development, and fostering innovation. The second factor, Shared Vision (SV), highlights the importance of a common direction and collective commitment among administrators, teachers, and staff. The third factor, Continuous Learning Culture (CLC) emphasizes the creation of an institutional environment that encourages lifelong learning and reflective practices. The fourth factor, Team Learning Unity (TLU) demonstrates the importance of collaboration and shared learning processes in enhancing collective problem-solving and organizational effectiveness. The fifth factor, Embedded Knowledge System (KS), indicates the role of institutional systems and technologies in managing and disseminating knowledge effectively. The sixth factor, System Connectivity (SC) reflects the institution's ability to build strong relationships and collaboration with external stakeholders, including industry and community partners. The seventh factor, Data-Driven Policy (DDP) highlights the use of data and evidence in supporting decision-making and policy development. Finally, the eighth factor, Student-Centered Quality Management (SCQM) underscores the importance of focusing on student outcomes, development, and overall educational quality. Overall, these eight factors comprehensively explain

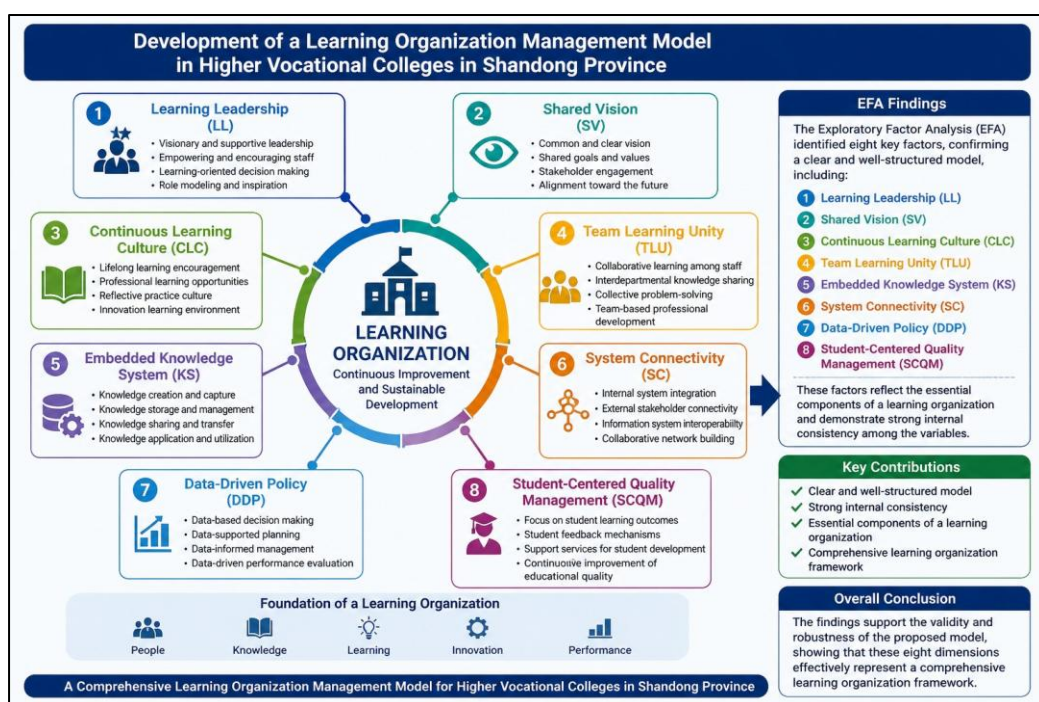
the structure of the learning organization management model and demonstrate high construct validity.

#### **Part 4 Results of a development of learning organization management model in higher vocational colleges in Shandong Province.**

Qualitative data were collected from nine key informants through in-depth interviews to propose the development of a Learning Organization Management Model in higher vocational colleges in Shandong Province. The key informants comprised: 1) senior administrators responsible for institutional governance and learning organization development, and 2) experienced academic leaders and teachers involved in knowledge management, organizational learning, and institutional quality improvement. These participants were selected through purposive sampling based on their professional expertise and their direct involvement in implementing learning organization practices.

The results of the qualitative analysis revealed that all informants strongly supported the integration of the eight components identified from the quantitative phase into a comprehensive management model. They emphasized that Learning Leadership (LL) is the driving force behind organizational change, while Shared Vision (SV) ensures alignment and collective commitment across all levels of the institution. Informants also highlighted the importance of fostering a Continuous Learning Culture (CLC) and strengthening Team Learning Unity (TLU) to enhance collaboration, professional growth, and knowledge exchange among staff. Furthermore, the findings indicated that effective implementation of the model requires well-developed Embedded Knowledge Systems (KS) supported by digital technologies, as well as strong System Connectivity (SC) through collaboration with external stakeholders such as industry and community partners. The use of Data-Driven Policy (DDP) was identified as essential for informed decision-making and strategic planning. Finally, Student-Centered Quality Management (SCQM) was emphasized as the ultimate goal, ensuring that all management practices contribute to improved student outcomes and

educational quality. Overall, the qualitative findings validated and enriched the quantitative results, leading to a practical and contextually appropriate model for higher vocational colleges. Based on the above, the findings can be summarized as the body of knowledge derived from this research, as illustrated in the figure. The Development of a Learning Organization Management Model in Higher Vocational Colleges in Shandong Province consists of eight key factors. As shown in the following figure.



**Figure 1** The Body of Knowledge Derived from the Research: Development of a Learning Organization Management Model in Higher Vocational Colleges in Shandong Province

## Discussion

The factors in this study are grounded in the concept of learning organization management within higher vocational colleges in Shandong

Province. The study conceptualizes organizational development through eight latent factors that reflect contemporary educational management in the context of rapid technological and socio-economic change. These factors include Learning Leadership (LL), Shared Vision (SV), Continuous Learning Culture (CLC), Team Learning Unity (TLU), Embedded Knowledge System (KS), System Connectivity (SC), Data-Driven Policy (DDP), and Student-Centered Quality Management (SCQM). Together, these dimensions capture the essential characteristics of adaptive, innovative, and knowledge-driven educational institutions aligned with global trends in vocational education (OECD, 2019; World Bank, 2020; UNESCO, 2021).

Each variable represents a critical dimension of institutional effectiveness and sustainability. Learning Leadership (LL) emphasizes the strategic role of administrators in fostering innovation and professional growth, while Shared Vision (SV) ensures organizational alignment and collective commitment. Continuous Learning Culture (CLC) and Team Learning Unity (TLU) highlight internal capacity building through collaboration and lifelong learning practices. Embedded Knowledge System (KS) and System Connectivity (SC) focus on knowledge management and external partnerships, particularly with industry and community stakeholders, which are essential in vocational education contexts. Meanwhile, Data-Driven Policy (DDP) supports evidence-based decision-making, and Student-Centered Quality Management (SCQM) ensures that institutional practices are aligned with learner outcomes and educational quality standards (Fullan, 2020; Hallinger & Kulophas, 2020; Zhang & Cheng, 2021). These eight variables collectively form a comprehensive analytical framework for examining and developing a learning organization model in higher vocational colleges. The integration of these factors reflects current policy directions and reform initiatives in education systems, particularly in China, where there is strong emphasis on modernization, quality enhancement, and innovation in vocational education. This framework also supports empirical validation through advanced statistical

techniques, ensuring both theoretical and practical relevance. Consequently, the defined variables provide a solid foundation for constructing a model that enhances institutional performance, strengthens workforce readiness, and promotes sustainable development in higher vocational education (Hair et al., 2022; Li, 2020; Ministry of Education of the People's Republic of China, 2019; State Council of the People's Republic of China, 2021).

## Recommendations

### 1. Recommendations for the application of research results

1.1 Based on the findings of this study, higher vocational colleges in Shandong Province should adopt the proposed Learning Organization Management Model as a strategic framework for institutional development. Administrators are encouraged to strengthen learning leadership (LL) by promoting continuous professional development and fostering innovation among teachers and staff. Institutions should also cultivate a strong shared vision (SV) to align organizational goals and enhance collective commitment. In addition, establishing a Continuous Learning Culture (CLC) and promoting team learning unity (TLU) can enhance collaboration, knowledge exchange, and problem-solving across departments.

1.2 The institutions should invest in developing robust embedded knowledge systems (KS) supported by digital technologies to facilitate knowledge management and organizational learning. Strengthening system connectivity through partnerships with industry, community, and external stakeholders is essential to ensure that educational programs remain relevant to labor market needs. The adoption of data-driven policy (DDP) practices is also recommended to improve decision-making, planning, and evaluation processes. Finally, institutions should prioritize student-centered quality management (SCQM) to

enhance learning outcomes, student development, and overall educational quality.

## 2. Recommendations for future research

2.1 Future research should further validate the proposed model using Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM) to test the relationships among variables and ensure the model's robustness across different contexts. Researchers may also expand the study to other regions in China or internationally to examine the generalizability of the model in diverse educational environments.

2.2 The future studies should explore the impact of each factor on specific outcomes such as teacher performance, student achievement, and institutional effectiveness. Longitudinal research designs are recommended to examine the sustainability of learning organization practices over time. Moreover, qualitative approaches, such as case studies and in-depth interviews, could provide deeper insights into how these factors are implemented in real institutional settings and how they influence organizational transformation.

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