

A Literature Review on the Impact of Generative Artificial Intelligence Usage on Employee Creativity

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Abstract: With the continuous advancement of technologies such as machine learning, deep learning, and natural language processing, generative artificial intelligence (GAI) has ushered in unprecedented opportunities for development. Capable of generating human-like content based on user prompts, GAI has now been widely applied across various domains of employees' work and daily lives. Many employees leverage GAI to gather information, stimulate inspiration, and accomplish a variety of creative tasks, which has also sparked sustained academic interest in how the use of GAI influences employee creativity. Based on this, this paper systematically organizes and reviews the relevant research on the relationship between GAI usage and employee creativity. First, the paper clarifies the fundamental concepts and commonly used measurement methods for both GAI and employee creativity. Next, it focuses on reviewing the mechanisms through which GAI affects employee creativity, revealing that existing studies have yet to reach a consistent conclusion on this issue: some scholars emphasize the positive promoting effect of GAI on employee creativity, while others suggest that GAI usage may also exert a negative impact on creativity. Through this literature review, this paper aims to provide a systematic reference for understanding the complex relationship between GAI and employee creativity and to offer theoretical contributions to subsequent research in this field.

Keywords: Generative Artificial Intelligence; Creativity; Improve the Efficiency of Employees' Work; Intelligent Assistance; Intelligent Innovation.

1. Introduction

The emergence of generative artificial intelligence (GAI) is profoundly disrupting traditional business operations, challenging established strategic frameworks, and propelling digital transformation into a new phase of development (Obreja et al., 2024). GAI refers to AI systems that leverage machine learning—particularly deep learning—to learn from vast datasets and produce novel content (e.g., text, images, videos) based on prompts (Marimon et al., 2024). Unlike earlier forms of artificial intelligence (AI), which were designed for specific tasks or predictive functions, GAI can create novel content in response to user questions or instructions (Budhwar et al., 2023), thereby extending the scope of AI-supported tasks from simple and routine activities to complex and creative endeavours (Zhang et al., 2024). This capability renders GAI highly versatile, enabling its application across different domains or for multiple tasks within the same field (Eloundou et al., 2023). For instance, ChatGPT can generate poetry, screenplays, business plans, software code, news articles, and more based on textual prompts (Budhwar et al., 2023).

With GAI assistance, employees enhance efficiency in completing creative tasks, thereby influencing employee creativity. Employee creativity is defined as the intentional generation of novel and useful ideas, methods, or practices within an organisational context (Anderson et al., 2014). Employees with higher levels of creativity are more likely to achieve superior job performance. In the era of digital transformation, enterprises face VUCA environments (Volatility, Uncertainty, Complexity, Ambiguity) (Rožman et al., 2023). In this context, employee creativity serves not only as a foundation for driving organisational innovation and change (Madjar et al., 2011) but also as a critical factor in sustaining organisational vitality and competitive advantage. Therefore, investigating how the use of GAI affects employee

creativity carries significant theoretical and practical implications. Accordingly, this paper aims to systematically review and synthesise the existing literature on the impact of GAI on employee creativity.

2. Conceptual Definition

2.1. Development and Conceptual Definition of GAI

At the beginning of the 21st century, the rise of machine learning and deep learning has driven significant progress in the field of AI. With increasing data availability and enhanced computational power, the effectiveness of AI systems has substantially improved (Kanbach et al., 2024). Driven particularly by vast amounts of data and advances in graphics processing efficiency, breakthroughs have been achieved across various domains, including computer vision, speech recognition, image classification, and the construction of 3D scenes and assets from 2D images (Krizhevsky et al., 2012). Building on these technological foundations, the release of the Generative Pre-trained Transformer (GPT) by OpenAI in June 2018 marked a key milestone in the popularization of GAI (Kanbach et al., 2024). Subsequently, the GPT series continued to evolve, with GPT-2 introduced in 2019, GPT-3 in 2020, Instruct-GPT and ChatGPT in 2022, and GPT-4 launched in March 2023. Compared to its predecessors, GPT-4 demonstrates stronger performance in factual accuracy and error control (Budhwar et al., 2023). During the same period, open-source models and multimodal generative systems advanced rapidly, driving the evolution of GAI toward a more open and cross-media application ecosystem.

GAI is an important branch of AI that employs machine learning, especially deep learning techniques, to identify patterns in existing data, thereby enabling the generation, enhancement, summarization, and analysis of unstructured data, as well as the creation of novel content such as text,

images, music, or video (Marimon et al., 2025). Gordijn and Have (2023) describe it as an AI system capable of generating text, images, audio, code, video, and synthetic data. Budhwar et al. (2023) argue that GAI integrates various machine learning models based on large-scale training datasets to produce text, audio, video, images, software code, and simulations. In summary, this paper defines GAI as: an AI system that leverages machine learning, particularly deep learning techniques, to learn from massive datasets and generate new content such as text, images, and videos based on user prompts.

2.2. The Conceptual Definition of Creativity

Creativity serves as the wellspring of innovation, and the development and production of new products within organizations are inseparable from it. Since the 1970s, creativity has garnered widespread attention in the field of management. Academic definitions of creativity generally stem from two perspectives: process and outcome. From a process perspective, creativity is viewed as intertwined with individual thinking and cognitive interaction, focusing on how it emerges (Shao et al., 2025). For instance, Amabile (1983) proposed that the essence of creativity lies in the germination of creative thinking and, based on this, constructed a theoretical framework for creativity. This framework conceptualizes creativity as a continuous process encompassing five key stages: task definition, preparation, idea generation, idea validation, and outcome evaluation. Thus, the process perspective emphasizes the thought processes involved in generating new ideas. From the outcome perspective, the results-oriented view emphasizes the outcomes or products produced, such as new methods, new practices, and new products. Shalley et al. (2004) define employee creativity as an individual's ability to generate useful and novel ideas, or a team's collective effort to achieve this within an organization. Similarly, Jia et al. (2024) describe employee creativity as the intentional generation of novel and useful ideas, methods, or practices in an organizational context.

3. Measurement

3.1. Measurement of GAI Usage

Currently, research on GAI usage in academia is still in its early stages, and there are relatively few established measurement scales available. Qi et al. (2025) categorized GAI use into work-related GAI usage and social-related GAI usage. Building on the work of Ma et al. (2020), they developed scales for both dimensions, with sample items including "I use GAI to generate ideas and participate in work-related discussions" and "In my organization, I build new relationships through GAI." In another approach, Tang et al. (2022) adapted three items from Medcof (1996) to develop a scale measuring general AI usage, with example items such as "I use AI to make important work-related decisions." Due to its good validity, this scale has been widely adopted by scholars both domestically and internationally.

3.2. Measurement of creativity

The measurement of creativity is generally categorized into experimental assessment and subjective evaluation. Experimental assessment refers to the practice in laboratory studies where expert judges evaluate the creativity of participants' responses based on novelty and usefulness (Chen

et al., 2025). Subjective evaluation, on the other hand, typically involves the assessment of employee creativity within organizations by supervisors or colleagues. Shalley and Gilson (2004) suggested that when objective measures of employee creativity are unavailable, supervisors are the most suitable individuals to evaluate whether employees exhibit creativity. Since creative outcomes are often not immediately observable, supervisor evaluations have become the predominant method for measuring employee creativity in management research. For instance, Zhou and George (2003) developed a one-dimensional scale consisting of 13 items, which has been widely used by scholars both domestically and internationally due to its strong validity. Tierney et al. (1999) also created a nine-item scale, with sample items such as: "Suggests new ways of performing tasks" or "Finds new uses for existing methods or equipment."

4. The Effects of GAI on Creativity

4.1. The Positive Impact of GAI Usage on Creativity

The most distinctive feature of GAI usage is its ability to generate new content based on prompts, which has a significant impact on innovation (İşgüzar et al., 2024). By simplifying workflows and eliminating repetitive tasks, GAI allows employees more time to focus on meaningful customer interactions or creativity-related tasks (Kanbach et al., 2024).

Furthermore, several empirical studies have validated the impact of GAI usage on creativity. For instance, drawing on social network theory, Zhang et al. (2024) demonstrated that the human-like characteristics of AI assistants—specifically, perceived intelligence and anthropomorphism—positively influence employee creativity through social network relationships, such as AI tool relationships and expressive relationships. Based on a social cognitive model, Wang et al. (2025) proposed and verified that GAI positively predicts employee creativity through creativity self-efficacy and engagement in creative processes. Utilizing data from an innovation platform, Yongjun et al. (2025) conducted a heterogeneity analysis and found that ChatGPT usage enhances users' innovative capabilities, thereby improving innovation performance. Through an experimental design, Sun et al. (2025) confirmed that employees receiving GAI assistance exhibit stronger creativity. Similarly, Ge & Hou (2025) conducted a controlled experiment and verified that text-to-image GAI tools enhance designers' creativity. In summary, due to GAI's capacity to produce novel content, many scholars have explored whether it can enhance user innovation. Empirical findings consistently indicate that GAI positively influences employee creativity.

4.2. The Negative Effects of GAI on Creativity

While the emergence of GAI provides support for employees' creative work and even inspires the generation of new ideas, some scholars argue that its use also poses threats to creativity. Following the principle that unused skills tend to deteriorate, Sternberg (2024) suggests that humans may lose their creativity because we rely on GAI to perform creative tasks for us rather than exercising our own creative thinking, leading to the degradation of creative skills. Moreover, as creativity diminishes, we may become increasingly dependent on GAI, creating a vicious cycle of declining creative capability. Additionally, although GAI can provide employees with extensive knowledge, if employees

fail to internalize this knowledge, it may hinder their long-term development and negatively impact their creativity (Alavi et al., 2024). Through empirical research, Niloy et al. (2024) found that using ChatGPT may impair creativity, resulting in lower scores for human creative writing assisted by ChatGPT. Based on conservation of resources theory, Mingjie et al. (2025) proposed and validated that GAI usage leads to AI dependency, which in turn exerts a negative influence on creativity.

5. Summary

The emergence of GAI has profoundly penetrated our work and daily lives. As a tool, GAI has significantly altered employees' workflows and even driven the optimization of organizational processes. As GAI becomes increasingly integrated into employees' work processes, its impact on creativity has drawn our attention. Therefore, we reviewed past research and compiled a literature review on the effects of GAI on employee creativity. First, GAI is defined as an AI system that utilizes machine learning, particularly deep learning techniques, to learn from vast datasets and generate new content—such as text, images, and video—in response to user prompts. Current academic research presents two contrasting perspectives on the impact of GAI usage on creativity. On one hand, some scholars argue that GAI positively influences employee creativity by reducing time spent on repetitive tasks, thereby freeing up cognitive resources for more creative work. On the other hand, GAI is seen as negatively impacting employee creativity by fostering dependence on AI and diminishing employees' own creative capabilities. In summary, GAI acts as a double-edged sword for employee creativity. Future research should further explore this dual-effect nature of GAI on creativity.

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