The current issue and full text archive of this journal is available on Emerald Insight at:
https://www.emerald.com/insight/1471-4175.htm

Construction Innovation

Collective AI anxiety and team innovative behaviour: the role of coping strategies

Mohamed Nasaj
College of Business, Abu Dhabi University, Abu Dhabi, United Arab Emirates

Sulafa Badi
Department of Business and Law, British University in Dubai, Dubai, United Arab Emirates

Niamh Murtagh
School of Business, University College London, London, UK, and

Li Ding
Institut Lyfe, Ecully, France

Received 7 September 2024
Revised 13 November 2024
8 February 2025
16 March 2025
Accepted 25 March 2025

Abstract

Purpose – This study aims to investigate the relationship between collective anxiety relating to the introduction of artificial intelligence (AI) technologies in construction companies and team innovative behaviours, purposing a potential mediation role of employees' coping strategies.

Design/methodology/approach – The deductive nature of the research dedicated a quantitative research methodology. Structural equation modelling was conducted on a data set of 540 randomly chosen responses to an online questionnaire from European-based construction employees.

Findings – The results showed a significant positive relationship between collective AI anxiety and team innovative behaviour. The mediation relationships were also statistically significant. While emotion- and relationship-focused coping had positive relationships with team innovative behaviour, problem-focused coping had a negative relationship. An explanation from cognitive psychology is offered for this finding.

Practical implications – There is potential for construction organizations to increase team innovative behaviours through supporting emotion- and relationship-focused coping strategies for collective AI anxiety. Approaches include open discussions on AI-related concerns to allow team members to voice their anxieties and fostering interpersonal connections to facilitate relationship-focused coping.

Originality/value – This study contributes to understanding the psychological and social impacts of AI in the construction industry, offering practical insights for fostering innovation amidst AI-induced anxieties. In addition, it presents an empirical study examining relation-focused coping as a new strategy for collective team coping. Building the conceptual framework at the team level addresses the scarcity of research on managing anxiety and fostering innovation within teams.

Keywords Collective AI anxiety, Team innovative behaviour, Problem-focused coping strategy, Emotion-focused coping strategy, Relation-focused coping strategy

Paper type Research paper

Funding: Abu Dhabi University: 19300790

Construction Innovation
© Emerald Publishing Limited
1471-4175
DOI 10.1108/CI-08-2024-0222

1. Introduction

The recent exponential growth in interest in artificial intelligence (AI) is illustrated by Collins Dictionaries' choice of "AI" as its "Word of the Year 2023" (Collins, 2024). Organisations are introducing AI in the expectation of realising the many benefits that can accrue. These include higher rates of efficiency, fewer errors, faster processing and more (Makarius *et al.*, 2020). In the construction industry, this interest in AI is particularly pertinent due to the sector's historical challenges, including low productivity and limited digitisation, which have underscored the need for transformative technologies (Regona *et al.*, 2022a, 2022b, 2023). These technologies, including AI, hold promise for enhancing cost efficiency, accelerating project timelines, and elevating project quality and safety standards (Demirkesen and Tezel, 2022). AI, broadly defined as "theories and techniques used to create machines capable of simulating intelligence," encompasses various subfields such as machine learning, robotics, and natural language processing (Abioye *et al.*, 2021). Recent advancements have demonstrated AI's potential in addressing sector-specific issues, with applications spanning health and safety management, project planning optimisation, and sustainability initiatives (Abioye *et al.*, 2021).

However, the integration of AI in construction also brings forth a host of challenges and societal implications. Concerns such as job displacement, privacy infringement, algorithmic biases, and ethical dilemmas have garnered attention (Arslan *et al.*, 2022; Lazaroiu and Rogalska, 2023; Golda *et al.*, 2024; Makarius *et al.*, 2020; Ntoutsi *et al.*, 2020; Sartori and Theodorou, 2022; Kim *et al.*, 2023). These challenges contribute to the emergence of AI anxiety, characterised by excessive fear stemming from the transformative effects of AI technologies on personal and social spheres (Kaya *et al.*, 2024).

AI anxiety, akin to historical notions of computer anxiety, encompasses various dimensions, including job replacement anxiety and concerns about human-AI interaction (Wang and Wang, 2022). In construction, this anxiety is heightened due to the industry's heavy reliance on human labour, which makes concerns about automation particularly pronounced (Taher, 2021). This anxiety is not confined to individuals but can manifest as a collective experience within teams, permeating through the social fabric and impacting team dynamics (Yang *et al.*, 2021; Lazaroiu and Rogalska, 2023). While research has highlighted the detrimental effects of AI anxiety on safety performance and organisational readiness for change, there remains a dearth of studies investigating its implications at the team level, particularly within construction teams (Song *et al.*, 2024; Suseno *et al.*, 2020).

Simultaneously, within organisational settings, the pursuit of innovation is paramount for staying competitive and adapting to technological advancements (Nasaj, 2020, 2021). Team innovation, defined as the collective generation and implementation of novel ideas within a group, is crucial for organisational success (Lin *et al.*, 2022). The construction industry's embrace of Construction 4.0, which focuses on integrating digital technologies, makes understanding team innovation even more critical (Oesterreich and Teuteberg, 2016). However, despite the acknowledged importance of innovation at both individual and organisational levels, research at the team level, especially within the construction industry, remains limited (Le Blanc *et al.*, 2021; Statsenko *et al.*, 2023). This gap in understanding is particularly concerning given the industry's transition towards Construction 4.0, emphasising technological integration and innovation (Osunsanmi *et al.*, 2020).

Therefore, this study aims to explore the nexus between collective AI anxiety and team innovative behaviour within construction teams. Despite extensive research on AI and individual anxiety (e.g. Kim *et al.*, 2016; Li and Huang, 2020; Wang and Wang, 2022), limited studies have explored the collective impact of AI anxiety on team dynamics and innovation. Given the construction sector's growing reliance on multidisciplinary teams and collaborative environments (Fong, 2003; Singh *et al.*, 2011), understanding the interplay between AI anxiety and team innovation is important. By examining how AI anxiety influences team dynamics and innovative outcomes, this research seeks to offer insights into fostering resilience and promoting a culture of innovation amidst technological disruptions. Moreover, this study posits that the relationship between collective AI anxiety and team innovative behaviour is mediated through collective coping mechanisms, an aspect that has cultivated increasing attention in recent research (e.g. Badi, 2024). Drawing upon the rich literature on collective coping strategies, encompassing problem-focused, emotion-focused, and relation-focused approaches, this study seeks to shed light on how construction teams collectively confront and manage the stressors associated with AI anxiety. The main research question that underpins our study is:

> How does collective AI anxiety influence team innovative behaviour, and do coping strategies play the role of mediators?

The study adopts a theoretical framework drawing from social cognitive theory and organisational behaviour literature to conceptualise the relationships among the variables and empirically examine the relationships between collective AI anxiety, coping strategies, and team innovative behaviour.

2. Conceptual underpinnings

2.1 Artificial intelligence in construction

AI in the context of the construction industry can be defined as the simulation of human intelligence processes by machines, particularly computer systems, to enhance various aspects of construction projects (Regona *et al.*, 2023). This includes the ability to learn from data (machine learning), understand natural language, recognise patterns, and make decisions that improve efficiency, safety, and productivity throughout the construction lifecycle (Zabala-Vargas, 2023; Abioye *et al.*, 2021; Kanan *et al.*, 2018). AI technologies are integral to the Fourth Industrial Revolution, characterised by the integration of digital technologies into traditional industries, including construction (Regona *et al.*, 2022a; Regona *et al.*, 2023).

The integration of AI in the construction industry has led to transformative changes across project management, automation, safety, and workforce dynamics. Based on the nature of the construction industry, advanced planning is a crucial step in construction project management (Schmelzer, 2024). As highlighted by Zabala-Vargas (2023), AI enhances project management by improving planning, scheduling, and resource allocation through data analytics and machine learning algorithms. The integration of AI with building information modelling (BIM) further optimises construction management and workflow efficiency (Sacks *et al.*, 2020). AI also drives automation, significantly improving productivity and efficiency (Abioye *et al.*, 2021). Datta *et al.* (2024) and Regona *et al.* (2024) discuss how AI technologies like neural networks and machine learning optimise construction tasks, reduce labour costs, and minimise material waste, fostering sustainability in construction. The AI in global construction market value has been predicted at more than $15.1bn by 2023 (Artificial Intelligence in Construction Market, 2022).

Furthermore, previous literature highlighted numerous factors that contribute to successful AI adoption in construction. Gledson *et al.* (2023) emphasized the significance of digital leadership, highlighting that successful digital transformation requires strategic alignment, robust leadership capabilities, and a clear vision. Murguia *et al.* (2024) similarly highlighted the necessity of strategic scenario planning, capability building, and innovative business models as foundational elements for sustained Construction 4.0 innovation. Extending these insights, this research addresses the psychological dimension of digital transformation, specifically exploring how psychological barriers such as collective AI anxiety can be effectively managed and leveraged to foster innovation. This combined perspective enriches the current understanding by demonstrating that successful digital transformations in the construction sector depend not only on strategic and technological initiatives but also on managing psychological factors to encourage innovative behaviours within teams.

In addition, AI plays a crucial role in enhancing safety on construction sites, improving risk management through action recognition for workers and equipment, and reducing accidents by enabling real-time safety monitoring with Internet of Things integration (Kanan *et al.*, 2018; Rabbi and Jeelani, 2024). However, the workforce transformation resulting from AI adoption raises concerns across sectors about labour displacement, but it also creates new roles, requiring training and upskilling initiatives for workers (Morandini *et al.*, 2023; Pradhan and Saxena, 2023; Van Hie, 2024). Hence, while AI drives efficiency, sustainability, and safety, it introduces challenges related to workforce adaptation, as will be discussed in the next section.

2.2 Collective AI anxiety in construction teams

AI technology offers significant benefits to the construction industry but also presents challenges, impacting society through job displacement, privacy concerns, algorithmic bias, widening socio-economic gaps, and unethical behaviour (Lazaroiu and Rogalska, 2023; Golda *et al.*, 2024; Ntoutsi *et al.*, 2020; Sartori and Theodorou, 2022; Kim *et al.*, 2023). Traditionally, the construction industry has been considered as a labour-intensive sector (Wang *et al.*, 2020). Along with the development of AI technology in the recent decade, in the construction sector specifically, workers and managers face unique challenges with AI adoption, such as concerns about job security due to the automation of tasks, the need for reskilling to operate AI-driven systems, and the perceived loss of traditional roles and expertise (Regona *et al.*, 2022b; Khan *et al.*, 2024; Na *et al.*, 2023). These challenges can lead to disruptions that result in feelings of anxiety. AI anxiety has been defined as "excessive fear arising from problems originating from changes formed by AI technologies in personal or social life" (Kaya *et al.*, 2024, p. 499). In the context of construction, AI anxiety may emerge due to fears of job replacement by automated machinery, apprehensions about adapting to new skill requirements, and the uncertainty of relying on AI systems for critical decision-making processes (Regona *et al.*, 2022b; Souza and Debs, 2023). Before the emergence of AI anxiety, computer anxiety has been discussed since the 1980s as "the tendency of individuals to be uneasy, apprehensive, or fearful about the current or future use of computers" (Li and Huang, 2020, p. 2). Beyond the anxiety from learning, AI anxiety can also be from its automatic decision-making processes and anthropomorphised forms (Kim *et al.*, 2016). Wang and Wang (2022) have categorised AI anxiety into several dimensions: "job replacement anxiety," which involves fear of the adverse effects of AI on employment; "sociotechnical blindness," referring to anxiety stemming from a lack of complete understanding of the interdependence between AI and human beings; "AI configuration anxiety," which entails apprehension regarding humanoid AI; and "AI learning anxiety," which relates to concerns about AI technologies acquiring knowledge. In construction, these dimensions manifest through specific scenarios, such as the fear that advanced AI tools might entirely replace traditional craftsmanship or concerns about human–machine collaboration in safety-critical tasks (Colley *et al.*, 2022; Regona *et al.*, 2022b). The well-developed conceptual framework of AI anxiety explains AI-driven anxiety (Spielberger, 1966), which is "a transitory state that changes over time" (Wang and Wang, 2022, p. 621). It elucidates how this phenomenon permeates various aspects of professional life, from concerns about job security to uncertainties about human–AI collaboration.

While anxiety is often perceived as an individual-level construct, it can also manifest as a collective experience in groups (Yang *et al.*, 2021). In terms of AI anxiety, the multifaceted challenges posed by AI technology, ranging from job displacement to ethical dilemmas (Lazaroiu and Rogalska, 2023; Kim *et al.*, 2023), may permeate through the social fabric of teams, fostering a shared sense of unease and apprehension. As Kaya *et al.* (2024) delineate, AI anxiety stems from the disruptive changes brought about by AI technologies, impacting both personal and social spheres (Hagerty and Rubinov, 2019). In construction teams, such disruptions may include uncertainties about human-machine collaboration in critical tasks, fears of skills becoming obsolete, or tensions arising from the unequal distribution of AI-related benefits (Colley *et al.*, 2022; Fisher *et al.*, 2023; Regona *et al.*, 2022b). This collective unease about AI (Bao *et al.*, 2022) mirrors the historical discourse surrounding computer anxiety, indicating a longstanding pattern of technological apprehension (Li and Huang, 2020). Research by Song *et al.* (2024) and Suseno *et al.* (2020) underscores the detrimental impact of AI anxiety on safety performance and change readiness within the workplace, highlighting its relevance as a team-level phenomenon. In construction, this anxiety may lead to reduced team cohesion, hesitation in adopting AI-enabled tools, and lowered confidence in the reliability of automated systems. By acknowledging AI anxiety as a collective experience, organisations can implement strategies to foster resilience, enhance understanding, and promote a culture of adaptability in the face of technological disruption. However, there is little research on the sequelae of collective AI anxiety in organisations and no research to our knowledge on the effects of collective AI anxiety in construction teams. Our study addresses this critical gap by exploring the unique manifestations and consequences of collective AI anxiety in construction teams.

2.3 Team innovative behaviour

The term innovation sometimes is interchangeably discussed with the term creativity (Nasaj, 2021; Nasaj and Badi, 2021). Innovation refers to the generation or adoption and implementation of creative ideas in an organisation (Nasaj *et al.*, 2022). Unlike creativity which may have individual behaviours involved, innovation is "a multistage and iterative process that encompasses both production and implementation of creative ideas by team members in a group" (Lin *et al.*, 2022, p. 1). To foster work efficiency, organisations establish work teams. A team is a part of the organisational structure based on networked development in the organisation (Fay *et al.*, 2015). Compared with individuals, the work unit of a team has more knowledge diversity and greater processing capacities of the information (Müller *et al.*, 2009). In the construction industry, many work tasks are collectively project-based and involve expertise and knowledge sharing within the team (Haq *et al.*, 2023). Team innovative behaviour is defined as "team members" collective behaviours on the production and execution of novel service ideas, methods, and procedures in a team" (Lin *et al.*, 2022). This concept involves social interactions for innovation development and the collective work unit in the organisation (Widmann *et al.*, 2016). Despite the plethora of studies on individual and organisational innovation, there is a paucity of research at the team level (Le Blanc *et al.*, 2021). The lack of research is especially pronounced in the construction industry (Statsenko *et al.*, 2023), which is concerning given the importance of understanding and cultivating innovative behaviour among teams for construction organisations seeking to adapt and thrive in the evolving Construction 4.0 technological change (Osunsanmi *et al.*, 2020).

3. Conceptual framework and hypotheses development

3.1 Collective AI anxiety and team innovative behaviours

In the age of accelerated AI development, research has identified multiple forms of AI anxiety within workplaces. This anxiety may be the result of the challenges associated with mastering AI technologies (Cetindamar *et al.*, 2022); adjusting to working in collaboration with AI systems (Arslan *et al.*, 2022), and navigating the job market (Vochozka *et al.*, 2018). Collective AI anxiety can encompass fears related to learning about AI, concerns about job replacement due to AI adoption, anxieties regarding the societal and ethical implications of AI, and apprehensions specifically related to humanoid AI technologies. These anxieties may manifest within teams as an unfavourable group affective tone (George and King, 2007). However, emerging research, in contrast to conventional wisdom, indicates that some types of anxiety might potentially stimulate innovation as opposed to impede it. Research by Mao *et al.* (2021) has found that an intermediate level of team job-related anxiety was associated with higher individual creativity in teams. An earlier study by Akgün *et al.* (2007) has also found that team anxiety positively impacts speed-to-market in new product development teams. In this study, we are postulating that collective AI anxiety is associated with higher innovation behaviour in construction teams. This nuanced relationship suggests that AI anxiety prompts increased cognitive arousal among team members, aligning with previous research emphasising the role of heightened cognitive states in fostering team innovation (e.g. Akgün *et al.*, 2007; Mao *et al.*, 2021). This also aligns with research that has found that AI technologies effectively augment employee creativity (Ding, 2022; Jia *et al.*, 2024). Based on these observations, we put forth our first hypothesis:

H1. Collective AI anxiety is positively associated with team innovative behaviours.

3.2 The mediating role of team collective coping strategies

A large number of studies have examined individual coping (e.g. Freire *et al.*, 2019; Lazarus and Folkman, 1984). However, in most employment and competitive and achievement-focused situations (such as sports and projects), people work together to attain objectives. Thus, “collective” (communal) coping is attracting investigation. Collective coping emphasises the “relational” feature of coping and is known for its social and interactive nature. A group owns, assesses, and handles a stressor as “our problem and our responsibility” under this view (Afifi *et al.*, 2006, p. 378). This community ownership of a stressor contrasts with individual accountability (Afifi *et al.*, 2006). Lyons *et al.* (1998) define collective coping as the community pooling resources and efforts to overcome adversity. As they accept responsibility and take proactive steps to manage the stressor, the group’s synergy and collaboration are highlighted (Afifi *et al.*, 2006). Collective coping was observed in studies of communities facing natural disasters (Afifi *et al.*, 2012), couples with health issues (Rentscher, 2019), sports teams (Leprince *et al.*, 2019) as well as project teams in construction (Badi, 2024). Collective coping was found to reduce stress and improve mental health (e.g. Afifi *et al.*, 2012; Rentscher, 2019) as well as reduce the organisational stress climate (Rodríguez *et al.*, 2019).

Aligning with this goal, three collective coping strategies have been discussed in the literature: problem-focused, emotion-focused, and relation-focused strategies (Badi, 2024; Lansisalmi *et al.*, 2000). First, problem-focused collective effort is a coping approach that involves analysing the difficulties associated with the stressor, exchanging knowledge, and engaging in problem-solving activities (Pearsall *et al.*, 2009). Problem-focused coping techniques in teams include a diverse array of tactics, such as issue definition, producing various solutions, and evaluating these solutions based on criteria including costs, benefits, decision-making, and action (Lazarus and Folkman, 1984). The research conducted by Lansisalmi *et al.* (2000) found that problem-focused coping was associated with a shared feeling of responsibility for all tasks, good communication, information sharing, and knowledge management. Problem-focused collective effort coping techniques include the team's inclination to see stressful events as within their control and capable of being altered (Badi, 2024). Teams often use proactive and strategic coping mechanisms in response to challenging circumstances, promptly taking appropriate measures to resolve the problem (Lansisalmi *et al.*, 2000). Hence, by adopting collective problem-focused coping, the team members may identify problems triggered by AI anxiety, and employ coping strategies such as generating solutions to address AI Anxiety, including thinking of ways to manage the situation devising work plans collaboratively, and implementing effective strategies to alleviate AI anxiety. The increased apprehension regarding AI among team members (Makarius *et al.*, 2020) may lead to heightened levels of information sharing and communication channels within a team. The heightened discourse is motivated by the collective necessity to address the difficulties presented by AI, which ultimately results in improved collaborative problem-solving abilities. In addition, the shared concern regarding the potential consequences of AI on employment positions may instil a feeling of immediacy, which may encourage team members to invest greater effort in collaborative deliberations and idea generation. Hence, we forward the following hypothesis:

H2. Problem-focused coping strategies mediate the relationship between collective AI anxiety and team innovative behaviours.

The second collective coping strategy is emotion-focused coping. Emotions play a crucial role in shaping individual, team, and organisational behaviours, processes, and outcomes (Barsade and Gibson, 2007; Heaphy, 2017). Emotionally intelligent teams are those capable of attending to their emotional state and need (Goleman *et al.*, 2002), while psychological safety, or the ability to admit mistakes and express feelings without fear of punishment, is a significant predictor of team effectiveness (Frazier *et al.*, 2017). Collective positive emotions, such as gratitude, can strengthen a team's ability to introduce novel ideas, feelings, and relationships, enabling them to build enduring resources such as social support and resilience (Meneghel *et al.*, 2016). Expressing negative emotions constructively, such as fear, anxiety, and distress, was also found to enhance teams' knowledge-creation capabilities and performance (Stephens and Carmeli, 2016). Collective emotion-focused coping strategies within the team foster emotional openness by encouraging honest expression of feelings and support without blame, while also promoting a positive outlook by maintaining hope, building on strengths, and focusing on possibilities despite AI anxiety challenges. Emotional support among team members can be encouraging each other to look positive and/or alleviating the negative feelings of low self-efficacy and low self-confidence (Chambers *et al.*, 2001). Therefore, when team members work together to generate and implement innovative ideas, the individuals in the team may seek emotional support from other team members to reduce their AI anxiety. *H3* is proposed:

H3. Emotion-focused coping strategies mediate the relationship between collective AI anxiety and team innovative behaviours.

The third and final collective coping strategy is the relation-focused coping strategies which rely on interactions within the team (Afifi *et al.*, 2006). Relation-focused coping strategies involve seeking and utilising support, guidance, and resources from leaders, colleagues, and organisational members to navigate challenges and adapt to the needs of team members facing difficulties, such as AI Anxiety. During the team innovation development process (Scott and Bruce, 1994), team creative behaviours and team implementation behaviours are involved (Widmann *et al.*, 2016). Team members discover opportunities, identify the needs of a specific innovation, and come out with new ideas through a variety of creative activities.

After that, the team moves to promote and implement the explored ideas by assigning tasks to team members, seeking resource support, and testing and refining the process (Widmann *et al.*, 2016). Therefore, building social support, compensating for the individual weaknesses of other team members, and pooling the team members' resources can strengthen the collective competency of the team to confront collective AI anxiety as well as contribute to team innovation (Badi, 2024; Leprince *et al.*, 2019). *H4* is proposed as:

H4. Relation-focused coping strategies mediate the relationship between collective AI anxiety and team innovative behaviours.

The overall proposed conceptual framework of the study is illustrated in Figure 1.

4. Methodology

The research aims to study the relationship between collective AI anxiety and team innovative behaviour as well as the mediating role of coping strategies. Thus, a quantitative methodology is considered suitable for deducing the nature of these relationships among the research's variables (Saunders *et al.*, 2016).

4.1 Sampling and data collection

In the technological race led predominantly by the USA and China (Brattberg *et al.*, 2020), Europe stands out with its unique industrial strengths and prominence in AI applications. Despite this, Europe has yet to fully exploit its technological potential due to challenges such as digital market fragmentation, recruitment issues, and lack of competitiveness. Moreover, the anxiety surrounding the adoption and impact of AI in Europe stemming from concerns over job security, ethical implications, and potential misuse underscores the need for targeted

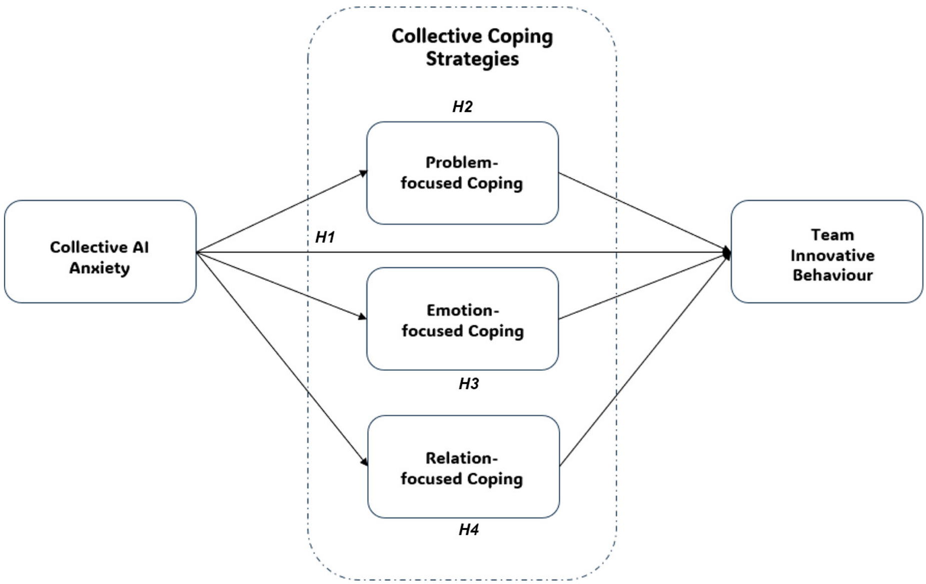

Figure 1. Conceptual framework
Source(s): Authors' own creation

research in this area (Brattberg *et al.*, 2020). Therefore, the study involved European construction organisations where AI integration is prominent, focusing on teams as the unit of analysis.

Data collection involved a quasi-random sampling technique via an online survey questionnaire distributed to construction companies' employees working in several countries in Europe: Denmark, Germany, Netherlands, Norway, Portugal, Spain, Sweden, and the UK. A professional data collection company (cint.com) were used to facilitate data collection. A single key informant sampling method was used in this research, as initially proposed by Van de Ven and Ferry (1980). This approach is consistent with recent research methodologies within the construction industry, including the works of Talat and Riaz (2020) and Badi (2024). The rationale for selecting a single key informant from each organisation, rather than surveying the entire team, is based on two main considerations. To effectively capture a wide array of evaluations regarding the AI anxiety phenomenon within the construction sector, it proved more efficient to gather insights from key informants across a variety of organisations. This method helps to avoid the homogeneity in responses that could emerge from consulting multiple members of the same organisation, thereby providing a more comprehensive view of the diverse ways in which AI anxiety phenomena affect team innovation behaviours through shared coping mechanisms. Furthermore, the literature validates the efficacy of engaging a single key informant for gaining insights into team-oriented phenomena, particularly for studies addressing complex initiatives like AI anxiety phenomena (Badi, 2024; Talat and Riaz, 2020). This method offers a perspective that reflects both team dynamics and the broader organisational context in handling AI anxiety, crucial for dissecting the intricacies of innovation and coping mechanisms within the construction sector.

The survey was disseminated in February 2024 in multiple waves, with a total of 2,720 surveys sent out. Of these, 954 responses were received, representing a response rate of approximately 35.07%. Upon examining the responses, 540 were found to be complete and usable for analysis. Table 1 demonstrates the profile of the research participants.

4.2 Questionnaire design and measurement items

The study evaluated its constructs through a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree), following the agreement rating system suggested by Saunders *et al.* (2016). The scale items are detailed in Appendix 1.

The questionnaire was designed by adapting and integrating previously validated scales from published research, ensuring consistency with established measurement frameworks while tailoring them to the construction industry. This approach allows for a multidimensional assessment of AI-related attitudes and behaviours, aligning with seminal work that advocates the combination of constructs from different fields to capture complex workplace phenomena and enhance theoretical robustness (Edwards, 2001; MacKenzie *et al.*, 2011).

Collective AI anxiety was measured by updating the recently developed scale by Wang and Wang (2022) to the team level. The scale consists of four dimensions: learning (eight items), job replacement (six items), sociotechnical blindness (four items) and AI configuration (three items).

For collective coping strategy, the research examined three well-established coping strategies: problem-focused, emotion-focused and relation-focused coping strategies:

- Problem-focused coping strategies were measured using the Leprince *et al.* (2019) scale, which has been previously validated and recently applied in the construction context (Badi, 2024) with robust reliability and validity results. It comprises two

Table 1. Participants' profile summary

Variable	Item	Frequency	%
Gender	Male	366	67.8
	Female	174	32.2
Age	Less than 24	30	5.6
	25–30	88	16.3
	31–40	193	35.7
	41–50	138	25.6
	51 or above	91	16.9
Experience	0–2 years	24	4.4
	3–5 years	111	20.6
	6–10 years	188	34.8
	11–19 years	104	19.3
	20 years or above	113	20.9
Education	High school graduate or less	119	22.0
	College degree	172	31.9
	Higher diploma/bachelor degree	152	28.1
	Masters	83	15.4
	Doctorate	14	2.6
Country	Germany	81	15.0
	Netherlands	57	10.6
	Norway	51	9.4
	Portugal	63	11.7
	Spain	74	13.7
	Sweden	71	13.1
	UK	143	26.5
Job level	Senior management	92	17.0
	Middle management	178	33.0
	Line management	103	19.1
	Senior staff	56	10.4
	Staff	111	20.6
Organizational size	1–49	190	35.2
	50–250	203	37.6
	251–4,999	119	22.0
	5,000 or more	28	5.2

Source(s): Authors' own creation

dimensions: analysis and information sharing (three items) and problem-solving (three items).

- Emotion-focused coping strategies were measured using Ramadhana's (2020) scale, specifically developed to capture how groups navigate emotional challenges and maintain morale. It includes two dimensions: emotional openness (four items) and positive outlook (four items).
- Relation-focused coping strategies were measured using a recently developed and validated scale by Badi (2024), which has demonstrated strong reliability. It consists of two dimensions: social support (three items) and compensation (three items).

The construct of team innovative behaviours was measured using the Litchfield *et al.* (2018) scale, which is specifically designed to assess innovation in technology-driven environments. Given the nature of this research, this scale was particularly suitable for evaluating the extent and frequency of innovative behaviours within teams. The scale consists of five items, providing a comprehensive measure of team-level innovation.

In addition, the questionnaire featured a demographic section capturing organizational size, age, gender, work experience, job position, and educational background. These characteristics have been shown to influence employees' perceptions of their workplace, potentially shaping their attitudes toward their jobs, work processes, and performance (Kirkman *et al.*, 2004). The demographic categories are detailed in Table 1.

To ensure the validity of the questionnaire design, convergent and discriminant validity, as well as factor analysis results are presented in Table 2 and Appendix 2. The findings reinforce the appropriateness of the grouped items and contribute further empirical support for the usefulness of the adopted scales in the construction sector.

4.3 Data analysis

Data analysis was performed via SPSS v23.0 and Amos v23.0 programmes.

4.3.1 Common method bias. Assessing for common method bias is crucial, particularly in self-administered surveys (Fuller *et al.*, 2016). To this end, the study used the commonly applied Harman's single-factor test (Podsakoff and Organ, 1986) for its analysis. The results revealed that only 35.214% of the data variance was attributed to a single factor, remaining under the 50% benchmark. Hence, it is inferred that common method bias does not pose a significant issue in this research.

4.3.2 Reliability and validity. The research evaluated the reliability of its constructs through multiple tests. Initially, Cronbach's alpha was employed, with all constructs displaying values above 0.7, indicating their reliability according to George and Mallery (2003). Furthermore, the Kaiser–Meyer–Olkin (KMO) test was carried out to assess sample adequacy, yielding a result of 0.970. This demonstrates good scale adequacy, as a KMO value close to 1.0 signals higher reliability and values below 0.50 indicate unreliability (Morgan *et al.*, 2004). In addition, the Bartlett test of sphericity was used to examine correlations to confirm each scale's reliability in the study (Hair *et al.*, 2010), resulting in a Bartlett test of sphericity value of 0.000. Therefore, the reliability assessments conducted substantiate the scales' dependability within the research. The research variables' correlation matrix and descriptive statistics are detailed in Table 2.

Factor analysis was used to verify the variables' validity within the study. An exploratory factor analysis (EFA) was conducted, using principal component analysis for the extraction process and varimax rotation. The outcomes of the EFA indicated that the items in the questionnaire were well-matched with their intended constructs, achieving acceptable values above 0.45, in line with Field's (2013) guidelines. The detailed results of the EFA are reported in Appendix 2.

Table 2. Reliability, validity and correlation analysis

	# Items	Mean	SD	Cronbach's alpha	1	2	3	4	5
Collective AI anxiety	21	3.31	0.913	0.977	*(0.819)*	–	–	–	
Problem-focused coping	6	3.54	0.627	843	0.081	(0.691)	–	–	
Emotion-focused coping	8	3.63	0.753	0.914	0.357**	0.472**	*(0.758)*	–	
Relation-focused coping	6	3.50	0.862	0.920	0.490**	0.440**	0.253**	*(0.811)*	
Team innovative behaviours	5	3.30	1.163	0.956	0.505**	−0.013	0.300**	0.370**	*(0.902)*

Note(s): $n = 406$. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$; AVE is shown in diagonal and between brackets
Source(s): Authors' own creation

The confirmatory factor analysis (CFA) results demonstrate a strong model fit, with all indices falling within the recommended thresholds: chi-square/degrees of freedom (χ^2/df) = 1.778, indicating a good fit according to Schreiber *et al.* (2006); root mean square residual (RMR) = 0.034, suggesting minimal residuals as per Browne and Cudeck (1993); comparative fit index (CFI) = 0.964; and incremental fit index (IFI) = 0.964, both reflecting a high degree of model fit as noted by Byrne (2010) and Bentler (2007); Tucker–Lewis index (TLI) = 0.961, indicating a good fit based on Marsh *et al.* (2004); and root mean square error of approximation (RMSEA) = 0.038, denoting a close fit in line with Steiger (2007). The specifics of the CFA results are presented in Figure 2.

Furthermore, evaluations of both convergent and discriminant validity for the measurement scales were performed. The criteria for satisfactory outcomes were established at a minimum cut-off value exceeding 0.5, as specified by Hair *et al.* (2006). The process for assessing discriminant validity included contrasting the square root of the average variance extracted (AVE) with the correlations existing between constructs. To affirm discriminant validity, it is necessary for the square root of AVE to surpass the inter-construct correlations (Hair *et al.*, 2006). Based on the information provided in Table 2, the study effectively confirmed both convergent and discriminant validity.

4.3.3 Hypothesis testing. The research inspects the relations between collective AI anxiety and team innovative behaviour highlighting the mediation role of coping strategies. Structural equation modelling with robust maximum likelihood estimation was conducted to examine the research hypotheses. The structural equation model is represented in Figure 3.

The structural equation model fit indices demonstrated a good model fit: χ^2/df = 2.058, RMR = 0.079, CFI = 0.950, IFI = 0.950, TLI = 0.947, RMSEA = 0.044.

The results of direct relations amongst the constructs are illustrated in Table 3.

The results illustrate that there is a significant relation between collective AI anxiety and team innovative behaviour at 99% confidence level, and therefore *H1* is supported.

In terms of *H2–H4*, we can see that there are significant relations at 99% confidence level among all the variables; however, the relation between collective AI anxiety and problem-focused coping strategy is significant at 95% confidence level. Hence, a potential mediating role for coping strategies is demonstrated.

The bootstrapping technique (Preacher and Hayes, 2004) was employed to further investigate the indirect effect among the variables to validate the mediating role of coping strategies. This approach is advised for the analysis of mediating variables (MacKinnon *et al.*, 2012; Hayes, 2017). Using 2,000 resamples, the bootstrapping method generated at 95% confidence intervals for the indirect impacts of collective AI anxiety on team innovative behaviour. The outcomes of these indirect relationships are shown in Table 4.

The results of the indirect relation between collective AI anxiety and team innovative behaviour demonstrate that coping strategies have a mediating role over the relation between collective AI anxiety and team innovative behaviour with all two-tailed significance tests significant relations at 95% confidence level.

5. Discussion of results

The rapid advancement of AI technologies has led to anxieties among employees about their roles, job security, and the need to acquire new skills (Li and Huang, 2020). Within the construction industry, these concerns are particularly acute due to the sector's reliance on manual labour, traditional workflows, and the perceived threat of automation to job stability. For instance, construction workers often experience anxiety about whether AI-driven tools will replace their jobs, alter skill requirements or increase the complexity of their tasks (Regona *et al.*, 2022b; Khan *et al.*, 2024; Na *et al.*, 2023). However, this anxiety can have

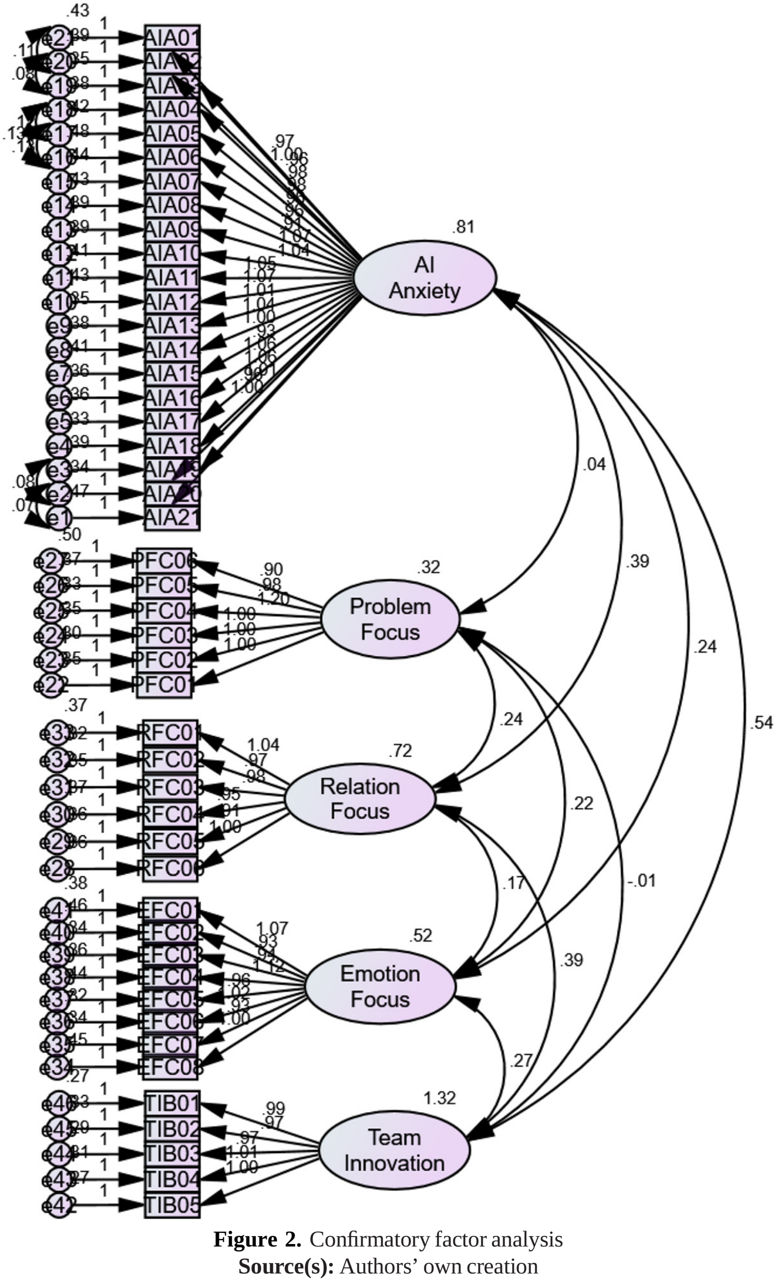

Figure 2. Confirmatory factor analysis
Source(s): Authors' own creation

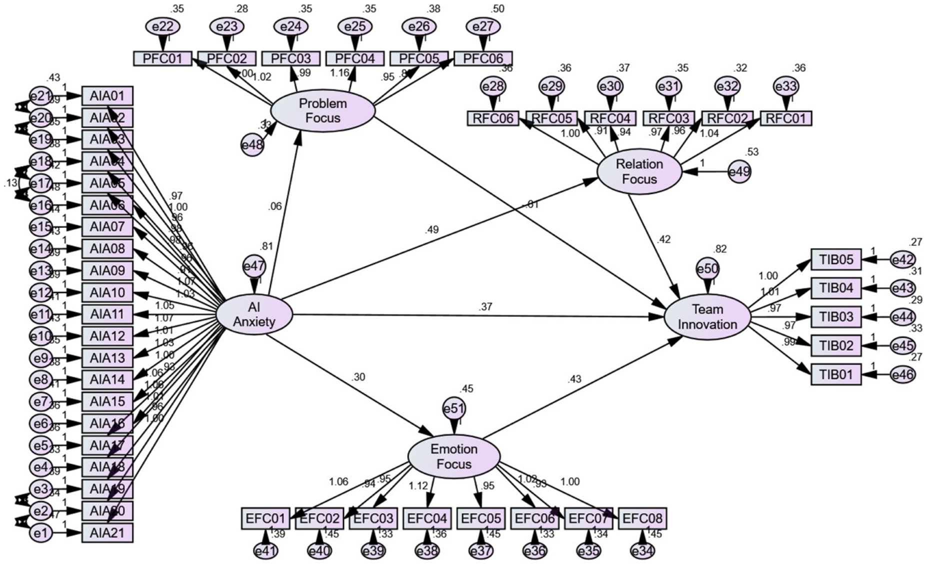

Figure 3. The structural model
Source(s): Authors' own creation

Table 3. SEM direct and indirect relations results

Direct paths	Estimate	SE	CR	*P*
Collective AI anxiety → Team innovative behaviour	0.373	0.061	6.145	***
Collective AI anxiety → Problem-focused coping strategy	0.064	0.030	2.110	0.035**
Collective AI anxiety → Emotion-focused coping strategy	0.302	0.038	8.045	***
Collective AI anxiety → Relation-focused coping strategy	0.486	0.043	11.271	***
Problem-focused coping strategy → Team innovative behaviour	−0.613	0.084	−7.335	***
Emotion-focused coping strategy → Team innovative behaviour	0.426	0.067	6.325	***
Relation-focused coping strategy → Team innovative behaviour	0.417	0.062	6.742	***
Indirect paths	*Lower bounds*	*Upper bounds*	*Two-tailed significance*	
Collective AI anxiety → Problem-focused → Team innovative behaviour	−0.079	−0.004	0.030**	
Collective AI anxiety → Emotion-focused → Team innovative behaviour	0.073	0.200	***	
Collective AI anxiety → Relation-focused → Team innovative behaviour	0.127	0.300	***	

Note(s): ***$p < 0.001$, **$p < 0.05$
Source(s): Authors' own creation

Table 4. Indirect relations results

Paths	Lower bounds	Upper bounds	Two-tailed significance
Collective AI anxiety → Problem-focused → Team innovative behaviour	−0.079	−0.004	0.030**
Collective AI anxiety → Emotion-focused → Team innovative behaviour	0.073	0.200	***
Collective AI anxiety → Relation-focused → Team innovative behaviour	0.127	0.300	***

Note(s): ***$p < 0.001$, **$p < 0.05$
Source(s): Authors' own creation

positive outcomes for the organisation. First, *H1* suggests that collective AI anxiety in the workplace positively influences team innovative behaviours. Our empirical analysis supports this hypothesis, indicating a significant positive association between collective AI anxiety and team innovative behaviours (β: 0.37, $p < 0.001$). Previous research suggests that negative affective states within teams can hinder performance (McCarthy *et al.*, 2016). However, our findings suggest a nuanced relationship wherein AI anxiety, although initially negative, can catalyse increased innovation efforts within teams. The work of Gong *et al.* (2013) has noted that anxiety stemming from job demands can drive increased creativity among team members. Our study aligns with this by revealing how collective AI anxiety can paradoxically foster heightened levels of innovation among team members and challenge conventional notions of how negative affective states influence team behaviour. Our three remaining three hypotheses explore some of the mediatory mechanisms through which collective AI anxiety enhances team innovation, potentially uncovering collective coping strategies to leverage this phenomenon for organisational benefit.

The supported *H2* identified that collective problem-focused coping strategies serve as a mediator between collective AI anxiety and team innovative behaviours. This finding builds upon established literature concerning coping mechanisms and their impact on team dynamics. Pearsall *et al.* (2009) and Lansisalmi *et al.* (2000) have outlined the significance of collective problem-focused coping techniques, emphasising their association with enhanced communication, shared responsibility, and proactive problem-solving within teams. Badi (2024) underlined the significance of problem-focused collective efforts in construction teams. A collective problem-focused coping strategy entails actively generating solutions, considering strategies to manage collective AI anxiety, exploring coping methods, developing collaborative action plans, implementing effective strategies, and executing agreed-upon plans to address and alleviate collective AI anxiety. Against our expectations, we found that problem-focused team coping strategies had a negative relationship with team innovative behaviour. This negative relationship indicates that as the adoption of problem-focused coping strategies increases within the team, there is a decrease in team innovative behaviour. This could imply that when teams primarily focus on addressing problems associated with AI anxiety through problem-solving techniques, they may allocate less energy or attention towards generating innovative ideas or solutions. This may relate to the cognitive processes underlying innovation. Creativity has long been understood to result from a balance between two different thinking styles: divergent thinking (idea generation) and convergent thinking (idea evaluation) (Guilford, 1967). Divergent thinking can be the more "creative" style in the sense of developing multiple, imaginative ideas, while convergent thinking can be more implementation-focused in the sense of identifying the single, optimal answer (Runco, 2010). Problem-focused coping strategies may depend more on convergent thinking styles, leading to lower levels of innovation. Hence, excessive emphasis on problem-solving may lead to a lack of exploration or creativity, thereby hindering the team's ability to innovate.

In addition, the supported *H3* offers empirical evidence that collective emotion-focused coping strategies mediate the relationship between collective AI anxiety and team innovative behaviours, drawing from a robust literature highlighting emotions' influence on team dynamics and outcomes (Barsade and Gibson, 2007; Heaphy, 2017; Frazier *et al.*, 2017). Collective emotion-focused coping, characterised by emotional openness, involves acknowledging and expressing emotions truthfully, sharing both negative and positive feelings, demonstrating understanding without blame, maintaining hope and confidence, encouraging each other, seizing opportunities and persisting in efforts, and focusing on possibilities while accepting limitations to cope with collective AI anxiety-related difficulties. By fostering emotional openness, support, and resilience, these coping strategies appear to help teams manage AI-related anxiety effectively (Meneghel *et al.*, 2016; Stephens and Carmeli, 2016). Through constructive expression of emotions and encouragement of positive outlooks, such strategies can mitigate the potentially negative impact of collective AI anxiety on innovation (Chambers *et al.*, 2001). The findings of *H3* contribute to understanding coping mechanisms amid technological challenges, emphasising the importance of emotional support and resilience-building in fostering creativity (Meneghel *et al.*, 2016).

Finally, the supported *H4* underlined collective relational-focused coping strategies as a mediator in the relationship between collective AI anxiety and team innovative behaviours, offering a nuanced understanding of how interpersonal interactions within teams influence adaptive responses to technological disruptions. This finding aligns with the literature emphasising the significance of relation-focused coping strategies, as highlighted by Afifi *et al.* (2006). We extend the work of Badi (2024) in the construction industry by underscoring the pivotal role of social support in bolstering team innovation efforts amidst technological challenges. Collective relation-focused coping entails seeking support from leadership and colleagues, accessing organisational resources, and implementing compensatory measures such as supporting, adjusting work plans, and accommodating weaknesses of team members to manage challenges related to collective AI anxiety. By fostering social support networks, compensating for individual weaknesses, and leveraging collective resources, teams can enhance their overall competency to confront collective AI anxiety and drive innovation forward.

6. Conclusion

Our study contributes to the literature by elucidating the impact of collective AI anxiety on team dynamics and behaviours within construction industry organisations. Firstly, our findings indicate that collective AI anxiety can positively influence team innovative behaviours, contrary to the conventional understanding that negative affective states hinder performance. This nuanced relationship suggests that collective AI anxiety prompts increased cognitive arousal among team members, aligning with previous research emphasising the role of heightened cognitive states in fostering team innovation (e.g. Akgün *et al.*, 2007; Mao *et al.*, 2021). Secondly, the findings highlight the mediating role of collective problem-focused, emotion-focused and relation-focused coping strategies in addressing AI-related anxiety. This draws upon established literature emphasising the significance of such collective coping mechanisms in enhancing team proactive problem-solving and the role of emotional and social support in bolstering team efforts to confront AI-induced anxiety and drive innovation forward amidst technological change.

The results from this study contribute to the body of knowledge in several ways. First, despite its increasing popularity, empirical inquiry into the social and psychological implications of AI in construction is still in its infancy. Even though there are research studies dealing with AI implementation in the construction industry (e.g. An *et al.*, 2021; Dumrak and Zarghami, 2023; Pan and Zhang, 2021) there is a paucity of studies exploring the social and psychological implications of AI. Therefore, the study addresses this gap in the literature by empirically examining AI from a psychological perspective, focusing on AI anxiety in construction teams. Second, the study examines the concepts of AI anxiety and coping as team-level collective phenomena and answers the call for further studies exploring team-level dynamics in construction. To our knowledge, our study is the first to update the Wang and Wang (2022) AI anxiety scale to explore the team-level collective phenomenon and we confirmed the validity and reliability of the modified scale in this context. Thus, our study contributes to the advancement of research in the stress and coping domain by addressing the gap in understanding team-level dynamics in the context of anxiety and coping strategies, particularly within the construction industry. Third, this study develops and validates a research model of collective teams coping with AI anxiety and innovation outcomes. To our knowledge, our study is one of the first to apply collective coping strategies to understand how teams cope with collective AI anxiety with team innovative behaviour as the outcome.

The findings of our study have several implications for construction organisations seeking to harness the creative potential of their teams amidst the growing prevalence of AI technologies. First, recognising the potential positive impact of collective AI anxiety on team innovative behaviours, organisations should encourage open discussions about AI-related concerns and provide platforms for team members to voice their anxieties. This can help harness the heightened cognitive arousal associated with collective AI anxiety, fuelling creativity and innovation within teams. Second, the study's findings emphasize the critical role of the "people dimension" in successful digital transformation, reinforcing recent literature highlighting the importance of technical capabilities, talent management, and organizational digital culture (Aghimien *et al.*, 2024). Construction organizations should prioritize not only technological adoption but also workforce preparedness through systematic re-skilling and continuous learning initiatives. Therefore, organisations should prioritise emotion-focused and relation-focused coping strategies to address AI-related anxiety. Organisations should implement organisation-wide initiatives such as providing promoting a supportive work environment and fostering strong interpersonal relationships. By nurturing these coping mechanisms, organisations can empower their teams to navigate AI-induced anxiety, capitalise on collective strengths, and drive innovation in the construction industry. This can include conducting workshops focused on emotional intelligence and resilience, enabling team members to manage and express emotions constructively. Regular structured discussions, such as "AI Anxiety Forums," can provide a safe space for team members to voice concerns and collaborate on solutions. In addition, incorporating team-building activities, such as innovation hackathons or trust-building exercises, can enhance interpersonal connections and relation-focused coping. These strategies not only alleviate AI-related anxieties but also establish a foundation for enhanced collaboration and innovation within teams. This supportive environment helps attract and retain the right digital talent by fostering an organizational culture that encourages innovation and values employee involvement, thus promoting sustainable innovation within construction organizations (Aghimien *et al.*, 2024).

Thirdly, the positive influence of collective AI anxiety on team innovative behaviours, as found in our study, aligns with emerging literature on digital leadership and innovation management. For instance, Gledson *et al.* (2023) emphasized that effective digital leadership is critical for successful digital transformations, particularly in managing strategic alignments and fostering innovation. Our results deepen this understanding by highlighting how leaders could strategically manage collective psychological responses, such as AI anxiety, through targeted coping strategies to enhance innovation. Similarly, Murguia *et al.* (2024) provided insights into strategic planning, capability building, and business models necessary for long-term innovation in Construction 4.0. Our findings extend these discussions by empirically demonstrating that psychological factors, particularly collective AI anxiety, play a significant role in determining team innovation outcomes. These insights underline the practical implications for managers and policymakers in the construction sector, indicating the need to integrate psychological coping mechanisms into digital transformation strategies to achieve sustainable and effective AI implementation.

While our study provides valuable insights into the relationship between collective AI anxiety and team innovative behaviours in the construction sector, several limitations should be considered and that should guide future research. To begin, there is the inherent risk of subjectivity when using self-reported data. To ensure that future studies are more reliable, multi-source data-gathering techniques could be used such as objective performance measurements or observational data. Second, further research is needed to explore our tentative explanation of problem-focused coping as tending towards convergent thinking. Third the mediating function of coping mechanisms in reducing collective AI anxiety and increasing team innovation was the primary emphasis of our research. Nevertheless, these dynamics might be impacted by other individual, team and contextual factors, such as personality, team composition, organisational culture, and project characteristics. We can learn more about the intricate relationship between collective AI anxiety and team innovation if we investigate these other aspects. In addition, the results may not apply to other sectors or organisational contexts since our research was carried out within the framework of companies in the construction industry. To further enrich this line of inquiry, future research could explore whether collective AI anxiety manifests differently across industries by comparing the construction sector with other fields, such as healthcare, finance, or manufacturing. Investigating sector-specific factors – such as regulatory environments, technological maturity, and workforce skill requirements – could provide valuable insights into the broader applicability of our findings and reveal industry-specific strategies for mitigating AI-related anxiety and fostering innovation. To test how well our results, hold up in other settings and how applicable they are to various types of organisations, future studies may replicate our study. Furthermore, longitudinal research may shed light on how collective AI anxiety impacts team performance and creativity in the long run. The subjective experiences and opinions of team members regarding collective AI anxiety and coping techniques might be additionally understood with the use of qualitative research methodologies, such as focus groups or interviews. To better understand these occurrences and to guide the creation of tailored solutions to assist teams in handling AI-related anxiety, it would be beneficial to combine quantitative and qualitative assessments.

To sum it up, this study sheds light on the relationship between collective AI anxiety and team innovative behaviour in the construction industry, highlighting the mediating role of collective coping strategies. The findings reveal that collective AI anxiety, often viewed as a negative force, can positively influence team innovation by fostering cognitive arousal. The study identifies emotion-focused and relation-focused coping strategies as effective mediators, promoting resilience and collaboration, while problem-focused strategies may limit divergent thinking and hinder innovation.

The implications suggest that organisations should address AI-induced anxieties through open communication, supportive work environments, and fostering strong interpersonal relationships to leverage their teams' innovative potential. By nurturing appropriate coping mechanisms, construction organisations can navigate the challenges of technological transformation while enhancing team performance and creativity. These insights contribute to the understanding of team-level dynamics, providing a foundation for future research into collective psychological phenomena and innovation in other sectors.

References

Abioye, S.O., Oyedele, L.O., Akanbi, L., Ajayi, A., Delgado, J.M.D., Bilal, M., Akinade, O.O. and Ahmed, A. (2021), "Artificial intelligence in the construction industry: a review of present status, opportunities and future challenges", *Journal of Building Engineering*, Vol. 44, p. 103299.

Afifi, T.D., Hutchinson, S. and Krouse, S. (2006), "Toward a theoretical model of communal coping in postdivorce families and other naturally occurring groups", *Communication Theory*, Vol. 16 No. 3, pp. 378-409.

Afifi, W.A., Felix, E.D. and Afifi, T.D. (2012), "The impact of uncertainty and communal coping on mental health following natural disasters", *Anxiety, Stress and Coping*, Vol. 25 No. 3, pp. 329-347.

Aghimien, D., Aigbavboa, C., Oke, A.E. and Aliu, J. (2024), "Delineating the people-related features required for construction digitalisation", *Construction Innovation*, Vol. 24 No. 7, pp. 1-20.

Akgün, A.E., Byrne, J.C., Lynn, G.S. and Keskin, H. (2007), "Team stressors, management support, and project and process outcomes in new product development projects", *Technovation*, Vol. 27 No. 10, pp. 628-639.

An, Y., Li, H., Su, T. and Wang, Y. (2021), "Determining uncertainties in AI applications in AEC sector and their corresponding mitigation strategies", *Automation in Construction*, Vol. 131, p. 103883.

Arslan, A., Cooper, C., Khan, Z., Golgeci, I. and Ali, I. (2022), "Artificial intelligence and human workers interaction at team level: a conceptual assessment of the challenges and potential HRM strategies", *International Journal of Manpower*, Vol. 43 No. 1, pp. 75-88.

Artificial Intelligence in Construction Market (2022), available at: www.gminsights.com/industry-analysis/artificial-intelligence-in-construction-market?gad_source=1&gclid=CjwKCAiAtYy9BhBcEiwANWQQL2SHqDMDJVkxMCgxLTwCpYv5VXDVGYILHgrFjbGcSeYDoQgpg6MNeRoCLhMQAvD_BwE (accessed 3 February 2025).

Badi, S. (2024), "Relationship between organisational culture and collective coping strategies in project teams: an exploratory quantitative study in the UAE construction industry", *International Journal of Productivity and Performance Management*, Vol. 73 No. 3, pp. 794-816.

Bao, L., Krause, N.M., Calice, M.N., Scheufele, D.A., Wirz, C.D., Brossard, D., Newman, T.P. and Xenos, M.A. (2022), "Whose AI? How different publics think about AI and its social impacts", *Computers in Human Behavior*, Vol. 130, p. 107182.

Barsade, S.G. and Gibson, D.E. (2007), "Why does affect matter in organisations?", *Academy of Management Perspectives*, Vol. 21 No. 1, pp. 36-59.

Bentler, P.M. (2007), "On tests and indices for evaluating structural models", *Personality and Individual Differences*, Vol. 42 No. 5, pp. 825-829.

Brattberg, E., Rugova, V. and Csernatoni, R. (2020), *Europe and AI: Leading, Lagging behind or Carving Its Own Way?*, Carnegie Endowment for International Peace, Washington, DC, Vol. 9.

Browne, M.W. and Cudeck, R. (1993), "Alternative ways of assessing model fit", *Sage Focus Editions*, Vol. 154, p. 136.

Byrne, B.M. (2010), *Structural Equation Modeling with AMOS: Basic Concepts, Applications, and Programming*, (2nd ed.), Routledge, New York, NY.

Cetindamar, D., Kitto, K., Wu, M., Zhang, Y., Abedin, B. and Knight, S. (2022), "Explicating AI literacy of employees at digital workplaces", *IEEE Transactions on Engineering Management*, Vol. 71, pp. 810-823.

Chambers, M., Ryan, A.A. and Connor, S.L. (2001), "Exploring the emotional support needs and coping strategies of family carers", *Journal of Psychiatric and Mental Health Nursing*, Vol. 8 No. 2, pp. 99-106, doi: 10.1046/j.1365-2850.2001.00360.x.

Colley, M., Mytilineos, S., Walch, M., Gugenheimer, J. and Rukzio, E. (2022), "Requirements for the interaction with highly automated construction site delivery trucks", *Frontiers in Human Dynamics*, Vol. 4, p. 794890.

Collins (2024), "Word of the year 2023", *Collins*, available at: www.collinsdictionary.com (accessed 30 April 2024).

Datta, S.D., Islam, M., Sobuz, M.H.R., Ahmed, S. and Kar, M. (2024), "Artificial intelligence and machine learning applications in the project lifecycle of the construction industry: a comprehensive review", *Heliyon*, Vol. 10 No. 5, p. e26888.

Demirkesen, S. and Tezel, A. (2022), "Investigating major challenges for industry 4.0 adoption among construction companies", *Engineering, Construction and Architectural Management*, Vol. 29, pp. 1470-1503.

Ding, L. (2022), "Employees' STARA awareness and innovative work behavioural intentions: evidence from US casual dining restaurants", *Global Strategic Management in the Service Industry: A Perspective of the New Era*, Emerald Publishing, Bingley, pp. 17-56, available at: www.emerald.com/insight/content/doi/10.1108/978-1-80117-081-920221003/full/www.bruegel.org/nc/blog/detail/article/1394-the-computerisation-of-european-jobs/

Dumrak, J. and Zarghami, S.A. (2023), "The role of artificial intelligence in lean construction management", *Engineering, Construction and Architectural Management*, Vol. 32, pp. 131-155.

Edwards, J.R. (2001), "Multidimensional constructs in organizational behavior research: an integrative analytical framework", *Organizational Research Methods*, Vol. 4 No. 2, pp. 144-192.

Fay, D., Shipton, H., West, M.A. and Patterson, M. (2015), "Teamwork and organisational innovation: the moderating role of the HRM context", *Creativity and Innovation Management*, Vol. 24 No. 2, pp. 261-277, doi: 10.1111/caim.12100.

Field, A. (2013), *Discovering Statistics Using IBM SPSS Statistics*, Sage Publications, London.

Fisher, E., Flynn, M.A., Pratap, P. and Vietas, J.A. (2023), "Occupational safety and health equity impacts of artificial intelligence: a scoping review", *International Journal of Environmental Research and Public Health*, Vol. 20 No. 13, p. 6221.

Fong, P.S. (2003), "Knowledge creation in multidisciplinary project teams: an empirical study of the processes and their dynamic interrelationships", *International Journal of Project Management*, Vol. 21 No. 7, pp. 479-486.

Frazier, M.L., Fainshmidt, S., Klinger, R.L., Pezeshkan, A. and Vracheva, V. (2017), "Psychological safety: a meta-analytic review and extension", *Personnel Psychology*, Vol. 70 No. 1, pp. 113-165.

Freire, C., Ferradás, M.D.M., Núñez, J.C., Valle, A. and Vallejo, G. (2019), "Eudaimonic well-being and coping with stress in university students: the mediating/moderating role of self-efficacy", *International Journal of Environmental Research and Public Health*, Vol. 16 No. 1, p. 48, doi: 10.3390/ijerph16010048.

Fuller, C.M., Simmering, M.J., Atinc, G., Atinc, Y. and Babin, B.J. (2016), "Common methods variance detection in business research", *Journal of Business Research*, Vol. 69 No. 8, pp. 3192-3198.

George, D. and Mallery, P. (2003), "Using SPSS for Windows step by step: a simple guide and reference".

George, J.M. and King, E.B. (2007), "Potential pitfalls of affect convergence in teams: functions and dysfunctions of group affective tone", *Affect and Groups*, Emerald Group Publishing, Bingley, pp. 97-123, available at: www.emerald.com/insight/content/doi/10.1016/S1534-0856(07)10005-0/full/html

Gledson, B., Zulu, S.L., Saad, A.M. and Ponton, H. (2023), "Digital leadership framework to support firm-level digital transformations for Construction 4.0", *Construction Innovation*, Vol. 24 No. 1, pp. 341-364.

Golda, A., Mekonen, K., Pandey, A., Singh, A., Hassija, V., Chamola, V. and Sikdar, B. (2024), *Privacy and Security Concerns in Generative AI: A Comprehensive Survey*, IEEE Access, Piscataway, NJ, Vol. 12, pp. 48126-48144.

Goleman, D., Boyatzis, R. and McKee, A. (2002), "The emotional reality of teams", *Journal of Organizational Excellence*, Vol. 21 No. 2, pp. 55-65.

Gong, Y., Kim, T.-Y., Lee, D.-R. and Zhu, J. (2013), "A multilevel model of team goal orientation, information exchange, and creativity", *Academy of Management Journal*, Vol. 56 No. 3, pp. 827-851, doi: 10.5465/amj.2011.0177.

Guilford, J.P. (1967), *The Nature of Human Intelligence*, McGraw-Hill, New York.

Hair, J.F., Black, W.C., Babin, B.J., Anderson, R.E. and Tatham, R.L. (2006), *Multivariate Data Analysis*, 6th ed., Pearson Prentice Hall, Upper Saddle River, NJ.

Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2010), *Multivariate Data Analysis*, 7th ed., Prentice Hall, NJ.

Haq, S.U., Khan, K.A., Hafeez, H. and Chughtai, M.A. (2023), "Trust and knowledge sharing in project teams in construction industry of Pakistan: moderating role of perceived behavioral control", *Kybernetes*, Vol. 52 No. 9, pp. 3729-3757.

Hayes, A.F. (2017), *Introduction to Mediation, Moderation, and Conditional Process Analysis: A Regression-Based Approach*, (2nd ed.), Guilford Publications, New York.

Hagerty, A. and Rubinov, I. (2019), "Global AI ethics: a review of the social impacts and ethical implications of artificial intelligence", arXiv preprint arXiv: 1907.07892.

Heaphy, E.D. (2017), "'Dancing on hot coals': how emotion work facilitates collective sense-making", *Academy of Management Journal*, Vol. 60 No. 2, pp. 642-670.

Jia, N., Luo, X., Fang, Z. and Liao, C. (2024), "When and how artificial intelligence augments employee creativity", *Academy of Management Journal*, Vol. 67 No. 1, pp. 5-32, doi: 10.5465/amj.2022.0426.

Kanan, R., Elhassan, O. and Bensalem, R. (2018), "An IoT-based autonomous system for workers' safety in construction sites with real-time alarming, monitoring, and positioning strategies", *Automation in Construction*, Vol. 88, pp. 73-86.

Kaya, F., Aydin, F., Schepman, A., Rodway, P., Yetişensoy, O. and Demir Kaya, M. (2024), "The roles of personality traits, AI anxiety, and demographic factors in attitudes toward artificial intelligence", *International Journal of Human–Computer Interaction*, Vol. 40 No. 2, pp. 497-514, doi: 10.1080/10447318.2022.2151730.

Khan, A.A., Bello, A.O., Arqam, M. and Ullah, F. (2024), "Integrating building information modelling and artificial intelligence in construction projects: a review of challenges and mitigation strategies", *Technologies*, Vol. 12 No. 10, p. 185.

Kim, S., Chen, R.P. and Zhang, K. (2016), "Anthropomorphised helpers undermine autonomy and enjoyment in computer games", *Journal of Consumer Research*, Vol. 43 No. 2, pp. 282-302.

Kim, T., Lee, H., Kim, M.Y., Kim, S. and Duhachek, A. (2023), "AI increases unethical consumer behavior due to reduced anticipatory guilt", *Journal of the Academy of Marketing Science*, Vol. 51 No. 4, pp. 785-801.

Kirkman, B., Tesluk, P. and Rosen, B. (2004), "The impact of demographic heterogeneity and team leader–team member demographic fit on team empowerment and effectiveness", *Group and Organization Management*, Vol. 29 No. 3, pp. 334-368.

Lansisalmi, H., Peiro, J.M. and Kivimaki, I.V.M. (2000), "Collective stress and coping in the context of organisational culture", *European Journal of Work and Organizational Psychology*, Vol. 9 No. 4, pp. 527-559.

Lazaroiu, G. and Rogalska, E. (2023), "How generative artificial intelligence technologies shape partial job displacement and labor productivity growth", *Oeconomia Copernicana*, Vol. 14 No. 3, pp. 703-706.

Lazarus, R.S. and Folkman, S. (1984), *Stress, Appraisal, and Coping*, Springer, New York, NY.

Le Blanc, P.M., González-Romá, V. and Wang, H. (2021), "Charismatic leadership and work team innovative behavior: the role of team task interdependence and team potency", *Journal of Business and Psychology*, Vol. 36 No. 2, pp. 333-346.

Leprince, C., d'Arripe-Longueville, F., Chanal, J. and Doron, J. (2019), "Development and preliminary validation of the communal coping strategies inventory for competitive team sports", *Psychology of Sport and Exercise*, Vol. 45, p. 101569.

Li, J. and Huang, J.-S. (2020), "Dimensions of artificial intelligence anxiety based on the integrated fear acquisition theory", *Technology in Society*, Vol. 63, p. 101410.

Lin, M., Zhang, X., Ng, B.C.S. and Zhong, L. (2022), "The dual influences of team cooperative and competitive orientations on the relationship between empowering leadership and team innovative behaviors", *International Journal of Hospitality Management*, Vol. 102, p. 103160.

Litchfield, R.C., Karakitapoğlu-Aygün, Z., Gumusluoglu, L., Carter, M. and Hirst, G. (2018), "When team identity helps innovation and when it hurts: team identity and its relationship to team and cross-team innovative behavior", *Journal of Product Innovation Management*, Vol. 35 No. 3, pp. 350-366.

Lyons, R.F., Mickelson, K.D., Sullivan, M.J.L. and Coyne, J.C. (1998), "Coping as a communal process", *Journal of Social and Personal Relationships*, Vol. 15 No. 5, pp. 579-605, doi: 10.1177/0265407598155001.

McCarthy, J.M., Trougakos, J.P. and Cheng, B.H. (2016), "Are anxious workers less productive workers? It depends on the quality of social exchange", *Journal of Applied Psychology*, Vol. 101 No. 2, p. 279.

MacKenzie, S.B., Podsakoff, P.M. and Podsakoff, N.P. (2011), "Construct measurement and validation procedures in MIS and behavioral research: integrating new and existing techniques", *MIS Quarterly*, Vol. 35 No. 2, pp. 293-334.

MacKinnon, D.P., Cheong, J. and Pirlott, A.G. (2012), "Statistical mediation analysis", *Journal of Consumer Research*, Vol. 43 No. 2, pp. 282-302.

Makarius, E.E., Mukherjee, D., Fox, J.D. and Fox, A.K. (2020), "Rising with the machines: a sociotechnical framework for bringing artificial intelligence into the organisation", *Journal of Business Research*, Vol. 120, pp. 262-273.

Mao, J., Chang, S., Gong, Y. and Xie, J.L. (2021), "Team job-related anxiety and creativity: investigating team-level and cross-level moderated curvilinear relationships", *Journal of Organizational Behavior*, Vol. 42 No. 1, pp. 34-47, doi: 10.1002/job.2489.

Marsh, H.W., Hau, K.T. and Wen, Z. (2004), "In search of golden rules: comment on hypothesis-testing approaches to setting cut-off values for fit indexes and dangers in overgeneralising Hu and Bentler's (1999) findings", *Structural Equation Modeling: A Multidisciplinary Journal*, Vol. 11 No. 3, pp. 320-341.

Meneghel, I., Salanova, M. and Martínez, I.M. (2016), "Feeling good makes us stronger: how team resilience mediates the effect of positive emotions on team performance", *Journal of Happiness Studies*, Vol. 17 No. 1, pp. 239-255.

Morandini, S., Fraboni, F., De Angelis, M., Puzzo, G., Giusino, D. and Pietrantoni, L. (2023), "The impact of artificial intelligence on workers' skills: upskilling and reskilling in organisations", *Informing Science*, Vol. 26, pp. 39-68.

Morgan, G., Leech, N., Gloeckner, G. and Barrett, K. (2004), *SPSS for Introductory Statistics*, 2nd ed., Lawrence Erlbaum Associate Publishers, Mahwah, NJ.

Müller, A., Herbig, B. and Petrovic, K. (2009), "The explication of implicit team knowledge and its supporting effect on team processes and technical innovations: an action regulation perspective on team reflexivity", *Small Group Research*, Vol. 40 No. 1, pp. 28-51, doi: 10.1177/1046496408326574.

Murguia, D., Soetanto, R., Szczygiel, M., Goodier, C.I. and Kavuri, A. (2024), "Construction 4.0 implementation for performance improvement: an innovation management perspective", *Construction Innovation*, [Online], doi: 10.1108/CI-08-2023-0184.

Na, S., Heo, S., Choi, W., Kim, C. and Whang, S.W. (2023), "Artificial intelligence (AI)-based technology adoption in the construction industry: a cross national perspective using the technology acceptance model", *Buildings*, Vol. 13 No. 10, p. 2518.

Nasaj, M. (2020), "Understanding individual's innovative behaviours: integrated personality traits and social capital perspective" (Doctoral dissertation, The British University in Dubai).

Nasaj, M. (2021), "Proactive personality and employees' innovative behaviours: the role of network building ability", *International Journal of Innovation Management*, Vol. 25 No. 8, p. 2150086.

Nasaj, M. and Badi, S. (2021), "The influence of network building on the innovative work behaviour of self-monitoring individuals: integrating personality and social capital perspectives", *International Journal of Innovation Management*, Vol. 25 No. 4, p. 2150038.

Nasaj, M., Badi, S., Murtagh, N. and Blaique, L. (2022), "Intrapreneurial personality and individual innovation behaviour in service organisations: network building ability as a mediator", *International Journal of Innovation Management*, Vol. 26 No. 4, p. 2250029.

Ntoutsi, E., Fafalios, P., Gadiraju, U., Iosifidis, V., Nejdl, W., Vidal, M.E., *et al*. (2020), "Bias in data-driven artificial intelligence systems—an introductory survey", *Wiley Interdisciplinary Reviews: Data Mining and Knowledge Discovery*, Vol. 10 No. 3, p. e1356.

Oesterreich, T.D. and Teuteberg, F. (2016), "Understanding the implications of digitisation and automation in the context of Industry 4.0: a triangulation approach and elements of a research agenda for the construction industry", *Computers in Industry*, Vol. 83, pp. 121-139.

Osunsanmi, T.O., Aigbavboa, C.O., Emmanuel, O.A. and Liphadzi, M. (2020), "Appraisal of stakeholders' willingness to adopt Construction 4.0 technologies for construction projects", *Built Environment Project and Asset Management*, Vol. 10 No. 4, pp. 547-565.

Pan, Y. and Zhang, L. (2021), "Roles of artificial intelligence in construction engineering and management: a critical review and future trends", *Automation in Construction*, Vol. 122, p. 103517.

Pearsall, M.J., Ellis, A.P. and Stein, J.H. (2009), "Coping with challenge and hindrance stressors in teams: behavioral, cognitive, and affective outcomes", *Organizational Behavior and Human Decision Processes*, Vol. 109 No. 1, pp. 18-28.

Podsakoff, P.M. and Organ, D.W. (1986), "Self-reports in organisational research: problems and prospects", *Journal of Management*, Vol. 12 No. 4, pp. 531-544.

Pradhan, I.P. and Saxena, P. (2023), "Reskilling workforce for the artificial intelligence age: challenges and the way forward", *The Adoption and Effect of Artificial Intelligence on Human Resources Management*, *Part B*, Emerald Publishing, Bingley, pp. 181-197.

Preacher, K.J. and Hayes, A.F. (2004), "SPSS and SAS procedures for estimating indirect effects in simple mediation models", *Behavior Research Methods*, *Instruments and Computers*, Vol. 36 No. 4, pp. 717-731.

Rabbi, A.B.K. and Jeelani, I. (2024), "AI integration in construction safety: current state, challenges, and future opportunities in text, vision, and audio based applications", *Automation in Construction*, Vol. 164, p. 105443.

Ramadhana, M.R. (2020), "A dataset for emotional reactions and family resilience during COVID-19 isolation period among Indonesian families", *Data in Brief*, Vol. 31, p. 105946.

Regona, M., Yigitcanlar, T., Xia, B. and Li, R.Y.M. (2022a), "Opportunities and adoption challenges of AI in the construction industry: a PRISMA review", *Journal of Open Innovation: Technology, Market, and Complexity*, Vol. 8 No. 1, p. 45.

Regona, M., Yigitcanlar, T., Xia, B. and Li, R.Y.M. (2022b), "Artificial intelligent technologies for the construction industry: how are they perceived and utilized in Australia?", *Journal of Open Innovation: Technology, Market, and Complexity*, Vol. 8 No. 1, p. 16.

Regona, M., Yigitcanlar, T., Hon, C.K. and Teo, M. (2023), "Mapping two decades of AI in construction research: a scientometric analysis from the sustainability and construction phases lenses", *Buildings*, Vol. 13 No. 9, p. 2346.

Rentscher, K.E. (2019), "Communal coping in couples with health problems", *Frontiers in Psychology*, Vol. 10, p. 398.

Rodríguez, I., Kozusznik, M.W., Peiró, J.M. and Tordera, N. (2019), "Individual, co-active and collective coping and organizational stress: a longitudinal study", *European Management Journal*, Vol. 37 No. 1, pp. 86-98.

Runco, M.A. (2010), "Divergent thinking, creativity, and ideation", *The Cambridge Handbook of Creativity*, Cambridge University Press, Cambridge, pp. 413-446.

Sacks, R., Girolami, M. and Brilakis, I. (2020), "Building information modelling, artificial intelligence and construction tech", *Developments in the Built Environment*, Vol. 4, p. 100011.

Sartori, L. and Theodorou, A. (2022), "A sociotechnical perspective for the future of AI: narratives, inequalities and human control", *Ethics and Information Technology*, Vol. 24 No. 1, p. 4.

Saunders, M., Lewis, P. and Thornhill, A. (2016), *Research Methods for Business Students*, 7th ed., Pearson Education, Harlow, England.

Schmelzer, R. (2024), "Building the future: how AI is revolutionizing construction", *Forbes*, available at: www.forbes.com/sites/ronschmelzer/2024/10/18/building-the-future-how-ai-is-revolutionizing-construction/ (accessed 3 February 2025).

Schreiber, J.B., Nora, A., Stage, F.K., Barlow, E.A. and King, J. (2006), "Reporting structural equation modeling and confirmatory factor analysis results: a review", *The Journal of Educational Research*, Vol. 99 No. 6, pp. 323-338.

Scott, S.G. and Bruce, R.A. (1994), "Determinants of innovative behavior: a path model of individual innovation in the workplace", *Academy of Management Journal*, Vol. 37 No. 3, pp. 580-607, doi: 10.2307/256701.

Singh, V., Gu, N. and Wang, X. (2011), "A theoretical framework of a BIM-based multi-disciplinary collaboration platform", *Automation in Construction*, Vol. 20 No. 2, pp. 134-144.

Song, K., Guo, M., Ye, L., Liu, Y. and Liu, S. (2024), "Driverless metros are coming, but what about the drivers? A study on AI-related anxiety and safety performance", *Safety Science*, Vol. 175, p. 106487.

Souza, A.S.C.D. and Debs, L. (2023), "Identifying emerging technologies and skills required for construction 4.0", *Buildings*, Vol. 13 No. 10, p. 2535.

Spielberger, C.D. (1966), "Theory and research on anxiety", *Anxiety and Behavior*, Vol. 1 No. 3, pp. 413-428.

Statsenko, L., Samaraweera, A., Bakhshi, J. and Chileshe, N. (2023), "Construction 4.0 technologies and applications: a systematic literature review of trends and potential areas for development", *Construction Innovation*, Vol. 23 No. 5, pp. 961-993.

Steiger, J.H. (2007), "Understanding the limitations of global fit assessment in structural equation modeling", *Personality and Individual Differences*, Vol. 42 No. 5, pp. 893-898.

Stephens, J.P. and Carmeli, A. (2016), "The positive effect of expressing negative emotions on knowledge creation capability and performance of project teams", *International Journal of Project Management*, Vol. 34 No. 5, pp. 862-873.

Suseno, Y., Hudik, M., Fang, E.S. and Guo, Z. (2020), "Employee attitudes, technological anxiety, and change readiness for artificial intelligence adoption", *Academy of Management Proceedings*, Vol. 2020 No. 1, p. 20045, doi: 10.5465/AMBPP.2020.20045abstract.

Taher, G. (2021), "Industrial revolution 4.0 in the construction industry: challenges and opportunities", *Management Studies and Economic Systems*, Vol. 6 Nos 4/3, pp. 109-127.

Talat, A. and Riaz, Z. (2020), “An integrated model of team resilience: exploring the roles of team sense-making, team bricolage and task interdependence”, *Personnel Review*, Vol. 49 No. 9, pp. 2007-2033.

Van de Ven, A.H. and Ferry, D.L. (1980), *Measuring and Assessing Organisations*, John Wiley and Sons, New York, NY.

Van Hie, D. (2024), “The impact of AI-driven automation on workforce dynamics and skill requirements across industries”, *Journal of Sustainable Urban Futures*, Vol. 14 No. 1, pp. 1-13.

Vochozka, M., Kliestik, T., Kliestikova, J. and Sion, G. (2018), “Participating in a highly automated society: how artificial intelligence disrupts the job market”, *Economics, Management, and Financial Markets*, Vol. 13 No. 4, pp. 57-62.

Wang, Y.Y. and Wang, Y.S. (2022), “Development and validation of an artificial intelligence anxiety scale: an initial application in predicting motivated learning behavior”, *Interactive Learning Environments*, Vol. 30 No. 4, pp. 619-634, doi: 10.1080/10494820.2019.1674887.

Wang, Y., Ye, G., Zhang, Y., Mu, P. and Wang, H. (2020), “Is the Chinese construction industry moving towards a knowledge-and technology-intensive industry?”, *Journal of Cleaner Production*, Vol. 259, p. 120964.

Widmann, A., Messmann, G. and Mulder, R.H. (2016), “The impact of team learning behaviors on team innovative work behavior: a systematic review”, *Human Resource Development Review*, Vol. 15 No. 4, pp. 429-458, doi: 10.1177/1534484316673713.

Yang, Y., Ta, N., Li, K., Jiao, F., Hu, B. and Li, Z. (2021), “Influential factors on collective anxiety of online topic-based communities”, *Frontiers in Psychology*, Vol. 12, p. 740065.

Zabala-Vargas, S. (2023), “Big data, data science, and artificial intelligence for project management in the architecture, engineering, and construction industry: a systematic review”, *Buildings*, Vol. 13 No. 12, p. 2944, doi: 10.3390/buildings13122944.

Further reading

Baum, S., Barrett, A. and Yampolskiy, R.V. (2017), “Modeling and interpreting expert disagreement about artificial superintelligence”, *Informatica*, Vol. 41 No. 7, pp. 419-428.

Ben-Ezra, M. and Hamama-Raz, Y. (2021), “Social workers during COVID-19: do coping strategies differentially mediate the relationship between job demand and psychological distress?”, *The British Journal of Social Work*, Vol. 51 No. 5, pp. 1551-1567.

Bogue, R. (2018), “What are the prospects for robots in the construction industry?”, *Industrial Robot: An International Journal*, Vol. 45 No. 1, pp. 1-6.

Bran, A., Lopes, N. and Lafon, M. (2023), “PhD graduates’ appraisals of work demands: challenging, hindering and not very threatening”, *Studies in Higher Education*, Vol. 49 No. 3, pp. 559-575.

Carlos, B., Mohamed, A., Carlos, B. and Mohamed, A. (2008), “Trends in robotics and automation in construction”, *Robotics and Automation in Construction*, In Tech., Rijeka, Croatia.

Choi, H.M., Mohammad, A.A. and Kim, W.G. (2019), “Understanding hotel frontline employees’ emotional intelligence, emotional labor, job stress, coping strategies, and burnout”, *International Journal of Hospitality Management*, Vol. 82, pp. 199-208.

De Dreu, C.K.W. (2006), “When too little or too much hurts: evidence for a curvilinear relationship between task conflict and innovation in teams”, *Journal of Management*, Vol. 32 No. 1, pp. 83-107.

Ding, L. (2021), “Employees’ challenge-hindrance appraisals toward STARA awareness and competitive productivity: a micro-level case”, *International Journal of Contemporary Hospitality Management*, Vol. 33 No. 9, pp. 2950-2969.

Galiana, L., Tomás, J.M., Fernández, I. and Oliver, A. (2020), “Predicting well-being among the elderly: the role of coping strategies”, *Frontiers in Psychology*, Vol. 11, p. 616, doi: 10.3389/fpsyg.2020.00616.

Goertzel, B. and Wang, P. (2007), "A foundational architecture for artificial general intelligence", *Advances in Artificial General Intelligence: Concepts, Architectures, and Algorithms*, Vol. 6, p. 36.

Janssen, O. (2000), "Job demands, perceptions of effort-reward fairness and innovative work behavior", *Journal of Occupational and Organizational Psychology*, Vol. 73 No. 3, pp. 287-302.

Knight, A.P. and Eisenkraft, N. (2015), "Positive is usually good, negative is not always bad: the effects of group affect on social integration and task performance", *Journal of Applied Psychology*, Vol. 100 No. 4, p. 1214.

Kubicek, B., Uhlig, L., Hülsheger, U.R., Korunka, C. and Prem, R. (2023), "Are all challenge stressors beneficial for learning? A meta-analytical assessment of differential effects of workload and cognitive demands", *Work and Stress*, Vol. 37 No. 3, pp. 269-298.

Messmann, G. and Mulder, R.H. (2012), "Development of a measurement instrument for innovative work behaviour as a dynamic and context-bound construct", *Human Resource Development International*, Vol. 15 No. 1, pp. 43-59, doi: 10.1080/13678868.2011.646894.

Mulaik, S.A., James, L.R., Van Alstine, J., Bennett, N., Lind, S. and Stilwell, C.D. (1989), "Evaluation of goodness-of-fit indices for structural equation models", *Psychological Bulletin*, Vol. 105 No. 3, p. 430.

Neelamkavil, J. (2009), "Automation in the prefab and modular construction industry", *26th Symposium on Construction Robotics ISARC*, available at: www.researchgate.net/profile/Mohamed-Mourad-Lafifi/post/Steel-frame-prefabricatedhousinginjapan/attachment/59d64ef079197b80779a82f3/AS%3A495221688942592%401495081459332/download/Automation+in+the+Prefab+and+Modular+Construction+Industry.pdf (accessed 30 April 2024).

Rachman, S. (1977), "The conditioning theory of fear acquisition: a critical examination", *Behaviour Research and Therapy*, Vol. 15 No. 5, pp. 375-387.

Regona, M., Yigitcanlar, T., Hon, C. and Teo, M. (2024), "Artificial intelligence and sustainable development goals: systematic literature review of the construction industry", *Sustainable Cities and Society*, Vol. 108, p. 105499.

Rich, E. and Knight, K. (1990), *Artificial Intelligence*, McGraw-Hill Higher Education, New York.

Searle, B.J. and Auton, J.C. (2015), "The merits of measuring challenge-hindrance appraisals", *Anxiety, Stress, and Coping*, Vol. 28 No. 2, pp. 121-143.

Turner, J. (1985), "Defence of positivism", *Sociological Theory*, Vol. 3 No. 2, pp. 24-30.

West, M.A. (2002), "Sparkling fountains or stagnant ponds: an integrative model of creativity and innovation implementation in work groups", *Applied Psychology*, Vol. 51 No. 3, pp. 355-387, doi: 10.1111/1464-0597.00951.

Corresponding author
Mohamed Nasaj can be contacted at: mohamed.nasaj@adu.ac.ae

Appendix 1

Table A1. Measurement items

Constructs	Items	Source
Collective AI anxiety	*Learning* AIA1: Learning to understand all of the special functions associated with an AI technique/product makes us anxious AIA2: Learning to use AI techniques/products makes us anxious AIA3: Learning to use specific functions of an AI technique/product makes us anxious AIA4: Learning how an AI technique/product works makes us anxious AIA5: Learning to interact with an AI technique/ product makes us anxious AIA6: Taking a class about the development of AI techniques/products makes us anxious AIA7: Reading an AI technique/product manual makes us anxious AIA8: Being unable to keep up with the advances associated with AI techniques/ products makes us anxious *Job replacement* AIA9: We are afraid that an AI technique/product may make us dependent on AI applications AIA10: We are afraid that an AI technique/product may make us lazier AIA11: We are afraid that an AI technique/product may replace humans AIA12: We are afraid that widespread use of humanoid robots will take jobs away from people AIA13: We are afraid that if I begin to use AI techniques/products we will become dependent upon them and lose some of our reasoning skills AIA14: We are afraid that AI techniques/products will replace someone's job *Sociotechnical blindness* AIA15: We are afraid that an AI technique/product may be misused AIA16: We are afraid of various problems potentially associated with an AI technique/ product AIA17: We are afraid that an AI technique/product may get out of control and malfunction AIA18: We are afraid that an AI technique/product may lead to robot autonomy *AI configuration* AIA19: We find humanoid AI techniques/products (e.g. humanoid robots) scary AIA20: We find humanoid AI techniques/products (e.g. humanoid robots) intimidating AIA21: We don't know why, but humanoid AI techniques/products (e.g. humanoid robots) scare us	Wang and Wang (2022)

(*continued*)

Table A1. Continued

Constructs	Items	Source
Problem-focused coping	*Analysis and information sharing* PRO1: We think of solutions to solve the problems generated by AI Anxiety. PRO2: We think of possible solutions to manage the AI Anxiety situation PRO3: We try to find possible ways of dealing with the AI Anxiety situation *Problem-solving* PRO4: We deal with the AI Anxiety situation by adopting a work plan that we have discussed together PRO5: We put simple and effective work strategies in place PRO6: We implement the work plan we have collectively decided on to get out of the AI Anxiety situation	Leprince *et al.* (2019)
Emotion-focused coping	*Emotional openness* EMO1: We express our feelings and are truthful with each other EMO2: We can share negative feelings such as sadness, anger, and fear EMO3: We show each other understanding and avoid blame EMO4: We can share positive feelings such as gratitude, appreciation, humor, and fun *Positive outlook* EMO5: We keep hopeful and confident that we will overcome difficulties caused by AI Anxiety EMO6: We encourage each other and build on our strengths EMO7: We seize opportunities, take-action, and persist in our efforts EMO8: We focus on possibilities and try to accept what we cannot change	Ramadhana (2020)
Relation-focused coping	*Social support* RFC1: We can rely on strong leadership by the team leader to provide support and guidance RFC2: We can rely on the support of colleagues and other organisational members RFC3: We can access organisational resources to help our team through difficult times *Compensation* RFC4: We try to help a team member facing difficulty with AI Anxiety by compensating for some of his/ her actions RFC5: We re-adjust our work plan by taking on the tasks of a team member facing difficulty with AI Anxiety RFC6: We adapt our work plan to deal with a team member's weaknesses with AI Anxiety	Badi (2024)
Team innovative behaviour	TIB1: My team members often implement new ideas to improve the quality of our products and services TIB2: My team members give a lot of consideration to new and alternative methods and procedures for doing their work	

(*continued*)

Table A1. Continued

Constructs	Items	Source
	TIB3: My team members often produce new services, methods, or procedures TIB4: This is an innovative team TIB5: My team creates new ideas for difficult issues	

Note(s): Items were measured on a five-point Likert scale
Source(s): Authors' own creation

Appendix 2

Table A2. Exploratory factor analysis

	Rotated component matrix[a] Component				
	1	2	3	4	5
CHA1	0.635				
CHA2	0.691				
CHA3	0.651				
CHA4	0.718				
HIA1		0.787			
HIA2		0.844			
HIA3		0.838			
HIA4		0.751			
PFCS1			0.761		
PFCS2			0.701		
PFCS3			0.645		
PFCS4			0.697		
PFCS5			0.525		
PFCS6			0.517		
EFCS1				0.759	
EFCS2				0.689	
EFCS3				0.737	
EFCS4				0.793	
EFCS5				0.731	
EFCS6				0.781	
EFCS7				0.730	
EFCS8				0.691	
TIB1					0.789
TIB2					0.780
TIB3					0.797
TIB4					0.803
TIB5					0.819

Note(s): Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization; [a]Rotation converged in 6 iterations
Source(s): Authors' own creation