

# GENERATIVE AI AND HUMAN CREATIVITY IN KNOWLEDGE WORK: THE MEDIATING ROLE OF REFLECTIVE THINKING

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## ABSTRACT

The rapid emergence of generative artificial intelligence (AI) technologies has transformed organizational knowledge work by reshaping how employees generate ideas, solve problems, and perform creative tasks. While generative AI tools such as ChatGPT, Gemini, Claude, and Copilot provide substantial support for ideation and productivity, growing concerns exist regarding their impact on independent thinking and human creativity. This study investigates the relationship between generative AI usage and human creativity in knowledge work, with reflective thinking serving as a mediating mechanism. Using quantitative data collected from 250 knowledge workers across banking, healthcare, marketing, IT, and food industries, the study examines how reflective engagement with AI-generated outputs influences creative performance. Findings reveal that employees who critically evaluate, reinterpret, and cognitively engage with AI-generated information demonstrate stronger creativity than employees who use AI passively. The results indicate that generative AI enhances creativity primarily when accompanied by reflective thinking. Employees who use AI as a starting point for deeper reasoning and idea refinement are more likely to generate novel ideas and creative solutions. The study contributes to literature on human-AI collaboration, cognitive augmentation, creativity, and future-of-work research by demonstrating that reflective cognition is essential for transforming AI-generated outputs into meaningful human creativity.

**Keywords:** Generative AI, Human Creativity, Reflective Thinking, Knowledge Work, Human-AI Collaboration, Cognitive Augmentation

## 1. INTRODUCTION

The rapid advancement of artificial intelligence technologies has significantly transformed organizational processes, professional practices, and knowledge-intensive work environments. Among these technologies, generative artificial intelligence (GenAI) has emerged as one of the most influential innovations affecting modern workplaces. Generative AI systems such as ChatGPT, Gemini, Claude, Microsoft Copilot, and Midjourney are increasingly integrated into organizational workflows to support idea

generation, analytical reasoning, content development, coding, strategic planning, and decision-making processes (Dwivedi et al., 2023). Unlike traditional automation systems that primarily execute repetitive tasks, generative AI possesses the ability to generate human-like text, visuals, recommendations, and problem-solving outputs through large language models and machine learning architectures. Consequently, generative AI no longer functions solely as a productivity tool but increasingly acts as a collaborative cognitive system participating

directly in human intellectual and creative activities (Brynjolfsson et al., 2023).

The integration of generative AI into knowledge work has intensified scholarly debate regarding its impact on human creativity. Creativity remains one of the most valuable human capabilities within organizational environments because it contributes to innovation, adaptability, strategic competitiveness, and organizational sustainability (Amabile, 1996). Knowledge workers—including researchers, consultants, analysts, educators, marketers, and managers—are expected to generate novel ideas, solve complex problems, and produce innovative solutions in uncertain and rapidly changing environments.

However, the emergence of generative AI has created a paradox concerning whether AI enhances or diminishes human creativity. Some researchers argue that generative AI functions as a cognitive augmentation tool that expands idea diversity, accelerates brainstorming, and exposes individuals to alternative perspectives, thereby enhancing creativity (Peschl, 2024; Zhu & Zou, 2023). Other scholars express concern that excessive reliance on AI-generated outputs may reduce reflective cognition, weaken critical thinking, and diminish originality by encouraging passive acceptance of machine-generated content (Lee et al., 2025; Helal et al., 2025).

This debate highlights the importance of understanding the cognitive mechanisms that determine whether generative AI contributes positively or negatively to creativity. Within this context, reflective thinking emerges as a potentially critical mediating mechanism. Reflective thinking refers to deliberate cognitive engagement involving critical evaluation, analysis, reinterpretation, and deeper reasoning before accepting information or conclusions (Dewey, 1933; Kember et al., 2000). In AI-supported environments, reflective thinking may enable employees to critically assess AI-generated suggestions, refine machine-generated outputs, integrate contextual understanding, and preserve human creative agency.

Despite increasing interest in generative AI and creativity, limited empirical research has examined reflective thinking as a mediating variable between

generative AI usage and creativity in organizational knowledge work. Existing literature has primarily focused on AI adoption, productivity enhancement, or direct AI-creativity relationships while largely ignoring the cognitive processes underlying creative outcomes.

Therefore, the present study addresses this gap by investigating whether reflective thinking mediates the relationship between generative AI usage and human creativity in knowledge work. Specifically, the study examines whether employees who engage reflectively with AI-generated outputs demonstrate higher creativity than employees who use AI passively.

The study contributes theoretically by integrating perspectives from creativity research, cognitive psychology, human-computer interaction (HCI), distributed cognition, and cognitive augmentation theory. Practically, the study offers important implications for organizations seeking to implement generative AI while preserving employee creativity and independent thinking.

## 2. Literature Review

### 2.1 Generative AI in Knowledge Work

Knowledge work refers to professional activities requiring cognitive effort, analytical reasoning, information processing, and creative problem-solving rather than physical labor (Drucker, 1999). The rise of digital technologies has increasingly transformed knowledge work, and generative AI represents the latest stage in this transformation. Generative AI systems are capable of producing original content through machine learning models trained on large-scale datasets. Unlike traditional information systems, generative AI actively participates in ideation, writing, analysis, coding, and communication processes. According to Dwivedi et al. (2023), generative AI technologies are reshaping organizational decision-making and workflow structures by enabling rapid content generation and cognitive support.

Brynjolfsson et al. (2023) found that AI-assisted workers demonstrated significantly improved productivity and task efficiency in customer support environments. Similarly, Zhu and Zou (2023) demonstrated that generative AI enhanced

idea generation and brainstorming performance in creative tasks.

Research suggests that generative AI can support employees by:

- accelerating information retrieval,
- reducing routine cognitive load,
- generating alternative perspectives,
- stimulating ideation,
- and enhancing analytical efficiency.

However, scholars caution that AI-assisted environments may also create risks associated with cognitive dependency and reduced independent thinking. Lee et al. (2025) found that some knowledge workers relied excessively on AI-generated responses, reducing critical cognitive engagement and analytical effort.

This contradiction forms the basis of the “AI creativity paradox,” which suggests that generative AI may simultaneously enhance efficiency while weakening deeper reflective cognition (Choi et al., 2026).

## 2.2 Human Creativity in Knowledge Work

Creativity refers to the production of novel and useful ideas within a specific context (Amabile, 1996). In organizational settings, creativity is essential for innovation, adaptability, and competitive advantage. Employee creativity contributes to organizational learning, strategic flexibility, and long-term sustainability (Oldham & Cummings, 1996).

Zhou and George (2001) conceptualized employee creativity as the extent to which employees produce innovative and useful ideas concerning products, services, and organizational processes. Creativity in knowledge work requires:

- divergent thinking,
- experimentation,
- idea recombination,
- cognitive flexibility,
- and reflective reasoning.

The relationship between technology and creativity has historically remained complex. Traditional technologies mainly supported automation and efficiency, whereas generative AI directly participates in ideation processes. Consequently, AI is increasingly viewed not

merely as a tool but as a collaborative cognitive system.

Peschl (2024) argued that generative AI extends human cognitive capabilities by exposing individuals to interdisciplinary associations and alternative conceptual frameworks. Similarly, Wei et al. (2025) found that AI-assisted collaboration improved creative problem-solving performance among participants.

However, DeSchryver et al. (2025) emphasized that authentic creativity remains fundamentally human because it requires interpretation, contextual judgment, emotional understanding, and reflective cognition.

The present study builds upon this debate by proposing that creativity outcomes depend not simply on AI availability but on how humans cognitively interact with AI-generated outputs.

## 2.3 Reflective Thinking

Reflective thinking refers to deliberate cognitive engagement involving critical evaluation, analytical reasoning, reinterpretation, and self-awareness (Dewey, 1933). Reflective cognition enables individuals to move beyond superficial information processing toward deeper understanding and meaningful interpretation.

Kember et al. (2000) conceptualized reflective thinking as a multidimensional construct involving:

- habitual action,
- understanding,
- reflection,
- and critical reflection.

Reflective thinking is strongly associated with:

- creativity,
- problem-solving,
- innovation,
- decision-making,
- and higher-order cognition.

In AI-supported environments, reflective thinking becomes increasingly important because generative AI systems produce instant recommendations and ready-made outputs. Employees who passively accept AI-generated responses may reduce cognitive engagement and originality (Lee et al., 2025).

Conversely, employees who reflect critically on AI-generated outputs may:

- reinterpret information,
- challenge assumptions,
- refine concepts,
- compare alternatives,
- and integrate contextual judgment.

Wei et al. (2025) found that AI-assisted activities enhanced reflective cognition when participants critically engaged with AI-generated information. Similarly, Helal et al. (2025) concluded that generative AI can strengthen critical thinking when users actively evaluate machine-generated content rather than accepting it automatically.

Therefore, reflective thinking may explain why some employees become more creative with AI while others become cognitively passive.

#### 2.4 Human-AI Collaboration and Cognitive Augmentation

Human-AI collaboration refers to interactive cognitive partnerships between humans and intelligent systems. Unlike conventional automation, generative AI increasingly functions as a collaborative thought partner participating in creative and analytical tasks.

Distributed Cognition Theory proposes that cognition can be distributed across individuals, tools, and technological systems (Hutchins, 1995). Similarly, Extended Mind Theory suggests that external technologies can extend human cognitive capacities beyond biological limitations (Clark & Chalmers, 1998).

Generative AI may therefore function as a cognitive augmentation system rather than merely an automation tool.

Wilson and Burleigh (2026) described generative AI as a collaborative cognitive partner capable of stimulating associative thinking and knowledge exploration. However, the effectiveness of this collaboration depends heavily on the quality of human cognitive engagement.

Employees who engage reflectively with AI-generated outputs may:

- refine machine-generated ideas,
- combine AI outputs with personal expertise,
- reinterpret suggestions creatively,

- and preserve originality.

Consequently, reflective thinking may function as the mechanism transforming AI-generated information into creative human outcomes.

#### 2.5 Research Gap

Although previous studies have explored AI adoption, creativity, and critical thinking, several important gaps remain.

First, existing literature primarily examines direct relationships between AI usage and creativity while overlooking the underlying cognitive mechanisms shaping these outcomes.

Second, limited empirical studies have examined reflective thinking as a mediating variable between generative AI usage and creativity in organizational knowledge work.

Third, many studies focus on educational settings rather than professional knowledge-intensive environments.

Finally, prior research frequently treats AI as either inherently beneficial or harmful to creativity, ignoring the role of human cognitive engagement. Therefore, the present study addresses these gaps by investigating whether reflective thinking mediates the relationship between generative AI usage and human creativity in knowledge work.

### 3. Theoretical Framework and Hypotheses

#### 3.1 Theoretical Framework

The study is grounded in:

- Distributed Cognition Theory,
- Extended Mind Theory,
- Cognitive Augmentation Theory,
- and Reflective Thinking Theory.

These theories collectively suggest that technology extends human cognition but meaningful creativity depends on active cognitive engagement.

#### 3.2 Hypotheses

##### H1

Generative AI usage positively influences human creativity in knowledge work.

##### H2

Generative AI usage positively influences reflective thinking.

##### H3

Reflective thinking positively influences human creativity in knowledge work.

**H4**

Reflective thinking mediates the relationship between generative AI usage and human creativity in knowledge work.

**4. Methodology**

**4.1 Research Design**

The present study adopted a quantitative cross-sectional research design to examine the relationship between generative AI usage, reflective thinking, and human creativity in knowledge work. Quantitative methodology was considered appropriate because the study aimed to measure perceptions, cognitive behaviors, and relationships among variables using structured statistical analysis.

The study focused specifically on determining whether reflective thinking mediates the relationship between generative AI usage and creativity among knowledge workers.

**4.2 Research Philosophy**

The study was based on the positivist research philosophy, which assumes that human behavior



**4.4 Data Collection Instrument**

Data were collected through a structured questionnaire consisting of four sections:

Section	Purpose
Section A	Demographic information
Section B	Generative AI Usage
Section C	Reflective Thinking
Section D	Human Creativity in Knowledge Work

All variables were measured using a five-point Likert scale.

**4.5 Measurement of Variables**

**Table 4.1 Variables and Measurement Sources**

Variable	Type	Source
Generative AI Usage	Independent Variable	Adapted from TAM/UTAUT (Venkatesh et al., 2003)
Reflective Thinking	Mediating Variable	Adapted from Kember et al. (2000)
Human Creativity	Dependent Variable	Adapted from Zhou & George (2001)

**4.6 Data Analysis Techniques**

The collected data were analyzed using:

- descriptive statistics,
- mean analysis,
- standard deviation,
- construct-level analysis,

and organizational phenomena can be measured objectively through empirical data and statistical analysis. Positivism is commonly used in management, organizational behavior, and technology adoption research because it allows researchers to identify patterns, relationships, and measurable outcomes.

**4.3 Population and Sampling**

The target population consisted of knowledge workers employed in industries where generative AI technologies are increasingly used for analytical, creative, and decision-making tasks.

The respondents belonged to:

- banking,
- healthcare,
- marketing,
- IT,
- and food industries.

A sample size of 250 respondents was used for the study. Respondents were selected through convenience and purposive sampling because the study specifically required individuals familiar with generative AI tools.

- comparative analysis,
- and mediation-based interpretation.

The analysis aimed to examine:

1. The extent of generative AI usage.
2. The level of reflective thinking among respondents.
3. The level of human creativity.
4. The relationship among the three constructs.

## 5. Data Analysis and Interpretation

### 5.1 Introduction

This chapter presents the analysis and interpretation of data collected from 250

### 5.2 Demographic Analysis

**Table 5.1 Age Distribution**

Age Group	Frequency	Percentage
26-35 years	90	36%
36-45 years	80	32%
46+ years	80	32%
Total	250	100%

The largest respondent group belonged to the 26-35 age category, representing 36% of the sample. However, the inclusion of older respondents

respondents. The primary objective was to investigate whether employees who use generative AI with reflective thinking demonstrate stronger creativity than employees who use AI without reflective cognitive engagement.

The analysis includes:

- demographic analysis,
- descriptive statistics,
- construct-level interpretation,
- comparative analysis,
- mediation-based interpretation,
- and critical analysis.

indicates that generative AI usage is not restricted to younger professionals.

This suggests widespread adoption of AI technologies across different age groups.

**Table 5.2 Education Level**

Education Level	Frequency	Percentage
Bachelor	10	4%
Master	230	92%
PhD	10	4%
Total	250	100%

The majority of respondents possessed master's degrees, indicating that the sample largely consisted of highly educated professionals involved in analytical and cognitive work.

This strengthens the relevance of the study because reflective cognition and creativity are particularly important in knowledge-intensive professional environments.

**Table 5.3 Frequency of Generative AI Usage**

AI Usage Frequency	Frequency	Percentage
Sometimes	40	16%
Frequently	60	24%
Daily	150	60%
Total	250	100%

The findings reveal extensive adoption of generative AI technologies among respondents. Approximately 84% of respondents reported using generative AI frequently or daily.

This demonstrates that AI technologies have become integrated into routine knowledge work.

### 5.3 Descriptive Analysis of Generative AI Usage

**Table 5.4 Generative AI Usage**

Code	Statement	Mean	SD
GAI1	I frequently use generative AI tools in my work.	3.68	1.01
GAI2	AI helps me complete tasks efficiently.	3.68	0.93
GAI3	I use AI for idea generation.	3.40	0.80
GAI4	AI improves my work effectiveness.	3.48	1.21
GAI5	I integrate AI into daily work activities.	3.60	1.02
GAI6	I rely on AI for complex work problems.	2.92	0.63
GAI7	AI helps me explore alternative perspectives.	4.24	1.14
GAI8	I use AI-generated suggestions during creative tasks.	3.68	0.55

The findings demonstrate positive perceptions regarding generative AI usage. The highest mean score was observed for GAI7, indicating that respondents strongly believe AI helps them explore alternative perspectives.

This finding is important because creativity often depends on exposure to diverse viewpoints and conceptual alternatives.

Interestingly, GAI6 recorded the lowest mean score. Respondents were less willing to rely completely on AI for solving complex problems. This suggests that employees still value human judgment and independent reasoning in cognitively demanding situations.

Therefore, AI appears to function primarily as a supportive cognitive tool rather than a replacement for human expertise.

### 5.4 Descriptive Analysis of Reflective Thinking

**Table 5.5 Reflective Thinking**

Code	Statement	Mean	SD
RT1	I reflect on the way I solve problems.	3.68	0.62
RT2	I critically evaluate new ideas before accepting them.	3.80	0.69
RT3	I think deeply about AI-generated information.	3.92	0.75
RT4	I analyze AI-generated suggestions carefully.	3.72	1.08
RT5	I use AI outputs as starting points for deeper thinking.	3.68	1.23

Code	Statement	Mean	SD
RT6	I question the accuracy of AI-generated responses.	3.32	1.35
RT7	I compare AI ideas with my own reasoning.	3.36	1.38
RT8	I consciously engage in critical thinking when using AI.	3.08	0.48

The reflective thinking analysis reveals strong cognitive engagement among respondents. RT3 recorded the highest mean score, indicating that respondents think deeply about AI-generated information.

The results show that respondents generally do not accept AI-generated outputs blindly. Instead,

many respondents critically evaluate AI suggestions and use them as starting points for deeper reasoning.

These findings strongly support the proposed mediating role of reflective thinking.

### 5.5 Descriptive Analysis of Human Creativity

Table 5.6 Human Creativity

Code	Statement	Mean	SD
HC1	I generate novel ideas in my work.	3.74	0.76
HC2	I develop creative solutions to problems.	3.80	0.63
HC3	I suggest innovative approaches.	3.57	0.93
HC4	I produce original ideas.	3.42	1.08
HC5	I demonstrate creativity in tasks.	3.58	0.79
HC6	I experiment with new methods.	3.10	0.84
HC7	I combine ideas innovatively.	3.32	1.01
HC8	I contribute creative ideas to organizational outcomes.	3.22	1.04

The results indicate moderate-to-high creativity among respondents. The strongest scores appear in idea generation and creative problem-solving. However, lower scores on experimentation suggest that although AI may support ideation, employees may not always translate creative thinking into

practical experimentation or organizational innovation.

This indicates that creativity depends not only on individual cognition but also on organizational support and implementation opportunities.

### 5.6 Comparative Analysis of Constructs

Table 5.7 Comparison of Main Constructs

Construct	Mean	Interpretation
Generative AI Usage	3.59	Moderate-to-high usage
Reflective Thinking	3.57	Strong reflective engagement
Human Creativity	3.47	Moderate creativity

The comparative analysis demonstrates that reflective thinking and AI usage show similarly strong mean scores, while creativity remains slightly lower.

This suggests that although employees actively use AI and reflect on AI-generated information, creativity outcomes may still depend on additional organizational and psychological conditions.

### 5.7 Mediation-Based Interpretation

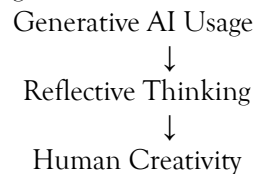
The central objective of the study was to determine whether reflective thinking mediates the relationship between generative AI usage and creativity.

The data strongly supports this interpretation.

Employees who:

- think deeply about AI-generated outputs,
- critically evaluate AI suggestions,
- compare AI ideas with personal reasoning,
- and reinterpret AI-generated information, demonstrate stronger creative outcomes.

The findings therefore support the following mediation structure:



This suggests that AI-generated outputs become creatively meaningful only when users critically engage with them.

Employees who use AI passively may become more efficient, but not necessarily more creative.

Conversely, employees who use AI reflectively are more likely to reinterpret machine-generated suggestions, combine them with personal expertise, and produce innovative outcomes.

### 6. Discussion and findings

The findings of the present study demonstrate that generative AI positively influences creativity in knowledge work; however, this relationship is neither direct nor automatic. Instead, the effectiveness of generative AI depends significantly on employees' reflective thinking and iterative interaction with AI-generated outputs. The results indicate that employees who critically evaluate, reinterpret, and refine AI-generated responses demonstrate stronger creativity than employees who use AI passively.

The study supports the perspective that generative AI should be viewed as a collaborative cognitive partner rather than a replacement for human creativity. Although AI systems can rapidly generate ideas, suggestions, and alternative

For example:

- RT3 ("I think deeply about AI-generated information") recorded a high mean of 3.92.
- HC1 ("I generate novel ideas") and HC2 ("I develop creative solutions") also recorded strong means of 3.74 and 3.80.

This alignment suggests that reflective cognition strengthens creative performance.

In contrast, respondents showed relatively weaker agreement regarding complete reliance on AI for complex problem-solving. This indicates that AI alone does not guarantee creativity.

perspectives, they often lack awareness of organizational realities such as internal culture, strategic priorities, operational constraints, customer expectations, and situational complexities. Consequently, AI-generated outputs may appear technically sound but may not always be contextually appropriate or practically feasible within specific organizational environments.

These findings align with Jarrahi (2018), who argued that AI systems enhance decision-making processes but cannot replace human contextual judgment and organizational understanding. Similarly, Shneiderman (2022) emphasized that human-centered AI is most effective when it augments rather than substitutes human cognition. Davenport and Kirby (2016) further explained that AI contributes computational efficiency and information-processing capabilities, whereas humans contribute interpretation, experience, ethical reasoning, and contextual awareness.

The empirical findings strongly support these theoretical perspectives. Respondents reported high agreement regarding AI's role in idea generation and exploration of alternative perspectives, but lower agreement regarding complete reliance on AI for solving complex

organizational problems. This suggests that employees recognize both the usefulness and limitations of generative AI. Complex organizational problems often require tacit knowledge, practical experience, and understanding of organizational dynamics—areas where human cognition remains essential.

Reflective thinking emerged as the central mechanism through which AI-generated outputs become creatively meaningful. Employees who engage reflectively with AI do not simply accept machine-generated responses as final answers. Instead, they critically assess AI suggestions, compare them with personal expertise, reinterpret outputs according to organizational realities, and refine ideas through deeper cognitive engagement. In this process, reflective thinking transforms generalized AI-generated information into contextually relevant and innovative outcomes.

The findings also highlight the importance of iterative interaction in human–AI collaboration. A single AI-generated response is often broad, incomplete, or generic because AI systems lack detailed contextual understanding. However, when employees repeatedly interact with AI systems by refining prompts, adding organizational details, questioning outputs, and requesting revisions, the quality and relevance of AI-generated responses improve significantly. Through iterative interaction, employees effectively integrate organizational context and human expertise into AI-supported creativity.

This iterative-reflective process explains why employees who use AI critically demonstrate higher creativity than those who use AI passively. Passive AI usage may increase efficiency and reduce task completion time, but it does not necessarily enhance originality or innovation. In contrast, reflective and iterative interaction promotes deeper cognitive processing, contextual adaptation, and creative reinterpretation, leading to more meaningful and innovative outcomes.

Another important finding concerns the distinction between creative ideation and creative implementation. Respondents demonstrated relatively strong agreement regarding idea generation and creative problem-solving, but lower agreement regarding experimentation with new

methods. This suggests that while generative AI and reflective thinking may enhance creative thinking, organizational conditions may still restrict the implementation of innovative ideas. Creativity therefore depends not only on individual cognitive engagement but also on organizational support, managerial openness, psychological safety, and opportunities for experimentation. This finding is consistent with creativity literature emphasizing the importance of organizational climate in fostering innovation (Amabile, 1996; Scott & Bruce, 1994).

The study also contributes to the broader debate surrounding the “AI creativity paradox.” Existing literature often presents AI either as a threat to human creativity or as a tool that automatically enhances innovation. However, the findings of this study suggest a more balanced interpretation. Generative AI neither guarantees nor diminishes creativity by itself. Instead, the creative value of AI depends on the quality of human cognitive engagement. Employees who use AI reflectively appear more capable of preserving creative autonomy, maintaining critical thinking, and generating contextually appropriate innovations. Conversely, employees who rely excessively on AI without reflective evaluation may become cognitively dependent and less original over time. From a practical perspective, the findings imply that organizations should not focus solely on AI adoption but should also develop employees’ reflective AI usage capabilities. Training programs should emphasize:

- critical evaluation of AI-generated outputs,
- prompt refinement techniques,
- iterative interaction practices,
- contextual interpretation,
- and responsible human–AI collaboration.

Employees should be encouraged to challenge AI-generated responses, integrate organizational knowledge into AI interactions, and refine outputs iteratively rather than accepting them uncritically.

Overall, the findings suggest that the future of creativity in knowledge work lies not in replacing humans with AI, but in developing effective human–AI cognitive partnerships. Generative AI

provides informational and ideational possibilities, while reflective human cognition transforms those possibilities into meaningful, original, and contextually appropriate creative outcomes.

### 7. Limitations of the Study

Despite its theoretical and practical contributions, this study has several limitations that should be acknowledged.

First, the study employed a cross-sectional research design, which limits the ability to establish causal relationships among Generative AI Usage, Reflective Thinking, and Human Creativity. Although the statistical analyses demonstrated significant associations among the variables, the findings represent relationships at a single point in time. Consequently, changes in employees' AI usage patterns and creativity over time could not be examined.

Second, the study relied on self-reported data, which may introduce common method bias and social desirability bias. Respondents may have overestimated their levels of AI usage, reflective thinking, or creativity due to personal perceptions or organizational expectations. Future studies should incorporate supervisor ratings, peer evaluations, or objective performance measures to strengthen the validity of findings.

Third, the sample was limited to 250 knowledge workers from selected industries, including banking, healthcare, marketing, food, and information technology. Although these sectors are highly relevant for AI adoption, the findings may not be fully generalizable to other industries such as manufacturing, public administration, education, or creative industries where AI usage patterns may differ significantly.

Fourth, the study examined reflective thinking as the sole mediating mechanism linking Generative AI Usage and Human Creativity. While reflective thinking explained a substantial portion of the relationship, creativity is a multidimensional phenomenon influenced by numerous cognitive, technological, and organizational factors. Therefore, additional mediating and moderating variables may further explain how AI influences creative outcomes.

Fifth, the study measured the frequency and perceived use of generative AI rather than the quality of human-AI interaction. Employees may differ substantially in their ability to formulate prompts, evaluate AI outputs, and engage in iterative interaction. Consequently, the effectiveness of AI-supported creativity may depend not only on AI usage itself but also on the sophistication of users' interaction strategies.

Finally, the rapid evolution of generative AI technologies represents an important contextual limitation. AI systems continue to improve in terms of contextual understanding, reasoning capability, and personalization. Therefore, the relationship between AI usage, reflective thinking, and creativity may evolve as future generations of AI become more advanced and context-aware.

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