



Emergent Use of Generative Artificial Intelligence in the Labor Market

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Abstract. Artificial intelligence (AI)-based services and products have gradually infiltrated various industries in recent years, creating an effective, creative, and technological shift. The extant research has focused on what factors affect employees' acceptance of AI products as effective tools to enhance task performance and efficiency. However, few have investigated employees' intention for the emergent adoption of generative AI tools while incorporating tool-related features, users' characteristics, and environmental factors, limiting the understanding of employees' acceptance of AI technologies. This paper aims to explore what factors may impact employees' intention to emergently use such tools. By validating the significant determinants and the crucial interplay effect, this paper is expected to enrich the understanding of artificial intelligence technology adoption from a new perspective and provide valuable insights for tool developers and organization administrators

Keywords: Emergent Use, Generative Artificial Intelligence, Employee Acceptance, Labor Market

1 Introduction

Artificial Intelligence (AI) broadly refers to technological platforms that enable computer applications to simulate human intelligence and achieve specific objectives and tasks [1, 2]. At the end of November 2022, OpenAI introduced Generative AI technologies represented by ChatGPT, sparking a new wave of technological revolution and industrial transformation. This new generation of AI technology is renowned for its robust data learning, prediction, and task execution capabilities. It not only simulates and extends human intelligence, but also autonomously learns, reasons, solves problems, and makes decisions across various domains. The characteristics of Generative AI suggest far-reaching impacts on the global economy, particularly the labor market [3]. In the labor market, the application of AI technology has demonstrated significant potential. For instance, the healthcare industry is leveraging AI to enhance telehealth systems [4], while the automotive industry is competing for AI talent to pioneer autonomous driving technologies. In the financial

sector, the demand for machine learning and AI-related skills is growing six times faster than other positions [5]. AI technology has not only boosted productivity but also significantly liberated human resources, enabling labor to engage in more creative and strategic work.

Although the application of AI is reshaping work patterns and employment structures which presents challenges to the labor market, it also brings opportunities to enhance employee skills and work efficiency. Given the complex interaction between AI and the labor market, it is crucial to study how employees can creatively utilize AI, namely the emergent use of AI. In an open innovation ecosystem, AI can serve as a bridge connecting different professional domains and skills, promoting collaborative innovation and value co-creation [6]. This cross-disciplinary collaboration can accelerate the application and development of technology, create new market opportunities, and drive sustained economic growth. Furthermore, the emergent use of AI can facilitate cross-disciplinary collaboration, knowledge sharing and managerial tasks [7]. Since AI is infiltrating individuals' daily lives and most industries, there has been a surge of interest regarding user acceptance of AI-powered technologies in innovative ways. Therefore, we aim to explore what factors can affect employees' acceptance of generative AI in their daily work. Specifically, we will verify the impact of tool-related factors, user-related factors, and environmental factors on employees' intention to emergent use and test whether the interplay effect exists between the determinants.

2 Literature Review

Regarding the existing studies of AI application in the labor market, academia has engaged in extensive discussions, exploring meaningful insights into the labor market effects of AI technology [8-10]. On one hand, research focuses on the impact of AI on employment, examining the effects of automation and intelligence in different industries and occupations. The demand for AI skills in the labor market is increasing, indicating that workers need to adapt to new skill requirements to maintain competitiveness [11]. Research underscored a particularly severe shrinkage in the employment prospects of low-education males [12]. With this trend, low-education, medium-skilled blue-collar workers are facing more challenges in their careers and white-collar administrative positions are gradually disappearing. In the same vein, introducing AI may lead to the disappearance of certain traditional jobs but will also create new opportunities, especially for positions requiring high skills and creativity [13]. On the other hand, scholars have focused on the impact of AI on labor structure and social stratification, exploring how educational and training policies can mitigate AI-induced employment pressures and promote adaptive adjustments in the labor market [14, 15].

3 Model and Hypothesis

3.1 Perceived Ease of Use

Perceived ease of use, one of the major contributing factors of the extended Technology Acceptance Model (TAM) which is frequently applied to predict users' acceptance of AI-driven tools, measures users' beliefs regarding the effortless that a new technological device requires for adoption in their daily lives [16]. Scholars have combined TAM with behavioral reasoning theory and confirmed the positive association between perceived ease of use and the utilization of AI technologies [17]. In this study, perceived ease of use refers to how employees evaluate the generative AI-related tools that are simple to adopt in their daily work without too much time and effort being invested.

3.2 Perceived Usefulness

Perceived usefulness, another technical variable of the TAM, refers to the extent to which individuals believe a specific technology or device is useful and can help them complete tasks [16]. It usually serves as the strongest predictor of individuals' willingness toward a new technology that will ultimately drive their behavioral intention and actual usage [18]. For instance, the perceived usefulness presents a direct and crucial impact on the adoption of AI in manufacturing and production organizations in the context of digital manufacturing [19]. In this study, perceived usefulness refers to how employees evaluate the generative AI-related tools that are effective in assisting them in completing work with better performance and achievement.

3.3 Perceived Trust

To extend the applicability and improve the predictive power of TAM, trust is usually adopted into the research model when examining the determinant of users' behavioral intention towards AI-based tools and systems [18]. Trust measures the degree to which individuals believe that others will present ethical behaviors while considering various influential factors [20]. Trust in technology empowers individuals to perceive that employing a device will lead to the desired benefit and goals, and willing to make vulnerable decisions, and accept systems, devices, and situations based on personal positive expectations [21]. Scholars extended the TAM with trust and indicated that trust in AI-driven services positively predicted perceived usefulness and perceived ease-of-use which further led to users' continuous use [17]. Therefore, perceived trust in AI-related functions and tools is a sound predictor of AI acceptance. In this study, perceived trust refers to the level to which employees believe that the generative AI-related tools can guarantee the safety and quality of service when using them at work.

3.4 Perceived Risk

Perceived risk denotes the degree to which individuals evaluate uncertainty and the adverse consequences of pursuing a specific manner, activity, or situation [22]. Perceived risk is commonly associated with many influential factors such as trust, vulnerability and uncertainty [21], therefore can be decomposed into multiple

dimensions such as financial, psychological, privacy, and performance may negatively affect individuals' technology acceptance [23]. Perceived risk is commonly incorporated as environment-related factors with AI chatbot-related factors and user-related factors and underscored the negative influence of perceived risk on the use of AI chatbots [24]. Therefore, perceived risk in generative AI-related tools is an essential element in affecting trust toward AI and employees' behavioral intentions. In this study, perceived risk refers to the level to which employees perceive the potential adverse and undesired consequences of using generative AI-related tools at work and employees must pay high attention while using them.

3.5 Attitude

Attitude is reasoned to be a significant determinant in appraising AI-powered technology acceptance across multiple industries [16]. The association between attitude toward chatbots and intention to adopt such cognitive tools is confirmed in the consumer service industry [24]. Scholars advance the application of the TAM in AI-related adoption by demonstrating the positive effect of attitude on the intention to use AI-driven voice assistants [25]. As such, attitude is vital in predicting employees' acceptance and behavioral intention toward generative AI in an emergent manner, and behaviors

3.6 Intention to Emergent Use

Complex emerging new technologies have been involved in the core components of corporations and organizations across various domains. Unfortunately, the relevant initiatives are recorded to be less successful, as few organizations fully materialize the desired benefits and touted return on investment in AI applications. Emergent use refers to the degree to which individuals utilize a specific technology innovatively to support their performance in the context of working tasks [26]. Goal-driven construct of innovative manner with information technology is a valid factor while examining post-adoption technology usage in the work environment [27]. Emergent use of AI can break the limitations of traditional work models, unleash employee potential, and promote flexibility and adaptability within organizations [28]. In this study, employees' intention to emergent use the generative AI tools is defined as the level to which employees utilize generative AI tools innovatively to support their everyday work.

The research model of this paper is presented in Fig. 1. We propose the following hypothesis based on the theoretical model:

H1: Perceived ease of use of generative AI positively influences (a) perceived usefulness, (b) attitude and (c) intention to emergent use.

H2: Perceived usefulness of generative AI positively influences (a) attitude and (b) intention to emergent use.

H3: Perceived trust of generative AI positively influences (a) attitude and (b) intention to emergent use.

H4: Perceived risk of generative AI positively influences (a) perceived trust, (b) attitude and (c) intention to emergent use.

H5: Attitude positively influences intention to emergent use.

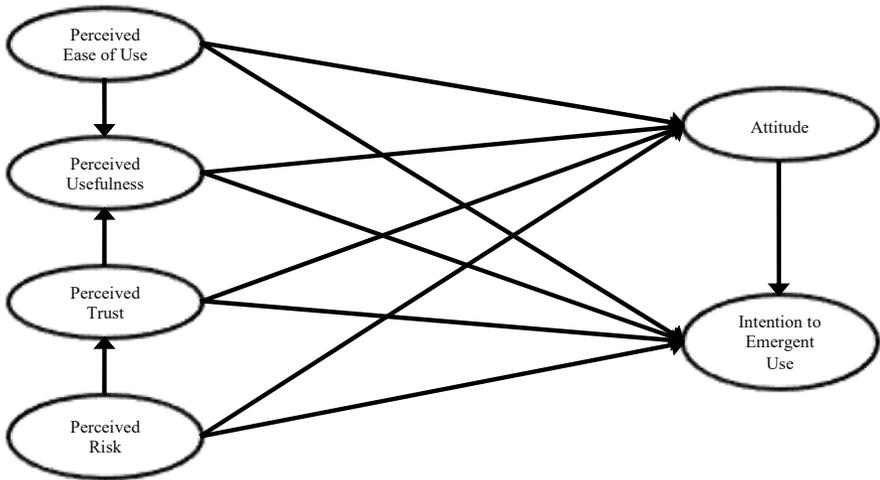


Fig.1. Research model

4 Methodology

To figure out what factors and whether these factors will alter employees' intention to emergent use of generative artificial intelligence in their work, we developed a questionnaire survey and distributed them through Wenjuanxing, a professional questionnaire data collection platform in China. Scales and items of the questionnaire are presented in Table 1. A two-step approach of Structural Equation Modeling (SEM) was performed to test our hypothesis.

Table 1.Measurement Items

Scale	Items
Perceived ease of use	My interaction with Generative AI is clear and understandable. I find that the Generative AI is easy to use.
	My interaction with the Generative AI does not require a lot of my mental effort. I find it easy to get the Generative AI to do what I want it to do.
Perceived usefulness	I think using Generative AI improves my performance in my work. I think using Generative AI improves my productivity in my work. I think using Generative AI helps me get tasks done faster in my work. I think that the Generative AI is useful in my work.
	Generative AI brings considerable benefits to humans, and I trust the power of technology. I believe that Generative AI will protect my privacy. I trust that Generative AI will not abuse my personal information. I trust that Generative AI will offer more highly qualified information and services.
	Perceived risk

Scale	Items
Attitude	I think it is unsafe to interact with AI-powered tools
	I think I must be cautious when I use AI-powered tools
	I feel positive about Generative AI
	I feel that using Generative AI is pleasant
Intention to emergent use	Using Generative AI is a good idea
	Using Generative AI is a smart way to get things done
	I intend to find new uses of Generative AI in my work.
	I intend to use Generative AI in novel ways in my work.
	I intend to explore Generative AI for potential applications to enhance the effectiveness of my work

5 Conclusion

The results of this paper investigated the contributing factors of employees' intention to emergent use of generative AI in their tasks. By incorporating more tailored factors into the TAM model, this paper highlighted that tool-related factors, user-related factors and environmental factors will have significant interplay effects on employees' intention to emergent use of generative artificial intelligence. This study is expected to enrich the understanding of the acceptance and emergent use of generative AI in the labor market. Furthermore, this study will provide valuable insights for tool developers and administrators of organizations to better capitalize on the benefit of generative AI in the labor market.

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