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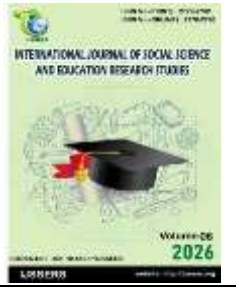

Teachers' Quality and Teaching Methods in Relation to Students' Key Competency in Higher Vocational Colleges: The Mediating Role of Learning Motivation

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ABSTRACT

This study investigates the relationships among teachers' quality, teaching methods, and students' key competency in higher vocational colleges, with learning motivation as a mediating variable. A quantitative correlational design was employed, collecting data from 384 students in Liaoning Province, China, using a structured questionnaire and stratified random sampling. Analyses were conducted with SPSS 29.0 and SmartPLS 4.0, including descriptive statistics, correlation analysis, multiple regression, and partial least squares structural equation modeling (PLS-SEM).

Results indicate that teachers' quality and teaching methods are significantly associated with students' key competency. Learning motivation is positively related to both instructional factors and key competency, and partially mediates these relationships. These findings suggest that the impact of teachers' quality and teaching methods on students' competencies operates through both direct and motivational pathways. The study provides empirical evidence for enhancing competency development in higher vocational education, highlighting the importance of integrating teacher professionalism, effective pedagogy, and student motivation.

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KEYWORDS:
teachers' quality; teaching methods; key competency; learning motivation; higher vocational colleges

1. INTRODUCTION

Higher vocational education (HVE) plays a critical role in China's educational and economic development, particularly in regions such as Liaoning, which is transitioning from traditional manufacturing to high-end industries and services (Liaoning Provincial Department of Education, 2023).

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Higher vocational colleges in Liaoning, enrolling over 400,000 students across 51 institutions, are central to cultivating technically skilled, adaptable, and innovative professionals capable of supporting regional industrial upgrading.

Cultivating students' key competencies—critical thinking, problem-solving, communication, and lifelong learning—is essential for employability and professional growth. However, HVE students often show insufficient development in these areas, partly due to teacher-centered instruction, limited practical engagement, and inadequate attention to internal learning motivation (Zhang, 2022; Kounkroo, 2025).

Teachers' quality and teaching methods are vital to enhancing

competency development. High-quality teachers facilitate applied learning, while effective, student-centered teaching methods promote engagement, problem-solving, and interdisciplinary skills (Backfisch, 2020; Tang et al., 2020). Students' learning motivation may further influence how these external instructional factors affect competency outcomes, acting as a mediator between teaching inputs and student achievements (Effendi, 2020; Dong, 2024).

Given the strategic significance of vocational talent development under policies such as China's "Manufacturing Powerhouse" initiative, understanding how teachers' quality, teaching methods, and learning motivation interact to influence key competency is crucial. This study addresses this gap in the context of HVE students in Liaoning Province.

2. LITERATURE REVIEW

2.1 Key Competencies

Key competencies are transferable abilities that enable individuals to navigate complex work environments, engage in lifelong learning, and achieve career success (Li & Wang, 2023). Competency-based education in China emphasizes professional knowledge as well as critical thinking, creativity, collaboration, and digital literacy (Huang & Li, 2022). International vocational models, such as Germany's dual system, North American competency-based frameworks, and Australia's TAFE system, similarly integrate theoretical knowledge with applied practice to develop competencies (Brown, 2023).

2.2 Teachers' Quality

Teacher quality, encompassing moral standards, professional knowledge, and practical skills, is a key determinant of students' competency development. High-quality teachers provide guidance that fosters critical thinking and problem-solving, while professional development supports adaptability to industry changes (Li, 2020; Backfisch, 2020). Teacher quality also influences students' motivation and engagement, directly affecting learning outcomes (Amaliah et al., 2024).

2.3 Teaching Methods

Teaching methods directly impact learning engagement and competency acquisition. Student-centered, experiential, and project-based approaches enhance practical skills, cognitive development, and innovation capacity (Muchlis & Turmudi, 2025; Auliyani et al., 2025). Blended and flipped classrooms promote autonomy and self-directed learning (Chen et al., 2023). Traditional teacher-centered methods remain prevalent but may limit initiative and problem-solving abilities, underscoring the need for active, participatory pedagogy (Yang et al., 2025; Kreitzer & Sweet-Cushman, 2021).

2.4 Learning Motivation

Learning motivation, both intrinsic and extrinsic, shapes engagement, persistence, and competency development. Motivated students internalize learning, participate in applied tasks, and transfer knowledge effectively (Effendi, 2020; Filgona et al., 2020). In HVE, learning motivation mediates the effects of teacher quality and teaching methods on competency outcomes (Jayalath & Esichaikul, 2022; Fauzan et al., 2023).

2.5 Research Gap

While previous studies emphasize teacher quality and teaching methods, few have examined the mediating role of learning motivation in HVE contexts in China, particularly in industrially transforming provinces such as Liaoning. This study addresses this gap, providing empirical evidence on how instructional factors and motivation jointly influence key competencies.

3. METHODOLOGY

3.1 Research Design

A quantitative correlational design was employed to examine the direct and indirect relationships among teachers' quality, teaching methods, learning motivation, and key competency. Learning motivation was tested as a mediating variable, consistent with prior research emphasizing psychological mechanisms in competency development (Creswell & Creswell, 2018).

3.2 Population and Sample

The study population comprised students from 51 higher vocational colleges in Liaoning, with over 412,000 enrolled students. Stratified random sampling selected three colleges representing science and technology, business, and comprehensive programs, with 128 students randomly sampled from each. The final sample included 384 students aged 18–23, including freshmen, sophomores, and juniors.

3.3 Instruments

Data were collected using a structured questionnaire with four constructs:

Teachers' Quality (IV1): moral quality, knowledge quality, skill quality

Teaching Methods (IV2): teacher approach, student approach, learning outcomes
Learning Motivation (MV): intrinsic and extrinsic motivation
Key Competency (DV): professional character & culture, life & career competency, learning & innovation competency, information & technology competency
All items were rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree).

3.4 Data Collection

The questionnaire was administered online and in-person. Informed consent was obtained, and responses were anonymized.

3.5 Data Analysis

Analyses were conducted in SPSS 29.0 and SmartPLS 4.0:
Descriptive statistics: mean, SD, min, max
Correlation and regression analyses: Pearson correlations and multiple regression
Structural Equation Modeling (PLS-SEM): tested direct and indirect effects, including mediation
Reliability and validity: Cronbach's α and composite reliability > 0.70; factor loadings > 0.70, AVE > 0.50; discriminant validity supported via Fornell-Larcker criterion

4. RESULTS

4.1 Descriptive Statistics

Students demonstrated moderate key competency levels (M = 3.30, SD = 0.694). Professional character & culture scored highest (M = 3.34), and information & technology competency scored lowest (M = 3.22) (Table 1).

Table 1. Descriptive Statistics of Key Competency (N = 384)

Variable/Dimension	*Min*	*Max*	*M*	*SD*
Key Competency	1.75	5	3.30	0.694
Professional Character & Culture	1	5	3.34	1.006
Life & Career Competency	1.14	5	3.33	1.004
Learning & Innovation Competency	1.14	5	3.29	0.973
Information & Technology Competency	1.14	5	3.22	1.039

4.2 Correlation Analysis

Significant positive correlations were observed: teachers' quality and key competency (r = 0.607), teaching methods and key competency (r = 0.554), teachers' quality and learning motivation (r = 0.540), teaching methods and learning motivation (r = 0.443), and learning motivation and key competency (r = 0.503), all $p < 0.001$.

4.3 Regression and Mediation Analysis

Regression analysis showed teachers' quality (β = 0.430) and teaching methods (β = 0.303) significantly predicted key competency. Learning motivation partially mediated these relationships (β = 0.097) (Table 2).

Table 2. Regression Weights (N = 384)

	Regression weight	T	P
Teachers' Quality→ Key Competency	0.430	9.479	0.000
Teachers' Quality → Learning Motivation	0.382	8.891	0.000
Teaching Methods → Key Competency	0.303	7.465	0.000
Teaching Methods → Learning Motivation	0.328	6.944	0.000
Learning Motivation → Key Competency	0.097	2.089	0.037

4.4 PLS-SEM Analysis

Teachers' quality and teaching methods influenced key competency both directly and indirectly via learning motivation, confirming partial mediation. Measurement model demonstrated strong reliability and validity (factor loadings > 0.70, AVE > 0.50, CR > 0.70).

5. DISCUSSION

This study explored the relationships among teachers' quality, teaching methods, learning motivation, and students' key competencies in higher vocational education. The results indicate that teachers' quality and teaching methods both have significant positive effects on students' key competencies, while learning motivation serves as a partial mediator. These findings are consistent with human capital theory (Schultz, 1961), competency-based education theory (Bloom, 1967), and Maslow's hierarchy of needs (Maslow, 1943), which emphasize the combined roles of instructional quality and learner motivation in human development.

The results confirm that teachers' quality is a key determinant of students' key competency development in vocational education. Teachers with strong professional literacy, industry awareness, and pedagogical competence are better able to translate labor market requirements into curriculum objectives and learning activities. Previous studies have emphasized that systematic teacher development and close engagement with industry are essential for competency-oriented vocational education (Sun et al., 2024; Liu, 2023). The present findings extend this research by providing empirical evidence that teachers' quality directly contributes to students' key competencies, highlighting the foundational role of teacher professionalism in vocational education reform. Teaching methods also play a significant role in promoting students' key competencies. Consistent with prior research, the findings suggest that student-centered and practice-oriented instructional approaches are more effective than traditional teacher-centered methods in cultivating higher-order competencies, such as problem-solving, creativity, and adaptability (He et al., 2024; Bauman et al., 2021). Innovative teaching methods that integrate real-world contexts and active learning appear to enhance students' engagement and competency development. This study further supports the view that instructional innovation is a critical mechanism for improving learning outcomes in vocational education. Importantly, learning motivation was found to partially mediate the relationships between teachers' quality, teaching methods, and students' key competencies. This result indicates that the effects of instructional inputs on competency development operate not only through direct instruction but also through students' motivational processes. Teachers' professional quality and effective teaching strategies can stimulate learning motivation by providing meaningful feedback, achievable goals, and relevant learning experiences (Dong et al., 2024; Geng et al., 2022). Moreover, teaching methods that emphasize relevance, autonomy, and collaboration are more likely to foster deeper forms of learning motivation, which are closely associated with the development of higher-order competencies (Sugiyanto et al., 2020). By empirically validating this mediating role, the study clarifies how and why instructional factors influence students' key competency development. Another important implication is that teachers' quality and teaching methods should be understood as interrelated rather than independent factors. High-quality teachers are better positioned to implement innovative teaching methods effectively, while well-designed instructional approaches can amplify the positive effects of teachers' professional quality on students' motivation and learning outcomes. This synergy suggests that isolated reforms focusing solely on teachers or teaching methods may be insufficient. From a practical perspective, the findings suggest that vocational colleges should adopt an integrated strategy that simultaneously enhances teacher professional development, promotes instructional innovation, and supports students' learning motivation. Such a comprehensive approach is likely to be more effective in fostering students' key competencies and improving the overall quality of vocational education.

In conclusion, this study demonstrates that teachers' quality and teaching methods are critical drivers of students' key competency development in higher vocational education, both directly and indirectly through learning motivation. By highlighting the mediating role of learning motivation and the synergistic interaction between instructional factors, the study contributes to a clearer understanding of competency development mechanisms and offers practical insights for vocational education reform.

6. CONCLUSION

Teachers' quality and teaching methods are critical for developing students' key competencies in HVE, and learning motivation partially mediates these effects. Integrated strategies combining teacher development, pedagogical innovation, and student motivation are essential for effective competency-based education in Chinese higher vocational colleges.

Theoretical Implications: Support human capital theory, competency-based education theory, and motivational

frameworks.

Practical Implications: Focus on teacher training, interactive pedagogy, and student motivation initiatives.

Limitations: Single-region, cross-sectional design, self-reported data.

Future Research: Expand sample size, include longitudinal and cross-regional studies, explore additional mediators.

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