



Research on the Mechanism of Artificial Intelligence Stress Perception Influencing Employees' Approach-oriented Job Crafting: Applying the Transactional Theory of Stress and Approach-avoidance Coping Theory

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Abstract

Background and Aims: With the rapid development of Artificial Intelligence (AI) and its increasing application in workplaces, employees experience profound transformations in their work tasks, job roles, and professional development paths. While AI enhances efficiency and decision-making, it also raises concerns about job security, skill obsolescence, and workplace stress. This study explores how AI perception influences employees' job crafting behavior through the lens of the Transactional Theory of Stress and the Coping Theory.

Methodology: The research employs a mixed-methods approach, combining survey data and interviews from employees in AI-integrated industries. Structural Equation Modeling (SEM) is used to analyze the relationships between AI stress perception, coping strategies, and job crafting behaviors. The study distinguishes between two types of AI stress perception: AI threat perception and AI challenge perception, examining their respective influences on proactive job crafting.

Results: Findings reveal that AI stress perception significantly influences employees' coping strategies. Employees with a high AI threat perception tend to adopt avoidance coping, leading to negative job crafting behaviors, while those with an AI challenge perception engage in approach-oriented coping, enhancing their proactive job crafting. Furthermore, coping strategies serve as a mediating factor between AI perception and job crafting outcomes.

Conclusion: AI perception plays a crucial role in shaping employees' job behaviors. Organizations should develop targeted interventions to help employees positively interpret AI-related workplace changes, encourage proactive coping strategies, and promote skill development to enhance job crafting.

Keywords: AI Stress Perception; Job Crafting; Transactional Theory of Stress; Coping Strategy; Workplace Transformation





Introduction

With the rapid advancement of the Fourth Industrial Revolution, artificial intelligence (AI) has permeated various industries worldwide. In 2023, China's AI foundational data service market reached 4.5 billion yuan and is expected to grow to 17 billion yuan by 2028, with an annual compound growth rate of 30.4% (China Artificial Intelligence Industry Report, 2023). This highlights the increasing acceptance of AI technologies and their potential impact on workplace transformations. AI not only enhances operational efficiency and decision-making quality but also fundamentally reshapes workplace ecosystems, influencing job roles and career development.

However, while AI adoption has made significant strides across industries, traditional manufacturing sectors face unique challenges in this transition. Industries such as machinery, electronics, automotive production, and chemical manufacturing remain highly labor-intensive, characterized by complex production processes and aging infrastructure (Nti et al., 2022). Although AI applications in these sectors focus on intelligent manufacturing, production optimization, quality control, and supply chain management, implementation challenges persist due to financial constraints, limited technical expertise, and outdated production equipment (Plathottam et al., 2023; Jan et al., 2023). Moreover, integrating AI with existing manufacturing systems remains technically demanding, resulting in slow adoption and high implementation barriers.

One of the most pressing concerns during this transition is employees' perception and adaptation to AI technology. Traditional manufacturing workers, especially frontline technicians, often exhibit strong resistance to emerging technologies due to fears of job displacement and skill obsolescence. According to Statista (2023), by 2025, over 80 million jobs are expected to be replaced by automation and AI, yet 97 million new roles will also emerge. This transformation creates significant psychological and career challenges for employees, with varying degrees of AI adaptation across individuals (Zhu, Corbett & Chiu, 2020).

From a psychological perspective, the introduction of AI triggers both stress and opportunity for employees. According to the Transactional Theory of Stress (Lazarus & Folkman, 1987), individuals evaluate stressors based on their potential harm or benefit. Employees may perceive AI as a threat (e.g., job displacement and technological complexity) or as a challenge (e.g., career advancement and efficiency enhancement). This perception influences their coping mechanisms and professional behaviors (İşcan, 2021). Some employees proactively adjust by developing new skills and embracing AI-driven efficiency, while others resist due to anxiety or a lack of training.

Given these dynamics, understanding how employees psychologically respond to AI-induced work stress and how organizations can support positive adaptation has become a critical research issue. This study examines the mechanisms through which AI stress perception influences employees' approach-oriented job crafting, applying both the Transactional Theory of Stress and





the Approach-Avoidance Coping Theory. By exploring employees' cognitive and behavioral responses, this research aims to provide practical insights for managing AI-driven workplace transformations effectively.

The widespread adoption of AI in workplaces has significantly improved operational efficiency but also disrupted traditional work structures and job roles. Employees in labor-intensive sectors face increasing concerns over job security, skill obsolescence, and AI-driven automation (Aloisi & De Stefano, 2022). These concerns lead to heightened stress levels, affecting job satisfaction, engagement, and performance.

From the Transactional Theory of Stress (Lazarus & Folkman, 1984), employees' responses to AI depend on whether they perceive it as a threat or a challenge. A threat perception triggers anxiety and avoidance behaviors, reducing job satisfaction and productivity (Kumar et al., 2021). Conversely, a challenge perception encourages employees to develop new skills and adapt proactively, enhancing innovation and career growth (Rosen et al., 2020). However, existing research lacks a systematic framework that explains how AI stress perception translates into employees' behavioral adaptations and how organizations can facilitate positive coping strategies.

Objectives

This study aims to examine the mediating effect of coping strategies on the relationship between AI stress perception and proactive job crafting.

Literature Review

Theoretical Foundations

The Transactional Theory of Stress (TTS) proposed by Lazarus and Folkman (1987) emphasizes that stress is not an inherent trait of a situation but rather a dynamic interaction between individuals and their environments. Employees assess whether AI-driven changes pose a threat (job loss, skill obsolescence) or a challenge (opportunity for skill development, career growth), and this cognitive appraisal determines their coping responses. Research shows that employees perceiving AI as a threat tend to experience anxiety and resistance, whereas those who view AI as a challenge engage in proactive behaviors such as upskilling and role adaptation (Kumar, Gupta, & Sharma, 2021). This aligns with the Approach-Avoidance Coping Theory (AAT), which explains that individuals respond to stressors based on their motivational tendencies. Employees adopting an approach strategy actively engage with AI technologies by learning new skills and integrating AI into their workflow, while those adopting an avoidance strategy tend to withdraw, resist, or deny the impact of AI (Elliot & Thrash, 2002; Yu, Wang, & Jiang, 2020). Studies suggest that approach-oriented coping enhances job satisfaction and performance, whereas



avoidance coping leads to job disengagement and lower productivity (Freire et al., 2020). These theories provide a framework for understanding how employees appraise AI-induced stress and choose corresponding coping mechanisms, which ultimately shape their job crafting behaviors.

AI Stress Perception and Employee Adaptation

AI adoption has dual effects on employees: it enhances efficiency but also induces stress due to uncertainty and automation risks. AI stress perception can be classified into perceived AI threat (e.g., job insecurity, skill redundancy, reduced autonomy) and perceived AI challenge (e.g., career advancement, improved efficiency, innovation opportunities) (Ding, 2021). Studies indicate that employees in traditional manufacturing sectors experience higher AI threat perception due to low adaptability and limited reskilling opportunities (Jan, Lee, & Kim, 2023). Conversely, employees in technology-driven industries tend to embrace AI as an opportunity for career development (Tyson & Zysman, 2022). Employees' coping mechanisms significantly influence their ability to adapt to AI-driven changes. Two dominant coping strategies emerge from Carver's (2000) research: problem-focused coping, which involves actively resolving AI-related stress through training, job redesign, and digital literacy development (Schwarzer & Knoll, 2003), and emotion-focused coping, which includes stress management through emotional distancing, avoidance, or resignation (Sherman, Mann, & Updegraff, 2006). Empirical evidence suggests that employees adopting problem-focused coping exhibit higher job engagement and innovation, while those using emotion-focused coping show increased job dissatisfaction and burnout (Freire et al., 2020). These findings highlight the critical role of coping strategies in determining whether AI stress perception leads to proactive adaptation or workplace disengagement.

AI and Job Crafting

Job crafting refers to employees proactively modifying their job roles, tasks, and interactions to align with personal skills and career goals (Yu, Wang, & Jiang, 2020). As AI-driven work transformations reshape traditional job roles, employees must redefine their tasks and responsibilities to maintain relevance and employability. Research suggests that employees engaging in approach-oriented job crafting tend to redesign their job tasks to integrate AI-assisted workflows, expand their skill sets to leverage AI capabilities, and improve work relationships by collaborating with AI-enabled systems (Ivaturi & Chua, 2023). Additionally, coping strategies play a mediating role in the relationship between AI stress perception and job crafting behaviors. Employees adopting problem-focused coping actively redesign their job roles and develop AI-related skills, while those relying on emotion-focused coping tend to disengage, reducing their adaptability to AI-driven changes (Aytekin et al, 2021). Understanding these mechanisms is crucial for organizations aiming to foster AI-positive work environments that encourage proactive job crafting.

Conceptual Framework

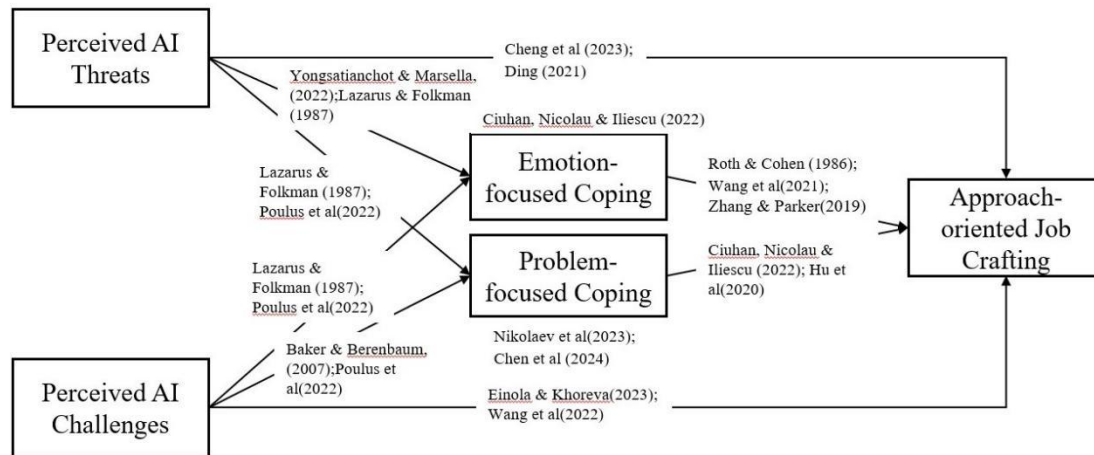


Figure 1 Conceptual Framework

Methodology

Research Design

This study adopts a quantitative research design, utilizing surveys to measure AI perception, coping strategies, and job crafting behaviors among employees in AI-integrated sectors.

Sampling Strategy

A stratified random sampling method is used to collect data from 300 employees across industries such as manufacturing, finance, and healthcare.

Measurement Scales

AI stress perception: Adapted from Brougham & Haar (2018)

Coping strategies: Measured using the Brief COPE scale (Carver, 1997)

Job crafting: Assessed using the Job Crafting Scale (Tims & Bakker, 2013)

Data Analysis

Structural Equation Modeling (SEM) is used to analyze the direct and indirect relationships between AI perception, coping strategies, and job crafting.

Results

Table 1 Correlation analysis

	PAIT	PAIC	ECS	PCS	AJC
PAIT	1	0.027	0.313***	0.226***	0.407***

	PAIT	PAIC	ECS	PCS	AJC
PAIC	0.027	1	0.212***	0.136**	0.153***
ECS	0.313***	0.212***	1	0.317***	0.284***
PCS	0.226***	0.136**	0.317***	1	0.270***
AJC	0.407***	0.153***	0.284***	0.270***	1

***= $p < 0.001$, ** = $p < 0.01$

Correlation between AI threat perception: PAIT is significantly positively correlated with ECS, PCS, and AJC, with coefficients of 0.313, 0.226, and 0.407, respectively. That is, the stronger the employee's perception of AI threat, the more likely they are to adopt emotion-focused and problem-focused coping strategies, and the higher their willingness to engage in approach-type job reshaping. PAIT is not significantly correlated with PAIC (coefficient 0.027, $p = 0.558$), indicating that there is no significant correlation between employees' perception of AI threat and challenge in the sample.

Correlation between AI challenge perception: PAIC is significantly positively correlated with ECS, PCS, and AJC, with coefficients of 0.212, 0.136, and 0.153, respectively. This means that the stronger the employee's perception of AI challenge, the more likely they are to adopt emotion-focused and problem-focused coping strategies, and the more likely they are to engage in approach-type job reshaping, but compared with the correlation between PAIT and these variables, the correlation coefficient of PAIC is smaller, and the degree of correlation is weaker.

Relationship between coping strategies and approach-type job crafting: ECS and AJC are significantly positively correlated (coefficient 0.284), and PCS and AJC are also significantly positively correlated (coefficient 0.270), indicating that employees' adoption of emotion-focused or problem-focused coping strategies is related to their approach-type job crafting intentions. In addition, ECS and PCS are also significantly positively correlated (coefficient 0.317).

In summary, there is a significant correlation between the variables in this study, which lays the foundation for further exploration of the variable influence mechanism and verification of research hypotheses.

Discussion

This study investigates the mechanisms through which AI stress perception influences employees' job crafting behaviors, particularly focusing on the mediating role of coping strategies.



The findings align with the Transactional Theory of Stress (Lazarus & Folkman, 1984), confirming that employees' perceptions of AI as either a threat or a challenge significantly impact their coping responses and subsequent workplace adaptation. Employees who perceive AI as a threat tend to exhibit avoidance coping behaviors, such as disengagement, emotional withdrawal, and resistance to change, leading to lower levels of proactive job crafting. In contrast, employees who perceive AI as a challenge are more likely to adopt problem-focused coping strategies, actively engaging in skill enhancement, role expansion, and collaboration with AI technologies. This finding supports previous research by Freire et al. (2020) and Yu, Wang, and Jiang (2020), which indicates that approach-oriented coping fosters higher job satisfaction and innovation, while avoidance-oriented coping contributes to reduced engagement and professional stagnation.

Furthermore, the results demonstrate that coping strategies serve as a key mediator between AI stress perception and job crafting. Employees adopting problem-focused coping were found to engage in task redesign, skill acquisition, and job restructuring, reinforcing previous findings by Carver (2000) and Schwarzer & Knoll (2003) that individuals who actively address workplace stressors are more likely to experience career growth and job satisfaction. On the other hand, employees using emotion-focused coping, such as stress avoidance or emotional disengagement, exhibited lower levels of job crafting behaviors, aligning with studies by Sherman, Mann, and Updegraff (2006) that link emotional disengagement to decreased workplace adaptability. These findings highlight that while AI-induced stress is inevitable, the way employees cope with it determines whether AI integration results in professional development or job dissatisfaction.

Additionally, this study extends the Approach-Avoidance Coping Theory (Elliot & Thrash, 2002) by demonstrating that employees' motivational tendencies influence their AI adaptation strategies. Employees with an approach orientation tend to proactively modify their work roles by leveraging AI tools, whereas those with an avoidance orientation exhibit resistance, reinforcing research by McNaughton, DeYoung, and Corr (2016) that links avoidance tendencies with job stagnation. The findings further support Ding (2021), who argued that employees in AI-intensive industries exhibit stronger approach-oriented behaviors, whereas employees in traditional labor-intensive industries are more likely to perceive AI as a threat. This study provides empirical evidence supporting these sectoral differences, emphasizing the need for targeted organizational interventions to enhance AI acceptance and adaptability.

From a practical perspective, the results indicate that organizations should focus on developing AI adaptation programs that promote problem-focused coping and approach-oriented job crafting. This can be achieved through AI training programs, digital literacy workshops, and career reskilling initiatives, which have been shown to reduce AI-related anxiety and enhance





workplace adaptability (Jan, Lee, & Kim, 2023; Ivaturi & Chua, 2023). Moreover, managerial support and leadership involvement play a critical role in shaping employees' AI perceptions and coping mechanisms. Organizations that foster a supportive AI-learning environment can encourage employees to engage with AI positively, rather than perceiving it as a threat (Nazareno & Schiff, 2021). These findings suggest that HR policies should prioritize AI integration strategies that enhance employee autonomy and skill development, thereby minimizing resistance and fostering innovation.

Despite these contributions, this study has certain limitations. First, the research is limited to specific industries, primarily focusing on manufacturing and technology sectors, which may limit its generalizability to other fields. Future studies should explore AI stress perception across diverse occupational settings, including service industries, healthcare, and creative sectors, where AI adoption dynamics may differ. Second, the study relies on self-reported data, which may introduce response bias. Future research could employ longitudinal studies and experimental designs to better capture the causal relationships between AI stress, coping strategies, and job crafting behaviors. Lastly, this study does not account for individual personality traits, which have been shown to moderate stress perception and coping behaviors (Elliot & Thrash, 2002; Tyson & Zysman, 2022). Future research should investigate how factors such as emotional intelligence, adaptability, and self-efficacy interact with AI stress perception to influence employee adaptation strategies.

In conclusion, this study contributes to the understanding of AI-induced workplace stress, coping strategies, and job crafting behaviors by integrating the Transactional Theory of Stress and Approach-Avoidance Coping Theory into the AI workplace context. The findings suggest that AI stress perception alone does not determine job crafting behavior; rather, coping strategies serve as a crucial intermediary that shapes employees' responses to AI-induced changes. By promoting problem-focused coping, managerial support, and skill development programs, organizations can facilitate a smoother AI transition, enhancing employee engagement and long-term organizational success.

Recommendation

AI Awareness Programs: Organizations should educate employees on AI's role in augmenting work rather than replacing jobs.

Skill Development Initiatives: Providing AI-related training can help employees transition into AI-integrated roles.

Psychological Support Systems: Organizations should offer stress management programs to assist employees in navigating AI-driven workplace changes.





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