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Exploring the role of knowledge sharing incentives in enhancing employee creativity: The mediation effect of social interaction

探討知識分享誘因對員工創造力提升之影響：社會互動的中介效果

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Abstract: To thrive in the fast-paced business environment and ensure sustainability, organizations prioritized innovation. Drawing on social identity and social cognitive theories, this paper presented a research model explaining how employee creativity developed. The model highlighted two key factors—employee engagement and openness to change—that enhanced creativity through the mediation of social interaction. It also explored how implicit and explicit knowledge-sharing incentives moderated these relationships. Quantitative correlational research, based on data collected from marketing departments in Taiwanese companies, demonstrated that these factors significantly influenced employee creativity. This study provided valuable insights for academic researchers and business practitioners and offered empirical support for the factors that fostered employee creativity.

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Keywords: Employee engagement, openness to change, social interaction, employee creativity, knowledge sharing incentive.

摘要：為了在現今快速變化的商業環境中蓬勃發展並確保永續經營，組織必須優先考慮創新。基於社會認同理論和社會認知理論，提出了一個解釋員工創新能力的研究模型。該模型強調了兩個關鍵因素—員工投入程度和對變革的開放性，這些因素通過社會互動的中介作用來增強創新能力。此外，本研究還探討了隱性和顯性知識分享誘因如何調節這些關係。透過從台灣企業的行銷部門蒐集的問卷進行定量分析，結果顯示這些因素顯著影響員工的創新能力。本研究為學術研究者和企業實務者提供了有價值的建議，並對促進員工創新的相關因素提供了實證支持。

關鍵詞：員工投入程度、變革開放性、社會互動、員工創新能力、知識分享誘因

1. Introduction

Most researchers agreed that employee creativity was a key driver of organizational innovation (Chen *et al.*, 2023). In the dynamic business landscape, innovation had become a critical competitive advantage amid rapid technological advancements and intensified global competition (Lv *et al.*, 2021). Organizations worldwide increasingly focused on fostering employee creativity (Kremer *et al.*, 2019; Shafi *et al.*, 2020; Tierney *et al.*, 1999). In response, business scholars and practitioners sought ways to enhance businesses' innovation capacity. Improving employees' creative performance was a key indicator for firms striving for competitive advantage and organizational success (Oldham and Cummings, 1996; Zhang *et al.*, 2018). Vocational research defined employee creativity as the ability to generate innovative ideas or objects that led to new services, products, production processes, or work techniques (Amabile and Gryskiewicz, 1989). The inventive capacity of an organization was closely tied to its workforce, with employee creativity influenced by both individual attributes and organizational

conditions.

This study explored the mechanisms underlying the development of employee creativity by applying social identity theory (Tajfel and Turner, 1986) to examine how social interactions fostered a collective identity that enhanced creative contributions. Social identity theory posited that individuals developed their sense of self and belonging through group memberships, shaping behaviors, attitudes, and motivations within organizations (Ashforth and Mael, 1989; Brown, 2020; Gu *et al.*, 2015). The theory emphasized social categorization, where individuals aligned with specific groups such as teams or departments, influencing their self-concept, and social identification, where employees internalized group norms and values, fostering commitment and cooperation (Allen, 2023; Guan and So, 2016). In workplace settings, strong departmental identification enhanced collaboration, knowledge sharing, and creative efforts (Koh *et al.*, 2019; Nason *et al.*, 2018). Frequent workplace interactions strengthened this identification, leading to greater knowledge exchange, where employees actively contributed insights and innovative ideas in a supportive environment (Bouncken and Reuschl, 2018; Ganguly *et al.*, 2019). Additionally, a strong sense of departmental belonging increased commitment and collaborative effort, motivating employees to invest more energy in problem-solving and bring unique perspectives that reinforced group identity (Huang *et al.*, 2018). This study positioned social interaction as a mediating mechanism, demonstrating how it strengthened employees' identification with their teams, which in turn fostered creativity.

Social cognitive theory (Bandura, 1986) further explained how employee behavior was shaped through observational learning and reciprocal determinism, emphasizing that learning occurred through continuous interaction with the environment. Triadic reciprocal determinism described how behavior, cognitive processes, and environmental factors dynamically influenced workplace actions (Bandura, 1999; Chen; 2023; Schunk and DiBenedetto, 2020). Within this framework, social interactions facilitated learning, as employees observed others, formed expectations, and adjusted their behaviors accordingly. While openness to change and employee engagement were distinct constructs, they were

interconnected within social cognitive theory, as both contributed to behavioral adaptation and social learning in the workplace. Openness to change was rooted in an individual's self-concept, shaping their willingness to embrace new experiences, seek knowledge, and adapt to evolving environments (George and Zhou, 2001). Employees with high openness to change observed colleagues, integrated novel insights, and refined their professional skills, aligning with observational learning and vicarious reinforcement. In contrast, employee engagement was a socially constructed attitude, shaped by both individual motivation and group dynamics. Through reciprocal determinism, engagement fostered a cycle of positive reinforcement, where employees observed committed colleagues, received social validation, and actively contributed to team efforts (Bakker and Demerouti, 2008; Boccoli *et al.*, 2023). Engaged employees participated in collaborative problem-solving, knowledge-sharing, and creative discussions, reinforcing organizational commitment and collective innovation.

The work environment, particularly knowledge-sharing incentives, moderated these relationships by either reinforcing or inhibiting employees' motivation to engage in creative tasks (Ye *et al.*, 2022). Engaged employees and those open to change were more likely to participate in social interactions, seek feedback, and learn from peers, strengthening their ability to integrate diverse perspectives into their work (Kim and Kim, 2021). Knowledge-sharing incentives further shaped these interactions, where explicit incentives (e.g., financial rewards, promotions) encouraged knowledge sharing but may have undermined intrinsic motivation if overemphasized, whereas implicit incentives (e.g., recognition, personal growth, altruism) fostered sustained engagement (Van Den Broeck *et al.*, 2021; Venketsamy and Lew, 2024). This study demonstrated how individual dispositions, social interactions, and motivational reinforcements collectively fostered a culture of collaborative creativity within organizations.

Despite the growing emphasis on employee creativity, a deeper exploration of the mechanisms facilitating its development remained necessary. Many studies had focused on individual attributes or leadership styles as primary drivers of creativity (Shalley *et al.*, 2004), yet fewer had examined the critical role of social

interactions in this process. Given the increasing complexity of workplace tasks and the shift toward collaborative problem-solving, understanding how knowledge-sharing mechanisms shaped creativity had become essential. Additionally, while knowledge-sharing incentives were widely recognized as drivers of performance and innovation (Cerasoli *et al.*, 2016), little research had explored how different types of explicit and implicit incentives influenced the social processes that drove employee creativity. This study aimed to address this gap by examining how knowledge-sharing incentives impacted social interaction and, in turn, enhanced creativity.

While employee engagement and openness to change were important, creativity also depended on specific driving forces. Research suggested that small-group learning and performance-based recognition were key incentive strategies (Slavin, 1980). Social interaction enhanced these factors by building connections, facilitating access to expertise, and fostering idea generation (Boateng *et al.*, 2022). This study highlighted the importance of knowledge-sharing incentives as a moderator in the conceptual framework. Unlike general incentives, this study focused on both explicit and implicit knowledge-sharing incentives in enhancing social interaction within teams (Cerasoli *et al.*, 2016). Effective incentives motivated individuals to collaborate toward common goals, fostering teamwork and shared success. Prior research showed that both extrinsic and intrinsic motivators played a crucial role in helping employees achieve goals (Makki and Abid, 2017). Extrinsic rewards, such as sign-on and retention bonuses, improved compensation packages and positively influenced creativity (Malek *et al.*, 2020), while intrinsic motivation, driven by personal satisfaction and self-fulfillment, encouraged employees to pursue innovation (Fischer *et al.*, 2019). Non-monetary recognition, such as certificates of appreciation, served as an effective method to acknowledge and inspire exceptional performance (Law, 2016).

This research aimed to enhance workplace creativity by refining the relationship between theoretical factors and employee creativity (Zhou and Shalley, 2003). Distinguishing itself from prior studies, it introduced a new framework that concurrently considered key antecedents—employee engagement

and openness to change—enriching the literature on employee creativity. Additionally, while previous research had explored the link between social interaction and employee creativity (Chen and Kaufmann, 2008), the moderating effects of knowledge-sharing incentives remained underexplored. This study established a model in which social interaction served as a mediator and knowledge-sharing incentives acted as a moderator, offering new insights into the interplay between individual traits, social environments, and creativity.

2. Literature review

2.1 Employee engagement

Previous research defined employee engagement as a positive attitude toward one's organization, job, and role, emphasizing the importance of being physically and mentally present when performing tasks (Agarwal and Gupta, 2018; Christian *et al.*, 2011; May *et al.*, 2004; Motyka, 2018). It encompassed both cognitive aspects, such as employees' beliefs about their organization, supervisors, and work environment, as well as their emotional investment in their roles (Boccoli *et al.*, 2023; Kwon *et al.*, 2024).

Employee engagement also reflected the intrinsic need for self-expression and personal fulfillment in the workplace (Grobelna, 2019; Han *et al.*, 2021; Neuber *et al.*, 2022). Three core psychological components of engagement were identified: psychological meaningfulness, psychological safety, and psychological availability (Boccoli *et al.*, 2023). Employees actively sought meaning in their work, which directly influenced their level of engagement and organizational commitment.

In this study, employee engagement was conceptualized as a key construct that captured employees' voluntary attitudes and proactive behaviors at work. It reflected their willingness to enhance work efficiency, make extra efforts to contribute to success, and demonstrate commitment to their organization (Benn *et al.*, 2015). Engaged employees were more likely to recommend their workplace as an ideal environment, reinforcing the broader significance of engagement in organizational success.

2.2 Openness to change

Employees played a critical role in organizational change, which was often influenced by situational factors such as market conditions and the external environment (By, 2005; Holt *et al.*, 2007; Hussain *et al.*, 2018). Openness to change reflected employees' willingness to adapt and their role as active participants in the change process (Snowden and Boone, 2007; Yousef, 2017). Their beliefs, mindset, and traits—such as flexibility and receptiveness to novelty—shaped their reactions to changes in work processes, methods, content, or leadership (Cullen *et al.*, 2014; Furnham *et al.*, 2009). It also signified their willingness to support change initiatives.

An employee's perception, evaluation, and experience with change further defined this concept (Wanberg and Banas, 2000). In this study, we defined openness to change as both the willingness to embrace change and the belief in its potential positive impact on the organization.

2.3 Social interaction

Employees were highly influenced by one another, particularly by colleagues with whom they had stronger connections (Håkonsson *et al.*, 2016; Klein and Kozlowski, 2000; Turner, 1988). These interactions stemmed not only from collaborating on shared projects but also from formal and informal exchanges, where both explicit actions and implicit decisions were shaped by social dynamics (Chiu *et al.*, 2016; Driskell *et al.*, 2018).

Social interaction served as a crucial channel for workplace communication, fostering harmony and interdependent teamwork (Chen and Lin, 2022). Prior research highlighted its role in strengthening departmental cohesion, which ultimately drove overall success (Černe *et al.*, 2017).

In this study, we defined social interaction as the close bonds and friendships among employees, their engagement in both work-related and social activities, and their willingness and enjoyment in interacting with one another.

2.4 Employee creativity

Employees needed to adapt to change, a process often linked to creativity. Previous research defined employee creativity as the generation of novel and valuable ideas related to new products, marketing strategies, and innovative administrative processes (Liu *et al.*, 2016; Shafi *et al.*, 2020). These creative contributions were essential for an organization's growth and survival in a competitive environment (Chen *et al.*, 2020). Additionally, employee creativity was potentially influenced by colleagues in the workplace, shaping individual and collective creative output (Gu *et al.*, 2015; Volery and Tarabashkina, 2021).

Past research also pointed out that major components of creativity encompassed novelty, usefulness, and originality (Zhou and George, 2001). Therefore, this study focused on instances where employees generated innovative ideas, creative solutions, or new ways to perform tasks. This not only involved ideation but also the practical implementation of new ideas into their plans or work schedules, emphasizing both thought and action in the creative process.

2.5 Knowledge sharing incentive

Employees' intentions and behaviors were largely driven by motivation, making incentives a key factor in encouraging voluntary knowledge sharing (Lee *et al.*, 2020; Nguyen and Malik, 2020; Zhang *et al.*, 2022). This concept, referred to as knowledge-sharing incentives, reflected the factors that motivated employees to share their expertise with colleagues.

Knowledge-sharing incentives were categorized into explicit and implicit incentives, aligning with extrinsic and intrinsic motivation, respectively (Asrar-ul-Haq and Anwar, 2016; Lombardi *et al.*, 2020; Nguyen, 2020). In this study, explicit incentives referred to monetary rewards such as salary and bonuses, as well as non-monetary rewards like promotions (Hung *et al.*, 2011; Hu and Randel, 2014). Conversely, implicit incentives stemmed from an employee's intrinsic motivation, including the desire for personal growth, a sense of achievement, job satisfaction, and altruism (Fishbach and Woolley, 2022; Obrenovic *et al.*, 2020).

As a result, this study classified knowledge-sharing incentives into explicit and implicit categories, where explicit incentives involved salary, bonuses, and

promotions, while implicit incentives related to satisfaction, a sense of achievement and purpose, and altruism.

3. Conceptual framework and hypothesis

3.1 Research hypothesis

Our framework suggested that social interaction played a vital role in fostering employee creativity. When employees collaborated with others, they became energized and more motivated to invest in creative tasks (Shin and Zhou, 2003). This collaborative environment encouraged the exchange of ideas, allowing employees to share relevant information and insights, which could lead to the generation of new and innovative concepts (Binnewies and Sonnentag, 2007).

By creating opportunities for communication and idea-sharing, social interaction not only enhanced the creative potential of individuals but also strengthened creativity within teams (Abbas and Khan, 2023). Therefore, this study proposed that social interaction had a positive and significant relationship with the development of employee creativity, as it facilitated both the motivation to create and access to diverse perspectives and knowledge.

H1: Social interaction positively relates to employee creativity.

Previous scholars identified a significant correlation between participation and interaction (Denison and Mishra, 1995). Employee engagement, defined as the extent to which employees shared information, expertise, rewards, and power within the company (Burnett and Lisk, 2021; Randolph, 2000), encouraged social interaction. This interaction fostered the exchange of knowledge, ideas, and experiences, cultivating reciprocity among employees (Sparrowe *et al.*, 2001). Higher levels of engagement granted employees greater influence over decisions, processes, and outcomes.

Sharing information and knowledge, along with social interaction, was vital for making meaningful contributions to the decision-making process (McShane and Glinow, 2017). Employee engagement contributed to improved interpersonal trust, open communication, and social reciprocity, which enhanced innovation and

creativity in work performance. Leveraging the relationship between effective employee engagement and social interaction successfully promoted an innovative and creative environment within organizations (Tsai and Ghoshal, 1998).

H2: Employee engagement positively relates to social interaction.

Openness to change, a concept encompassing both flexible awareness and responsiveness to diverse experiences, involved actively seeking and appreciating experiences for their own sake, as well as tolerating and exploring the unknown (Wanberg and Banas, 2000). This factor corresponded to findings from questionnaire studies (McCrae, 1994). A beneficial open structure existed when there was a need for new experiences; otherwise, it exposed individuals to intrusive thoughts and inconsistent thinking (McCrae and Costa, 1997).

Essential to social interaction, openness to change contributed to improved company performance and success (Neneh, 2012; Zainab *et al.*, 2022). Given this, it was reasonable to assume that openness to new adjustments positively influenced social interaction and, eventually, an employee's creative performance.

H3: Openness to change positively relates to social interaction.

Employee engagement empowered individuals and provided numerous benefits for both employees and organizations. These strategies enhanced employee creativity by offering structured support for skill development, promoting self-determination, and recognizing their contributions (Hui *et al.*, 2021; Laschinger *et al.*, 2001). By involving employees in idea generation and refinement, creativity drove innovation and fostered organizational learning in companies that adopted broad participation strategies.

Such approaches facilitated decision-making, idea-sharing, and the integration of new concepts into work processes (Joo *et al.*, 2023; Kaner, 2014). Encouraging employee participation, particularly among historically underrepresented groups, increased the diversity of ideas and improved overall contributions to idea selection, development, and implementation (Yang and Konrad, 2011).

H4: Employee engagement positively relates to employee creativity.

Research demonstrated a strong connection between encouraging employee

creativity and openness to change (Ashford, 1988). In challenging environments, adaptability was crucial for organizational resilience, enabling firms to navigate internal and external obstacles (McCrae, 1987). Traits such as inventiveness, curiosity, open-mindedness, and nontraditional thinking facilitated the development of new ideas, diverse perspectives, and unique creative standards (George and Zhou, 2001).

Individuals who were open to change not only managed new situations effectively but also excelled at absorbing and integrating new information (Zhang *et al.*, 2020). Openness was closely linked to creativity, whereas those with lower openness exhibited rigidity and a tendency to conform to social norms. Thus, a strong potential correlation existed between higher levels of openness to change and increased creativity.

H5: Openness to change positively relates to employee creativity.

Employee engagement, characterized by high levels of vigor, dedication, and absorption in work tasks (Schaufeli *et al.*, 2002), naturally encouraged employees to interact with colleagues and contribute to shared goals. However, without appropriate reinforcement, engaged employees often prioritized individual task completion over collaborative efforts (Bakker and Demerouti, 2008). When organizations implemented explicit knowledge-sharing incentives, engaged employees were further motivated to participate in social interactions, recognizing tangible benefits associated with sharing insights and experiences (Yu *et al.*, 2013). These incentives strengthened the link between engagement and social interaction by reducing the perceived costs of knowledge sharing and reinforcing its value in career progression (Minbaeva *et al.*, 2012).

Openness to change reflected an individual's willingness to embrace new ideas, adapt to evolving work conditions, and seek innovative solutions (Shalley *et al.*, 2004; Wanberg and Banas, 2000). Employees with a high level of openness to change were naturally inclined toward collaborative behaviors, as they actively sought diverse perspectives and novel approaches (Chai *et al.*, 2020; Ford *et al.*, 2008). However, in the absence of proper incentives, even open-minded employees hesitated to engage in knowledge-sharing interactions due to concerns

about workload, competition, or lack of reciprocity (Foss *et al.*, 2010). By implementing explicit knowledge-sharing incentives, organizations created a structured mechanism that reinforced the exchange of ideas, making social interaction a mutually beneficial and strategically supported activity (Hung *et al.*, 2011). Consequently, employees who were open to change were more likely to engage in collaborative discussions and proactively share insights when explicit incentives aligned with their intrinsic motivation to adapt and innovate.

H6a: Explicit knowledge sharing incentive positively moderates the relationship between employee engagement and social interaction.

H6b: Explicit knowledge sharing incentive positively moderates the relationship between openness to change and social interaction.

Individuals were highly committed to sharing information because they perceived it as a core aspect of their identity. Contrary to the belief that people hesitated to help without immediate benefits, recent research suggested that knowledge sharing increased individuals' willingness to assist others, especially when rewards were anticipated (Obrenovic *et al.*, 2020). Studies indicated that those who gained meaningful insights from knowledge providers tended to form deeper psychological connections and broaden their perspectives, enhancing social interaction and employee engagement (Abrams *et al.*, 2003; Han *et al.*, 2021). As a result, knowledge sharing fostered trust, motivation, and satisfaction between givers and recipients, leading to potential future incentives (Haesebrouck *et al.*, 2021). This approach, by building a collaborative and trusting environment, was believed to stimulate employee creativity.

While openness to change was generally linked to increased social interaction—characterized by active exchanges and collaboration (Chang and Chuang, 2011; Hong *et al.*, 2019)—the presence of implicit knowledge-sharing incentives might have weakened this relationship. Social interaction played a key role in knowledge dissemination, facilitating the integration of information, experiences, and ideas (Haesebrouck *et al.*, 2021). Traits such as openness to change and engagement with others were vital in interpersonal exchanges. Interestingly, individuals were sometimes less inclined to help when sharing

personal information; however, their willingness increased when future rewards were implied (Hinds and Mortensen, 2005). Implicit incentives, by highlighting relational benefits and promoting trust and reciprocity, were crucial in encouraging such behaviors, though they might have softened the positive link between openness to change and social interaction.

H7a: Implicit knowledge sharing incentive positively moderates the relationship between employee engagement and social interaction.

H7b: Implicit knowledge sharing incentive negatively moderates the relationship between openness to change and social interaction.

3.2 Conceptual framework

The research model (see Figure 1) clarified the factors and the moderating effects on employee creativity. According to the framework, social interaction mediated employee creativity, establishing an indirect relationship with employee engagement and openness to experience. Knowledge-sharing incentives functioned as a moderator, influencing each potential path within the model. This study explored the theoretical foundations supporting the hypotheses on employee creativity.

Figure 1 integrated various perspectives into a cohesive framework, contributing to the literature on employee creativity. As the significance of employees' creative performance grew in the business world (Coelho *et al.*, 2011), recent research (Byron and Khazanchi, 2012) emphasized the need to understand how incentives influenced employee outcomes. Building on this, the study examined potential factors shaping the relationship between employee characteristics, social interaction, and creativity. It proposed that knowledge-sharing incentives could either facilitate or mitigate this relationship.

4. Methodology

4.1 Subjects and procedures

The research hypotheses were empirically tested using a quantitative research

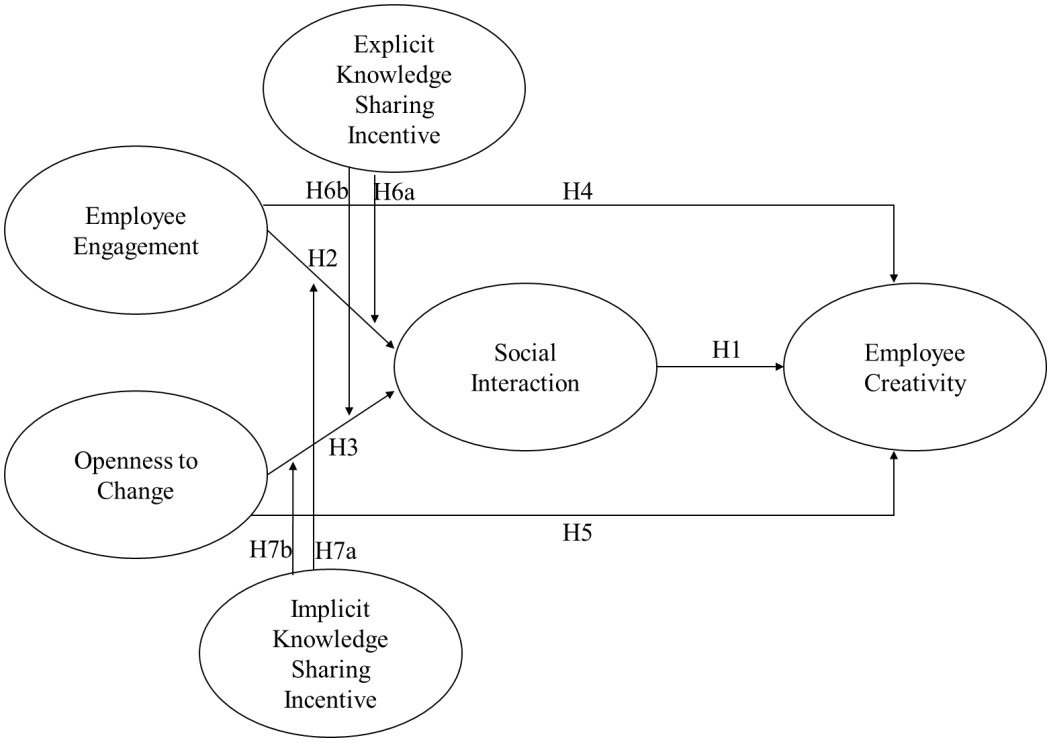


Figure 1
Research framework

design through a survey methodology. The study targeted marketing departments within Taiwan's leading securities corporations, technology firms, and hotels, deliberately selecting marketing personnel from these industries due to the high level of creativity required to capture customer attention in an intensely competitive market environment.

The participants consisted of full-time employees holding positions such as marketing assistants, marketing executives, and marketing managers. These roles were specifically chosen to ensure relevance, as they encompassed core marketing functions and required engagement with essential marketing elements, including strategy development, campaign execution, and customer engagement. The sampling criteria focused on full-time marketing employees in the relevant industries, ensuring that participants had substantial exposure to creativity-driven

roles and could provide meaningful insights into the factors influencing employee creativity. This population selection was strategically made, given its significance as one of the largest professional groups involved in creative projects, where employee creativity is considered a crucial vocational skill.

To maintain data integrity and reliability, the questionnaire was administered anonymously to full-time employees, encouraging honest and unbiased responses. This approach minimized potential response biases and ensured that the collected data accurately reflected employees' perceptions and experiences regarding creativity in their respective workplaces.

A two-phase survey methodology was adopted in this research. In the first phase, a pilot test was conducted by distributing 60 questionnaires to assess the questionnaire design and identify potential issues. After refining the survey based on the pilot test results, the formal survey was carried out in the second phase, during which approximately 350 questionnaires were distributed to firms in the relevant industries. Ultimately, 270 completed questionnaires were collected from marketing departments in Taiwanese organizations, yielding a response rate of 77%.

The study closely examined the role of creativity in marketing departments, particularly in the context of increasing competition for consumer attention (Gouvea and Vora, 2018). Previous research (Ameen, *et al.*, 2022) identified creativity as a crucial driver of future marketing strategies, emphasizing the need for innovative approaches that align with employees' perspectives, desires, and motivations. Understanding the mediating and moderating factors that influence creativity in marketing departments was essential for both academic research and practical applications. Table 1 presents a summary of the sample's attributes.

This study employed three rigorous measures to mitigate potential threats posed by common method variance (CMV). First, reverse-coded items were included to minimize respondent carelessness and reduce response consistency bias. Second, CMV was deemed unlikely to pose a significant threat to this study due to its primary focus on the moderating role of knowledge-sharing incentives (i.e., interaction effects). Prior research has consistently indicated that studies

emphasizing interaction effects are less vulnerable to CMV, as respondents typically struggle to cognitively map the complex relationships arising from these interactions (Chang *et al.*, 2010; Chen and Lin, 2014). Third, during the questionnaire design process, construct labels were deliberately omitted to prevent response biases influenced by participants' preconceived expectations.

4.2 Measurment

Prior to the main survey, a pilot test was conducted with 60 employees to ensure the clarity and comprehensibility of each survey item. These participants were excluded from the final dataset. All study items were measured using a five-point Likert-type scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

In this research, established measurement scales were modified to assess key variables across different constructs. Employee engagement was measured using

Table 1
Characteristics of the sample

Characteristics		N=270
Gender		
Male	145	54%
Female	116	43%
Prefer not to say	9	3%
Education Level		
High school	16	6%
Bachelor's degree	207	76%
Master's degree	45	17%
Ph.D	2	1%
Years of Working Experience		
<1 year	31	11%
1-3 year	69	26%
4-6 year	85	31%
7-10 year	43	16%
>10 year	42	16%

Benn *et al.* (2015) scale, which included exemplary statements such as "I look for ways to do my job more effectively," "I feel inspired to go the extra mile to helpmy workplace succeed," and "I feel a sense of commitment to my workplace." Openness to change was assessed using Wanberg and Banas (2000) scale, featuring items like "I consider myself open to changes," "I look forward to changes in my work role," and "Overall, the proposed changes are for the better."

Social interaction was evaluated using Chen and Lin (2022) scale, which included statements such as "I have developed strong friendships with my coworkers," "My relationship with coworkers extends beyond business and includes social activities," and "My coworkers and I enjoy interacting with each other." Knowledge-sharing incentives were measured using Lin (2007) scale, incorporating exemplary items such as "I receive a higher salary for sharing my knowledge," "I get a higher bonus for sharing knowledge," and "I have more promotion opportunities for sharing knowledge." Finally, employee creativity was assessed using Zhou and George (2001) scale, which included statements such as "I often have new and innovative ideas at work," "I come up with creative solutions to problems," and "I suggest new ways of performing tasks." These established scales provided a reliable framework for accurately measuring the core constructs in this study. Table 2 presents a detailed overview of all survey items.

4.3 Measurement model testing

The data were analyzed using a two-step structural equation modeling (SEM) approach. SAS software, specifically the CALIS procedure, was utilized to perform the SEM analysis. In the first stage, the measurement model was assessed using confirmatory factor analysis (CFA) to ensure its alignment with the theoretical framework. CFA played a crucial role in verifying the constructs under examination by evaluating the extent to which the observed data corresponded with the proposed model. This step was essential in confirming construct validity, thereby enhancing the credibility of the study's conclusions.

The evaluation of the measurement model, including multiple goodness-of-fit indices, is presented in Table 3. The results demonstrated strong model fit (CFI

Table 2
Measurement items

Construct		Measurement Items	Reference
Employee Engagement	1.	I look for ways to do my job more effectively.	Benn et al. (2015)
	2.	I feel inspired to go the extra mile to help my workplace succeed.	
	3.	I feel a sense of commitment to my workplace.	
	4.	I would recommend my workplace as a great place to work.	
Openness to Change	1.	I would consider myself open to the changes.	Wanberg and Banas (2000)
	2.	I am looking forward to the changes in my work role.	
	3.	Overall, the proposed changes are for the better.	
	4.	I think that the changes will have a positive effect on how I accomplish my work.	
Social Interaction	1.	I have developed strong friendship with my coworkers.	Chen and Lin (2022)
	2.	The relationship with my coworkers goes beyond business and often involves social activities together.	
	3.	My coworkers and I enjoy the interaction with each other.	
	4.	My coworkers and I have a socially common bond (e.g., greetings via phone or social community software, Line)	
Employee Creativity	1.	In my work I often have new and innovative ideas.	Zhou and George (2001)
	2.	In my work I often come up with creative solutions to problems.	
	3.	In my work I often suggest new ways of performing work tasks.	
	4.	I often develop adequate plans and schedules for the implementation of new ideas.	
	5.	I often exhibit creativity on the job when given the opportunity to.	
Explicit KSI	1.	I will receive a higher salary in return for my knowledge sharing.	Lin (2007)
	2.	I will receive a higher bonus in return for my knowledge sharing.	
	3.	I will receive increased promotion opportunities in return for my knowledge sharing.	
Implicit KSI	1.	I expect to receive knowledge in return when necessary.	Lin (2007)
	2.	I will receive a sense of achievement in return for my knowledge sharing.	
	3.	I will experience personal satisfaction as a result of sharing my knowledge.	
	4.	I will find a sense of purpose in sharing my knowledge.	
	5.	I will experience altruism when sharing my knowledge.	

Table 3
Construct standardized loadings and reliabilities

Construct	Indicator	Standardized loading	AVE	Cronbach's α
Employee Engagement	EE1	0.54 (t = 11.50)	0.57	0.84
	EE2	0.76 (t = 25.18)		
	EE3	0.86 (t = 37.47)		
	EE4	0.82 (t = 32.09)		
Openness to Change	Open1	0.79 (t = 30.63)	0.71	0.91
	Open2	0.82 (t = 35.06)		
	Open3	0.89 (t = 52.17)		
	Open4	0.86 (t = 44.56)		
Social Interaction	SI1	0.87 (t = 47.69)	0.76	0.93
	SI2	0.88 (t = 51.52)		
	SI3	0.90 (t = 61.64)		
	SI4	0.84 (t = 41.60)		
Employee Creativity	EC1	0.80 (t = 32.29)	0.73	0.93
	EC2	0.87 (t = 48.27)		
	EC3	0.89 (t = 57.16)		
	EC4	0.85 (t = 44.16)		
	EC5	0.85 (t = 44.17)		
Explicit KS Incentive	EKI1	0.95 (t = 121.10)	0.89	0.96
	EKI2	0.95 (t = 118.00)		
	EKI3	0.92 (t = 82.64)		
Implicit KS Incentive	IKI1	0.83 (t = 41.32)	0.80	0.95
	IKI2	0.93 (t = 95.80)		
	IKI3	0.94 (t = 106.30)		
	IKI4	0.88 (t = 59.44)		
	IKI5	0.87 (t = 54.69)		

Note: Goodness-of-fit indices (N =270): $\chi 2$ = 728.72 (p-value < 0.001); CFI=0.93; NFI=0.90; RMR=0.04; SRMR=0.05; PGFI=0.71; PNFI=0.78

= 0.93; NFI = 0.90; RMR = 0.04; SRMR = 0.05; PGFI = 0.71; PNFI = 0.78), indicating that the measurement model accurately represented the survey data. These indices collectively validated the precision and robustness of the model in capturing the underlying constructs, in accordance with established research standards. The overall measures exceeded the recommended thresholds for a good model fit, reinforcing the validity and reliability of the framework in encapsulating the study's core constructs.

Convergent validity was assessed following established methods from previous research. All factor loadings in our study were statistically significant, and the average variance extracted (AVE) for each factor exceeded the 0.50 benchmark. Additionally, as shown in Table 3, the reliability coefficients for all constructs were above the 0.70 threshold, confirming the adequacy of the dataset's convergent validity.

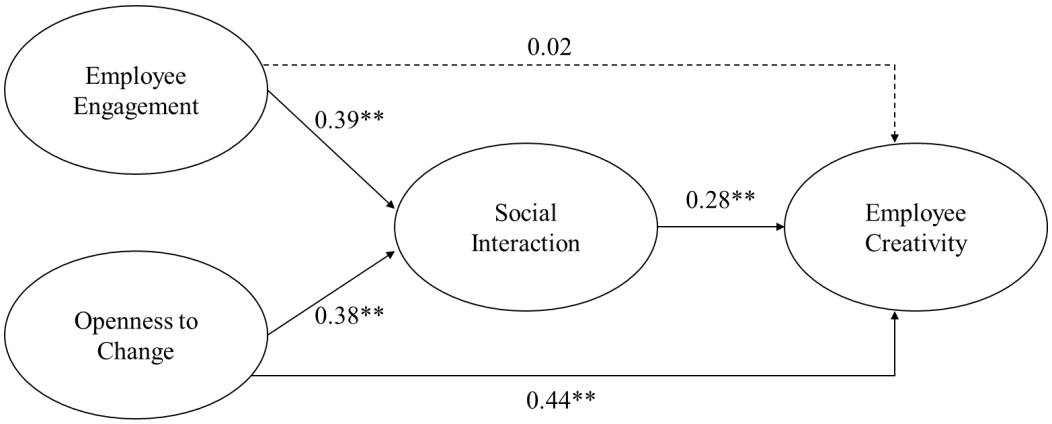
4.4 Structural model testing

In the second stage, the transition from the measurement model to the structural model was carefully aligned with the expected statistical paths for evaluation. The empirical results, presented in Figure 2, validated the hypothesized model paths rigorously tested in this study. Figure 2 illustrated the empirical findings, demonstrating that social interaction had a significant positive effect on employee creativity, thereby supporting H1 ($\beta = 0.28$).

Additionally, employee engagement exhibited a significant positive effect on social interaction, confirming H2 ($\beta = 0.39$). Similarly, openness to change significantly influenced social interaction, providing support for H3 ($\beta = 0.38$). Furthermore, openness to change showed a statistically significant relationship with employee creativity, reinforcing H5 ($\beta = 0.44$). These findings collectively underscored the critical roles of social interaction, employee engagement, and openness to change in fostering employee creativity.

5. Results

To further investigate the moderated relationships within the model and



** p<0.05

Figure 2
Test results of path analysis

validate the direct relationships identified through structural analysis, hierarchical regression models were employed using SAS software to ensure a rigorous and comprehensive examination of these relationships. The hierarchical regression models, presented in Table 4, were essential for understanding the complex relationships between various factors and employee creativity. This method allowed for a systematic assessment of the incremental contribution of each predictor variable to the variance in employee creativity.

Model 1 provided empirical support for H1, demonstrating a strong positive correlation between employee creativity and social interaction, indicating that fostering workplace social interaction positively influenced creativity. In Models 2 and 3, the results confirmed positive relationships between employee creativity and both employee engagement and openness to change, supporting the mediating effects hypothesized in H2 and H3. These findings emphasized the importance of fostering a culture of openness and active employee engagement to enhance creativity.

To examine potential moderating effects, Model 4 incorporated interaction terms, specifically investigating the relationships between explicit and implicit

Table 4
Hierarchical regression analysis

	Model 1 Employee Creativity	Model 2 Employee Creativity	Model 3 Social Interaction	Model 4 Social Interaction
Control variables:				
Age	-0.00	-0.00	-0.03	-0.04
Education level	0.05	0.04	0.05	0.05
Job position	-0.06	-0.02	-0.05	-0.04
Tenure	0.03	0.04	-0.01	0.03
Antecedents:				
Employee engagement		0.02	0.43***	-0.46*
Openness to change		0.35***	0.39***	0.64**
Mediator:				
Social interaction	0.48***	0.05***		
Moderator & interaction terms:				
Explicit KS Incentive x EE				-0.03
Explicit KS Incentive x Openness				0.08*
Implicit KS Incentive x EE				0.21***
Implicit KS Incentive x Openness				-0.17**
Adj R^2	0.33	0.41	0.43	0.54

∗ p<0.1. ∗∗ p<0.05. ∗∗∗ p<0.01

knowledge-sharing incentives with both employee engagement and openness to change. The statistically significant positive coefficients suggested that certain incentives strengthened the relationships between these predictors and employee creativity. However, the findings also revealed a negative association in H7b, suggesting that under certain conditions, such as when substantial incentives were present, employees might be less inclined to switch roles or share expertise. This result challenged conventional assumptions and highlighted the nuanced interactions between organizational dynamics, employee motivation, and incentives. Table 5 summarized the results, providing a clear indication of whether each hypothesis was supported.

6. Disscusion and conclusions

6.1 Managerial and theoretical implications

In the discussion and conclusion of this research, the study addressed the challenges organizations faced in fostering employee creativity within a rapidly evolving business environment, which contrasted with their traditionally bureaucratic structures (Basadur, 1997). The research explored the gap in employee creativity and proposed a novel strategy to nurture it, considering the moderating effect of knowledge-sharing incentives. The findings aligned with the contemporary theoretical perspective that defined employee creativity as an ongoing process of problem-solving and implementing solutions, which was essential for organizational success (Oldham and Baer, 2012). Consistent with previous studies, the results underscored the critical role of creativity in driving organizational growth, efficiency, and sustainability (Amabile *et al.*, 1996; Montag *et al.*, 2012).

Table 5
Test results of hypothesis

Hypotheses	Results
H1: Social interaction positively relates to employee creativity.	Supported
H2: Employee engagement positively relates to social interaction.	Supported
H3: Openness to change positively relates to social interaction.	Supported
H4: Employee engagement positively relates to employee creativity.	Not Supported
H5: Openness to change positively relates to employee creativity.	Supported
H6a: Explicit knowledge sharing incentive positively moderates the relationship between employee engagement and social interaction.	Not Supported
H6b: Explicit knowledge sharing incentive positively moderates the relationship between openness to change and social interaction.	Supported
H7a: Implicit knowledge sharing incentive positively moderates the relationship between employee engagement and social interaction.	Supported
H7b: Implicit knowledge sharing incentive negatively moderates the relationship between openness to change and social interaction.	Supported

To contribute to existing knowledge, the study synthesized contextual factors influencing employee creativity across different organizational settings and provided new directions for future research. The results indicated that individuals assigned challenging creativity goals for original thinking outperformed those without such goals, emphasizing the importance of goal-setting in fostering creativity (Shalley and Oldham, 1985). The proposed model advocated for an integrated approach, combining strategic thinking and creative interventions, thereby moving beyond traditional, single-intervention methods.

It was important to note that H4, which proposed a positive direct relationship between employee engagement and employee creativity, was not supported in this study. A possible explanation, consistent with previous research, was that while an employee might exhibit a positive attitude toward work and actively seek solutions to challenges, the absence of meaningful social interaction with colleagues could weaken the positive effects of engagement (Lemon, 2019). This suggested that supervisors should place greater emphasis on fostering positive interactions among department members to maximize the benefits of employee engagement.

Additionally, H6a, which examined the moderating effect of explicit incentives (e.g., salary and bonuses), was also not supported. A potential explanation for this finding was that employees' cognitive and emotional attitudes toward social interaction might not have been significantly influenced by external incentives. However, this did not imply that external rewards were unimportant. Previous research had identified them as fundamental factors that prevented dissatisfaction rather than actively contributing to satisfaction (De Gieter and Hofmans, 2015). Thus, while explicit incentives might not have directly enhanced social interaction, they remained essential in maintaining baseline employee motivation and well-being.

This research made a significant contribution to the development of employee creativity, particularly in marketing departments, by introducing a new research framework to explore the role of moderating effects in enhancing creativity (De Alencar and De Bruno-Faria, 1997). By exposing employees to diverse information and outcomes, the study addressed challenges associated with

organizational creativity deficits (Madjar, 2008). The proposed framework and hypotheses were designed not only to meet the study's objectives but also to offer solutions to key questions surrounding organizational creativity challenges.

Within this framework, knowledge-sharing incentives—both explicit and implicit—played a critical role in fostering employee creativity. Explicit incentives, such as bonuses tied to creative output, strongly motivated employees to generate new ideas and contribute to organizational innovation (Malik *et al.*, 2015). However, excessive reliance on explicit incentives risked narrowing employees' focus on meeting specific performance goals, potentially stifling creativity by discouraging risk-taking and experimentation. Conversely, implicit incentives, such as cultivating a collaborative culture without directly linking it to personal rewards, promoted open dialogue and diverse viewpoints. Yet, if not managed effectively, implicit incentives failed to stimulate creativity, as employees might perceive a lack of tangible rewards for their contributions (Rosenblatt, 2011).

This study underscored the double-edged nature of both explicit and implicit incentives. By acknowledging the limitations of each, it provided a comprehensive understanding of how different incentive structures influenced employee creativity (Brenner, 2012). This recognition opened new avenues for research and called for more nuanced approaches to fostering innovation within organizations. Ultimately, by embracing the dual nature of incentives, companies could better navigate the complexities of cultivating a creative workforce, maximizing their potential for innovation and long-term success (Carlsson and Stankiewicz, 1991).

6.2 Future direction and research limitations

This study provided a foundation for further exploration into the complex dynamics of fostering employee creativity in organizational settings, suggesting several future research directions. Future studies should examine more intricate interactions between contextual factors, such as corporate culture (e.g., inclusive climate) and leadership, to assess their impact on employees' creative potential. Given the negative correlation found in H9, longitudinal research could track the

long-term effects of new approaches, offering insights into their sustainability and effectiveness over time. Additionally, cross-sector comparative studies could enhance understanding of the generalizability of creativity-promoting strategies and identify situational factors that influence their success.

The study's focus on specific departments, such as marketing, may have limited the applicability of its conclusions to other organizational settings. The cross-sectional nature of the data also restricted the ability to observe the dynamic evolution of employee creativity and establish causal relationships. To improve the validity and relevance of future findings, research should expand its scope to encompass diverse organizational contexts, incorporate objective measures of creativity, and employ a variety of methodological approaches.

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