

INNOVATION MANAGEMENT AS A DRIVER OF TEACHERS' PROFESSIONAL IDENTITY IN HIGHER VOCATIONAL COLLEGES

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ABSTRACT

Higher vocational colleges worldwide are undergoing profound transformation driven by digitalization, technological innovation, and evolving industry demands. Strengthening teachers' professional identity has become essential for improving teaching quality and institutional innovation capacity. While prior studies have primarily examined individual and psychological determinants of teachers' professional identity, limited attention has been paid to the strategic role of innovation management at the institutional level. This conceptual paper examines how innovation management functions as a strategic driver of teachers' professional identity in higher vocational colleges. Drawing on Innovation Management Theory, Social Cognitive Theory, and the Quadruple Helix Innovation Framework, the study proposes a conceptual model illustrating how four organizational dimensions of innovation management—innovation-oriented climate, leadership and governance, digital transformation and resource support, and industry–education collaboration—enhance teachers' professional identity through four mediating mechanisms: self-efficacy, professional learning, organizational commitment, and collaborative innovation capability. Eight research propositions are formulated to guide future empirical investigation. The study contributes by repositioning innovation management from an administrative function to a strategic governance capability that creates enabling conditions for teacher professional development in vocational education contexts.

Keywords: Innovation Management; Teachers' Professional Identity; Higher Vocational Colleges; Organizational Climate; Digital Transformation

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INTRODUCTION

The rapid advancement of digital technologies, artificial intelligence (AI), Industry 4.0, and the knowledge economy has fundamentally transformed higher vocational education worldwide. Vocational colleges are increasingly expected to cultivate graduates with interdisciplinary competencies, technological literacy, and innovation capability (Xin et al., 2024). Consequently, institutions must continuously innovate their curricula, governance systems, and pedagogical practices to remain responsive to industrial transformation (Sporn, 2025). Within this changing environment, teachers play a pivotal role—their professional competence, commitment, and adaptability directly influence teaching effectiveness and institutional performance (Nurtanto et al., 2023).

Teachers' professional identity, broadly defined as the perceptions, values, beliefs, and commitments that individuals associate with their professional roles, has emerged as a critical construct in vocational education research. A robust professional identity is associated with higher teaching self-efficacy, greater job satisfaction, lower turnover intention, and stronger engagement in educational innovation (Wang & Yu, 2024; Bacsá-Bán, 2024). In higher vocational education, professional identity is particularly complex because teachers are expected to function simultaneously as educators, industry practitioners, and innovators (Antera & Teräs, 2024).

Existing scholarship has identified self-efficacy, professional learning, leadership support, and organizational culture as important determinants of professional identity (Li et al., 2025; Goddard et al., 2000). However, most research has focused on individual-level factors, while organizational conditions have received less attention (Vignjević Korotaj, 2023). As vocational colleges increasingly pursue innovation-driven development, innovation management has emerged as a strategic organizational capability encompassing leadership, culture, digital transformation, resource integration, and multi-stakeholder collaboration (Tidd & Bessant, 2021). These organizational practices create environments that support professional learning and collaborative innovation, and may therefore significantly influence teachers' professional identity. Yet few studies have systematically examined this relationship (Nurtanto et al., 2023; Hosseini & Shirazi, 2021).

To address this gap, this conceptual paper pursues three objectives: (a) to examine innovation management as a strategic driver of teachers' professional identity in higher vocational colleges; (b) to propose an integrative conceptual framework grounded in Innovation Management Theory, Social Cognitive Theory, and the Quadruple Helix Innovation Framework; and (c) to formulate testable research propositions to guide future empirical investigation.

LITERATURE REVIEW

2.1 Innovation Management in Higher Vocational Education

Innovation management refers to the systematic planning, implementation, and evaluation of innovation-related strategies, organizational processes, and governance mechanisms that enhance institutional effectiveness and adaptability (Tidd & Bessant, 2021). In educational settings, it extends beyond technological adoption to encompass leadership, organizational culture, knowledge sharing, digital transformation, strategic resource allocation, and multi-stakeholder collaboration (Du & Chang, 2023). Unlike traditional management approaches that prioritize operational efficiency, innovation management emphasizes creating organizational environments that encourage experimentation, knowledge exchange, and continuous improvement (Hosseini & Shirazi, 2021).

Higher vocational colleges operate within rapidly changing technological and industrial environments demanding ongoing institutional renewal. Research indicates that innovation-oriented institutions establish flexible governance structures, invest in digital infrastructure, develop industry partnerships, and encourage faculty participation in decision-making (Asiedu et al., 2020; Lv et al., 2022). Such practices simultaneously support organizational innovation and

teacher professional development. In the Chinese context, innovation management has gained prominence following national policy initiatives such as the “Double High Plan,” which calls for strengthening institutional innovation capacity and teacher development (Chen, 2024). However, systematic frameworks linking these organizational practices to teacher-level outcomes remain underdeveloped.

2.2 Teachers' Professional Identity

Teachers' professional identity is a dynamic, multifaceted construct shaped through ongoing interactions between individual experiences, organizational contexts, and broader socio-institutional environments (Vignjević Korotaj, 2023). It is not a fixed attribute but is continuously negotiated as teachers navigate changing educational demands and professional development trajectories (Trent & Liu, 2024). In vocational education, professional identity is particularly complex due to the dual expectations placed upon teachers: they must integrate pedagogical expertise with occupational competence, functioning as both educators and industry practitioners (Andersson & Köpsén, 2019; Antera & Teräs, 2024).

Empirical research has identified multiple determinants of professional identity. A large-scale study of 9,305 Chinese vocational teachers found that organizational climate dimensions—empowering, supportive, and academic—significantly shaped teachers' self-efficacy and professional identity (Li et al., 2025). Self-efficacy consistently predicts stronger professional identity (Goddard et al., 2000), while professional learning opportunities, including collaborative inquiry, mentoring, and industry placements, contribute to identity development (Zhao & Ko, 2024). Organizational support, leadership practices, and career development pathways further shape how teachers perceive their professional roles and value (Wang & Yu, 2024). In the Chinese context, Liu et al. (2025) identified distinct professional identity orientations among “dual-qualified” vocational teachers, while Wang and Li (2025) conceptualized vocational teachers' professional identity as comprising cognitive, practical, and role-based dimensions shaped by digital transformation. Wu (2022) applied ecosystem theory to highlight the nested contextual influences on young vocational college teachers' identity formation.

2.3 The Intersection of Innovation Management and Professional Identity

Emerging evidence suggests meaningful connections between innovation management practices and teachers' professional identity, though systematic examination remains limited. Xie (2024) found a significant positive correlation between vocational teachers' professional identity and innovative teaching behavior. Organizational innovation climate has been linked to teachers' creativity: Du and Chang (2023) demonstrated that a positive innovation climate significantly predicted creative teaching and research skills, while a university playfulness climate enhanced sustainable teaching innovation through increased job engagement.

Digital transformation exerts complex effects on professional identity. Wang and Yu (2024) found that digitalization moderated the relationship between professional identity and turnover intention among Chinese higher vocational teachers, with successful digital adaptation strengthening identity. Conversely, insufficient digital support may generate technology-related stress and identity threat (Chen, 2024; Wang & Li, 2025). Xin et al. (2024), in a study of 2,514 Chinese TVET teachers, identified significant gaps in digital competence that constrain professional development. Industry–education collaboration provides additional pathways: Zhao and Ko (2024) found that teachers' workplace learning through industry partnerships strengthened professional engagement, while Lv et al. (2022) demonstrated that organizational culture positively influenced industry–academy cooperation through enhanced occupational commitment.

Despite these suggestive findings, three gaps persist. First, innovation management and professional identity have typically been examined as parallel rather than causally linked phenomena. Second, predominantly Western frameworks may not fully capture the dynamics of vocational education systems with close government–industry–institution relationships

(Carayannis et al., 2018). Third, the literature lacks an integrated conceptual model connecting organizational innovation practices to individual identity outcomes. This study addresses these gaps by proposing an integrative framework and testable research propositions.

THEORETICAL FRAMEWORK

3.1 Innovation Management as a Strategic Driver

Innovation management has increasingly been recognized as a strategic organizational capability supporting institutional development in rapidly changing educational environments (Tidd & Bessant, 2021). In higher vocational colleges, it encompasses organizational learning, strategic leadership, digital transformation, resource integration, and multi-stakeholder collaboration (Barbosa-Gómez et al., 2024). We argue that innovation management should be conceptualized as a strategic organizational driver that shapes teachers' professional identity through multiple institutional pathways, rather than a set of discrete administrative practices (Jemmy et al., 2025). In vocational education, where teachers perform multiple roles—educator, researcher, industry practitioner, and innovator—the increasing complexity of these roles requires organizational mechanisms supporting continuous professional learning and adaptive capacity (Andersson & Köpsén, 2019).

3.2 Theoretical Foundation

This study integrates three complementary theoretical perspectives.

First, Innovation Management Theory (IMT) posits that organizational innovation is achieved through the systematic interaction of strategic leadership, innovation-supportive culture, knowledge management, resource allocation, and external collaboration (Tidd & Bessant, 2021). Innovation is thus an organizational capability embedded in institutional structures and culture, not an isolated technological activity. In higher vocational colleges, innovation-oriented governance creates environments that encourage professional collaboration and pedagogical experimentation, providing the organizational antecedents—the “supply side”—of teacher identity formation (Asiedu et al., 2020).

Second, Social Cognitive Theory (SCT; Bandura, 1986) emphasizes the triadic reciprocal relationship among environmental factors, personal cognition, and individual behavior. Teachers' professional identity develops through continuous interaction with the institutional environment (Li et al., 2025). Innovation-oriented organizational practices enhance self-efficacy by providing mastery experiences, vicarious learning, social persuasion, and collaborative problem-solving—the four primary sources of self-efficacy (Bandura, 1986). SCT thus explains the psychological mechanisms—the “demand side”—through which organizational conditions translate into individual identity outcomes (Wang & Yu, 2024).

Third, the Quadruple Helix Innovation Framework (Carayannis et al., 2018) extends the triple helix model (university–industry–government) by incorporating civil society, emphasizing that sustainable innovation emerges from multi-stakeholder collaboration across institutional boundaries. Higher vocational colleges maintain particularly close relationships with industry, government, and local communities (Lv et al., 2022; Zhao & Ko, 2024). Through these interactions, teachers engage in curriculum co-development, applied research, and enterprise consultation—activities that reinforce their identity as boundary-spanning professionals (Barbosa-Gómez et al., 2024). The Quadruple Helix framework thus explains the ecosystem mechanisms—the “interaction side”—connecting institutional innovation environments with teachers' professional identity.

Together, these three perspectives provide a multi-level explanation: IMT explains the organizational conditions, SCT explains the cognitive and motivational processes, and the Quadruple Helix explains the broader collaborative ecosystem reinforcing identity. This integration addresses the limitations of single-lens approaches that examine professional identity through only psychological or organizational perspectives (Nurtanto et al., 2023).

3.3 Conceptual Framework

The proposed conceptual framework positions innovation management as the primary organizational driver, operationalized through four interrelated dimensions: (a) innovation-oriented organizational climate, characterized by openness, psychological safety, and commitment to continuous improvement (Du & Chang, 2023); (b) leadership and innovation governance, encompassing strategic vision-setting, distributed decision-making, and incentive structures recognizing innovative contributions (Hosseini & Shirazi, 2021); (c) digital transformation and resource support, referring to institutional investment in digital infrastructure, professional development, and teachers' digital competence development (Xin et al., 2024); and (d) industry–education collaboration, capturing institutional mechanisms for teachers' engagement with industry through curriculum co-development, applied research, and professional exchange (Zhao & Ko, 2024; Lv et al., 2022).

These organizational dimensions are hypothesized to enhance teachers' professional identity through four mediating mechanisms: (a) self-efficacy—the core psychological mechanism linking environmental support to professional identity (Goddard et al., 2000); (b) professional learning—including formal training, collaborative inquiry, and workplace learning (Nurtanto et al., 2023); (c) organizational commitment—teachers' affective attachment to their institution (Lv et al., 2022); and (d) collaborative innovation capability—the behavioral manifestation of professional identity within innovation-oriented environments (Xie, 2024). The framework posits that innovation-oriented practices create conditions that strengthen self-efficacy, expand professional learning, deepen organizational commitment, and cultivate collaborative innovation capability, which collectively foster robust, adaptive professional identity.

RESEARCH PROPOSITIONS

Based on the conceptual framework, this section formulates eight testable research propositions organized according to the four organizational dimensions and the mediating mechanisms specified in the framework.

4.1 Innovation-Oriented Organizational Climate

An innovation-oriented climate characterized by openness, collaboration, and support for experimentation creates psychological conditions conducive to professional identity development. Teachers in such environments engage more in innovative pedagogical practices and develop stronger professional confidence (Du & Chang, 2023). Such climates signal that creativity and professional initiative are valued, reinforcing teachers' professional self-worth (Xie, 2024).

Proposition 1a: Innovation-oriented organizational climate is positively associated with teachers' professional identity in higher vocational colleges.

Proposition 1b: The relationship between innovation-oriented organizational climate and teachers' professional identity is mediated by self-efficacy and professional learning.

4.2 Leadership and Innovation Governance

Innovation-oriented leadership involves articulating a vision for educational innovation, distributing decision-making authority, and recognizing innovative contributions (Hosseini & Shirazi, 2021). Such practices enhance teachers' sense of professional value and organizational belonging (Wang & Yu, 2024). When teachers perceive alignment between institutional innovation goals and personal professional aspirations, they invest more in identity-consistent behaviors.

Proposition 2a: Innovation-oriented leadership and governance are positively associated with teachers' professional identity in higher vocational colleges.

Proposition 2b: The relationship between innovation-oriented leadership and teachers' professional identity is mediated by organizational commitment and self-efficacy.

4.3 Digital Transformation and Resource Support

Digital transformation, supported by adequate institutional investment in infrastructure, training, and pedagogical resources, enables teachers to develop digital competencies required for contemporary vocational education (Xin et al., 2024). Comprehensive digital support strengthens professional confidence; insufficient support may generate technology-related stress and identity threat (Wang & Yu, 2024; Chen, 2024).

Proposition 3a: Digital transformation and resource support are positively associated with teachers' professional identity in higher vocational colleges.

Proposition 3b: The relationship between digital transformation/resource support and teachers' professional identity is mediated by self-efficacy and professional learning.

4.4 Industry–Education Collaboration

Industry–education collaboration provides authentic professional experiences—curriculum co-development, applied research, internship supervision, and professional exchange—that reinforce teachers' dual identity as educators and practitioners (Zhao & Ko, 2024; Andersson & Köpsén, 2019). Such activities help teachers maintain industry knowledge and strengthen professional credibility (Lv et al., 2022).

Proposition 4a: Industry–education collaboration is positively associated with teachers' professional identity in higher vocational colleges.

Proposition 4b: The relationship between industry–education collaboration and teachers' professional identity is mediated by collaborative innovation capability and professional learning.

DISCUSSION AND IMPLICATIONS

This conceptual study argues that innovation management serves as a strategic organizational driver of teachers' professional identity in higher vocational colleges. Unlike studies that examine professional identity primarily from psychological or individual-level perspectives (Nurtanto et al., 2023; Li et al., 2025), this paper proposes that teachers' professional identity is also systematically shaped by organizational innovation processes—an innovation-oriented climate, supportive leadership, digital resources, and industry partnerships—that enable professional learning, strengthen self-efficacy, deepen organizational commitment, and cultivate collaborative innovation capability.

5.1 Theoretical Contributions

This study makes several theoretical contributions. First, it extends innovation management theory from organizational performance to teacher development. While existing studies conceptualize innovation management as a strategy for improving institutional effectiveness (Asiedu et al., 2020; Jemmy et al., 2025), this paper repositions it as a strategic driver of teachers' professional identity through mutually reinforcing organizational practices—culture, leadership, digitalization, and external collaboration.

Second, it enriches the professional identity literature by foregrounding organizational contexts. Prior research has extensively documented individual-level determinants (Goddard et al., 2000; Li et al., 2025); the present framework demonstrates that professional identity is simultaneously shaped by the organizational innovation environment, specifying the institutional mechanisms through which organizational conditions translate into individual identity outcomes (Vignjević Korotaj, 2023).

Third, the paper contributes a novel theoretical integration combining IMT, SCT, and the Quadruple Helix framework. This multi-level architecture addresses critiques that existing professional identity research is theoretically fragmented (Nurtanto et al., 2023) and responds to calls for frameworks bridging organizational and individual levels of analysis in vocational education research. Fourth, the eight testable propositions provide a clear agenda for future empirical work using SEM or PLS-SEM approaches, moving beyond general description to falsifiable theoretical claims.

5.2 Practical Implications

The framework offers actionable implications. First, colleges should cultivate innovation-oriented climates that recognize creativity, tolerate well-intentioned failure, and incentivize knowledge sharing—creating psychological safety for teachers to innovate and thereby strengthen professional identity (Du & Chang, 2023). Second, leadership development should shift from directive management toward distributed models that empower teacher participation in strategic decision-making. Third, institutions should sustain investment in digital infrastructure with comprehensive professional development; digital transformation without support generates anxiety, while with proper training it enhances professional competence (Xin et al., 2024; Wang & Yu, 2024). Fourth, industry–education collaboration should be treated as a strategic priority, operationalized through placement programs, joint research projects, and dual appointment systems that reinforce teachers’ dual professional identity (Zhao & Ko, 2024; Lv et al., 2022).

5.3 Limitations and Future Research

Several limitations should be acknowledged. First, as a conceptual paper, the proposed framework and propositions await empirical validation using SEM or PLS-SEM with survey data from multiple higher vocational colleges. Validated scales exist for most constructs (Du & Chang, 2023; Nurtanto et al., 2023; Lv et al., 2022), facilitating operationalization. Second, the framework focuses on higher vocational colleges; future research should examine generalizability across institutional types and national contexts (Sporn, 2025). Third, potential moderators—teaching experience, digital competence, career stage, institutional characteristics—warrant investigation (Wu, 2022). Fourth, longitudinal designs would enable stronger causal inference regarding how changes in innovation management practices correspond to changes in professional identity over time (Vignjević Korotaj, 2023). Finally, culturally specific dimensions of innovation management in non-Western contexts may require refinement of the proposed model (Liu et al., 2025).

CONCLUSION

This conceptual paper has examined innovation management as a strategic driver of teachers’ professional identity in higher vocational colleges. The proposed framework specifies how four organizational dimensions of innovation management—innovation-oriented climate, leadership and governance, digital transformation and resource support, and industry–education collaboration—enhance teachers’ professional identity through four mediating mechanisms: self-efficacy, professional learning, organizational commitment, and collaborative innovation capability. The study contributes by repositioning innovation management from an administrative function to a strategic governance capability and by developing eight testable research propositions for future empirical investigation. As vocational education navigates an era of unprecedented technological and social change, the ability of institutions to cultivate teachers’ professional identity through strategic innovation management will become increasingly vital. We hope the framework and propositions advanced here will stimulate rigorous empirical research and inform evidence-based institutional practices supporting the professional growth of vocational educators.

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