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Mixed Methods Article

Factors Influencing Creative and Innovative Behavior of Personnel in the Silverware Handicraft Industry of Thailand: A Mixed Methods Study

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Abstract

Background/ problem: With the silverware handicraft sector is an important part of Thailand's cultural economy, employees' inventiveness and creativity have become increasingly important for maintaining competitiveness. Previous studies have mostly concentrated on product design, paying little attention to how organizational and human factors interact to influence such behavior.

Objective/ purpose: This study aimed to 1) explore how organizational contexts and individual experiences shape creative and innovative behavior among personnel in the silverware handicraft industry; and 2) to examine the relationships among these factors.

Design and Methodology: This study employed an exploratory sequential mixed methods approach. In the qualitative phase, in-depth interviews were conducted with five experienced silverware entrepreneurs, which also informed instrument development for the quantitative phase. Data were collected from 214 employees and analyzed using multiple regression analysis.

Results: Qualitative findings revealed that creative and innovative behavior was shaped by leadership roles, organizational systems and policies, organizational climate and culture, employee competencies, and the work environment. Quantitative results showed strong interrelationships among organizational variables, prompting their integration into a higher-order construct—organizational context. Both organizational context ($\beta = .21, p < .05$) and individual attributes ($\beta = .62, p < .05$) had significant positive effects, with individual attributes the stronger predictor.

Conclusion and Implications: The findings support the interactionist perspective, showing that creative and innovative behavior arises from the interplay between individual capabilities and organizational conditions. For traditional craft industries, fostering innovation requires aligning supportive organizational contexts with personnel development through continuous learning and participatory practices.

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The silverware handicraft industry represents an important segment of Thailand's creative economy, contributing to employment generation, cultural preservation, and value creation in both domestic and international markets (Thailand Textile Institute, 2025). Despite its cultural significance, the industry operates in an increasingly competitive environment characterized by rapidly changing consumer preferences, shorter product life cycles, and rising expectations for contemporary design and product quality. These pressures require craft enterprises to continuously innovate while simultaneously preserving traditional craftsmanship and cultural identity (The Gem and Jewelry Institute of Thailand, 2019).

The production of silverware handicrafts relies heavily on specialized skills, tacit knowledge, and human expertise developed through long-term experience and intergenerational transmission (Panyaroj et al., 2023). Unlike mass manufacturing industries, innovation in this sector primarily emerges from personnel directly involved in design, production, and everyday problem-solving processes (Kunharming et al., 2023). However, prior studies in traditional craft and small enterprise contexts indicate that limitations in organizational management, rigid work practices, and insufficient development of personnel capabilities can constrain adaptability and long-term competitiveness (Anderson et al., 2014). In addition, a lack of supportive leadership and low levels of intrinsic motivation have been identified as barriers that inhibit creative and innovative behavior among personnel in such settings (Yuliawati et al., 2025).

These challenges suggest that organizational success in the silverware handicraft industry depends not only on product-oriented strategies but also on the creative and innovative behavior of personnel (Panyaroj et al., 2023). Prior research has emphasized that creativity in organizations is shaped by work environments that encourage experimentation, idea generation, and access to resources, rather than arising solely from individual talent (Amabile et al., 1996; Isaksen, 2022). At the same time, scholars caution that organizational practices such as reward systems must be carefully designed, as inappropriate or poorly aligned rewards may undermine intrinsic motivation and weaken creative behavior (Anderson et al., 2014). Accordingly, the role of both organizational and individual factors in shaping personnel behavior has become a critical concern for sustaining innovation in traditional craft-based enterprises.

Although creativity and innovation are often treated as conceptually distinct constructs in the literature, in small and medium-sized craft enterprises, creative idea generation and innovation implementation frequently occur in close integration through personnel's daily work practices, such as experimenting with new designs, adapting production techniques, or adopting new tools and materials. Despite the growing body of research on Thailand's silverware handicraft industry focusing on product development, cultural identity, and community-based entrepreneurship, empirical attention to the behavioral mechanisms linking creativity and innovation at the personnel level remains limited. Moreover, existing studies have typically relied on either quantitative surveys or qualitative case descriptions, each of which captures only part of this complex phenomenon (Creswell & Plano Clark, 2018).

In response to these conceptual and methodological gaps, this study adopts an exploratory sequential mixed methods design (Creswell & Plano Clark, 2018) to investigate the organizational and individual factors influencing the creative and innovative behavior of personnel in Thailand's silverware handicraft industry. The qualitative findings are first used to identify key factors grounded in industry practice, followed by quantitative analysis to examine the relationships among these determinants and creative and innovative behavior. This approach facilitates the development of a contextually relevant framework and provides empirical validation of the proposed relationships. Ultimately, the study offers practical management implications for enhancing personnel capabilities and promoting organizational sustainability in traditional craft enterprises.

Literature Review

This section reviews and synthesizes theoretical and empirical studies on creative and innovative behavior in craft-based industries. These connections include the interactionist perspective, innovative work behavior, intrinsic motivation, and organizational context. It begins by defining the concepts of creativity and innovation and clarifying their relationship at the employee level. The review then examines key determinants of such behavior from both individual and organizational perspectives, followed by an integration of these perspectives based on the interactionist perspective. Finally, the section presents the conceptual framework and research hypotheses that guide the present study.

Creative and Innovative Behavior in Craft-Based Industries

In the organizational and behavioral science literature, creative and innovative behavior has been extensively studied as a crucial process through which firms maintain competitiveness and adapt to environmental change. While creativity is typically defined as the generation of original and useful ideas,

innovation refers to the effective promotion, application, or implementation of those ideas in the form of new or improved products, services, or work practices (Amabile et al., 1996; Scott & Bruce, 1994). Prior research increasingly acknowledges that, at the employee level, creative idea generation and innovation implementation are closely intertwined and often develop as a sequential and interconnected behavioral process, despite their conceptual distinction (De Jong & Den Hartog, 2010).

The present study adopts a behavioral perspective, in which innovative work behavior reflects subsequent actions aimed at developing, promoting, and implementing ideas within a work context, whereas creative behavior refers to the generation of such ideas (Kleysen & Street, 2001; Scott & Bruce, 1994). This distinction helps maintain conceptual clarity in small and medium-sized enterprises, where employees often assume multiple roles and directly translate ideas into operational outputs, while also recognizing that these behaviors frequently co-occur and reinforce one another.

In traditional craft-based sectors, creative and innovative behavior arises from routine work practices rather than formal research and development activities. Empirical studies on Thai handicraft enterprises indicate that innovation involves incremental improvements, modifications to traditional designs, and continuous problem-solving in production processes. To reflect the practical nature of innovation while remaining aligned with established behavioral research, this study conceptualizes creative and innovative work behavior as sequential, personnel-level processes within craft-based contexts.

Individual Factors Influencing Creative and Innovative Behavior

At the individual level, behavioral research highlights the importance of intrinsic motivation, domain-relevant skills, experiential knowledge, and creative self-efficacy in shaping creative and innovative behavior. Intrinsic motivation plays a central role in fostering creative engagement by enhancing persistence, exploration, and openness to alternative solutions (Amabile et al., 1996). Meanwhile, creative self-efficacy is grounded in Bandura's (1997), social cognitive theory reflects individuals' beliefs in their ability to generate and implement novel ideas, thereby influencing their effort, resilience, and willingness to translate creativity into innovation (Bandura, 1997; Tierney & Farmer, 2002).

In craft-based contexts such as Thailand's silverware industry, these individual capabilities are primarily developed through experiential learning and sustained involvement in production activities. Tacit knowledge, craftsmanship, and accumulated experience enable individuals to adapt designs, overcome production constraints, and respond effectively to customer demands (Panyaroj et al., 2023). Repeated mastery experiences further strengthen self-efficacy beliefs, reinforcing confidence in creative abilities and the capacity to implement innovative solutions. Collectively, these findings suggest that individual factors extend beyond formal competencies to include learning-by-doing processes and self-belief systems that underpin both creative idea generation and its transformation into practical innovation.

Organizational Factors Influencing Creative and Innovative Behavior

The organizational context plays a crucial role in determining whether individuals express, develop, or constrain their creative potential. Leadership styles, organizational support, motivational practices, and management systems significantly shape employee creativity and innovative work behavior (Jameel et al., 2025; Martinaityte et al., 2019; Shalley et al., 2004; Yuliawati et al., 2025). In this regard, Hughes et al. (2018) demonstrate that leadership influences creativity and innovation not only directly but also indirectly through psychological mechanisms such as intrinsic motivation, creative self-efficacy, and psychological safety. This suggests that leadership functions as a critical conduit through which organizational conditions are translated into individual behavior, with its effectiveness contingent upon contextual factors such as organizational climate and work design.

Furthermore, work systems that emphasize creativity, learning, and high performance are positively associated with creative performance and innovation (Martinaityte et al., 2019), while supportive supervisory practices and informational support foster innovation by encouraging experimentation and reducing perceived risks (Bos-Nehles & Veenendaal, 2017). In addition, Lertpiromsuk and Laohavichien (2022) suggest that such behaviors are enhanced by organizational environments that provide not only

structural support but also positive psychological conditions and meaningful work experiences. Similarly, prior research indicates that proactive work engagement is closely associated with psychological resources—particularly self-efficacy and creative self-efficacy—which play a critical role in fostering innovative work behavior (Gilar-Corbi et al., 2024; Mahardika et al., 2024).

Therefore, autonomy-enhancing practices, supportive leadership, and participatory decision-making serve as both structural enablers and behavioral cues that motivate individuals to propose, develop, and implement novel ideas. In contrast, strict regulations and tight work schedules may discourage risk-taking and creative work practices. Empirical findings from silverware handicraft enterprises also indicate that organizational systems such as work procedures, incentive programs, and skill development opportunities significantly influence employee behavior, while overly standardized or time-constrained systems may limit idea generation and implementation (Anderson et al., 2014).

Integrating Individual and Organizational Perspectives

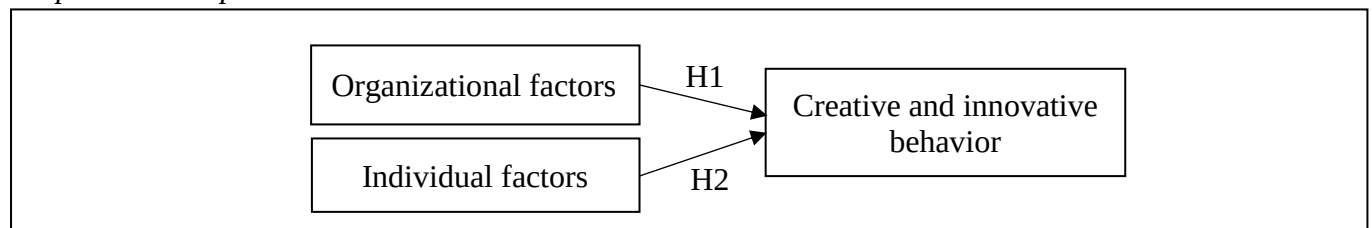
According to the theory of organizational creativity, proposed by Woodman and colleagues (1993), creative behavior is influenced by multiple interacting levels within the organization. The theory explains that inputs—including individual characteristics (e.g., personality, knowledge, motivation, and cognitive abilities), group characteristics (e.g., group norms, cohesion, and support), and organizational characteristics (e.g., leadership, culture, structure, and climate)—collectively shape employees' creative behavior. These creative behaviors subsequently contribute to organizational creativity as the output. Therefore, the theory emphasizes that creativity does not emerge solely from individual talent but from the interaction between individuals and their organizational environment, where individual knowledge, skills, and intrinsic motivation underpin idea generation, while organizational conditions determine whether this potential is expressed or translated into innovation. Prior research shows that a supportive organizational climate enhances individual creativity and mediates its relationship with innovation (Mutonyi et al., 2020). In addition, knowledge creation and sharing among entrepreneurs foster creative and innovative handicrafts, particularly in collaborative and learning-oriented environments (Pitiniyomrot et al., 2018). In Thailand's silverware handicraft industry, practices that support autonomy, flexibility, psychological safety, and knowledge sharing are critical for transforming ideas into practical outcomes.

Conceptual Framework

The conceptual framework of this study is grounded in the theory of organizational creativity, proposed by Woodman et al. (1993), which posits that creative and innovative behavior emerges from the dynamic interaction between individual characteristics and organizational context. This perspective is further supported by subsequent research emphasizing that creativity arises from the interplay between personal and situational factors rather than from either domain alone (Amabile, 1996; Anderson et al., 2014; Shalley et al., 2004).

Figure 1

Proposed Conceptual Framework



This study used a sequential mixed methods research strategy. The purpose of this study was to determine the main organizational and personal characteristics that encourage employees in the silverware handicraft sector to act creatively and innovatively, as well as to investigate the connections between these elements. Five experienced silverware entrepreneurs were interviewed in-depth throughout the qualitative

phase in order to comprehend the organization and individual effects. Additionally, it provides information for the quantitative phase of instrument development and is examined by multiple regression analysis.

Factors namely leadership, systems and policies, and the work environment are conceptualized as contextual antecedents that shape autonomy, support, and learning opportunities. These conditions influence creative and innovative behavior both directly and indirectly through psychological and behavioral mechanisms (Bos-Nehles & Veenendaal, 2017; De Jong & Den Hartog, 2010; Jameel et al., 2025). Thus, it is proposed that:

H1: Organizational factors have a significant positive effect on creative and innovative behavior.

Consistent with the interactionist perspective, individual-level capabilities are expected to influence behavioral outcomes directly. Individual factors are treated as proximal determinants, including skills, experiential and tacit knowledge, intrinsic motivation, creative self-efficacy, and psychological capital. These characteristics empower individuals to conceive ideas and convert them into functional innovations, especially in craft-oriented sectors where experiential knowledge is crucial (Amabile, 1996; Tierney & Farmer, 2002). Thus, it is proposed that:

H2: Individual factors have a significant positive effect on creative and innovative behavior.

Overall, the framework illustrates the relationship between organizational environment and individual capabilities, describing how they influence creative and innovative behavior and guide variable selection, research design, and the integration of qualitative and quantitative methods.

Methods

Study Design

This study employed an exploratory sequential mixed methods design, in which qualitative inquiry precedes quantitative analysis. This design is appropriate for developing contextually grounded measures and examining relationships among variables derived from qualitative insights (Creswell & Plano Clark, 2018), and it enabled the study to clarify how creative behavior and innovative work behavior emerge and are sequentially connected in Thailand's silverware handicraft industry. Based on the theory of organizational creativity (Woodman et al., 1993), creativity is viewed as a complex product of multiple interacting levels within an organization. The theory explains that individual characteristics (e.g., personality, knowledge, motivation, and cognitive abilities), group characteristics (e.g., group norms, cohesion, and support), and organizational characteristics (e.g., leadership, culture, structure, and climate) shape employees' creative behavior. These creative behaviors subsequently contribute to organizational creativity as the output. Therefore, the theory emphasizes that creativity does not emerge solely from individual talent, but from the interaction between individuals and their organizational environment. It will be systematically used to inform the creation of the quantitative tool and analytical framework, with themes derived from the qualitative phase aligned with established theories, including innovative work behavior (De Jong & Den Hartog, 2010; Scott & Bruce, 1994), the theory of organizational creativity (Woodman et al., 1993), intrinsic motivation (Amabile, 1996; Shalley et al., 2004), and organizational climate (Baer & Frese, 2003; Isaksen, 2023). Only factors supported by both empirical literature and qualitative evidence were retained, ensuring conceptual consistency and construct validity.

Qualitative Phase

Participants

Purposive sampling was used to select five experienced business owners from Thailand's silverware handicraft firms in the provinces: Chiang Mai, Nan, Sukhothai, and Surin. All participants were recognized at the provincial cluster level and had received accredited quality certifications, including the OTOP 5-Star Award and Community Product Standards, with extensive experience in innovation and workforce management, and they voluntarily consented to participate.

The key informants were appropriate for in-depth qualitative inquiry, emphasizing domain expertise rather than statistical generalization, and data saturation was achieved, as no new themes emerged in the final interviews (Guest et al., 2006). Relevant literature was also reviewed alongside the empirical data to strengthen factor identification.

Data Collection

Data were collected through semi-structured interviews conducted between February and March 2025. The key informants were identified through purposive sampling and approached via professional networks and industry associations related to the silverware craft. Potential participants received a formal invitation via email or telephone, detailing the study's objectives, ethical considerations, and the importance of their entrepreneurial expertise to the silverware sector. The interview protocol comprised ten guiding questions derived from prior studies on organizational management, leadership, and innovative behavior in SMEs and craft-based industries (Martinaityte et al., 2019).

Data Analysis

Interview data were analyzed using qualitative content analysis. The process involved verbatim transcription, open coding, grouping codes into categories, and abstracting them into themes (Elo & Kyngäs, 2008; Schreier, 2012). Coding was conducted iteratively, with constant comparison across cases to refine categories and ensure conceptual clarity. The resulting themes were used to identify organizational and contextual factors influencing creative idea generation and innovation implementation and to guide variable selection for the quantitative phase.

Trustworthiness

Rigor was ensured through multiple strategies. Data triangulation was achieved by integrating interview data with relevant literature. Member checking was conducted by returning summaries of findings to five participants who are in silverware clusters for validation. These practices improved reliability, credibility, and general trustworthiness.

Quantitative Phase

Participants and Sampling

A non-probability sampling approach combining purposive and convenience sampling was employed due to the nature of employment in the silverware handicraft industry, where workers are engaged through both formal organizational employment and informal outsourcing arrangements (e.g., piece-rate artisans), resulting in the absence of a clearly defined sampling frame. The target population included personnel with at least one year of work experience, and participants were recruited from enterprises in Chiang Mai, Nan, Sukhothai, and Surin, with no more than 15 respondents per enterprise to reduce clustering effects.

The required sample size was calculated using Cochran's (1977) formula for an unknown population, yielding a minimum of 384. To account for potential non-response, the target sample size was increased to 400. A total of 400 questionnaires were distributed, of which 214 valid responses were obtained (response rate = 53.5%). Although the final sample size was below the calculated requirement, it was considered adequate for multiple regression analysis, as the sample size exceeded the minimum threshold of 100 cases and met the recommended ratio of at least 10 observations per predictor variable, as suggested by Hair et al. (2014).

$$n = \frac{Z^2 p(1-p)}{e^2} = 384$$

where $Z = 1.96$ (95% confidence level), $p = 0.50$, and $e = 0.05$.

Data Collection Procedure

Data were collected using self-administered questionnaires distributed in both paper-based formats and through on-site fieldwork between March and May 2025. Questionnaires were primarily distributed directly at workplaces, with additional support from enterprise coordinators who assisted in distributing

them within their organizations. Completed questionnaires were collected within an agreed timeframe. Participants were approached voluntarily and informed about the purpose of the study prior to participation. Informed consent was obtained, and anonymity was ensured by not collecting personally identifiable information. To reduce response bias, participants were assured that there were no right or wrong answers and were encouraged to respond honestly.

Measures

Measurement items were derived from qualitative findings and adapted from established scales in prior research on creative and innovative work behavior and organizational factors (Buranasaksathit & Akkawanitcha, 2019; De Jong & Den Hartog, 2010; Scott & Bruce, 1994). Six constructs were included: leadership roles, organizational systems and policies, organizational climate and culture, employee characteristics/competencies, work environment, and creative and innovative behavior. All items were measured using a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). These operational definitions ensured construct clarity and alignment between qualitative insights and quantitative measurement.

Leadership Role. Within the context of this study, leadership roles are defined as managerial behaviors that facilitate employee involvement, the enhancement of professional skills, and the promotion of innovative practices. This construct was measured using 2 items. They are “Management encouragement” that assesses whether management actively encourages employees to share their unique perspectives and engage in the organizational decision-making processes. “Skill and creativity support” evaluates the extent to which executives provide and support training initiatives designed to improve the creative capabilities and technical skills of the personnel. These leadership behaviors are conceptualized as critical antecedents that shape the autonomy and learning opportunities available to employees within the silverware handicraft industry.

Organizational Systems and Policies. This measure assesses employees’ perceptions of formal organizational mechanisms, policies, and structured programs that support participation, learning, innovation, and continuous improvement within the workplace. The scale focuses on how organizational structures facilitate employee involvement, idea generation, and professional development. The scale consists of 6 items. Example items include: “The organization has formal policies that support employee idea submission” and “The organization provides structured training programs to promote continuous learning.”

Organizational Climate and Culture. In the context of this research, organizational climate and culture represent the collective norms that encourage the free expression of ideas, the exchange of knowledge, and the practice of independent thinking. This construct was measured using 3 items. They are “Promotion of creative thought” evaluates how effectively the organization promotes independent thinking and the generation of original ideas among its personnel. “Knowledge exchange” assesses how openly various departments are eager to share their professional expertise and experiences. “Support for expression” assesses whether the prevailing cultural norms within the handicraft workshops support and validate the sharing of new concepts without the fear of criticism. By fostering these shared norms, the organization creates a psychological environment where artisans feel empowered to deviate from traditional patterns to experiment with innovative silverware designs.

Employee Characteristics/Competencies. This measure refers to the internal capabilities and psychological resources of personnel, specifically their self-efficacy, autonomy, and problem-solving abilities. This construct was measured using 3 items. “Creative self-efficacy” assesses the level of confidence employees have in their ability to successfully accomplish difficult or complex tasks within the craft process. “Problem-solving and solution selection” evaluates the employee’s ability to analyze production challenges and choose appropriate, creative solutions independently. “Autonomy in design” measures the extent to which artisans feel they have the freedom to make choices regarding the artistic and technical aspects of their work. These factors represent the “individual” level of the interactionist model, serving as the foundational engine for innovation in the silverware industry.

Work Environment. This measure refers to employees' perceptions of the day-to-day conditions within the workplace that facilitate collaboration and the generation of new ideas. This construct was measured using 3 items. "Daily knowledge exchange" assesses the frequency with which employees exchange ideas and professional knowledge during their routine tasks. "Collaborative encouragement" evaluates whether the physical and social work environment actively encourages open communication and cooperation among colleagues. "Supportive atmosphere" measures the extent to which the daily atmosphere within the workshop is perceived as conducive to creative thinking and mutual assistance. By focusing on these daily interactions, the research highlights how a functional work environment serves as a practical space for the "interactionist" process, allowing individual talent to be amplified through collective effort.

Creative and Innovative Behavior. Creative and innovative behavior refers to the comprehensive process of generating, promoting, and implementing novel ideas within the workplace. This construct was measured using 4 items. "Process improvement and quality" assesses the extent to which employees develop new methods or techniques to improve both quality and productivity in silverware production. "Idea advocacy and support" evaluates how often employees encourage their colleagues or supervisors to support new ideas and organizational changes. "Implementation of new concepts" measures the employee's active involvement in transforming creative concepts into practical, tangible results or finished products. "Originality in design" examines the frequency with which personnel introduce unique patterns or artistic innovations that deviate from standard traditional designs. By measuring these four dimensions, the research captures the full spectrum of innovation—from the initial spark of an idea to its final application on the workshop floor.

Measurement Validity and Reliability

Content validity was assessed through expert review using the index of item-objective congruence (IOC), with values ranging from .67 to 1.00. The IOC was calculated by averaging the ratings of three experts. A pilot study with 30 participants was then conducted to examine internal consistency. The results indicated high reliability, with Cronbach's alpha coefficients exceeding .70 for all constructs, and the separate reliability reports for each construct are as follows: Creative and innovative behavior (4 items): This scale demonstrated excellent reliability ($\alpha = .91$), confirming that the items consistently measure the generation, promotion, and implementation of new ideas. Individual factors (3 items): This measure, focusing on self-efficacy, autonomy, and problem-solving, showed strong internal consistency ($\alpha = .88$). Leadership role (2 items): Despite having the fewest items, this construct maintained a high reliability coefficient ($\alpha = .85$), effectively capturing managerial support for participation and skill development. Organizational climate and culture (3 items): This scale reported a reliability of $\alpha = .89$, indicating consistent measurement of shared norms regarding independent thinking and knowledge exchange. Work environment (3 items): Focusing on day-to-day conditions and collaboration, this measure demonstrated strong reliability ($\alpha = .87$). Organizational systems and policies (2 items): This construct, evaluating the structural support and flexibility provided by the organization, showed a reliability of $\alpha = .84$. While the overall reliability of the combined instrument remains high ($\alpha = .94$), reporting these coefficients separately validates the multidimensionality of the research model and ensures that each distinct factor is statistically robust, which is considered acceptable according to Hair et al. (2014).

Statistical Analysis

Multiple regression analysis was conducted to examine the relationships between organizational and individual factors and creative and innovative behavior. Prior to the analysis, key assumptions underlying multiple regression were assessed. Multicollinearity was evaluated using variance inflation factor (VIF) values, all of which were below the recommended threshold of 10, indicating no serious multicollinearity issues.

In addition, the assumptions of normality, linearity, homoscedasticity, and independence of the error terms were examined. Normality of residuals was assessed using skewness and kurtosis statistics, while

linearity and homoscedasticity were evaluated through scatterplots of standardized residuals against predicted values. Independence of the error terms was examined by inspecting the randomness of residual patterns (Hair et al., 2014). These diagnostic results confirmed that the data met the key assumptions required for multiple regression analysis.

Integration of Methods

Integration occurred at both the design and interpretation stages within an exploratory sequential design. At the design stage, qualitative findings from interviews and the literature review were used to identify key factors and inform construct development and measurement design; these insights guided the subsequent quantitative phase, in which the relationships among the identified factors were tested. During the interpretation phase, integration was accomplished via narrative weaving and collaborative displays, utilizing qualitative findings to elucidate and contextualize the quantitative results, especially the correlations between organizational factors and creative and innovative behavior. Joint displays aligned qualitative themes with quantitative constructs, ensuring consistency across phases and enhancing the explanatory power and interpretive depth of the study (Creswell & Plano Clark, 2018).

Results

Qualitative Results

The qualitative data obtained from semi-structured interviews were analyzed using content analysis to identify recurring patterns related to creative and innovative behavior in Thailand's silverware handicraft industry. Through iterative coding, categorization, and theme development, five interrelated themes emerged: leadership roles, organizational systems and policies, organizational climate and culture, employee characteristics / competencies of personnel, and the work environment. The findings presented below clearly distinguish between informants' accounts and the authors' interpretations, with all quotations directly attributed to specific informants.

Theme 1: Leadership roles

Informants described leadership practices characterized by openness, trust, and encouragement of participation. For example, Informant 1 stated that "the organization adopts an open approach, does not restrict ideas, and encourages employees to participate in design, pattern development, and external learning activities." Similarly, Informant 3 noted that "when everything must follow fixed instructions, workers tend to repeat the same methods instead of trying something new." These accounts suggest that leadership practices shape not only structural conditions but also personnel's readiness to engage in creative behavior.

Theme 2: Organizational Systems and Policies

Informants reported that flexible procedures, supportive policies, and access to resources enable experimentation and incremental improvement. For instance, Informant 2 explained that "bringing creative ideas into the production process requires organizational support that allows employees to participate at every stage." In contrast, rigid rules and highly standardized procedures were described as limiting experimentation. These findings suggest that organizational systems play a significant role in determining the feasibility of implementing creative ideas.

Theme 3: Organizational Climate and Culture

Informants described work environments characterized by trust, mutual respect, and open communication as encouraging idea sharing and collaboration. Informant 4 noted that "when employees are involved, they feel valued and confident, which helps reduce risk and improve performance." Conversely, cultures emphasizing conformity and error avoidance were described as discouraging creative expression. These findings indicate that organizational culture shapes employees' willingness to contribute ideas.

Theme 4: Employee Characteristics/Competencies

Informants emphasized craftsmanship skills, accumulated experience, and intrinsic motivation as key conditions for creative and innovative behavior. Informant 1 stated that “people are still the most important part of production; they need skills, expertise, and emotional engagement with their work for the products to have value.” These accounts reflect the view that such individual attributes are primarily developed through long-term experiential learning.

Theme 5: Work Environment

Informants described work environments that support collaboration, flexibility, and informal learning as facilitating creative problem-solving. For example, Informant 5 explained that “silver artisans regularly exchange knowledge and teach one another within the workshop.” In contrast, high production pressure, limited workspace, and inadequate tools were described as constraints. These findings indicate that environmental conditions shape opportunities for creativity.

Linkage to the Quantitative Phase

The qualitative findings identified key dimensions influencing creative and innovative behavior, including leadership, organizational systems and policies, organizational climate and culture, employee characteristics/competencies, and the work environment, which are consistent with the theory of organizational creativity (Woodman et al., 1993) underpinning the conceptual framework that emphasizes the dynamic interplay between organizational contexts and individual characteristics. Accordingly, the qualitative insights were used to contextualize and refine theoretically grounded constructs rather than to generate them independently (Creswell & Plano Clark, 2011; Greene, 2007). This approach aligns with the exploratory sequential design, where initial qualitative findings serve to enhance the contextual validity of pre-established theoretical frameworks before quantitative testing (Creswell & Plano Clark, 2011).

These constructs were subsequently operationalized as latent variables and translated into survey items for the quantitative phase, and a structured questionnaire was developed to capture personnel perceptions within their daily work context. The distributed questionnaires, 214 valid responses (53.5%) were obtained and included in the analysis. The quantitative phase aimed to empirically test the relationships among these constructs and creative and innovative behavior, thereby providing empirical validation and enhancing the overall rigor of the mixed-methods design.

Quantitative Results: Descriptive Results

As shown in Table 1, all independent variables were rated at a high level of agreement, with mean scores ranging from 3.50 to 3.62. Among these, leadership roles received the highest mean score, while creative and innovative behavior recorded the lowest mean score. These findings suggest that, although personnel recognize the importance of both organizational and individual factors, the actual enactment of creative and innovative behavior may be relatively limited in practice.

Table 1

Results of Descriptive Statistical Analysis

Variables	<i>M</i>	<i>SD</i>	Interpretation
1. Leadership Role	3.62	0.68	High agreement
2. Organizational Systems & Policies	3.50	0.76	High agreement
3. Organizational Climate & Culture	3.52	0.81	High agreement
4. Employee Characteristics / Competencies	3.56	0.69	High agreement
5. Work Environment	3.52	0.73	High agreement
6. Creative and Innovative Behavior	3.49	0.68	High agreement

Note. *M* = Mean; *SD* = Standard Deviation; Mean scores of 3.41–4.20 indicate a high level of agreement; Competencies (Skill, Knowledge, and Attribute)

Quantitative Results: Multiple Regression Analysis

The qualitative findings initially identified five constructs representing organizational and individual factors influencing creative and innovative behavior. However, the quantitative analysis revealed high intercorrelations among several organizational constructs ($r > .80$), suggesting that these dimensions are closely intertwined in practice. The suitability of the data for factor analysis was assessed using the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy and Bartlett’s Test of Sphericity. The KMO value of .888 indicates a high level of sampling adequacy, well above the recommended threshold of .60. Furthermore, Bartlett’s Test of Sphericity was statistically significant ($p < .001$), confirming that the correlations between items were sufficiently large for factor analysis. Combined, these results verify that the data set is appropriate for further multivariate examination (Hair et al., 2014).

To examine the underlying structure of the measures, exploratory factor analysis (EFA) was conducted using principal axis factoring with Promax rotation in IBM SPSS Statistics v.28. The results identified a two-factor solution based on the Kaiser criterion (Eigenvalues > 1), explaining 67% of the total variance. Factor 1 represented ‘organizational context’, while Factor 2 represented ‘individual attributes’. All factor loadings exceeded .40, supporting the construct validity of the aggregated dimensions. Consequently, the variables were consolidated into these two higher-order constructs to address empirical overlap while preserving conceptual clarity.

Table 2 presents the correlations among the study variables. The results indicate that all variables were positively and significantly associated with creative and innovative behavior ($p < .05$). Organizational context showed a strong positive correlation with creative and innovative behavior ($r = .76$), while individual attributes demonstrated an even stronger relationship ($r = .81$). A high correlation was also found between organizational context and individual attributes ($r = .86$), suggesting that organizational and individual factors are closely interconnected in practice. In addition, no severe multicollinearity problem was observed, as the variance inflation factor (VIF) value remained below the recommended threshold (VIF = 3.99).

Table 2
Results of Correlation among the Study Variables

Variables	OC	IA	CIB	VIF
OC	1.00	-	-	3.99
IA	.86*	1.00	-	3.99
CIB	.76*	.81*	1.00	-

Note. * $p < .05$; OC = organizational context; IA = individual attributes; CIB = creative and innovative behavior

To investigate these relationships further, a multiple regression analysis employing the enter method was performed (refer to Table 3), designating creative and innovative behavior as the dependent variable, while organizational context and individual attributes were identified as the predictors. The results indicated that both organizational context ($\beta = .21$, $p = .006$) and individual attributes ($\beta = .62$, $p < .001$) had significant positive effects on creative and innovative behavior, supporting H1 and H2. The results of the multiple regression analysis indicate that organizational factors have a significant positive effect on the creative and innovative behavior of personnel ($\beta = .21$, $p = .006$). Similarly, individual factors also exert a significant positive influence and were identified as the stronger predictors of such behavior within the silverware handicraft industry ($\beta = .62$, $p < .001$). Together, these factors account for 67% of the variance in creative and innovative outcomes. Individual attributes emerged as the stronger predictor. The model demonstrated strong explanatory power, with $R^2 = .67$, indicating that 67% of the variance in creative and innovative behavior was explained by the predictors.

Table 3
Results of Multiple Regression Analysis Predicting Creative and Innovative Behavior

Independent Variable	<i>B</i>	<i>SE</i>	β	<i>t</i>	<i>p</i> -value
Constant	.53	.14	-	3.72	.000*
Organizational context (OC)	.21	.07	.21	2.78	.000*
Individual attributes (IA)	.62	.07	.62	8.06	.000*
Model statistics: $R = .82$, $R^2 = .67$, <i>Adjusted</i> $R^2 = .67$, $F(2, 211) = 223.31$, $p < .000$					

Note. * $p < .05$; *B* = unstandardized regression coefficient; *SE* = Standard Error; β = standardized regression coefficient, *t* = *t*-value; *p* = *p*-value.

Guidelines for Improving Production Processes and Management to Enhance Sustainability

Both individual and organizational factors foster innovation in silverware handicrafts. However, quantitative and qualitative data consistently show that individual attributes—such as competence and motivation—exert the strongest influence.

At the organizational level, leadership, systems and policies, organizational climate and culture, and the work environment collectively form a supportive context that facilitates both idea generation and implementation. Rather than operating independently, these elements function as an integrated system that shapes employees' opportunities and readiness to engage in creative processes. The findings suggest that fostering creative and innovative behavior requires a balanced approach that simultaneously strengthens individual capabilities and sustains a supportive organizational environment.

In particular, organizations should focus on enhancing employee autonomy, encouraging participation, and providing opportunities for skill development, while ensuring that organizational practices remain flexible and conducive to experimentation. Overall, the results underscore that creative and innovative behavior in craft-based industries is not driven by a single factor but rather emerges from the interaction between individual potential and organizational support. These findings provide a more contextually grounded understanding of innovation in traditional craft industries, where human-centered processes remain central to value creation.

Discussion and Conclusion

This study employed an exploratory sequential mixed method design to investigate the drivers of innovation in Thailand's silverware handicraft industry. In the qualitative phase, an interpretive approach was used to explore the lived experiences of five entrepreneurs. Through in-depth semi-structured interviews and inductive content analysis, the study identified the specific thematic dimensions of organizational and individual factors relevant to the traditional craft context. In quantitative phase, these qualitative insights were used to operationalize a deductive framework for a larger-scale survey. Using multiple regression analysis, the study examined the influence of these factors and found that both individual attributes and organizational context were significant correlates of creative and innovative behavior. By integrating qualitative thematic findings with quantitative statistical evidence, the study provides a contextually grounded explanation of creativity and innovation within a traditional craft setting.

The regression model demonstrated strong explanatory power, accounting for 67% of the variance in creative and innovative behavior ($R^2 = .67$). Regarding H1 (Organizational Context), the results supported the hypothesis, indicating that organizational context had a significant positive effect on creative and innovative behavior ($\beta = .21$, $p = .006$). Regarding H2 (Individual Attributes), the findings also supported the hypothesis, with individual attributes emerging as the stronger significant predictor of creative and innovative behavior ($\beta = .62$, $p < .001$).

Integration of Qualitative and Quantitative Findings

The convergence between qualitative themes and quantitative results demonstrates strong conceptual alignment across research phases, consistent with the logic of an exploratory sequential mixed methods design (Creswell & Plano Clark, 2018). Qualitative findings identified multiple organizational dimensions, including leadership, organizational systems and policies, climate and culture, and the work environment; however, the quantitative results revealed strong interrelationships among these dimensions, leading to their aggregation into a higher-order construct—organizational context. This integration supports the theory of organizational creativity (Woodman et al., 1993), which posit that creative and innovative behavior emerges from the dynamic interplay between individual capabilities and organizational contexts (Anderson et al., 2014; Woodman et al., 1993).

Role of Individual Attributes in Creative and Innovative Behavior

The findings showed that individual attributes emerged as the strongest predictor of creative and innovative behavior. This suggests that personal qualities play an important role in promoting persistence in experimentation, adaptation, and problem-solving under uncertain conditions. Intrinsic motivation and creative self-efficacy may help individuals maintain confidence in generating, refining, and implementing new ideas, particularly in work settings that require continuous adjustment and creativity.

These findings are consistent with models of innovative work behavior (De Jong & Den Hartog, 2010; Kleysen & Street, 2001; Scott & Bruce, 1994; Woodman et al., 1993), which conceptualize innovation as a multi-stage process involving idea generation, promotion, and implementation. Empirical evidence also supports this interpretation. For example, Yuliawati et al. (2025) and Yu et al. (2025) found that creative self-efficacy mediates the relationship between leadership styles, cognitive flexibility, and innovative work behavior, while Caesar Azeem and Hanoum (2024) reported positive associations between creative self-efficacy, innovative behavior, and performance outcomes.

Prior research further indicates that self-efficacy and peer support are positively related to employees' creative and innovative behavior (Buranasaksathit & Akkawanitcha, 2019). In addition, openness to new experiences, proactive thinking, and social interaction facilitate knowledge sharing and exposure to novel ideas, thereby strengthening innovative behavior (Wang, 2023). Specifically, Wang (2023) found that innovative knowledge sharing positively influences employees' sense of thriving at work, which subsequently promotes innovative behavior. These findings suggest that innovative behavior is shaped not only by internal individual characteristics but also through interaction with others in the work environment.

In craft-based industries, individual capabilities such as accumulated experience, tacit knowledge, craftsmanship, and problem-solving ability are particularly important in transforming ideas into practical outcomes. However, these capabilities are not developed independently; rather, they are cultivated through ongoing organizational participation and social learning, which aligns with the theory of organizational creativity by Woodman et al. (1993).

Organizational Factors Supporting Creative and Innovative Behavior

The positive effects of organizational factors suggest that leadership, organizational systems and policies, climate, and the work environment function as an integrated system that supports creative and innovative behavior. Rather than acting as independent predictors, these elements collectively create conditions that facilitate or constrain employees' engagement in creative processes. Flexible task allocation, appropriate evaluation criteria, and access to resources enable personnel to experiment with materials, techniques, and design variations, supporting creativity while maintaining stability (Anderson et al., 2014; Isaksen, 2023).

Leadership practices that emphasize openness, trust, participation, and tolerance for trial and error further enhance employees' willingness to explore new ideas and apply creative potential to innovation (Jameel et al., 2025; Yuliawati et al., 2025). Similarly, innovative leadership and perceived organizational

support positively influence employees' innovative work behavior, while job satisfaction strengthens these relationships, highlighting a moderating role of affective work conditions.

The strong correlation between organizational context and individual attributes indicates that organizational practices contribute to the development of employee capabilities over time, reinforcing the interaction between structural conditions and individual potential. However, evidence from highly formalized or rule-based contexts suggests that managerial support may not always promote innovation; in such cases, peer support and informal interactions may play a more important role in fostering creative and innovative behavior (Buranasaksathit & Akkawanitcha, 2019). Overall, these findings highlight that organizational factors act as enabling conditions rather than direct sources of creativity, providing the structures, resources, and cultural climate necessary for employees to engage in sustained experimentation, problem-solving, and innovation.

Interaction Between Individual and Organizational Factors

Taken together, the findings suggest that a single factor does not drive creative and innovative behavior but rather emerges from the interaction between individual attributes and organizational context. Individual capabilities play a direct role in shaping behavior, while organizational conditions provide the necessary support for these capabilities to be expressed and sustained. This is consistent with the present findings, in which individual attributes emerged as the strongest predictor of creative and innovative behavior, while organizational context functioned as a supportive enabling condition. This interaction is especially significant in craft-based industries, where creativity is inherent in experiential learning, collaboration, and the amalgamation of traditional knowledge with emerging practices, thereby underscoring the pertinence of the interactionist perspective in elucidating innovation in these settings.

Behavioral Science Contributions and Implications

Theoretical Implications

This study extends the theory of organizational creativity to traditional craft industries. Consistent with Woodman et al. (1993), the findings demonstrate that creative and innovative behavior emerges from the dynamic interplay between individual capabilities and organizational conditions, thereby broadening prior research that has largely focused on technology-driven contexts (Anderson et al., 2014). At the individual level, the strong effect of personnel characteristics supports behavioral models emphasizing skills, experience, intrinsic motivation, and creative self-efficacy as key drivers of innovative work behavior (De Jong & Den Hartog, 2010; Scott & Bruce, 1994; Woodman et al., 1993). In line with Amabile et al. (1996), innovation in craft-based industries is grounded in experiential learning and tacit knowledge, which enable individuals to transform ideas into practical outcomes.

At the organizational level, leadership and organizational systems function as enabling mechanisms that shape the conditions under which creativity can be expressed. Leadership influences psychological safety, motivation, and participation, supporting recent evidence of its role in facilitating innovative behavior (Jameel et al., 2025; Yuliawati et al., 2025). Organizational systems further reinforce creative engagement by providing supportive structures, flexibility, and opportunities for learning (Bos-Nehles & Veenendaal, 2019).

Importantly, the findings highlight that creative and innovative behavior is not solely a function of individual potential but is contingent upon supportive contextual conditions. The strong association between organizational context and individual attributes suggests a reciprocal relationship, in which organizational practices contribute to the development and reinforcement of employee capabilities over time.

Practical Implications

The findings offer several implications for practitioners in craft-based industries. First, innovation is human-centered. Organizations should focus on skill development, experiential learning, and mentoring to preserve the tacit knowledge that drives creativity (Amabile et al., 1996). Second, creativity thrives on

flexible, participatory processes rather than complex management. Excessive standardization should be avoided, as it often stifles experimentation (Woodman et al., 1993). Third, leaders should adopt participative styles that encourage idea-sharing and tolerate the risks of experimentation to boost employee engagement (Scott & Bruce, 1994). Finally, Rigid controls can crush the flexibility needed for craft production. Sustaining innovation requires an environment that balances operational needs with autonomy and collaboration.

Limitations

This study has three limitations. First, it was conducted in only four provinces, and the use of non-probability sampling (purposive and convenience) may introduce sampling bias and limit generalizability. Although the sample size was below the calculated requirement, it met acceptable criteria for multiple regression; however, statistical power and external validity may still be affected (Cochran, 1977; Hair et al., 2014). Second, due to high intercorrelations among the original constructs, variables were aggregated into two broader dimensions (organizational and individual factors) to reduce multicollinearity. While this approach improved model parsimony, it may have reduced conceptual specificity by limiting the ability to examine the distinct effects of individual constructs (Hair et al., 2014). Third, the cross-sectional design restricts causal inference, and the small number of interview participants may limit qualitative depth. The reliance on self-reported data may also introduce common method bias (Podsakoff et al., 2003). Future research should employ probability sampling, larger sample sizes, and longitudinal or multi-source designs, as well as more refined measurement models, to enhance robustness and generalizability.

Conclusion

This study demonstrates that innovation in Thailand's silverware industry stems from the synergy between individual capabilities and organizational support. Using a mixed methods approach, the research identifies that personal attributes such as skill, experience, and intrinsic motivation form the foundation of creative behavior. These traits are most effective when activated by a work environment characterized by psychological safety, autonomy, and supportive leadership. Consistent with the theory of organizational creativity, organizational factors act as collective enablers rather than isolated drivers; conversely, rigid controls and high pressure tend to stifle creativity. Ultimately, the study highlights how the interplay between psychological resources and management practices sustains innovation in traditional, skill-intensive craft industries.

Declarations

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