Investigating AI-induced Technostress and Coping Strategies of Professionals

Heesung Kwon
Industrial Design
KAIST
Daejeon, Republic of Korea
huisungk@kaist.ac.kr

Jeesun Oh
Industrial Design
KAIST
Daejeon, Republic of Korea
sun.oh@kaist.ac.kr

Suyoun Lee
Industrial Design
KAIST
Daejeon, Republic of Korea
jenslee705@kaist.ac.kr

Sunok Lee
Department of Art & Technology
Sogang University
Seoul, Republic of Korea
sunoklee@sogang.ac.kr

Sangsu Lee
Industrial Design
KAIST
Daejeon, Republic of Korea
sangsu.lee@kaist.ac.kr

Abstract

While the rise of AI has benefited professionals, it also induces technostress that threatens their expertise and jobs. To ensure the human-centered advancement of technology, a deep understanding of users technostress and how to cope with it is essential. Despite technostress having long been discussed, the growing integration of AI tools into professionals' everyday work amplifies these challenges and calls for further exploration. Accordingly, this is a timely moment to examine their real-world experiences and voices. Thus, our study aims to investigate AI-induced technostress experienced by professionals, and the coping strategies they employ. Through focus group interviews with 19 professionals from diverse fields, we identified seven AI-induced technostressors and examined their coping strategies along two dimensions: stress *Coping Style* (problem-focused and emotion-focused) and *Value Orientation* (AI-oriented and humanness-oriented). Drawing on professionals' coping strategies, we suggest practical implications to support users in coping with AI-induced technostress.

CCS Concepts

• **Human-centered computing → Empirical studies in HCI**; *User studies.*

Keywords

AI-Induced Technostress, Coping Strategies, Human-AI Interaction, Focus Group Interview

ACM Reference Format:
Heesung Kwon, Jeesun Oh, Suyoun Lee, Sunok Lee, and Sangsu Lee. 2026. Investigating AI-induced Technostress and Coping Strategies of Professionals. In *Proceedings of the 2026 CHI Conference on Human Factors in Computing Systems (CHI '26), April 13–17, 2026, Barcelona, Spain.* ACM, New York, NY, USA, 16 pages. https://doi.org/10.1145/3772318.3791671

ACM ISBN 979-8-4007-2278-3/26/04
https://doi.org/10.1145/3772318.3791671

1 Introduction

Technostress refers to the psychological strain an individual experiences as new technologies are introduced and become a part of their work [5, 64]. Recent advances in Artificial Intelligence (AI) have led to the rapid emergence of diverse AI-based technologies and tools that professionals can integrate into their workflows, including knowledge-work assistants (e.g., ChatGPT, NotebookLM), decision-support systems (e.g., Lunit, Stockfish), and content creation tools (e.g., Midjourney, Figma AI) [1, 7, 35, 53]. While these AI tools have increasingly been incorporated into professional practices and have brought significant convenience, they also induce a new form of technostress, which we term '**AI-induced technostress**'. This shift particularly poses profound challenges to professionals in knowledge-intensive fields, as AI capabilities threaten their expertise and jobs in a manner similar to how the Industrial Revolution made manual labor obsolete through machinery [2, 27, 29]. Moreover, during the ongoing use and experience with AI, professionals encounter several concerns and pressures, such as constantly validating its outputs, managing unfamiliar and rapidly evolving systems, and coping with a loss of control [24, 74]. Nonetheless, a large number of professionals are also making respective efforts to navigate these challenges by developing their own strategies that leverage AI tools and actively integrate them into their work [68].

Within this background, previous studies have examined professionals' attitudes toward AI, as well as their cognitive and emotional reactions to its implementation [2, 29, 71]. These studies have found that professionals look forward to improvements in efficiency and productivity, but at the same time, experience anxiety and fear about the transformation toward an AI-driven future [58]. While a few studies have explored the effect of technostress on productivity and quality of life in the context of AI usage [4, 38, 75], empirical research on AI-induced technostress experienced by professionals and how it differs from traditional manifestations is still in its early stages. In addition, regarding Information and Communications Technology (ICT)-related technostress, prior studies have examined how users cope with such stressors, as individuals employ their own coping strategies to mitigate technostress [33, 76]. However, when it comes to AI, an in-depth investigation into how professionals cope with AI-induced technostress is still underexplored.

As AI tools become increasingly integrated in professional workflows at an unprecedented pace and fundamentally reshape the industrial landscape, this is a timely and critical juncture to investigate real-world experiences with AI-induced technostress and the strategies they employ to cope with it. Therefore, this study aims to understand how professionals experience AI-induced technostress and cope with it while integrating AI into their work. We pose the following research questions: 1) What kinds of AI-induced technostressors do professionals encounter when integrating AI into their work? 2) How do professionals cope with AI-induced technostress?

To answer our research questions, we conducted Focus Group Interviews (FGIs) with 19 professionals who utilize AI tools in their daily work and have encountered associated technostress. Based on the collected data, we examined the seven AI-induced technostressors and classified the coping strategies they adopted, using the theoretical framework of stress and coping theory based on two dimensions: (1) *Coping Style*, which refers to whether individuals address stress through problem-focused or emotion-focused responses, and (2) *Value Orientation*, which refers to whether their responses are AI-oriented (valuing adaptation to AI) or humanness-oriented (valuing the strengthening of human distinctiveness). Drawing on our findings, we discuss the advent and expansion of technostress in the age of AI and underscore the importance of supporting both problem-focused and emotion-focused coping, along with specific design implications for AI tools used in professional work. Our research contributes to theoretical and practical domains by identifying newly emerged AI-induced technostressors and professionals' coping mechanisms, and by proposing design implications that support the development of human-centered AI.

2 Related Works

2.1 Technostress

2.1.1 Traditional Technostress. Technostress is the stress experienced when new technology is introduced and integrated into daily life, encompassing negative emotions such as anxiety, depression, confusion, and burnout [5, 64]. Modern work environments are highly dependent on computers and digital tools, which has led to technology-related stress becoming a significant issue. Prior research by Tarafdar et al. identified five key factors that cause technostress, which are now widely accepted in the field [5, 64]. First, techno-overload is the situation in which technology forces individuals to work more and faster. Second, techno-invasion refers to the phenomenon where the boundary between work and personal life becomes blurred due to constant connectivity. Third, techno-complexity describes the situation where the complexity of technology makes it difficult to use and demands continuous learning. Fourth, techno-insecurity is the fear that one's job could be replaced by new technologies or by a person more proficient with them. Lastly, techno-uncertainty is the stress that arises from the need to constantly adapt to frequent technological updates and changes. Such technostress is generally known to negatively impact employees' psychological well-being and work behavior [36, 52, 64]. For example, workers who experience technostress are known to exhibit increased negative emotions such as anxiety, depression, burnout, and exhaustion, which can in turn lead to reduced collaboration with colleagues, social isolation, and emotional fatigue [57, 63, 66].

On the other hand, some studies have highlighted the positive aspects of technostress through the concept of techno-eustress [61]. This concept suggests that stress can lead to positive results when technology is perceived as a motivating challenge that promotes personal growth and achievement. In light of this, recent perspectives emphasize the importance of moving beyond a negative view of technostress. Instead, it is crucial to recognize the duality of its impact and adopt strategies at both organizational and individual levels to minimize its harms while maximizing its benefits [66].

2.1.2 AI-Induced Technostress. The rapid advancement of AI has spurred significant academic interest in exploring the causes of negative psychological effects in users, such as anxiety and fear [2, 29, 30]. Existing studies identify key drivers of AI anxiety, including the fear of job displacement, concerns over losing human control to autonomous systems, and ethical issues like algorithmic bias and data privacy [2, 27, 29]. Following these discussions about the negative psychological impacts of AI, research on technostress induced by AI is gaining momentum. Grounded in the traditional five factors of technostress, recent works are exploring how the unique characteristics of AI shape its impact on users' technostress, and consequently, affect their productivity, behavioral responses, and quality of life [17, 28, 38, 67, 72]. These studies provide valuable insights into the psychological impacts experienced by users during AI integration and suggest roles for organizations in successfully managing this technological transition [13, 17, 28, 38, 67, 72]. Even so, the analytical focus of this research remains largely confined to the traditional five technostressors originally defined in the ICT context.

A growing body of literature suggests, however, that AI may introduce forms of stress that differ from those in traditional ICT systems. First, AI systems increasingly perform cognitive functions such as reasoning, decision-making, and content generation that were previously reserved for humans, which may heighten concerns related to expertise, autonomy, and professional identity [49, 53, 60]. Second, many AI models operate in probabilistic and opaque ways, making their outputs less predictable and more difficult for users to interpret, thereby amplifying uncertainty and loss of control [9, 49, 60]. Moreover, the emergence of large language models (LLMs) and multimodal generative systems has introduced human-like conversational and creative capabilities, blurring boundaries between humans and machines in ways not seen in earlier ICT systems [42, 49].

Despite these shifts, empirical research that investigates the technostress experienced by users in the context of AI, and how it differs from traditional manifestations, is still in its early stages. In order to clearly distinguish between ICT-related and AI-related contexts, we refer to technostress previously examined in the ICT context as *traditional technostress*, and to the stress induced by AI, which is the focus of our study, as *AI-induced technostress*.

2.2 Technostress and Coping Strategies

2.2.1 Stress and Coping Strategies: A Theoretical Framework. The Transactional Theory of Stress and Coping (TTSC), proposed by

Lazarus and Folkman, provides a theoretical framework for explaining individual differences in response to stressful situations [33, 34]. According to this theory, individuals undergo a two-stage cognitive appraisal process when faced with a stressful situation [33, 34]. In primary appraisal, one determines whether the situation is threatening or challenging. Then, in secondary appraisal, one assesses the internal and external resources and abilities that can be mobilized to cope with the situation [34]. Based on these appraisals, an individual makes coping efforts, which are categorized into problem-focused coping and emotion-focused coping.

Problem-focused coping refers to active efforts to resolve the source of the stress or change the situation. For example, when faced with an urgent, last-minute report from a supervisor, problem-focused coping involves direct attempts to solve the problem itself, such as creating an immediate action plan, searching for templates, or negotiating the deadline and scope of the work [20, 33]. In contrast, emotion-focused coping focuses on regulating and alleviating the negative emotions arising from the stressor, particularly when it is deemed difficult to resolve the source directly. In the same situation, for instance, emotion-focused coping might include seeking emotional support from a colleague or attempting to reframe the situation in a more positive way. While these actions do not alter the task itself, they help to alleviate the emotional distress associated with it [20, 33].

Building on the transactional model, later research introduced a third category, meaning-focused coping, which involves finding positive significance even within difficult circumstances and taking a long-term perspective on the situation [50]. Subsequent work further refined coping types into two main categories: active coping approaches (such as problem-focused coping and reappraisal) and passive coping methods (such as avoidance and escapist coping) [45, 59]. While passive coping may provide short-term relief, it tends to increase stress over time [45]. Theoretical expansion continues today with the recent proposal of an integrated coping model that encompasses not only responses to negative stress but also positive responses to technological change [59].

In our study, we employed Lazarus and Folkman's initial TTSC [20, 33]—which categorizes coping into problem-focused and emotion-focused strategies—as the theoretical framework to analyze users' coping strategies toward AI-induced technostress. This framework was adopted because it represents a widely established and foundational model of coping theory, providing a theoretical starting point for systematically analyzing users' coping responses to complex technostress.

2.2.2 Technostress and Coping Strategies. TTSC has been widely applied in technostress research, where it is recognized as a useful framework for explaining the impact of technology-related stressors [54, 76]. Prior studies exploring the relationship between technostress and coping strategies in the ICT context show that the effect of technostress varies depending on an individual's appraisal and coping mechanisms [76]. Research indicates that even when facing the same technostress factor, those who appraise it as a challenge and adopt problem-focused coping demonstrate higher productivity than those who respond emotionally [21, 62, 76]. This difference in coping effectiveness also extends to the organizational level, where support proves more or less effective depending on whether it aligns with problem-focused or emotion-focused coping [70]. For instance, an experimental study examining stress arising from technology-related issues within an organizational setting found that participants who received instrumental support, defined as practical help aimed at solving the problem, showed improved job performance and reduced fatigue. In contrast, those who received emotional support, such as comfort and empathy, experienced reduced fatigue but did not show a corresponding improvement in performance [70].

Collectively, this line of research points to the value of a dual approach to mitigating the negative impacts of technostress [62, 70]. Providing resources and empowerment that enable employees to focus on problem-solving, such as additional learning opportunities or dedicated technical support staff, should be prioritized [21, 62, 70]. At the same time, emotional support systems, like encouraging breaks and fostering an empathetic culture, can be beneficial in preventing emotional exhaustion from unavoidable stress [62, 70].

While considerable research has examined how individuals cope with technostress and how organizational support can alleviate it, much less is known about professionals' coping with technostress that arises when AI tools are integrated into their work. Given that understanding how users cope with stress in the new technological context is a critical step for designing interventions to mitigate their distress, an in-depth investigation into the strategies professionals employ to manage AI-induced technostress is needed.

2.3 AI Tools in Professional Work

Professionals across various fields are integrating AI tools into their knowledge work, decision-making, and content creation, leading to structural changes in how they perform their tasks. Specifically, knowledge workers, such as researchers and consultants, are fundamentally transforming their workflows by utilizing LLM-based tools (e.g., ChatGPT[1] and NotebookLM[2]) to accelerate and automate repetitive or high-effort tasks that were traditionally performed manually and were costly [7]. Even in domains where expert judgment is core to the work, AI tools play an increasingly prominent role. For instance, in clinical diagnosis, what was once dependent on the tacit knowledge of experienced physicians is now supported by specialized AI models that approach expert-level performance [53]. Creative domains are no exception; visual ideation and prototyping have undergone rapid transformation with the rise of text-to-image generative tools (e.g., Midjourney[3], Adobe Firefly[4], and Figma AI[5]). While some professionals express concern, they also adopt these technologies as strategic tools to broaden their expressive range and expedite early-stage creation [48]. Notably, professionals often employ multiple AI tools in combination rather than relying on a single solution [12].

As AI tools increasingly replace or supplement core professional competencies (e.g., analysis, judgment, creativity), it becomes critical to understand how professionals utilize, accept, and experience these tools in practice. Building on this context, academic research has increasingly shed light on how professionals are integrating AI

[1] https://chatgpt.com/
[2] https://notebooklm.google.com/
[3] https://www.midjourney.com/
[4] https://www.adobe.com/products/firefly.html
[5] https://www.figma.com/ai/

into their work and reshaping their practices in response, as well as the positive and negative impacts they experience as a result [19, 35, 58, 68, 69, 71, 73]. Specifically, numerous studies highlight that AI offers substantial gains in productivity and efficiency, opening pathways for tasks previously considered difficult or impossible [7]. At the same time, however, as these tools increasingly replace core tasks traditionally performed by experts, they intensify psychological burdens, including concerns about eroding expertise, threats to professional roles, and a diminished sense of competence [2, 27, 29]. For instance, Woodruff et al. found that professionals were generally positive about productivity gains and the automation of repetitive tasks, but they did not expect the kind of dramatic industrial transformation often predicted in the media or academia [71]. Instead, they expressed concern that it would reinforce existing social pressures—such as deskilling, dehumanization, social disconnection, and the spread of disinformation [71].

Despite the increasing attention to AI's impact on professional work, research on the psychological strains and stress reactions associated with these tools remains at an early stage. In particular, little is known about the specific stressors that arise when professionals integrate AI into their workflows or how they cope with these challenges. Therefore, at this pivotal moment when AI is becoming deeply integrated into professional domains, an in-depth investigation into professionals' experiences of technostress and their coping strategies is both timely and valuable.

3 Methodology

3.1 Participants

Focus group interviews (FGIs) were conducted to gain a deep understanding of the AI-induced technostress that professionals experience and the strategies they use to cope with it. Since articulating stressful moments can be complex or even unconscious, the FGI method was selected, allowing participants to recall their own experiences while listening to others and to reflect on comparable situations through group discussions [31].

To recruit participants who had directly experienced technostress related to AI, we used an online screening survey. This survey included the questionnaire items adapted from the Technostress Scale [44] and the Digitalisation Anxiety Scale [51], all modified to fit the context of AI usage. Additionally, the survey included an open-ended question, "Have you ever experienced stress due to AI, such as feelings of anxiety, helplessness, or discomfort?" along with questions regarding demographic information (age, gender, occupation, field of work) and interest in AI. The survey was distributed across several online communities to reach a broad population. Key recruitment channels included large professional communities in South Korea (e.g., Blind[6]), online platforms with wide general user bases (e.g., Karrot[7], and Naver Cafes[8]), and bulletin boards associated with universities and research institutions.

A total of 153 individuals applied to participate in the study. As our research aims to understand AI-induced technostress experienced by professionals, our first criterion was to recruit participants who had experienced stress from using AI in their professional environments. To this end, we first reviewed their screening questionnaire scores and excluded applicants who scored three or below on a one-to-six scale (M=4.10, SD=0.92). As a result, 28 applicants were excluded from the study. Then, three researchers independently reviewed the open-ended responses of selected participants based on two inclusion markers: 1) explicit accounts of a concrete situation or episode involving AI-related stress at work, or 2) detailed descriptions of the stress they felt in reaction to that situation. Given that coping responses often manifest unconsciously after a stressful experience [20, 33], participants' awareness of, or development of, coping strategies was not considered in this screening process. A total of 41 participants who met at least one of the inclusion markers were selected for the next stage. Our second criterion was to capture diverse occupational backgrounds, as AI applications are integrated differently across various professions. Accordingly, we recruited participants from diverse domains, including creative fields (e.g., video design), technical and engineering fields (e.g., data engineering), educational and knowledge fields (e.g., research), interpersonal and counseling fields (e.g., psychological counseling), and specialized fields (e.g., medicine).

The FGIs were conducted in multiple subgroups, each intentionally composed to include participants from diverse occupational backgrounds. Participants from the same or similar fields were deliberately placed in separate groups in order to stimulate a wide range of perspectives during the discussions. The participants' age and gender were distributed as evenly as possible within the constraints of their scheduling availability. Based on Krueger and Casey's research [31], we limited each group to three to four members, a size suitable for encouraging in-depth discussions and creating a comfortable environment for sharing personal experiences. Through this process, five groups of four participants were formed, making a total of 20 participants, which was considered sufficient for capturing diverse perspectives in FGIs [31]. One participant dropped out during the scheduling phase, resulting in a final sample of 19 participants (age range: 22–59 years, M = 30.79, SD = 8.76; 8 males, 11 females). Table 1 summarizes participant information along with details on how participants use AI tools. Since professionals draw on a diverse set of AI tools in real workplace settings, multiple tools were referenced in our study. Notably, while many of these tools, such as ChatGPT, can also be used for general-purpose activities, we specify their usage by focusing exclusively on instances in which they were employed for explicit professional purposes. Participants were compensated 120,000 KRW (approximately 92 USD).

3.2 Study Procedure

One researcher moderated the interview while another assisted with recording for data collection. The FGIs were conducted in an online video conferencing environment, with semi-structured materials prepared. Throughout the interviews, open discussion was encouraged, with participants actively engaging by listening to others' experiences and sharing additional thoughts that emerged during the conversation.

At the beginning of each FGI, the research objectives and key areas of observation were explained to participants. This study was approved by the university's Institutional Review Board in

[6]https://www.teamblind.com/kr/
[7]https://www.daangn.com/kr/
[8]https://section.cafe.naver.com/ca-fe/home

Table 1: Participant demographics. This study, conducted in 2024, reflects the versions of AI services available at that time.

Group	ID	Age	Occupation	How AI-based tools are used in work contexts
1	P1	28	Undergraduate Student (major in pharmacy*)	- *ChatGPT*: to learn chemical formulas; to summarize large study materials - *In Silico*: to predict biological responses to drug administration - *Bing Image Creator, DALL·E*: to generate customized images
	P2	32	Postdoctoral Researcher	- *ChatGPT*: to refine sentences while writing research manuscripts - *Naver Clova (STT)*: to transcribe participants' spoken responses
	P3	23	Video Designer	- *Midjourney*: to generate storyboard scenes - *ChatGPT*: to support coding and rendering tasks; to develop narrative elements for characters
2	P4	22	Illustrator	- *Midjourney*: to generate images including character designs - *NovelAI*: to develop narrative elements or character backstories
	P5	29	Data Engineer	- *ChatGPT, Perplexity, Wrtn*: to search for information (often using multiple tools for the same query) - *GitHub Copilot*: to receive coding assistance - *DeepL*: to translate between Korean and English
	P6	26	Researcher (Major in HCI)	- *ChatGPT*: to conduct research ideation and translation - *DeepL*: to translate English papers for reading; to translate Korean-written manuscripts into English
	P7	25	Doctor	- *LCS*: to interpret chest X-ray images - *ChatGPT*: to read and study academic papers
3	P8	35	Novelist	- *ChatGPT*: to support managerial tasks (e.g., organizing schedules); to conduct pre-writing research for novels; to generate related images - *Claude*: to conduct pre-writing research for novels
	P9	27	QA Engineer	- *ChatGPT*: to receive coding assistance - *In-house AI automation program*: to support internal workflow automation (actively involved in its development)
	P10	38	Psychological Counselor	- *ChatGPT*: to prepare social-welfare documents
	P11	39	High School Teacher	- *ChatGPT*: to draft Student Life Records
4	P12	32	Lyricist	- *Soundful*: to support songwriting and composition - *AI vocal*: to produce guide demos for music - *ChatGPT*: to assist with songwriting; to conduct casual conversations
	P13	25	Professional Go Player	- *Stockfish, KataGo*: to study and analyze Go and chess - *ChatGPT*: to handle general office tasks (e.g., emails)
	P14	37	Lawyer	- *ChatGPT, Wrtn*: to quickly search for legal precedents or related laws - *Superlawyer*: to search for legal precedents
	P15	28	Doctor	- *LCS*: to interpret chest X-ray images - *CellaVision*: to analyze blood-cell morphology - *ChatGPT*: to read and study academic papers
5	P16	25	Facility Manager	- *ChatGPT*: to search for unfamiliar knowledge in manufacturing processes
	P17	59	Leadership Coach	- *ChatGPT*: to practice coaching skills by oneself - *Bing Image Creator*: to create illustrations for materials - *Naver Clova (STT)*: to study for coaching certification lectures
	P18	27	Actor	- *ChatGPT*: to get background knowledge of the character - *Naver Clova (STT)*: to record and review conversations during creative work
	P19	30	Interpreter	- *ChatGPT*: to understand background knowledge for translation tasks - *OPIc AI generator*: to support English teaching

* P1 was enrolled in a pharmacy program but had prior experience in the pharmaceutical industry.

South Korea, and written informed consent was obtained from all participants. To break the ice and facilitate participants engaging deeply in the discussion, the moderator guided the participants to introduce themselves and share their professional roles.

The main part of the FGI consisted of four sessions. First, participants reflected on the extent to which AI has been adopted in their respective fields, shared the AI services they regularly used, and discussed how their perception of AI has changed over time. Second, participants recounted moments when they had experienced stress while using AI services. Anticipating that participants might find it difficult to pinpoint a specific 'stressful moment,' we guided them to instead describe an instance of experiencing a negative emotion and elaborate on the context surrounding it. Third, participants described how they cope with stressful moments. Participants revisited the instances shared in the previous session and then described the actions and thoughts that helped them cope with the stress. Lastly, participants were asked to share ideas on how interaction with AI services could be enhanced, specifically to mitigate the stress they had described. The goal of this process was not to derive specific design solutions but to identify detailed and implicit user needs regarding AI tools they generally use that cause stress and what aspects they wish to improve. The entire study lasted approximately two hours.

3.3 Data Collection and Analysis

All focus groups were recorded in both audio and video formats, totaling eight hours and three minutes. The first author transcribed the audio, and the other authors reviewed and cross-checked the transcription. The overall analysis process followed the six phases of thematic analysis suggested by Braun and Clarke [10, 11]. The first author thoroughly reviewed the transcripts of the FGIs and memoized key insights that emerged during this process. The analysis focused on two research questions: (1) the AI-induced technostress experienced by professionals, and (2) the coping strategies they employed.

As a first step, the first author began by generating initial codes related to participants' emotions, behaviors, thoughts, beliefs, and expectations. These codes were iteratively reviewed by three researchers to ensure accuracy in capturing the meaning of the data and to prevent misunderstandings. Because participants often described their stressful episodes in relation to their emotions, we examined these emotion-related quotations closely. A total of 105 emotion-related codes—identified based on the emotion units proposed in Beaudry and Pinsonneault's Framework for Classifying Emotions [6]—were gathered. Next, by combining and organizing codes, the researchers generated expanded codes related to stress experienced in the context of AI use. We revisited the contextual meanings of each emotion-related quotation and identified specific stress triggers aligned with our research question, developing these into expanded codes. Multiple rounds of iterative review were conducted to ensure that the interpretations stayed centered on the stressors rather than the emotion labels, consistent with our goal of identifying AI-induced technostressors. Codes related to thoughts and expectations were incorporated to examine how professionals experience AI-induced technostress. Simultaneously, we also drew upon the initial codes from the first stage—those related to behavior, thoughts, and beliefs—to explore how professionals respond to and cope with technostress. Reflecting the elements of Lazarus's TTSC [20, 33], we structured *Coping Style* into two types: problem-focused and emotion-focused. We empirically observed that even within the same category, coping strategies varied depending on the *Value Orientation*, whether the strategic focus was placed on AI or on humanness. Since existing literature did not adequately capture this distinction, we coined two new labels, 'AI-oriented' and 'humanness-oriented.' This approach enabled us to categorize each coping strategy into a 2×2 matrix, as either (1) AI-oriented and problem-focused, (2) AI-oriented and emotion-focused, (3) humanness-oriented and problem-focused, or (4) humanness-oriented and emotion-focused coping strategies. The final themes represented AI-induced technostressors and the coping strategies employed by professionals.

3.4 Positionality

This study was conducted by researchers with interdisciplinary expertise in Human–Computer Interaction (HCI), design, psychology, and business. Recognizing that our prior knowledge and professional experiences could influence how we framed the study and interpreted user responses, we adopted a reflexive approach. This included iterative peer debriefings and critical discussions to validate our interpretations and minimize bias. Throughout the research process, we made deliberate efforts to ensure that our communication and analysis remained neutral, independent of each researcher's personal attitudes toward AI.

4 Findings

This section presents our findings in two parts. First, we outline seven AI-induced technostressors. Following this, we present the coping strategies that professionals employ to manage these stressors. As background to our findings, participants in our study actively leveraged a wide range of AI systems tailored to their professional needs, echoing prior research indicating that users employ multiple, purpose-specific AI tools rather than relying on a single solution [12, 53]. Participants used AI tools for three primary purposes: (1) *knowledge work*, to access information or interpret complex materials using tools like ChatGPT, Perplexity, and Wrtn; (2) *creative work and content generation*, to produce images, narratives, or audio via tools like Midjourney, NovelAI, and Soundful; and (3) *expert judgment and decision-making support*, where specialized systems such as CellaVision or KataGo supported advanced analyses and reasoning, including medical diagnostics or strategic gameplay review (refer to Table 1). Understanding these purposes provides a contextual basis for interpreting participants' experiences, because technostress and coping strategies introduced in this section arose from integrating AI tools into their professional workflows for these purposes.

4.1 AI-Induced Technostressors

The seven AI-induced technostressors identified in our study are presented in descending order by the number of participants who mentioned them. An overview of identified AI-induced technostressors is summarized in Table 2. We indicate the specific AI tools each participant mentioned alongside their quotations. By doing so, we clarify how technical characteristics of these tools relate to the forms of technostress, making these connections more transparent.

4.1.1 Job Displacement Anxiety. In line with previous research referring to techno-insecurity as a threat of job loss due to technology [5, 64], participants in our study also experienced significant stress from AI-driven job displacement. This stressor often underpins or drives other forms of AI-induced technostress.

Participants in our study acknowledged that integrating AI tools improved certain aspects of their workflow and provided substantial support. At the same time, the fact that AI is displacing not only general office work but also creative and artistic fields—once

Table 2: Overview of AI-induced Technostressors.

	AI-Induced Technostressors	Description	Participants Who Mentioned
1	Job Displacement Anxiety	The fear that AI may replace individual jobs or even destabilize the labor market	P1, P5, P6, P7, P8, P9, P12, P14, P16, P17, P18, P19
2	Perpetual Learning Burden	The relentless pressure to continuously learn and master new AI technologies to avoid falling behind	P1, P2, P6, P8, P11, P14, P15, P16
3	Loss of Value of Process and Efforts	The sense that the value of process and effort is diminished by AI's ability to instantly generate comparable outcomes	P1, P2, P4, P14, P15, P17
4	Cognitive Deskilling	The concern that one's cognitive skills may erode as a result of reliance on AI	P3, P5, P6, P8, P11
5	Substitution of Human Connections	The concern that AI will replace or devalue genuine human connection, empathy, and social bonds	P3, P8, P10, P12, P17
6	Black-box Nature of AI	The difficulty of understanding or diagnosing AI errors due to its opaque, black-box nature	P5, P6, P7, P19
7	Sense of Defeat	The feeling of helplessness stemming from the realization that human skills can no longer match or surpass AI's capabilities	P6, P13, P17

thought to be less vulnerable—has induced a sense of stress for professionals. This stress became more acute when participants saw their own colleagues lose their jobs, as the threat felt immediate and real (P1, P6-9, P12, P14, P16-19). For example, P9, a QA engineer developing AI automation systems, described their stress escalating after witnessing colleagues being laid off, driven by the fear that the automation program they were developing might eventually replace them. Furthermore, the threat that the continued integration of AI tools into work practices could potentially destabilize social systems by reducing jobs and creating a surplus of labor on the market, coupled with the personal fear of becoming part of that surplus labor, heightened their stress (P5, P19).

> *"After three colleagues were laid off (because automation made their roles unnecessary), I felt anxious that the program I am developing might eventually replace me, and I started to wonder whether what I am doing is truly the right thing."* (P9, QA Engineer, In-house AI automation program)

> *"If people who lose their jobs have nowhere to go, it will lead to massive social instability. The thought that I could become one of them is terrifying."* (P19, Interpreter, ChatGPT)

4.1.2 Perpetual Learning Burden. Consistent with the notion of techno-uncertainty [5, 64], which refers to stress arising from frequent technological updates and a constant burden of learning, participants described the need to continuously learn and master rapidly evolving and newly emerging AI tools as a psychological stressor. Specifically, participants reported that this stress was particularly intense when they saw others using AI tools more proficiently, triggering fears that they would fall behind others (P1-2, P6, P8, P11, P14-15).

> *"With so many new AI developments, I often feel a sense of crisis, wondering if I'm falling behind. Since I'm not an AI expert or in programming, I worry about being left behind."* (P15, Doctor, LCS; CellaVision)

Moreover, the broader adoption of AI across professional and societal domains has introduced new areas of work that were previously unaddressed. While participants initially found these domains intriguing, their enthusiasm soon turned into stress due to the relentless need for continuous learning (P11, P14, P16). For instance, P14, a lawyer, believed passing the bar exam marked the end of their studies. However, AI has created new legal challenges in areas such as copyright and data privacy, imposing a continuous burden of keeping up with new developments.

> *"I thought passing the bar was the finish line, but AI constantly creates new legal problems that existing knowledge can't solve, and the pace is overwhelming. It feels like I'm always a student again, and the pressure to keep up is real."* (P14, Lawyer, ChatGPT)

4.1.3 Loss of Value of Process and Efforts. As AI tools can complete tasks at a remarkable speed that traditionally required significant time and effort, such as drawing or analytical work, the years of dedication and skills professionals had cultivated suddenly felt meaningless and served as a source of stress (P1, P2, P4, P15). Participants felt that this unprecedented speed ultimately led to a collapse in the value derived from the process itself. Additionally, participants described a stressful sense of loss and emptiness, feeling as though the decade of effort they invested to become experts had been suddenly devalued by AI (P4, P14, P17).

> *"Drawing is usually a step-by-step process where you gradually improve. But with AI, you just input a few keywords, pick a style, then it generates the artwork. This often leads to a sense of shame, making us question our efforts."* (P4, Illustrator, Midjourney)

> *"I spent more than 10 years preparing to become an expert, and the fact that all of that could become meaningless in an instant, it just left me feeling powerless."* (P14, Lawyer, ChatGPT)

4.1.4 Cognitive Deskilling. The efficiency gained through the integration of AI tools into professional workflows paradoxically becomes a source of stress as reliance on AI deepens. Participants described a stressful sense of "deskilling" [58], feeling that their own ability to perform tasks without AI was eroding and that their original skills were deteriorating (P3, P5, P6). For instance, P3 noted that after consistently using ChatGPT for coding, their own programming abilities had diminished, and they began to make more mistakes. Some participants expressed concern that their heavy reliance on AI tools could diminish critical thinking skills and autonomy in decision-making (P3, P8, P11). P8, a novelist, noted a sense of risk that such dependence could diminish their ability to think deeply and contemplate.

> *"I used ChatGPT a lot for coding because it's just more efficient. But I've become so reliant on it that I'm forgetting the basics. I make more mistakes when I code on my own."* (P3, Video Designer, ChatGPT)

> *"AI is a powerful tool if we act as the 'control tower' and use it wisely. But my worry is that it will just accelerate the existing decline in critical thinking, especially for the younger generation, and strip them of their ability to think for themselves."* (P8, Novelist, ChatGPT)

4.1.5 Substitution of Human Connections. Some participants described stress not directly caused by specific features of AI tools, but arising from concerns about the broader societal changes accompanying their continued adoption. They experienced stress as more work becomes automated and "efficiency" emerged as the dominant priority. They worried that this would lead to human elements, such as personal contributions, being overlooked (P3, P10, P12). Additionally, LLM-based conversational AI services can now carry out human-like conversations and sometimes share emotional exchanges [14, 43]. While participants acknowledged that people sometimes received emotional comfort or support from such AI services, the possibility that these experiences could replace genuine human connection acted as a source of stress. They worried that this could lead to a loss of meaning in relationships and, ultimately, weaken social bonds that form healthy communities (P8, P10, P17).

> *"Using AI as a substitute for human empathy might be fine for an individual, but I feel like we're just drifting towards a more fragmented society."* (P8, Novelist, ChatGPT)

4.1.6 Black-box Nature of AI. Going beyond traditional technocomplexity [5, 64]—the difficulty of using a technology simply because it is complex—the "black-box" nature of the AI model was a new source of stress. This included not only the difficulty of fully trusting AI's outputs but also the near impossibility of diagnosing the cause of errors due to its incomprehensible nature. This stress was particularly intensified when AI-derived outputs were incorrect, because participants were unable to understand why the flawed results occurred (P5-7, P19). For example, P5, a data engineer, experienced stress when they failed to detect an error in AI-generated code, and this feeling was intensified by the thought that the problem would only get worse as AI advances.

> *"We once had a service outage caused by AI-generated code that I used. My whole team missed the error. There was the initial embarrassment of not catching it, but that was followed by a deeper question: How are we supposed to find these mistakes when the AI gets it wrong?"* (P5, Data Engineer, GitHub Copilot)

4.1.7 Sense of Defeat. The realization that AI now surpasses human capabilities in certain domains was a source of profound stress for some professionals (P6, P13, P15). They recognized that their own skills could no longer compete against AI. For instance, although P13, a Go player, used AI tools such as Stockfish and KataGo to study Go and improve their skills, they nevertheless reported that the emergence of AI like AlphaGo brought the stark realization that a human victory over AI was no longer possible.

> *"Around 2011, the next generation of AI for Janggi was released. The realization that I could no longer beat the AI was incredibly stressful and left me feeling helpless."* (P13, Go Player, Stockfish; KataGo)

4.2 Coping Strategies Toward AI-Induced Technostress

We identified 10 detailed coping strategies employed by professionals, classified within a two-dimensional framework (refer to Table 3). The first dimension, *Coping Style*, is based on Lazarus's TTSC model and refers to whether individuals address stress through problem-focused or emotion-focused responses. Problem-focused strategies tend to resolve the stressor directly, whereas emotion-focused strategies tend to alleviate the emotional reactions associated with stress. The second dimension, *Value Orientation*, indicates whether a coping strategy is oriented more toward AI or toward humanness. AI-oriented coping strategies involve understanding, adapting to, and further integrating AI, while humanness-oriented coping strategies aim to preserve or strengthen human distinctiveness.

While this study did not aim to assess the scientific efficacy of these strategies, the strategies introduced here are those that participants subjectively perceive as helpful in reducing their stress. Participants reported an average of 2.37 strategies each, with the number ranging from one to five per individual. Notably, the majority of participants (16 out of 19) did not rely on a single approach but dynamically combined multiple strategies, aligning with Lazarus's view that healthy individuals flexibly deploy various strategies [33].

4.2.1 Active Incorporation: AI-Oriented and Problem-Focused Strategies. Strategies in this category represent an AI-oriented, problem-focused approach, characterized by a willingness to actively incorporate AI tools into workflows to address the source of stress. This category includes the following three strategies. The first strategy is ***Learning and comprehending AI***. Some participants recognized that the starting point for managing AI-induced technostress was to study and understand AI (e.g., the release of new models and the operational logic or capabilities of AI tools), in order to grasp its current capabilities and underlying mechanisms. Specifically, to mitigate the stress stemming from the threat of job replacement, participants actively try out AI tools and stay updated on related news. This allowed them to establish a more objective perspective on the technology, which helped alleviate their stress (P1, P4, P11, P14-15, P18). Similarly, participants who were stressed by AI's incomprehensibility made an effort to comprehend the underlying

Table 3: Coping Framework for AI-Induced Technostress

	Problem-Focused	Emotion-Focused
AI-Oriented	**Active Incorporation** - Learning and comprehending AI (P1, P4, P5, P7, P11, P14, P15, P18) - Integrating AI into work (P1, P2, P3, P13, P14, P15, P17) - Internalizing AI outputs into my skills (P11, P13)	**Cognitive Adaptation** - Accepting inevitability of AI (P2, P5, P6, P10, P11, P12, P13) - Shifting views of AI via social exchange (P6, P14, P18) - Positive reappraisal of AI (P9, P11, P12, P13, P16)
Humanness-Oriented	**Reclaiming Human Distinctiveness** - Strengthening unique human value and expertise (P3, P8, P14, P16, P17, P18, P19) - Targeting areas beyond AI's reach (P3, P19)	**Psychological Self-Safeguarding** - Self-affirmation of human capabilities (P8, P10, P17) - Denial of replacement risk (P1, P9)

mechanisms that explain why AI models produced such outcomes (P5, P7, P18).

> *"I've been trying to learn more by reading news, looking for relevant books, and staying informed."* (P11, High School Teacher)

> *"Now that I've tried using various AI services and have been keeping up with the news, that discomfort has somewhat faded."* (P14, Lawyer)

Second, ***Integrating AI into work***. Interestingly, the experience of technostress often acted as a catalyst for participants to more actively integrate AI tools into their professional lives. Recognizing the adoption of AI as inevitable, participants instead concentrated on mastering and effectively utilizing these tools. This adaptation took two forms: some sought to integrate AI into their current roles (P1-3, P13-15, P17), while others even considered shifting toward positions where AI plays a more central role (P1, P3, P8, P14). For example, P1, a pharmacy student, decided to move away from a traditional pharmacy career and pursue a research career in the pharmaceutical industry, focusing on drug development leveraging AI.

> *"The proper way to use it seems to be in harmony, where I ask AI to generate an image and I'm the one making the final adjustments."* (P3, Video Designer)

> *"I still feel worried and anxious about the possibility of losing jobs. (...) That's why, instead of working as a pharmacist in a pharmacy or hospital, I'm now considering a career in a pharmaceutical company where I can be involved in research using AI."* (P1, Pharmacy Student)

Third, ***Internalizing AI outputs into my skills***. Going beyond simply using AI tools in their work, some participants even attempted to study AI-generated outputs and internalize them into their own skillset (P11, P13). This phenomenon was particularly evident in P13, a Go player who experienced a permanent sense of defeat. They explained that since KataGo AI plays Go far better than them, they decided to adopt AI's moves as their own by studying them. They reported that this strategy not only allowed them to grow but also gave them a sense of satisfaction.

> *"I tried to make AI's moves my own by studying them as much as I could. Over time, my performance in competitions gradually improved. Even though AI is far better than me, I can actually take it as an opportunity for my growth."* (P13, Go Player)

4.2.2 *Cognitive Adaptation: AI-Oriented and Emotion-Focused Strategies.*

Coping strategies in this category aim to mitigate emotional strain through an AI-oriented, emotion-focused approach that cognitively reframes and emotionally adapts to AI. We identified three strategies. First, ***Accepting the inevitability of AI***. Participants acknowledged that technological progress is both inevitable and beyond the scope of human control. By accepting that neither the trajectory of capitalism nor the pace of technological development could be altered by individual efforts, they coped with stress by adopting the mindset of accepting reality and dedicating themselves to doing what was within their control (P2, P5, P6, P10, P11, P12, P13).

> *"Technological advancement is out of my hands, and I have no idea what will happen. All I can do is just accept this reality."* (P5, Data Engineer)

Another strategy is ***Shifting views of AI via social exchange***. Sharing stress with peers and engaging in collective experiences are known to enhance resilience and serve as powerful emotional buffers [32]. In line with this, participants in our study attempted to relieve technostress through conversations with colleagues, friends, or peers (P6, P14, P18). These conversations went beyond simply sharing stress, offering participants opportunities to hear how others perceived technology and to reflect on their own attitudes. Over time, participants came to see that AI was not as threatening as they had initially thought or adopted alternative perspectives, thereby alleviating stress. For example, P6 initially experienced technostress from a permanent sense of defeat, but after talking with friends and gaining new perspectives, they accepted that it was beyond their control, which eased their negative feelings.

> *"I just kept talking with friends. By doing so, I was exposed to different perspectives, and once I started thinking 'this isn't something I can stop anyway, so what can I do?', I was able to move past it emotionally."* (P6, Researcher)

Last, ***Positive reappraisal of AI***. Even when experiencing technostress induced by AI, some participants made efforts to positively reappraise the situation of technological advancement (P9, P11-13, P16). Reflecting on how AI tools could support their work (e.g., drafting documents more quickly or learning about unfamiliar subjects easily) sometimes helped alleviate stress. Moreover, rather than adopting an overly negative view of AI, participants sought to reframe it as something that could act as a catalyst for human growth. For instance, P11, a high school teacher, experienced significant stress from the constant need to keep learning. They reported that this stress was somewhat alleviated by the thought that AI could, in certain respects, be of great help with their duties.

> *"Even when negative thoughts arise, I find that if I consider the clear benefits in a work context, my emotions are somewhat alleviated."* (P11, High School Teacher)

4.2.3 *Reclaiming Human Distinctiveness: Humanness-Oriented and Problem-Focused Strategies.*

The strategies in this category are humanness-oriented, problem-focused approaches characterized by efforts to deliberately identify and reclaim unique human qualities, thereby differentiating humans from AI. The first strategy is ***Strengthening unique human value and expertise***. Participants strive to strengthen their own value and expertise in ways that cannot be replaced by AI, so that their roles would remain unaffected regardless of how advanced AI might become. Specifically, in response to the stress of job displacement, participants emphasized the importance of reinforcing unique human attributes to maintain distinction (P16, P18-19). For example, P18, an actor, explained that establishing themselves as a prominent figure and creating roles or characteristics unique to them would secure their professional standing even as AI becomes more widespread. Similarly, in relation to concerns about cognitive deskilling, participants attempted to cultivate their individuality and strengthen abilities such as reasoning and creative thinking, which they regarded as core human values (P2-3, P8, P14, P17-18). For instance, P8, a novelist, concerning the erosion of their ability to think deeply, argued that cultivating creativity is crucial to avoid being consumed or replaced in the age of AI.

> *"Before AI replaces us (actors), I want to become more recognized to secure my future. I need to create roles and an identity unique to me, which I believe will help me maintain my place in the industry."* (P18, Actor)

> *"I think creativity will be crucial to avoid being consumed or replaced by AI. Cultivating this kind of ability might become the most fundamental skill for us to live authentically human lives in the coming future."* (P8, Novelist)

Another strategy is ***Targeting areas beyond AI's reach***. Some participants, particularly in response to stress about job displacement, adopted a strategy of seeking work perceived as inaccessible to AI and uniquely human (P3, P19). Whereas the first strategy is an attempt to deepen expertise within one's current role, this strategy is an attempt to find a new area where one's core competencies can be safely leveraged. To illustrate, P19, an interpreter, noted that the translation industry has become highly vulnerable with the advent of LLMs and explained that they were exploring alternative careers that could leverage their language skills while remaining beyond the scope of AI.

> *"AI has completely disrupted the translation industry, so I'm thinking of changing careers and looking for work in areas that are harder for AI to replace."* (P19, Interpreter)

4.2.4 *Psychological Self-Safeguarding: Humanness-Oriented and Emotion-Focused Strategies.*

Within this category, the strategies are emotion-focused and oriented toward reaffirming humanness. Unlike the strategies in Section 4.2.3, which actively endeavored to reinforce uniquely human qualities, these strategies reflect an attitude of securing reassurance that "human value has not collapsed just yet" (P2, P17). In this way, they aim to preserve the sense that humans remain meaningful even in the face of AI-driven threats. Two specific strategies were identified in this category. First, ***Self-affirmation of human capabilities***. Participants coped with AI-induced technostress by reminding themselves that, although AI excels in certain areas, there are still abilities that remain uniquely human, such as creativity, intuition, and emotional connection (P8, P10, P17). For example, P10, a psychological counselor, believed that in fields like counseling, there is a unique flow of energy that only humans can provide, which AI cannot replicate.

> *"AI has taken over much of the work in counseling, but there's still a certain flow of energy that comes from people. I believe that's something AI can't replicate."* (P10, Psychological Counselor)

Second, ***Denial of replacement risk***. Some participants adopted strategies that alleviated stress by downplaying or denying potential risks, particularly in the context of job replacement (P1, P9). Participants acknowledged that this approach resembled a form of avoidance, yet noted that it helped them cope in their daily lives. For instance, P1 expressed concern that the role of pharmacists might become meaningless, but reassured themselves that AI was not yet sufficiently advanced to immediately replace their role. This strategy functions by minimizing the perceived threat of AI to preserve a sense of current human value.

> *"I worried about AI potentially replacing pharmacists, but I avoided the issue. Since pharmacies and hospitals haven't been directly affected yet, I thought, 'It won't happen.'"* (P1, Pharmacy Student)

5 Discussion

In our findings, we identified seven AI-induced technostressors, along with a set of coping strategies. Our study takes a new approach to professionals' psychological responses to AI through the lens of technostress, which enables us to examine the phenomenon from the dual perspectives of stressors and coping mechanisms. In this section, we discuss our seven AI-induced technostressors that either expand traditional technostressors or represent unique stressors distinct from traditional ones. We then discuss the need to move beyond supporting professionals' problem-focused coping to also providing emotional support, drawing on the coping strategies that participants adopted. Finally, we present design implications for supporting professionals in coping with AI-induced technostress.

5.1 The Rise of New Technostress in the Age of AI

Our findings identified seven AI-induced technostressors. Four of the AI-induced technostressors are aligned with, or extend, traditional technostress research. First, a large number of participants in our study experienced stress from ***Job displacement anxiety*** (refer to Section 4.1.1), a concern closely tied to the notion of techno-insecurity [5, 64]. While traditional insecurity was confined to the threat of replacement of manual labor or simple repetitive tasks, AI has broadened these concerns to include both creative and knowledge-based roles. In addition, ***the feeling that the value of the time and effort they had invested was undermined*** (refer to Section 4.1.3) can likewise be explained by techno-insecurity, as it reflects the devaluation of their long-term efforts to become experts. Unlike traditional concerns, which were mainly about the fear of losing one's job, this stressor centers on the diminishing value of process and effort itself—an expanded form of techno-insecurity. Additionally, participants felt stressed by the ***constant pressure to keep learning*** in response to AI's rapid advancement (refer to Section 4.1.2), a burden that can be understood through the concept of techno-uncertainty. Similar to the traditional technostress observed in ICT settings, the rapid evolution of AI now imposes a constant burden on users. Last, ***the black-box nature of AI*** (refer to Section 4.1.6) can be explained in alignment with the concepts of techno-complexity and techno-overload. However, it moves beyond mere technical complexity found in conventional ICT systems. The opacity of the AI model makes it inherently difficult to comprehend, thereby frequently generating additional overload, as users must verify information or assume accountability themselves [9, 18, 37].

Interestingly, our study also identified three unique AI-induced technostressors that are not fully explained by traditional technostress concepts. First of all, the cognitive capabilities of AI such as reasoning and problem-solving caused participants to feel stressed, as they perceived that the more they relied on AI tools, the more their own capacity for ***independent thought was being eroded*** (refer to Section 4.1.4). In traditional technostress, ICT technologies such as messaging tools, social networking services, and automation systems were typically perceived as functional tools rather than as entities capable of cognitive behavior [55, 65]. By contrast, AI technologies featuring decision-making, reasoning, and creative generation prompt users to delegate cognitive roles they originally performed themselves to AI tools. As users increasingly rely on these tools, they may become dependent on them, introducing new stressors [4, 42]. Just as skilled artisans experienced deskilling through mechanization during the Industrial Revolution, today deskilling has significantly moved from technical skills to cognitive processes [71].

In addition, as AI tools become embedded in workplace practices and efficiency becomes increasingly emphasized, participants reported stress stemming from the concern that ***genuine empathy and connection between humans may be weakened*** (refer to Section 4.1.5), representing a newly emerged technostressor. Beyond this, as LLM-based tools capable of human-like natural language interaction are perceived as social actors, participants experienced a heightened form of stress from realizing that machines have now entered the domain of emotional exchange and conversation, a space long considered uniquely human [14, 43].

Lastly, ***the Permanent Sense of Defeat*** (refer to Section 4.1.7) originates from the realization that humans can no longer compete with machines, exemplified by AlphaGo's demonstration of complete human defeat [46]. While past ICTs primarily assisted human capabilities, the growing perception that AI is beginning to surpass human abilities—and even encroaching on creative domains, as in the case of an AI winning first place in an art competition [39]—appears to have given rise to this newly observed form of technostress identified in our findings.

We observed that the experience of AI-induced technostress varied depending on the purposes of use in their professional context. Specifically, when AI tools were employed for relatively instrumental tasks like knowledge search or productivity support, participants' experiences aligned with traditional forms of technostress and did not fundamentally challenge their sense of expertise. However, when AI was used for creative production—such as generating artwork, music, or written content—participants felt that AI was encroaching on domains that required years of human skill-building and creative effort. Similarly, when AI supported expert judgment, interpretation, or complex reasoning, participants perceived a threat not merely to task performance but to their core professional value, thereby intensifying existing stressors or inducing novel forms of technostress.

Taken together, the extensions and emergence of new technostressors identified in our study transcend conventional technological challenges, stemming instead from AI's demonstration of human-level cognitive capabilities and the societal transformations following its adoption. The HCI community should consider these expanding and newly emerging stressors.

5.2 Drawing Attention to Emotional Support to Cope with AI-Induced Technostress

In our findings, we highlight the multi-dimensional coping strategies that professionals employ in response to seven AI-induced technostressors (refer to Section 4.2). Prior research has emphasized that while reducing technostress itself is essential, the ability to cope with technostress deserves the same level of attention, since effective coping can transform stress into a catalyst for individual learning and growth [20, 33, 76]. Given this, it is important to focus not only on reducing stressors but also on supporting individuals to cope with them when designing AI tools used in professional work contexts.

Prior research on supporting traditional technostress has shown that problem-focused approaches, which directly address the issue individuals face, are more effective than providing emotional support [21, 70, 76]. In line with these claims, the large body of studies on human-AI interaction design have focused on directly addressing the problem users face—such as improving AI performance or correcting inaccurate feedback—to support users' effective use of AI [3, 74]. While such problem-focused design support is undoubtedly important, we point out that attention should also be given to emotional coping, as more than half of our participants (13 out of 19) reported attempting emotion-focused strategies. Eleven participants sought psychological stability by acknowledging the future brought by technology and focusing on its positive aspects (refer to Section 4.2.2). In addition, five participants adopted a 'self-guarding' attitude, emphasizing the continued distinctiveness of humanness (refer to Section 4.2.4). These findings demonstrate the extent to which users engage in emotional labor and cognitive effort to cope with the stress induced by AI.

The stress induced by earlier digital technologies (e.g., ICT systems) typically stemmed from functional gaps such as technical immaturity or errors [55, 65]. In such cases, problem-solving support was both essential and relatively simple to provide. However, AI-induced technostress differs significantly, as AI is often experienced as exhibiting human-like cognitive capabilities in areas such as creation, expert judgment, and complex reasoning—domains traditionally regarded as uniquely human, beyond the scope of technical issues [42, 49, 56]. Moreover, as AI has become an inseparable part of contemporary work practices, its integration into cognitive tasks once thought to be exclusive to professionals has become unavoidable. These characteristics make it difficult for professionals to cope with such stress solely through problem-focused strategies. Consequently, professionals appear to increasingly employ *emotion-focused coping* alongside *problem-focused coping*, engaging in strategies such as accepting or reappraising the situation and reaffirming the belief that distinctively human domains still remain.

This reveals an important gap in the ways current AI tools support professionals' technostress coping. We emphasize the need for AI designers and researchers to move beyond a sole focus on stress reduction and to develop design implications that explicitly scaffold emotion-focused coping alongside problem-focused coping. Building on these insights, the next section presents three implications for the design of AI tools in professional contexts.

5.3 Design Implications

Based on our exploratory findings, we discuss three design implications that aim to support professionals in more effectively managing AI-induced technostress in their work. The implications are proposed with the aim of mitigating the AI-induced technostress identified in our findings and enabling the coping strategies that professionals actually use to be effectively adopted in practice.

5.3.1 Facilitating Reflection on AI Engagement and Professional Growth. Participants experienced a loss of value of effort and process (refer to Section 4.1.3) when AI tools produced results too quickly and flawlessly, and also expressed fears of cognitive deskilling (refer to Section 4.1.4), worrying that their own skills might deteriorate. To support users in mitigating these technostressors, we suggest that AI tools in professional contexts include features that facilitate monitoring of AI engagement and encourage reflection on the ongoing development of skills and practices.

One way to achieve this is to provide personalized visualizations that illustrate to users how much time they save or how much their productivity improves with AI assistance. Early examples, such as Microsoft Copilot Dashboard [40] and GitHub Copilot Metrics [22], track and visualize data points like 'time saved' and 'code acceptance rates', helping users quantify their operational efficiency. We propose that visualizing AI usage patterns could be widely adopted across professional AI tools, extending beyond development environments to general knowledge work and complex decision-making contexts. For instance, when using tools like ChatGPT for editing, AI tools could visualize the proportion of text drafted or suggested by AI or the amount of time saved through AI-generated outlines or revisions. In more complex decision-making scenarios, data analysis AI tools could display metrics such as reduced time or improvements in the accuracy of decisions made with AI support. Making AI-use traces visible would enable users to more clearly reflect on how they are using AI that helps them affirm their own role while using AI tools (refer to Section 4.2.4) and directly perceive the efficiency gains afforded by AI, which may facilitate positive reappraisal (refer to Section 4.2.2).

In addition to making AI-use traces visible, we propose incorporating question-based nudges into professional AI tools to encourage users to reflect on their engagement with AI and their professional growth. Prior research has demonstrated that Socratic questioning effectively facilitates active reflection and enhances metacognition regarding how users interact with technology and complete their work [23]. To illustrate how this could be applied in practice, alongside a quantitative indicator such as "You completed 12 tasks with AI this week," the system could also pose a prompt like, "How did AI support you in the tasks, and what might you want to improve next time?" Such reflective prompts enable professionals to gain self-awareness of their AI use and how their skills and practices evolved with it at work. Consciously reflecting on how their collaboration with AI is shaping their practices might foster positive reappraisal (refer to Section 4.2.2), thereby allowing perceptions to shift from fear of devaluation to recognition of efficiency and new opportunities for growth.

At the same time, when designing the reflection on AI usage proposed above, it is worth noting that such reflection should not overly encourage frequent or extensive use of AI in itself. Recent studies suggest that, particularly in professional contexts, intentional non-use or selective engagement with AI in critical decision-making can constitute a strategic and meaningful choice rather than a lack of adoption [16, 68]. In this regard, AI tools designed to support reflection could create space for professionals to consider the value of both using AI and deliberately choosing not to use it. Supporting users in critically reflecting on their own AI usage patterns and making informed decisions about when to engage with or disengage from AI may in the longer term help them integrate AI into their work in a more deliberate and intentional manner.

5.3.2 Supporting Active Learning and Knowledge Internalization. Along with the fear of cognitive deskilling (refer to Section 4.1.4), professionals felt as though their abilities were continuously diminishing and became stressed that they might eventually be unable to keep up with AI (refer to Section 4.1.7). To alleviate this form of technostress, we suggest the need for designing AI work tools that go beyond merely providing immediate answers and instead act as partners that enhance users' capabilities by supporting active learning and knowledge internalization throughout the interaction.

In July 2025, OpenAI introduced 'study mode', a feature that guides users through problem-solving via step-by-step instructions rather than simply providing the final answer [48]. While this is a valuable initiative, such a rigid 'study mode' could sometimes be impractical and disruptive in professional settings where efficiency is critical. Thus, we suggest guiding users to learn through their interactions with AI while allowing professionals to access more specific educational content only when they need or desire it, without disrupting their workflow. One way to achieve this is to have AI tools generate immediate results while embedding interactive educational highlights, which users can access by hovering over them whenever they want to learn more. Recent AI tools (e.g., Claude, Perplexity) increasingly provide references for information, but these are often presented only as citations rather than as educational content that supports contextual understanding. Consider a scenario in which a data engineer is coding with an AI tool: clicking on a highlighted code block opens an on-demand learning card that explains the underlying concept and links to relevant documentation for further learning. This approach may enable users to better understand and internalize AI-generated suggestions as part of their workflow (refer to Section 4.2.1), potentially reducing concerns about deskilling and overreliance.

Additionally, we propose that AI tools could enable users to actively capture and organize valuable takeaways from AI outputs, allowing them to effectively internalize the knowledge. Prior research in educational psychology indicates that learning is maximized when individuals organize, review, and reference the knowledge they have learned [15, 25]. Applied to our context, when professionals use AI in their work, there are often valuable takeaways from AI outputs—such as new concepts, useful expressions, or decision-making processes—that are worth capturing. It might be valuable to assist users by allowing them to save and organize these takeaways and revisit them later, helping integrate the knowledge into their own practice. For example, when a novelist collaborates with an LLM-based tool during the writing process, they may come across AI-suggested expressions they find appealing. Providing a feature that allows them to collect and store these expressions and review them later would enable the novelist to internalize these AI-generated expressions into their own writing style, gradually incorporating them into their own skill set (refer to Section 4.2.1 and refer to Section 4.2.3).

In practice, such features would need to be carefully designed to avoid introducing short-term learning burdens that undermine productivity or adding additional forms of digital management labor. Prior work suggests that overly demanding educational features can become burdensome when they require sustained attention or generate collections of materials that are rarely revisited [26]. In professional contexts where time pressure is high and cognitive demands are substantial, mechanisms for learning and knowledge capture may therefore be most effective when they are lightweight, optional, and tightly integrated into existing workflows, rather than requiring separate management or maintenance. Designing these features as on-demand and seamlessly integrated supports, rather than persistent obligations, may help ensure that they enhance learning without adding friction or diminishing efficiency.

5.3.3 Enabling Users to Actively Select and Configure AI Tools. The participants in our study experienced technostress arising from the need to continuously keep up with rapidly advancing AI tools (refer to Section 4.1.2), as well as from the inherent black-box nature of AI models (refer to Section 4.1.6). We suggest that enabling professionals to select AI tools according to their own criteria and adjust the models to fit their needs may further enhance their understanding of AI and reduce the stress associated with its use.

With the rapid introduction of new AI tools, professionals are often required to adapt to new tools before they have even become proficient with existing ones, limiting their opportunity to assess whether new tools fit their work objectives. Accordingly, we propose that AI tool developers and corporations provide user-centric information that helps users more proactively choose AI tools well suited to their specific work contexts. The following information could be provided: First, *Learning Curve*, which explicitly indicates the entry barrier and the estimated time required to achieve proficiency. Second, *Workflow Integration*, which reflects how seamlessly an AI tool fits into existing work practices. This can be quantified by measuring indicators such as the switching cost required to transition between AI tools and the task fit score, which captures how well the tool aligns with the user's workflow. Third, *Explainability*. While the importance of explainability has long been acknowledged, it can be quantified as an index that captures multiple dimensions of model transparency, such as how easily users can identify and trace errors and how concretely the system reveals its reasoning process [8]. By developers and corporations proactively disclosing such information beyond model performance–related metrics, professionals would be able to evaluate models from more diverse perspectives, which in turn could lay the groundwork for choosing tools more intentionally (refer to Section 4.2.1 and Section 4.2.2).

In addition, we suggest that AI tools should provide an interface that allows professionals to directly and granularly control model behavior, tailored to their specific use purposes. Some of the existing services, such as Midjourney's *parameters* for prompt adherence and stylize [41] or the *temperature* settings in OpenAI's developer tools [47], do offer features that allow users to partially manipulate model behavior. Still, these features remain limited, often being too complex for non-developer users and allowing only broad behavioral tendencies to be adjusted. Since professionals leverage multiple AI tools in different ways depending on their task goals, allowing them to fine-tune how the model behaves would be beneficial. For instance, a video designer could adjust the model to generate loosely rendered, highly varied sketches for early ideation, or to maintain strict stylistic consistency with limited variation for final refinement. Providing this level of control could reduce stress associated with black-box systems and help users develop a clearer, more intuitive understanding of how the model operates, thereby fostering a stronger sense of agency, aligning with prior findings that user-driven manipulation enhances model literacy (refer to Section 4.2.1) [8].

6 Limitations and Future Work

In this section, we acknowledge several limitations of our study and suggest future research building upon our findings. First, our recruitment strategy was designed to capture a broad spectrum of experiences by including participants from various professional backgrounds. While this approach provided holistic insights into the phenomenon, it was insufficient for an in-depth analysis of how AI-induced technostress and coping strategies differ according to the unique characteristics of specific professional groups. Therefore, future research could conduct comparative studies to explore how technostress manifests differently across various industries (e.g., creative vs. technical fields). This approach may be beneficial for developing tailored interventions and support systems that address the context-specific needs of each professional group.

Second, this study was conducted with a Korean sample, which may limit the generalizability of the findings. Since cultural factors can influence perceptions, future research could include participants from diverse cultural backgrounds to explore these differences further. Additionally, it might be valuable to investigate technostress in groups not covered by this study, such as younger children and older adults, or individuals with varying levels of technological proficiency.

Lastly, as this study was conducted in 2024, our findings may be constrained by the technological conditions and AI services available at that time. This timing was significant in that it captures users' raw and unfiltered reactions and coping strategies, as it marks the period when generative AI was just beginning to be integrated into work. Still, as users become more accustomed to these technologies over time, new patterns of stress and coping are likely to emerge. Accordingly, future research should investigate how user experiences and coping strategies evolve over time.

7 Conclusion

This study was motivated by noticing that, as AI rapidly advances and becomes integrated into professional workflows, professionals experience technostress that threatens their expertise and jobs, while also trying to accommodate these technological changes. To further investigate this phenomenon, we conducted FGIs with professionals who experienced technostress as AI was being integrated into their work, exploring seven AI-induced technostressors and their coping strategies. Drawing on our findings, we discuss how technostress emerges and expands in the era of AI, and underscore the importance of addressing both problem-focused and emotion-focused support. Then, we propose practical design implications to support professionals in coping with these challenges. Our contributions lie in both theoretical and practical domains, by highlighting how AI reshapes technostress and suggesting directions for the future design of human-centered AI.

References

[1] Adobe. 2025. Adobe MAX 2025: New Survey Finds Generative AI Has Positively Impacted the Creator Economy. https://news.adobe.com/news/2025/10/adobe-max-2025-creators-survey. Accessed: 2025-12-03.

[2] Gabbiadini Alessandro, Ognibene Dimitri, Baldissarri Cristina, and Manfredi Anna. 2025. The emotional impact of generative AI: negative emotions and perception of threat. *Behaviour & Information Technology* 44, 4 (2025), 676–693. doi:10.1080/0144929X.2024.2333933

[3] Saleema Amershi, Dan Weld, Mihaela Vorvoreanu, Adam Fourney, Besmira Nushi, Penny Collisson, Jina Suh, Shamsi Iqbal, Paul N. Bennett, Kori Inkpen, Jaime Teevan, Ruth Kikin-Gil, and Eric Horvitz. 2019. Guidelines for Human-AI Interaction. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (Glasgow, Scotland Uk) *(CHI '19)*. Association for Computing Machinery, New York, NY, USA, 1–13. doi:10.1145/3290605.3300233

[4] Aykut Arslan, Serdar Yener, and Helena Belchior-Rocha. 2025. AI as the New Antecedents of Technostress at Work. In *Human Resources Development in a Digital Age*, Maria José Sousa (Ed.). Springer Nature Switzerland, Cham, 375–391.

[5] Ramakrishna Ayyagari, Varun Grover, and Russell Purvis. 2011. Technostress: Technological Antecedents and Implications. *MIS Quarterly* 35, 4 (2011), 831–858. http://www.jstor.org/stable/41409963

[6] Anne Beaudry and Alain Pinsonneault. 2010. The Other Side of Acceptance: Studying the Direct and Indirect Effects of Emotions on Information Technology Use. *MIS Quarterly* 34, 4 (2010), 689–710. http://www.jstor.org/stable/25750701

[7] Janine Berg and Pawel Gmyrek. 2023. Automation Hits the Knowledge Worker: ChatGPT and the Future of Work. UN Multi-Stakeholder Forum on Science, Technology and Innovation for the SDGs (STI Forum) 2023. https://ssrn.com/abstract=4458221

[8] Maalvika Bhat and Duri Long. 2024. Designing Interactive Explainable AI Tools for Algorithmic Literacy and Transparency. In *Proceedings of the 2024 ACM Designing Interactive Systems Conference* (Copenhagen, Denmark) *(DIS '24)*. Association for Computing Machinery, New York, NY, USA, 939–957. doi:10.1145/3643834.3660722

[9] Umang Bhatt, Javier Antorán, Yunfeng Zhang, Q. Vera Liao, Prasanna Sattigeri, Riccardo Fogliato, Gabrielle Melançon, Ranganath Krishnan, Jason Stanley, Omesh Tickoo, Lama Nachman, Rumi Chunara, Madhulika Srikumar, Adrian Weller, and Alice Xiang. 2021. Uncertainty as a Form of Transparency: Measuring, Communicating, and Using Uncertainty. In *Proceedings of the 2021 AAAI/ACM Conference on AI, Ethics, and Society* (Virtual Event, USA) *(AIES '21)*. Association for Computing Machinery, New York, NY, USA, 401–413. doi:10.1145/3461702.3462571

[10] Virginia Braun and Victoria Clarke. 2006. Using thematic analysis in psychology. *Qualitative Research in Psychology* 3, 2 (2006), 77–101. doi:10.1191/1478088706qp063oa

[11] Virginia Braun and Victoria Clarke. 2019. Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health* 11, 4 (2019), 589–597. doi:10.1080/2159676X.2019.1628806

[12] Jenna Butler, Jina Suh, Sankeerti Haniyur, and Constance Hadley. 2025. Dear Diary: A Randomized Controlled Trial of Generative AI Coding Tools in the Workplace. In *2025 IEEE/ACM 47th International Conference on Software Engineering: Software Engineering in Practice (ICSE-SEIP)*. 319–329. doi:10.1109/ICSE-SEIP66354.2025.00034

[13] Nathalie Cadieux, Pierre-Luc Fournier, Jean Cadieux, and Martine Gingues. 2021. New Techno-Stressors Among Knowledge Professionals: The Contribution of Artificial Intelligence and Websites that Misinform Clients. *International Journal of Electronic Commerce* 25, 2 (2021), 136–153. doi:10.1080/10864415.2021.1887695

[14] Zhenguang Cai, Xufeng Duan, David Haslett, Shuqi Wang, and Martin Pickering. 2024. Do large language models resemble humans in language use?. In *Proceedings of the Workshop on Cognitive Modeling and Computational Linguistics*, Tatsuki Kuribayashi, Giulia Rambelli, Ece Takmaz, Philipp Wicke, and Yohei Oseki (Eds.). Association for Computational Linguistics, Bangkok, Thailand, 37–56. doi:10.18653/v1/2024.cmcl-1.4

[15] Ana-Maria Cazan. 2013. Teaching Self Regulated Learning Strategies for Psychology Students. *Procedia - Social and Behavioral Sciences* 78 (2013), 743–747. doi:10.1016/j.sbspro.2013.04.387

[16] Inha Cha and Richmond Y. Wong. 2025. Understanding Socio-technical Factors Configuring AI Non-Use in UX Work Practices. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25)*. Association for Computing Machinery, New York, NY, USA, Article 1110, 17 pages. doi:10.1145/3706598.3713140

[17] Po-Chien Chang, Wenhui Zhang, Qihai Cai, and Hongchi Guo. 2024. Does AI-Driven Technostress Promote or Hinder Employees' Artificial Intelligence Adoption Intention? A Moderated Mediation Model of Affective Reactions and Technical Self-Efficacy. *Psychology Research and Behavior Management* 17 (2024), 413–427. doi:10.2147/PRBM.S441444 PMID: 38343429.

[18] Mark Coeckelbergh. 2020. Artificial Intelligence, Responsibility Attribution, and a Relational Justification of Explainability. *Science and Engineering Ethics* 26, 4 (2020), 2051–2068. doi:10.1007/s11948-019-00146-8

[19] Hyo Jin Do, Swati Babbar, Wenjing Li, Laura Walks, and Shayenna Misko. 2025. Understanding Industry Practitioners' Experiences in Generative AI Governance. In *Proceedings of the Extended Abstracts of the CHI Conference on Human Factors in Computing Systems (CHI EA '25)*. Association for Computing Machinery, New York, NY, USA, Article 549, 8 pages. doi:10.1145/3706599.3720275

[20] Susan Folkman, Richard S Lazarus, Christine Dunkel-Schetter, Anita DeLongis, and Rand J Gruen. 1986. Dynamics of a stressful encounter: cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology* 50, 5 (1986), 992.

[21] John Galvin, Michael Scott Evans, Kenisha Nelson, Gareth Richards, Eirini Mavritsaki, Theodoros Giovazolias, Katerina Koutra, Ben Mellor, Maria Clelia Zurlo, Andrew Paul Smith, and Federica Vallone. 2022. Technostress, Coping, and Anxious and Depressive Symptomatology in University Students During the COVID-19 Pandemic. *Europe's Journal of Psychology* 18, 3 (2022), 302–318. doi:10.5964/ejop.4725

[22] GitHub Documentation. 2024. GitHub Copilot Metrics. https://docs.github.com/en/copilot/concepts/copilot-metrics. Accessed: 2025-02-14.

[23] Frederic Gmeiner, Kaitao Luo, Ye Wang, Kenneth Holstein, and Nikolas Martelaro. 2025. Exploring the Potential of Metacognitive Support Agents for Human-AI Co-Creation. In *Proceedings of the 2025 ACM Designing Interactive Systems Conference (DIS '25)*. Association for Computing Machinery, New York, NY, USA, 1244–1269. doi:10.1145/3715336.3735785

[24] Ken Gu, Ruoxi Shang, Tim Althoff, Chenglong Wang, and Steven M. Drucker. 2024. How Do Analysts Understand and Verify AI-Assisted Data Analyses?. In *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems* (Honolulu, HI, USA) *(CHI '24)*. Association for Computing Machinery, New York, NY, USA, Article 748, 22 pages. doi:10.1145/3613904.3642497

[25] Robin F. Hopkins, Keith B. Lyle, Jeff L. Hieb, and Patricia A. S. Ralston. 2016. Spaced Retrieval Practice Increases College Students' Short- and Long-Term Retention of Mathematics Knowledge. *Educational Psychology Review* 28, 4 (2016), 853–873. doi:10.1007/s10648-015-9349-8

[26] Renée S. Jansen, Daniel Lakens, and Wijnand A. IJsselsteijn. 2017. An integrative review of the cognitive costs and benefits of note-taking. *Educational Research Review* 22 (2017), 223–233. doi:10.1016/j.edurev.2017.10.001

[27] Byung-Jik Kim and Min-Jik Kim. 2024. How artificial intelligence-induced job insecurity shapes knowledge dynamics: the mitigating role of artificial intelligence self-efficacy. *Journal of Innovation & Knowledge* 9, 4 (2024), 100590. doi:10.1016/j.jik.2024.100590

[28] Byung-Jik Kim and Julak Lee. 2024. The Mental Health Implications of Artificial Intelligence Adoption: The Crucial Role of Self-Efficacy. *Humanities and Social Sciences Communications* 11, 1 (2024), 1561. doi:10.1057/s41599-024-04018-w

[29] Jeff J. H. Kim, Junyoung Soh, Shrinidhi Kadkol, Itay Solomon, Hyelin Yeh, Adith V. Srivatsa, George R. Nahass, Jeong Yun Choi, Sophie Lee, Theresa Nyugen, and Olusola Ajilore. 2025. AI Anxiety: A Comprehensive Analysis of Psychological Factors and Interventions. *AI and Ethics* 5, 4 (2025), 3993–4009. doi:10.1007/s43681-025-00686-9

[30] Yoonsu Kim, Jueon Lee, Seoyoung Kim, Jaehyuk Park, and Juho Kim. 2024. Understanding Users' Dissatisfaction with ChatGPT Responses: Types, Resolving Tactics, and the Effect of Knowledge Level. In *Proceedings of the 29th International Conference on Intelligent User Interfaces* (Greenville, SC, USA) *(IUI '24)*. Association for Computing Machinery, New York, NY, USA, 385–404. doi:10.1145/3640543.3645148

[31] Richard A Krueger. 2014. *Focus groups: A practical guide for applied research*. Sage publications.

[32] Julia Lanzl. 2023. Social Support as Technostress Inhibitor. *Business & Information Systems Engineering* 65, 3 (6 2023), 329–343. doi:10.1007/s12599-023-00799-7

[33] Richard S Lazarus. 1984. *Stress, appraisal, and coping*. Vol. 464. Springer.

[34] Richard S. Lazarus and Susan Folkman. 1987. Transactional theory and research on emotions and coping. *European Journal of Personality* 1, 3 (1987), 141–169. doi:10.1002/per.2410010304

[35] Hao-Ping (Hank) Lee, Advait Sarkar, Lev Tankelevitch, Ian Drosos, Sean Rintel, Richard Banks, and Nicholas Wilson. 2025. The Impact of Generative AI on Critical Thinking: Self-Reported Reductions in Cognitive Effort and Confidence Effects From a Survey of Knowledge Workers. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25)*. Association for Computing Machinery, New York, NY, USA, Article 1121, 22 pages. https://doi.org/10.1145/3706598.3713778

[36] Chun Fong Lei and E. W. T. Ngai. 2014. The Double-Edged Nature of Technostress on Work Performance: A Research Model and Research Agenda. In *Proceedings of the 35th International Conference on Information Systems (ICIS 2014): Building a Better World Through Information Systems*. Association for Information Systems, Auckland, New Zealand. https://aisel.aisnet.org/icis2014/proceedings/HumanBehavior/41

[37] Gabriel Lima, Nina Grgić-Hlača, Jin Keun Jeong, and Meeyoung Cha. 2022. The Conflict Between Explainable and Accountable Decision-Making Algorithms. In *Proceedings of the 2022 ACM Conference on Fairness, Accountability, and Transparency* (Seoul, Republic of Korea) *(FAccT '22)*. Association for Computing Machinery, New York, NY, USA, 2103–2113. doi:10.1145/3531146.3534628

[38] Daniela-Elena Litan. 2025. The Impact of Technostress Generated by Artificial Intelligence on the Quality of Life: The Mediating Role of Positive and Negative Affect. *Behavioral Sciences* 15, 4 (2025). doi:10.3390/bs15040552

[39] Rachel Metz. 2022. AI won an art contest, and artists are furious. https://www.cnn.com/2022/09/03/tech/ai-art-fair-winner-controversy Accessed: 2025-09-12.

[40] Microsoft Corporation. 2024. Microsoft Copilot Dashboard. https://adoption.microsoft.com/files/copilot/Microsoft-Copilot-dashboard-1-pager.pdf. Accessed: 2025-02-14.

[41] Midjourney. 2025. Parameter List. https://docs.midjourney.com/hc/en-us/articles/32859204029709-Parameter-List Accessed: 2025-12-04.

[42] Melanie Mitchell. 2019. *Artificial intelligence: A guide for thinking humans*. Penguin UK.

[43] Clifford Nass, Jonathan Steuer, and Ellen R Tauber. 1994. Computers are social actors. In *Proceedings of the SIGCHI conference on Human factors in computing systems*. Association for Computing Machinery, Boston, MA, USA, 72–78. https://doi.org/10.1145/191666.191703

[44] Galit Nimrod. 2018. Technostress: measuring a new threat to well-being in later life. *Aging & Mental Health* 22, 8 (2018), 1086–1093.

[45] Nina Obbarius, Felix Fischer, Gregor Liegl, Alexander Obbarius, and Matthias Rose. 2021. A Modified Version of the Transactional Stress Concept According to Lazarus and Folkman Was Confirmed in a Psychosomatic Inpatient Sample. *Frontiers in Psychology* Volume 12 - 2021 (2021). doi:10.3389/fpsyg.2021.584333

[46] Changhoon Oh, Taeyoung Lee, Yoojung Kim, SoHyun Park, Saebom Kwon, and Bongwon Suh. 2017. Us vs. Them: Understanding Artificial Intelligence Technophobia over the Google DeepMind Challenge Match. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems* (Denver, Colorado, USA) *(CHI '17)*. Association for Computing Machinery, New York, NY, USA, 2523–2534. doi:10.1145/3025453.3025539

[47] OpenAI. 2025. Chat Completions API: Temperature Parameter. https://platform.openai.com/docs/api-reference/chat/create#chat-create-temperature Accessed: 2025-12-04.

[48] OpenAI. 2025. Study mode in ChatGPT: A new way to study in ChatGPT with step-by-step guidance. https://chatgpt.com/features/study-mode/. Accessed: 2025-12-02.

[49] Marine Pagliari, Valérian Chambon, and Bruno Berberian. 2022. What is new with Artificial Intelligence? Human–agent interactions through the lens of social agency. *Frontiers in Psychology* 13 (2022). doi:10.3389/fpsyg.2022.954444

[50] Crystal L. Park and Susan Folkman. 1997. Meaning in the Context of Stress and Coping. *Review of General Psychology* 1, 2 (1997), 115–144. doi:10.1037/1089-2680.1.2.115

[51] Katharina F Pfaffinger, Julia AM Reif, Andreas K Huber, Vera M Eger, Melina K Dengler, Jan Philipp Czakert, Erika Spieß, and Rita Berger. 2021. Digitalisation anxiety: development and validation of a new scale. *Discover Mental Health* 1, 1 (2021), 3.

[52] TS Ragu-Nathan, Monideepa Tarafdar, Bhanu S Ragu-Nathan, and Qiang Tu. 2008. The consequences of technostress for end users in organizations: Conceptual development and empirical validation. *Information systems research* 19, 4 (2008), 417–433.

[53] Pranav Rajpurkar, Jeremy Irvin, Kaylie Zhu, Brandon Yang, Hershel Mehta, Tony Duan, Daisy Ding, Aarti Bagul, Curtis Langlotz, Katie Shpanskaya, Matthew P. Lungren, and Andrew Y. Ng. 2017. CheXNet: Radiologist-Level Pneumonia Detection on Chest X-Rays with Deep Learning. arXiv:1711.05225 [cs.CV] https://arxiv.org/abs/1711.05225

[54] Elisabeth Rohwer, Joelle-Cathrin Flöther, Volker Harth, and Stefanie Mache. 2022. Overcoming the "Dark Side" of Technology—A scoping review on preventing and coping with work-related technostress. *International journal of environmental research and public health* 19, 6 (2022), 3625.

[55] Marisa Salanova, Susana Llorens, and Mercedes Ventura. 2014. *Technostress: The Dark Side of Technologies*. Springer Netherlands, Dordrecht, 87–103. doi:10.1007/978-94-017-8854-0_6

[56] Gabi Schaap, Yana Van de Sande, and Hanna Schraffenberger. 2024. Outperformed by AI: Interacting with Superhuman AI Changes the Way We Perceive Ourselves. In *Extended Abstracts of the CHI Conference on Human Factors in Computing Systems* (Honolulu, HI, USA) *(CHI EA '24)*. Association for Computing Machinery, New York, NY, USA, Article 259, 7 pages. doi:10.1145/3613905.3650961

[57] In-geon Shin, Jin-min Seok, and Youn-kyung Lim. 2018. Too Close and Crowded: Understanding Stress on Mobile Instant Messengers based on Proxemics. In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems* (Montreal QC, Canada) *(CHI '18)*. Association for Computing Machinery, New York, NY, USA, 1–12. doi:10.1145/3173574.3174189

[58] Meredith Somers and MIT Sloan. 2023. How generative AI can boost highly skilled workers' productivity. *Ideas That Matter* (2023).

[59] Krzysztof Stanisławski. 2019. The Coping Circumplex Model: An Integrative Model of the Structure of Coping With Stress. *Frontiers in Psychology* 10 (2019), 694. doi:10.3389/fpsyg.2019.00694

[60] Yuan Sun, Eunchae Jang, Fenglong Ma, and Ting Wang. 2024. Generative AI in the Wild: Prospects, Challenges, and Strategies. In *Proceedings of the 2024 CHI Conference on Human Factors in Computing Systems* (Honolulu, HI, USA) *(CHI '24)*. Association for Computing Machinery, New York, NY, USA, Article 747, 16 pages. doi:10.1145/3613904.3642160

[61] Monideepa Tarafdar, Cary L Cooper, and Jean-François Stich. 2019. The technostress trifecta - techno eustress, techno distress and design: Theoretical directions and an agenda for research. *Information Systems Journal* 29, 1 (2019), 6–42. doi:10.1111/isj.12169

[62] Monideepa Tarafdar, Henri Pirkkalainen, Markus Salo, and Markus Makkonen. 2020. Taking on the "Dark Side"––Coping With Technostress. *IT Professional* 22, 6 (2020), 82–89. doi:10.1109/MITP.2020.2977343

[63] Monideepa Tarafdar, Ellen Bolman Pullins, and TS Ragu-Nathan. 2015. Technostress: negative effect on performance and possible mitigations. *Information systems journal* 25, 2 (2015), 103–132.

[64] Monideepa Tarafdar, Qiang Tu, Bhanu S. Ragu-Nathan, and T. S. Ragu-Nathan. 2007. The Impact of Technostress on Role Stress and Productivity. *Journal of Management Information Systems* 24, 1 (2007), 301–328. doi:10.2753/MIS0742-1222240109

[65] Monideepa Tarafdar, Qiang Tu, TS Ragu-Nathan, and Bhanu S Ragu-Nathan. 2011. Crossing to the dark side: examining creators, outcomes, and inhibitors of technostress. *Commun. ACM* 54, 9 (2011), 113–120.

[66] Monideepa Tarafdar, Qiang Tu, and T. S. Ragu-Nathan. 2010. Impact of Technostress on End-User Satisfaction and Performance. *Journal of Management Information Systems* 27, 3 (2010), 303–334. doi:10.2753/MIS0742-1222270311

[67] Phillip Teguh, Jason Joey Thungriallu, Danish Michael Kosasih, and Maria Grace Herlina. 2025. The Role of AI Experience and Satisfaction in Reducing Technostress in the Workplace: Managing the Digital Dilemma among Indonesian Employees. In *2025 5th International Conference on Innovative Research in Applied Science, Engineering and Technology (IRASET)*. 1–6. doi:10.1109/IRASET64571.2025.11008186

[68] Rama Adithya Varanasi, Batia Mishan Wiesenfeld, and Oded Nov. 2025. AI Rivalry as a Craft: How Resisting and Embracing Generative AI Are Reshaping the Writing Profession. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25)*. Association for Computing Machinery, New York, NY, USA, Article 1198, 19 pages. doi:10.1145/3706598.3714035

[69] Kelly B. Wagman, Matthew T. Dearing, and Marshini Chetty. 2025. Generative AI Uses and Risks for Knowledge Workers in a Science Organization. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25)*. Association for Computing Machinery, New York, NY, USA, Article 1199, 17 pages. doi:10.1145/3706598.3713827

[70] Christoph Weinert, Christian Maier, Sven Laumer, and Tim Weitzel. 2020. Technostress mitigation: an experimental study of social support during a computer freeze. *Journal of Business Economics* 90, 8 (2020), 1199–1249. doi:10.1007/s11573-020-00986-y

[71] Allison Woodruff, Renee Shelby, Patrick Gage Kelley, Steven Rousso-Schindler, Jamila Smith-Loud, and Lauren Wilcox. 2024. How Knowledge Workers Think Generative AI Will (Not) Transform Their Industries. In *Proceedings of the CHI Conference on Human Factors in Computing Systems* (Honolulu, HI, USA) *(CHI '24)*. Association for Computing Machinery, New York, NY, USA, Article 641, 26 pages. doi:10.1145/3613904.3642700

[72] Mengting Xia. 2023. Co-working with AI is a Double-sword in Technostress? An Integrative Review of Human-AI Collaboration from a Holistic Process of Technostress. *SHS Web Conf.* 155 (2023), 03022. doi:10.1051/shsconf/202315503022

[73] Qing Xiao, Xianzhe Fan, Felix Marvin Simon, Bingbing Zhang, and Motahhare Eslami. 2025. "It Might be Technically Impressive, But It's Practically Useless to Us": Motivations, Practices, Challenges, and Opportunities for Cross-Functional Collaboration around AI within the News Industry. In *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems (CHI '25)*. Association for Computing Machinery, New York, NY, USA, Article 1197, 19 pages. doi:10.1145/3706598.3714090

[74] Qian Yang, Aaron Steinfeld, Carolyn Rosé, and John Zimmerman. 2020. Re-examining Whether, Why, and How Human-AI Interaction Is Uniquely Difficult to Design. In *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems* (Honolulu, HI, USA) *(CHI '20)*. Association for Computing Machinery, New York, NY, USA, 1–13. doi:10.1145/3313831.3376301

[75] Tingwan Zhang and Qingyan Tong. 2025. The Technostress of ChatGPT Usage: How Do Perceived AI Characteristics Affect User Discontinuous Usage Through AI Anxiety and User Negative Attitudes? *International Journal of Human–Computer Interaction* 41, 16 (2025), 9918–9929. doi:10.1080/10447318.2024.2429889

[76] Xi Zhao, Qihui Xia, and Wei Huang. 2020. Impact of technostress on productivity from the theoretical perspective of appraisal and coping processes. *Information & Management* 57, 8 (2020), 103265. doi:10.1016/j.im.2020.103265