A Literature Review on the Relationship Between Vocational Calling and Knowledge Workers' Innovative Behavior

Abstract

In the knowledge economy era, the core of corporate competition has shifted to a contest of innovation capabilities. Knowledge workers, as key agents of innovation, exhibit innovation behaviors influenced by multiple internal and external factors. In recent years, the driving mechanisms of knowledge workers' innovation behaviors through professional calling and professional identity–important intrinsic psychological variables–have emerged as a frontier research topic in organizational behavior studies.This study systematically reviews domestic and international research from 1990 to 2024 based on Vocation Theory, Self-Determination Theory, and Social Identity Theory. It provides an in-depth analysis of the conceptual frameworks, dimensional structures, and measurement tool development trajectories of these three core variables.Findings reveal that: - Vocational calling significantly enhances knowledge workers' innovation behavior by imparting deep meaning and prosocial motivation to work; - Professional identity provides sustained momentum for innovation by strengthening role commitment and internalizing professional norms; - A theoretical pathway exists between the two: "vocational calling → professional identity → innovation behavior," which is moderated by contextual factors such as organizational support and leadership style.Existing research exhibits limitations in theoretical integration, research perspective diversity, group coverage breadth, and depth of mechanism exploration. Future studies should construct an integrated theoretical framework, enhance dynamic tracking and cross-cultural comparisons, and expand focus on knowledge workers in emerging industries to deepen theoretical understanding and provide more actionable guidance for corporate innovation management practices.

Keywords: Professional Calling; Professional Identity; Knowledge Workers; Innovative Behavior; Literature Review

I. Introduction

(1) Research Background and Problem Statement

With the deep integration of global economic integration and digital technology, the knowledge economy has become the dominant force driving societal development. Against this backdrop, the competitive paradigm of enterprises has undergone a fundamental shift: from traditional resource-scale competition to capability-based competition centered on innovation.As the key group possessing specialized knowledge and innovative capabilities, knowledge workers' creative outputs directly determine an enterprise's technological innovation capacity, product iteration speed, and business model vitality. However, management practices indicate that many enterprises face challenges in stimulating and sustaining the innovative behavior of knowledge workers, with insufficient innovation motivation and weak innovation persistence becoming

common phenomena.

Traditional research primarily explores the determinants of innovation behavior through two dimensions: organizational environmental factors (including leadership styles, incentive mechanisms, and organizational culture) and individual capability factors (such as professional knowledge levels and problem-solving abilities). While these studies have yielded substantial findings, they often overlook the underlying psychological mechanisms driving innovation behavior. In recent years, the concepts of vocational calling and vocational identity—as core psychological constructs linking individuals to their work—have garnered significant academic attention.Vocational calling embodies an individual's perception of work meaning and pursuit of value, while vocational identity reflects psychological acceptance of and emotional commitment to one's professional role. How do these two constructs interactively influence knowledge workers' innovation behavior? What are their underlying mechanisms and boundary conditions? Exploring these questions not only advances the theoretical framework of innovation behavior but also offers new insights for corporate human resource management practices.

(II) Research Objectives and Significance

This study aims to achieve the following four objectives through systematic literature review and integrative analysis: First, clarify the theoretical origins, conceptual evolution, and operational definitions of the three core concepts—vocational calling, professional identity, and innovation behavior among knowledge workers – while specifying the applicability and psychometric properties of mainstream measurement tools;Second, map the antecedent variable networks and outcome variable lineages for each variable to construct a relatively comprehensive causal relationship diagram. Third, synthesize existing research findings on inter-variable relationships, particularly focusing on the mediating role of professional identity between vocational calling and innovation behavior, as well as the moderating effects of organizational contextual factors. Fourth, critically evaluate the theoretical contributions and methodological limitations of existing studies, identify significant research gaps, and provide a clear roadmap for future theoretical development and empirical research.

Theoretically, this study integrates the intrinsic psychological variables of vocational calling and vocational identity into the explanatory framework of innovation behavior, moving beyond traditional research's excessive focus on external factors and surface-level capabilities. This contributes to constructing a more comprehensive theory of innovation-driven development. Furthermore, by synthesizing vocational calling theory, self-determination theory, and social identity theory, it promotes the cross-fertilization of multiple theoretical perspectives, advancing the depth of organizational behavior theory.From a practical perspective, the findings provide a basis for enterprises to design more effective innovation incentive systems. Specifically, in areas such as recruitment and selection, career development, cultural building, and leadership cultivation, the study offers concrete strategies for stimulating innovation vitality by enhancing employees' vocational calling and identity.

(II) Research Approach and Methodology

This study employs a systematic literature review methodology, following the logical sequence

of "conceptual definition → sub-variable review → relationship integration → research commentary."During the literature search phase, keywords including "career calling,""professional identity,""knowledge worker," and "innovative behavior" were used to retrieve articles from Chinese and English databases such as CNKI and Web of Science, covering the period from 1990 to 2024.Through title and abstract screening followed by full-text reading, 258 high-quality articles were ultimately selected as the analytical foundation. During the literature analysis phase, content analysis and comparative research methods were employed to code, categorize, and integrate the literature, ensuring the comprehensiveness and depth of the review.

II. Theoretical Foundations

Vocation Theory: This theory provides a core framework for understanding the essence and functions of vocation. The vocation theory model constructed by Dik and Duffy (2009) comprises three core propositions: First, vocation originates from the pursuit of deep meaning in work; second, vocation drives prosocial behavior;Third, it promotes the integration of work and life. For knowledge workers, innovative behavior is often regarded as a key pathway to fulfilling vocational calling—through creative work, they achieve both self-actualization and societal contribution, thereby attaining dual meaning fulfillment.

Self-Determination Theory: Deci and Ryan (1985) proposed Self-Determination Theory, which explains human motivation from the perspective of basic psychological needs. The theory posits that autonomy, competence, and relatedness are three fundamental psychological needs. When these needs are satisfied, individuals develop high-quality intrinsic motivation.In the relationship between vocational calling and innovative behavior, vocational calling promotes innovation by fulfilling these three needs: it endows work with autonomous meaning (satisfying autonomy needs), enables individuals to believe they can meet challenges through innovation (satisfying competence needs), and strengthens connections with like-minded peers (satisfying relatedness needs).

Social Identity Theory: Tajfel and Turner (1979) emphasized how group membership shapes individual cognition, emotions, and behavior. According to this theory, individuals construct social identity through three processes: social categorization, social identification, and social comparison.Knowledge workers with high professional identity internalize the norms and values of their occupational group, viewing innovation as a core requirement of their professional role. When group norms value innovation, highly identified individuals engage in proactive innovative behaviors to demonstrate group identity and elevate group status, thereby gaining positive social recognition.

These three theories provide complementary perspectives for understanding the relationship between vocational calling, professional identity, and innovative behavior: Vocational Calling Theory explains the value-driven motivation behind innovation; Self-Determination Theory elucidates the psychological mechanisms driving innovation; and Social Identity Theory clarifies

the social normative constraints on innovative behavior. Integrating these three theories enables the construction of a more comprehensive theoretical explanatory framework.

III. Research Context and Progress

(1) Evolution and Comparison of Measurement Tools

The measurement of vocational calling has evolved from single-dimensional to multidimensional approaches. Early studies predominantly employed unidimensional scales, such as the one developed by Bunderson and Thompson (2009) based on qualitative research with animal caretakers. This scale focused on emotional experiences and behavioral manifestations, comprising six items including "I am passionate about my work." While concise, such scales struggle to capture the complex dimensions of vocational calling.

The Career Vocation Questionnaire (CVQ) developed by Dobrow and Tosti-Kharas (2011) represents the first systematic multidimensional scale. It comprises four dimensions–clear sense of purpose, transcendent sense of mission, prosocial orientation, and personal sense of meaning –with a total of 12 items.Extensive empirical research has validated the scale's strong reliability and validity, with overall Cronbach's α coefficients typically exceeding 0.85. Distinctive validity and convergent validity across dimensions meet psychometric standards. In the Chinese context, the CVQ demonstrates robust cross-cultural adaptability, achieving an overall α coefficient of 0.90.

Recent measurement research exhibits three trends: first, developing more concise versions of scales, such as the short form of the CVQ; second, considering cultural differences to develop localized scales; and third, creating occupation-specific scales tailored to particular professional characteristics. These advances provide richer measurement options for diverse research purposes.

(2) Predictors: The Interactive Influence of Individual Traits and Environmental Factors

The formation of vocational calling is influenced by both individual traits and environmental factors, with these elements exhibiting an interactive relationship.

At the individual level, personality traits serve as key predictors. Conscientiousness within the Big Five model shows a stable positive correlation with vocational calling; highly conscientious individuals are more likely to perceive work as a mission. Individuals with high openness enjoy exploring new domains and are better equipped to discover occupations aligned with their personal values. Emotional stability helps individuals maintain a sense of calling despite occupational setbacks.Regarding values, individuals with strong prosocial values tend to choose careers that serve society, thereby more readily experiencing vocational calling. Those with strong self-actualization values derive a sense of calling through career development potential.

At the environmental level, family support provides the emotional foundation and resource security for vocation formation. Parental career role models, financial backing, and emotional encouragement all foster children's vocational calling development. Within organizational

settings, mission-driven cultures emphasize work's societal significance, resonating with employees' prosocial motivations; supportive cultures offer autonomy and growth opportunities, enabling employees to explore career meaning; whereas utilitarian cultures overly focused on short-term economic gains suppress vocational calling.Leadership styles also exert significant influence. Servant leadership and ethical leadership, through modeling and empowerment, can elevate subordinates' vocational calling levels.

Interaction studies reveal that environmental factors may amplify or diminish the impact of individual traits. For instance, in supportive organizational cultures, the positive influence of openness to experience on vocational calling is more pronounced; conversely, this effect may be suppressed in controlling cultures.

(3) Outcome Variables: Multi-Level Impact Effects

The impact of vocational calling is extensive and profound, spanning individual, team, and organizational levels.

At the individual level, vocational calling shows a significant positive correlation with job satisfaction, a relationship that remains robust even after controlling for job characteristics and demographic variables. Regarding career success, Hall and Chandler's (2005) seminal study found that vocational calling predicts not only subjective career success (e.g., career satisfaction) but also objective career success (e.g., promotion speed).Innovative behavior stands as one of the most scrutinized outcome variables. Early research by Wrzesniewski et al. (1997) revealed that employees who perceive their work as a calling exhibit greater creativity. Subsequent studies further validated the facilitating role of vocational calling throughout the entire process of generating, promoting, and implementing innovative ideas.

At the team level, members' vocational calling levels influence team innovation climate and knowledge-sharing behaviors. Team members with high vocational calling are more willing to share tacit knowledge and assist colleagues, thereby enhancing the team's overall innovation capacity.

At the organizational level, employee vocational calling correlates positively with organizational innovation performance, financial performance, and market value. Mechanistic studies indicate that vocational calling influences organizational performance through pathways such as enhancing employee engagement, reducing turnover rates, and promoting organizational citizenship behaviors.

(IV) Mechanism: Complexity of Mediating and Moderating Pathways

The influence of vocational calling is realized through a complex network of mechanisms, where mediating and moderating variables play pivotal roles.

Research on mediating mechanisms indicates that work passion is a crucial mediating variable. Vallerand et al. (2003) categorized work passion into harmonious passion (voluntary choice, self-integration) and obsessive passion (compulsion, self-conflict).Research indicates that

vocational calling primarily stimulates harmonious passion, thereby promoting adaptive innovation; under specific conditions, it may also trigger compulsive passion, leading to innovation fatigue. Professional identity serves as another key mediator, with vocational calling indirectly influencing work engagement and innovative behavior by enhancing professional identity.

Studies on moderation mechanisms highlight the importance of contextual factors. Perceived organizational support is the most frequently examined moderator; high organizational support amplifies the positive impact of vocational calling on innovation behavior. The quality of leader-member exchange relationships also moderates this effect, with subordinates' vocational calling more readily translating into innovation behavior within high-quality exchange relationships. Individual factors such as core self-evaluation and psychological capital also moderate the strength of vocational calling's influence.

In recent years, chain mediation and multiple mediation models have emerged as research focal points. For instance, vocational calling may influence innovative behavior through chain mediation involving professional identity and work passion; this chain pathway may be jointly moderated by organizational innovation climate and psychological capital. The introduction of these complex models has deepened our understanding of vocational calling's operational mechanisms.

IV. Research Progress and Findings on Professional Identity

(1) Development and Selection Strategies of Measurement Tools

The development of occupational identity measurement tools exhibits a parallel trend of both general and specialized instruments. General scales, exemplified by the 19-item scale developed by Adams K (2006), encompass four dimensions: occupational commitment and dedication (e.g., "I am willing to make extra effort for my profession"), affective identification and belonging (e.g., "I am proud to be a member of this profession"),Professional Goals and Values (e.g., "My career goals are important to me"), and Self-Actualization and Retention Tendencies (e.g., "I plan to remain in this profession long-term"). Scored on a 5-point Likert scale, this instrument demonstrates strong reliability and validity across diverse occupational groups, typically yielding overall α coefficients around 0.85.

Regarding specialized scales, targeted tools have been developed for different occupational domains. Wei Shuhua's (2013) Teacher Professional Identity Scale is a representative example, comprising 28 items closely aligned with teaching characteristics, such as "I believe teaching is a sacred profession." Among teacher samples, this scale achieves an alpha coefficient exceeding 0.90. Similarly, distinct professional identity scales have been developed for fields like healthcare, law, and engineering.

When selecting measurement tools, researchers must comprehensively consider study objectives, sample characteristics, and theoretical frameworks. Cross-occupational comparative studies should employ general scales to ensure comparability, while specialized scales are

preferable for in-depth exploration of specific occupational psychological mechanisms. In recent years, blurred occupational boundaries and diversified work forms have increased demand for measurement tools addressing hybrid and temporary occupational identities—an important future direction for measurement research.

(II) Antecedent Variables: A Multi-Level Network of Influences

The formation of professional identity is a dynamic socialization process influenced by complex, multi-level factors.

At the individual level, vocational calling serves as a crucial antecedent to occupational identity. Liao, Xiao-Yan et al. (2023) found in their study of Chinese knowledge workers that vocational calling significantly enhances occupational identity by increasing perceived work meaning and self-consistency. Self-efficacy also emerges as a key predictor: individuals confident in their ability to meet occupational demands are more likely to develop positive identity.Conversely, occupational burnout erodes professional identity, with emotional exhaustion and depersonalization weakening individuals' emotional connection to their profession.

At the environmental level, organizational socialization strategies profoundly influence professional identity formation. Institutionalized socialization approaches—such as systematic training and mentoring programs—facilitate the internalization of professional norms, thereby strengthening professional identity.Leadership style directly influences subordinates' professional identity. Servant leadership, by focusing on employee growth and providing supportive environments, effectively enhances professional identity. Transformational leadership, through articulating professional visions and stimulating intrinsic motivation, yields similar effects. Peer relationships and professional community participation are also significant factors; positive interactions with colleagues and involvement in professional association activities both strengthen professional identity.

Notably, interaction effects exist among the antecedent variables. For instance, organizational support can buffer the negative impact of burnout on professional identity; individuals with high professional calling maintain strong professional identity even under significant work pressure. These findings on interaction effects offer new perspectives for understanding the resilience of professional identity.

(3) Outcome Variables: From Individual Adaptation to Organizational Effectiveness

High professional identity yields broad and positive individual and organizational outcomes.

Regarding individual adaptation, professional identity positively correlates with job satisfaction, career satisfaction, and life satisfaction. Work engagement—a classic outcome variable—shows that employees with high professional identity exhibit greater vigor, dedication, and focus at work. In terms of innovation behavior, Li, Guihua et al. (2021) found in their study of R&D personnel that professional identity not only directly influences innovation performance but also indirectly promotes innovation by enhancing work engagement.Professional resilience is another significant outcome, with highly identified employees demonstrating greater resilience and

adaptability when facing career setbacks.

Regarding organizational effectiveness, professional identity significantly reduces turnover intention and actual turnover behavior. Employees with high professional identity are more willing to contribute beyond role requirements, exhibiting greater organizational citizenship behavior. At the team level, similarity in team members' professional identity (professional identity congruence) enhances team cohesion and collaborative efficiency, thereby improving team innovation performance.

Boundary condition research reveals that the impact of professional identity is moderated by external factors such as occupational prestige and social recognition. In high-prestige occupations, professional identity more significantly promotes work engagement and innovative behavior; whereas in low-prestige occupations, this relationship may be weaker.

(IV) Mediating Role: The Core Conveying Function of Occupational Identity

Professional identity plays a crucial mediating role in numerous variable relationships, representing a significant advancement in recent professional identity research.

Professional identity frequently serves as a core mediator between individual psychological variables and work behaviors. For instance, Zhang Ming (2020) found that professional identity partially mediates the relationship between vocational calling and work engagement, with vocational calling enhancing engagement by strengthening professional identity. Similarly, professional identity mediates between positive psychological resources – such as core self-evaluation and psychological capital–and work performance.

Between leadership behaviors and subordinate outcomes, professional identity serves as a vital transmission mechanism. Peng, Chuan Yu et al. (2022) demonstrated that servant leadership ultimately promotes innovative behaviors by enhancing the professional identity and resilience of grassroots civil servants, forming a chain-like mediating pathway. Transformational leadership and ethical leadership also influence subordinate work performance through similar mechanisms.

Between organizational factors and employee outcomes, professional identity similarly bridges the gap. Perceived organizational support and perceived organizational fairness indirectly enhance employee organizational commitment and work performance by strengthening professional identity. Career development opportunities satisfy employees' growth needs, thereby boosting professional identity and reducing turnover intentions.

These findings on mediating effects highlight the central role of professional identity in connecting individual psychology, leadership behaviors, organizational environments, and work outcomes, offering an integrative perspective for understanding complex organizational phenomena.

V. Research Overview on Knowledge Workers' Innovative Behavior

(1) Selection and Application of Measurement Tools

A relatively mature toolkit has been established for measuring knowledge workers' innovation behavior, allowing researchers to flexibly select instruments based on specific research questions.

The most widely used tool is the single-dimensional, six-item scale developed by Scott and Bruce (1994), which covers three stages of the innovation process: idea generation (e.g., "I seek out new technologies, processes, or ideas"), support seeking (e.g., "I secure necessary resources for innovative ideas"), and idea implementation (e.g., "I systematically apply innovative ideas in practice").This scale is concise and efficient, demonstrating good reliability (Cronbach's alpha typically >0.80) and validity across diverse knowledge worker populations.

For studies requiring more granular analysis, Kleysen and Street's (2001) 14-item, five-dimensional scale offers richer measurement dimensions: opportunity seeking, idea generation, idea evaluation, alliance seeking, and idea implementation. However, excessive correlations between some dimensions have raised questions about its construct validity, limiting its application.

In recent years, as innovation research has deepened, more scales specifically targeting knowledge workers' innovation behaviors have emerged. Examples include scales for breakthrough innovation behaviors among R&D personnel and digital innovation behaviors among IT professionals. These specialized scales account for industry characteristics and differences in innovation types but require more rigorous psychometric validation.

When selecting measurement tools, researchers must balance comprehensiveness with conciseness, and universality with specificity. Most studies adopt the Scott and Bruce (1994) scale as a foundation, incorporating appropriate revisions or supplements based on industry characteristics when necessary.

(2) Antecedent Variables: A Multi-Level Driving System

The innovative behavior of knowledge workers is driven by a complex interplay of multi-level factors, which exhibit rich interactive effects.

At the individual level, cognitive ability serves as the foundation for innovation but is not a sufficient condition. Motivational factors prove more critical, with intrinsic motivations (such as curiosity and interest) fostering higher-quality innovation than extrinsic incentives (like rewards and evaluations).Among personality traits, openness and risk-taking tendencies correlate positively with innovation behavior, whereas neuroticism may inhibit innovation by amplifying fear of failure. Psychological states like positive emotions broaden cognitive scope and foster associative thinking, thereby enhancing creativity. Psychological safety encourages risk-taking and trial-and-error, serving as a vital condition for sustained innovation.

Occupational psychological factors are a key focus of this review. Professional calling provides meaning-driven motivation for innovation, while professional identity offers identity-driven motivation, together forming the deep psychological drivers of innovative behavior. Additionally,

factors like professional commitment and resilience influence the persistence of innovative behavior.

At the environmental level, leadership behavior significantly shapes innovation. Transformational leadership fosters innovation by stimulating intrinsic motivation; inclusive leadership encourages innovative attempts by creating psychologically safe environments; paradoxical leadership supports sustained innovation by balancing tensions inherent in the process (e.g., efficiency versus exploration).The organizational innovation climate–encompassing values, norms, and practices that support innovation–serves as a crucial contextual condition for innovative behavior. Reward systems must balance intrinsic motivation with extrinsic incentives, while innovation-oriented performance evaluations and rewards can strengthen innovative actions.

Notably, individual and environmental factors exhibit matching effects. For instance, employees with high openness perform best in supportive innovation environments, while those with high vocational calling may maintain innovative drive even in controlling atmospheres. These person-environment matching effects offer a crucial perspective for understanding variations in innovation behavior.

(3) Mechanisms: From Direct Effects to Complex Mediation

The mechanisms underlying innovation behavior have grown increasingly complex, evolving from simple direct effect models to integrated models incorporating multiple mediators and moderators.

Research on mediating mechanisms reveals the critical role of psychological processes. Work engagement serves as a common mediating variable, where antecedent factors indirectly promote innovation by enhancing employees' work engagement levels.Psychological capital (self-efficacy, hope, resilience, optimism) serves as positive psychological resources mediating between antecedent variables and innovation behavior. Innovation self-efficacy (belief in one's ability to innovate) is a particularly significant mediator, with numerous individual and environmental factors promoting innovation behavior by enhancing this self-efficacy.

This review specifically examines the mediating role of professional identity. Research indicates that professional identity mediates between variables such as vocational calling, leadership behaviors, and organizational support and innovative behavior. For instance, servant leadership indirectly promotes innovation by enhancing employees' professional identity, while organizational innovation support stimulates innovation by elevating professional identity.

Moderation studies clarify boundary conditions. Organizational-level moderators include innovation strategy orientation, resource endowment, and environmental uncertainty. Individual-level moderators encompass innovation role identity, cognitive style, and career stage. For instance, professional identity's promotion of innovation becomes more pronounced when organizational innovation strategies are clearly defined; during early career stages, professional calling may exert a stronger influence on innovation behavior.

(IV) Industry Variations and Dynamic Evolution

Knowledge workers' innovation behaviors exhibit significant industry variations stemming from the interplay of industry characteristics, technological environments, and institutional factors.

In high-tech industries (e.g., IT, biotechnology), innovation focuses on technological breakthroughs and product innovation, characterized by short cycles and high risks, where professional calling and transformational leadership exert prominent influence. In R&D-intensive organizations (e.g., research institutes, corporate R&D centers), innovation emphasizes knowledge creation and commercialization, driven primarily by professional identity and academic freedom.Innovation in financial services primarily centers on product design, risk management, and service models. Constrained by both regulatory policies and market demands, innovation tends to be relatively cautious, with organizational support and compliance culture exerting significant influence. Innovation in the education sector manifests in teaching methodologies, curriculum content, and educational technology applications, driven primarily by professional identity and service orientation.

Innovative behaviors also evolve dynamically across career stages. Early in their careers, employees may prioritize skill development and idea generation; mid-career focus shifts toward implementing and impacting innovative ideas; later stages may involve innovation transfer and mentoring newcomers. The intensity and expression of professional calling and identity may also change throughout career stages, thereby influencing the characteristics and levels of innovative behavior.

Cross-cultural comparative studies reveal that employees in individualistic cultures are more driven by intrinsic motivation for innovation, while those in collectivist cultures place greater emphasis on the value of innovation for teams and organizations. These cultural differences remind researchers to consider the boundary conditions and cultural adaptability of theoretical models.

Conclusion

Vocational calling and professional identity serve as key psychological constructs for understanding the underlying motivations of knowledge workers' innovation behaviors. Through a systematic literature review, this paper traces research trajectories across three major domains, synthesizes key findings, critiques existing limitations, and outlines future directions. As the knowledge economy deepens and work forms continue to evolve, research on this topic will persistently advance.Future theoretical development requires breakthroughs in integration, dynamism, and contextualization; practical applications demand more refined intervention strategies and evaluation methods. Through sustained dialogue between academic research and management practice, we can more effectively unleash the innovative potential of knowledge workers, contributing to organizational innovation and the development of national innovation systems.

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