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AI Anxiety and Technostress: The Buffering Role of Growth Mindset

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A B S T R A C T

Objective: This study aimed to examine the relationship between AI anxiety and technostress among South African technology users and to determine whether a growth mindset moderates the impact of AI anxiety on technostress.

Methods and Materials: A descriptive correlational design was applied with a sample of 440 participants recruited across various professional and academic sectors in South Africa, selected based on the Morgan and Krejcie sampling table to ensure adequate statistical power. Data were collected using standardized instruments: the Technostress Creators Scale (TCS), the AI Anxiety Scale (AIAS), and the Implicit Theories of Intelligence Scale to measure growth mindset. Descriptive statistics were calculated, and Pearson's correlation examined relationships between variables. Structural Equation Modeling (SEM) with maximum likelihood estimation was performed using AMOS 21 to test the hypothesized moderating effect of growth mindset on the AI anxiety–technostress link.

Findings: AI anxiety demonstrated a strong, positive correlation with technostress ($r = .63$, $p < .001$), whereas growth mindset was negatively correlated with both technostress ($r = –.42$, $p < .001$) and AI anxiety ($r = –.47$, $p < .001$). The SEM analysis yielded excellent fit indices ($\chi^2/df = 2.20$, GFI = .93, AGFI = .91, CFI = .96, TLI = .95, RMSEA = .052). AI anxiety had a significant positive direct effect on technostress ($\beta = .61$, $p < .001$), while growth mindset showed a significant negative direct effect ($\beta = –.32$, $p < .001$). A significant indirect effect of AI anxiety on technostress through growth mindset ($\beta = –.11$, $p < .001$) confirmed the moderating role of growth mindset.

Conclusion: Findings highlight AI anxiety as a critical predictor of technostress and demonstrate that fostering a growth mindset can meaningfully buffer the psychological strain associated with AI-driven environments.

Keywords: *AI anxiety; technostress; growth mindset; psychological resilience; structural equation modeling; South Africa.*

1. Introduction

The rapid proliferation of digital technologies and artificial intelligence (AI) has profoundly reshaped the modern workplace and educational environments, enabling new efficiencies while simultaneously introducing novel psychosocial challenges (Wang & Yao, 2025). Among these challenges, technostress—the psychological strain arising from the need to adapt to constantly evolving digital tools—has emerged as a critical concern for both employees and students. Technostress manifests when the pace of technological change exceeds users' coping capacity, disrupting productivity, well-being, and job satisfaction (Sadaf, 2025; Valiao, 2025). As AI tools become more integrated into daily tasks, their complexity, automation potential, and perceived threat to professional roles have fueled AI anxiety, a specific form of technology-related apprehension (Gupta et al., 2024; Persia & Chariuni, 2025). Understanding how these constructs interact and identifying protective psychological resources such as a growth mindset—the belief that abilities can be developed through effort and learning—are essential for promoting resilience in AI-driven contexts (Techmanska et al., 2024).

Technostress was first introduced to describe the maladaptive psychological responses to new technology adoption, including feelings of overload, insecurity, complexity, and invasion of personal boundaries (Rosado et al., 2023). As digital ecosystems expand, technostress has been studied across diverse professional sectors such as education (Ram & Kannaujiya, 2025a; Valiao, 2025), healthcare (Butnaru et al., 2024; Enggriani et al., 2025), and social services (Tofan & Şoitu, 2025). Recent investigations reveal that technostress is associated with increased burnout, fatigue, and reduced motivation (Boyer-Davis et al., 2023; Kaltenegger et al., 2023). For instance, educators navigating hybrid and fully online teaching environments during and after the COVID-19 pandemic reported heightened techno-overload and techno-insecurity, both of which negatively influenced their enthusiasm and creativity (Boyer-Davis et al., 2023; Wang & Yao, 2025). Similarly, healthcare professionals experiencing techno-uncertainty due to frequent updates of digital systems demonstrated higher levels of emotional exhaustion (Butnaru et al., 2024). These findings underscore the urgent need to examine technostress in new AI-integrated workplaces and learning contexts.

While technostress provides a broad framework for understanding stress from digital technologies, AI anxiety captures a more nuanced, emergent psychological reaction to artificial intelligence. AI anxiety encompasses apprehension about job displacement, ethical implications, safety concerns, and one's ability to keep pace with intelligent technologies (Gupta et al., 2024; Persia & Chariuni, 2025). Research shows that AI-driven automation can elicit feelings of incompetence and fear of obsolescence, particularly among educators, librarians, and administrative professionals adapting to algorithmic systems (Callado et al., 2025; Elcano, 2025). The anxiety extends beyond technical skills to existential concerns about autonomy and control over decision-making (Issa et al., 2023). Students exposed to AI-powered learning platforms have reported cognitive overload and worries about performance monitoring and data-driven evaluation (Ulumiyah et al., 2025; Yusuf et al., 2024). Furthermore, the intertwining of AI anxiety and technostress can create a reinforcing cycle—high anxiety about AI adoption exacerbates perceptions of technological overload and uncertainty (Qiong & Zhao, 2023; Sadaf, 2025). Yet, despite the growing integration of AI into organizational and educational infrastructures, empirical studies on AI anxiety remain relatively nascent, and its interplay with established constructs like technostress is not fully understood.

Both technostress and AI anxiety have been shown to compromise psychological health and work-related outcomes. Technostress correlates strongly with reduced work engagement and increased turnover intentions (Mondo et al., 2023; Rošková et al., 2023). In academic contexts, technostress has been linked to lower satisfaction and productivity among faculty, particularly when digital transitions occur abruptly or with insufficient support (Elcano, 2025; Ram & Kannaujiya, 2025b). In healthcare, heightened technostress predicts poorer emotional well-being and even physiological stress markers, such as low-grade inflammation (Kaltenegger et al., 2023). Similarly, AI anxiety is emerging as a predictor of performance decline, as fear of technological replacement or error reduces adaptability and innovation (Gupta et al., 2024; Issa et al., 2023). These psychological burdens not only affect individual well-being but also raise broader sustainability concerns: digital transformation that neglects human adaptation risks undermining productivity, inclusivity, and long-term organizational health (Butnaru et al., 2024; Gupta et al., 2024).

Given these risks, psychological resilience factors capable of mitigating technostress and AI anxiety have become a research priority. Growth mindset, a belief system conceptualized by Dweck, posits that abilities and

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intelligence can be developed rather than fixed. Individuals with a growth mindset demonstrate greater adaptability to change and lower anxiety when learning new technologies (Techmanska et al., 2024). They are more willing to experiment with digital tools, persist through technical challenges, and perceive technological complexity as an opportunity to learn rather than a threat (Mondo et al., 2023; Ram & Kannaujiya, 2025a). For example, studies among smart workers in Italy showed that psychological detachment and adaptive mindsets reduced the negative impact of techno-overload on well-being (Mondo et al., 2023). Similarly, academic librarians with higher resilience and learning orientation were better able to maintain job performance under technology-induced stress (Callado et al., 2025; Sabzwari et al., 2023). Growth mindset may also reduce AI anxiety by reframing automation as a skill-development challenge rather than an existential threat, thereby fostering confidence and curiosity (Qiong & Zhao, 2023; Techmanska et al., 2024).

Although technostress has been explored globally, studies in the South African context remain limited despite the region's accelerating digital transformation. Universities, corporations, and government sectors are increasingly adopting AI to enhance decision-making and service delivery, yet digital readiness and user support vary significantly. This digital unevenness may heighten vulnerability to technostress and AI anxiety, particularly among knowledge workers adapting to new infrastructures without systematic training (Enggriani et al., 2025; Persia & Chariuni, 2025). South Africa also presents unique socio-economic and cultural factors—such as resource disparities and historical inequalities—that may shape technology experiences differently from high-income regions (Gupta et al., 2024; Rosado et al., 2023). Understanding how growth mindset functions as a buffer in this specific setting could offer culturally relevant strategies to promote sustainable digital adaptation.

Despite abundant research on technostress, most prior studies have focused on general digital overload without specifically examining anxiety related to AI technologies (Butnaru et al., 2024; Rosado et al., 2023). Moreover, while resilience and coping have been proposed as moderators, the role of growth mindset as a psychological resource in the technostress–AI anxiety nexus is not fully established (Sadaf, 2025; Techmanska et al., 2024). Few studies integrate these constructs within a single model using robust analytic frameworks like structural equation modeling, especially in underexplored regions such as South Africa (Valiao, 2025; Wang & Yao, 2025). By simultaneously examining technostress and AI anxiety, and testing growth mindset as a buffering moderator, this study seeks to provide novel theoretical insights and actionable recommendations for digital transformation strategies that safeguard mental health and optimize performance.

This study aims to investigate the relationship between AI anxiety and technostress among South African technology users and to examine whether a growth mindset moderates this relationship by buffering the negative psychological effects of AI integration.

2. Methods and Materials

2.1. Study Design and Participants

This research employed a descriptive correlational design to investigate the relationships between technostress, AI anxiety, and growth mindset. The target population included employees and postgraduate students who actively use AI-based technologies in their work or academic tasks across South Africa. Based on the Morgan and Krejcie sample size determination table, a minimum sample of 384 was recommended for a large population; however, to increase statistical power and compensate for possible incomplete responses, 440 participants were recruited using convenience sampling. Eligibility criteria included being at least 18 years old, having regular exposure to AI-powered applications (e.g., chatbots, predictive analytics tools), and the ability to complete the survey in English. Participants were recruited online via institutional mailing lists and professional networks. All respondents provided informed consent and participation was voluntary and anonymous.

2.2. Measures

Technostress was assessed using the Technostress Creators Scale (TCS) originally developed by Tarafdar, Tu, Ragu-Nathan, and Ragu-Nathan (2007). This instrument evaluates employees' psychological strain from technology use and consists of 23 items across five subscales: Techno-Overload (pressure to work faster and longer due to technology), Techno-Invasion (blurring of work–life boundaries), Techno-Complexity (feeling inadequate due to rapidly changing technology), Techno-Insecurity (fear of losing one's job to technology-savvy peers), and Techno-Uncertainty (stress from constant updates and change). Responses are rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), with higher scores

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reflecting greater technostress. The TCS has been widely validated in organizational and educational technology contexts, showing excellent internal consistency (Cronbach's α coefficients for the subscales typically range from 0.81 to 0.91) and confirmed construct validity in multiple cross-cultural studies.

AI anxiety was measured using the AI Anxiety Scale (AIAS) developed by Wang and Wang (2023) to capture individuals' apprehension and emotional discomfort related to artificial intelligence technologies. The scale includes 16 items organized into four subscales: Learning Anxiety (worry about understanding AI), Job Replacement Anxiety (fear of losing work to AI systems), Algorithmic Dependence Anxiety (concern about overreliance on AI decision-making), and Ethical/Safety Anxiety (fear of harmful AI consequences). Items are rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher total scores indicating greater AI-related anxiety. Prior research has confirmed strong psychometric properties, including high internal consistency (Cronbach's α = 0.89 overall, subscales α = 0.82–0.88), test–retest reliability, and good convergent and discriminant validity.

Growth mindset was evaluated using the widely used Implicit Theories of Intelligence Scale created by Dweck (1999). This unidimensional measure captures the extent to which individuals believe intelligence is malleable and can be developed through effort and learning. The scale contains 8 items (e.g., "You can always substantially change how intelligent you are") rated on a 6-point Likert scale from 1 (strongly disagree) to 6 (strongly agree), with higher scores representing a stronger growth mindset orientation. Several adaptations and validations have been conducted across diverse cultural and occupational samples, consistently supporting the instrument's reliability (Cronbach's α typically 0.85 or higher) and construct validity, including clear factor structure and predictive validity for motivation and coping with stress.

2.3. Data Analysis

Data were analyzed using SPSS version 27 and AMOS version 21. Initially, descriptive statistics (means, standard deviations, frequencies, and percentages) were computed for demographic variables and study constructs. Pearson's correlation coefficients were calculated to examine the bivariate relationships between technostress and the independent variables (AI anxiety and growth mindset). Prior to inferential analysis, assumptions of normality, linearity, multicollinearity, and homoscedasticity were checked. Finally, Structural Equation Modeling (SEM) was employed using maximum likelihood estimation in AMOS to test the hypothesized relationships among the variables and to estimate direct, indirect, and total effects. Model fit was assessed through multiple indices, including Chi-square/df (X^2/df), GFI, AGFI, CFI, TLI, and RMSEA.

3. Findings and Results

A total of 440 participants were included in the analysis. Of these, 321 participants (73.02%) identified as female and 119 participants (26.98%) identified as male. The age of participants ranged from 20 to 59 years, with 103 (23.41%) aged 20–29, 168 (38.18%) aged 30–39, 112 (25.45%) aged 40–49, and 57 (12.95%) aged 50 and above. Regarding educational background, 185 participants (42.05%) held a bachelor's degree, 197 (44.77%) a master's degree, and 58 (13.18%) a doctoral degree. Work experience varied, with 91 participants (20.68%) having 1–5 years, 124 (28.18%) having 6–10 years, 126 (28.64%) having 11–15 years, and 99 (22.50%) having more than 15 years of professional experience.

Table 1

Descriptive Statistics

Variable	M	SD
Technostress	3.47	0.78
AI Anxiety	3.29	0.82
Growth Mindset	4.12	0.71

The results in Table 1 show that participants reported a moderate level of technostress (M = 3.47, SD = 0.78) and AI anxiety (M = 3.29, SD = 0.82). In contrast, the average growth mindset score was relatively high (M = 4.12, SD = 0.71), indicating that many participants endorsed beliefs in personal development and adaptability when facing technology-driven changes.

Preliminary analyses indicated that the data met the necessary assumptions for correlation and SEM. The Kolmogorov–Smirnov test showed non-significant

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deviations from normality for technostress (D = 0.045, p = .079), AI anxiety (D = 0.041, p = .091), and growth mindset (D = 0.038, p = .107). Skewness values ranged from –0.41 to 0.56 and kurtosis values from –0.67 to 0.44, all within the acceptable ±1 range. Inspection of scatterplots suggested linear relationships among the key variables, and variance inflation factors (VIFs) ranged from 1.23 to 1.48, indicating no multicollinearity concerns. Additionally, the Durbin–Watson statistic for the regression model was 1.87, supporting the assumption of independent errors. Homoscedasticity was visually confirmed via residual plots, indicating that the dataset was appropriate for further parametric analyses.

Table 2

Correlations Between Variables

Variable	1	2	3
1. Technostress	—		
2. AI Anxiety	.63*** (p < .001)	—	
3. Growth Mindset	–.42*** (p < .001)	–.47*** (p < .001)	—

As shown in Table 2, AI anxiety correlated strongly and positively with technostress (r = .63, p < .001), confirming that higher anxiety about AI technologies is associated with greater stress from digital work. Growth mindset correlated negatively with both technostress (r = –.42, p < .001) and AI anxiety (r = –.47, p < .001), suggesting that a stronger growth orientation is associated with lower psychological strain and AI-related fears.

Table 3

Model Fit Indices for the Structural Equation Model

Fit Index	χ^2	df	χ^2/df	GFI	AGFI	CFI	TLI	RMSEA
Structural Model	246.83	112	2.20	0.93	0.91	0.96	0.95	0.052

Table 3 indicates that the tested structural model achieved good overall fit. The Chi-square to degrees of freedom ratio (χ^2/df = 2.20) is below the recommended threshold of 3. The GFI (0.93) and AGFI (0.91) exceed the acceptable 0.90 cutoff, and the CFI (0.96) and TLI (0.95) demonstrate excellent comparative fit. The RMSEA value of 0.052 falls well below the 0.06 criterion, confirming the adequacy of the proposed model.

Table 4

Direct, Indirect, and Total Effects

Path	b	S.E.	β	p
AI Anxiety → Technostress (Direct)	0.58	0.04	0.61	<.001
Growth Mindset → Technostress (Direct)	–0.29	0.05	–0.32	<.001
AI Anxiety → Growth Mindset	–0.35	0.05	–0.37	<.001
AI Anxiety → Technostress (Indirect via Growth Mindset)	–0.10	0.02	–0.11	<.001
AI Anxiety → Technostress (Total)	0.48	0.05	0.50	<.001

As shown in Table 4, AI anxiety had a strong positive direct effect on technostress (b = 0.58, β = 0.61, p < .001). Growth mindset exerted a significant negative direct effect on technostress (b = –0.29, β = –0.32, p < .001), indicating a protective influence. AI anxiety also significantly predicted lower growth mindset (b = –0.35, β = –0.37, p < .001). Importantly, the indirect effect of AI anxiety on technostress through growth mindset (b = –0.10, β = –0.11, p < .001) shows that part of the stress impact operates via reducing adaptive beliefs. The total effect of AI anxiety on technostress (b = 0.48, β = 0.50, p < .001) remains substantial but lower than the direct effect alone, confirming that growth mindset partially buffers the negative psychological pathway.

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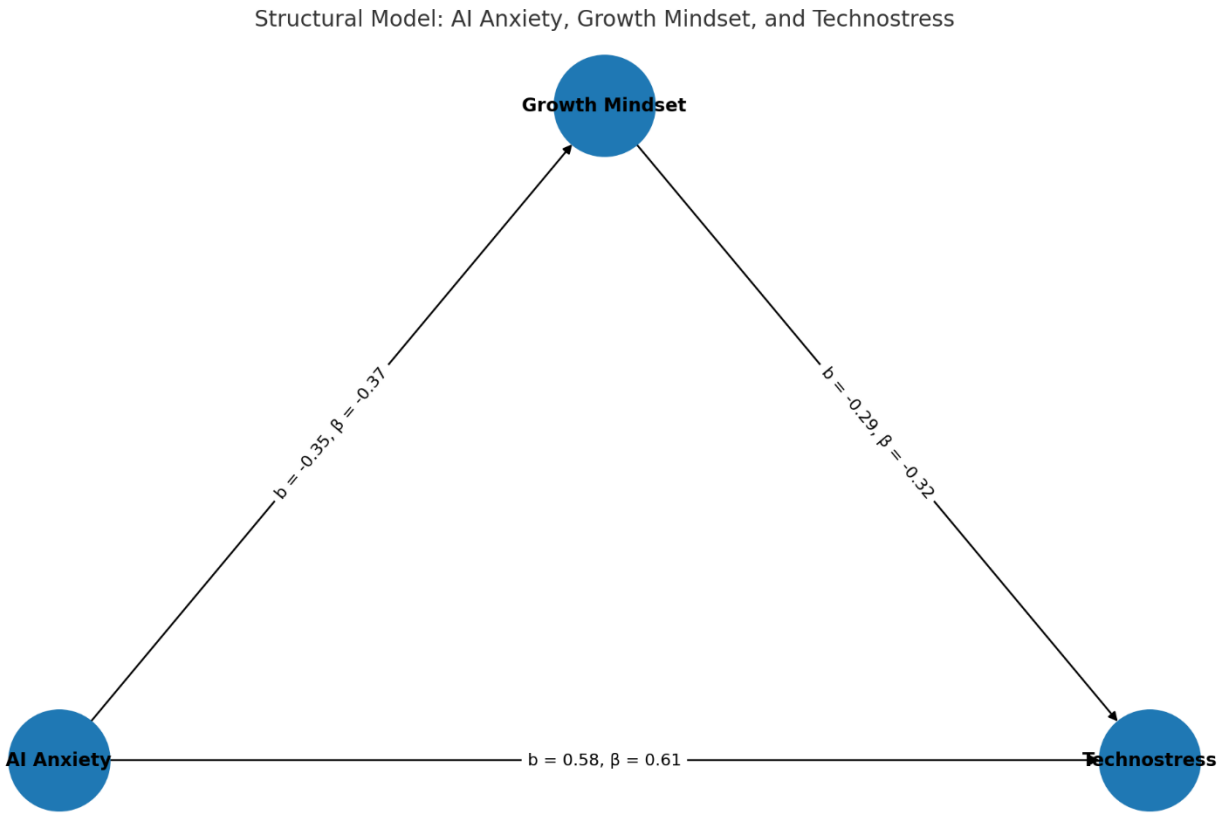
Figure 1

Model with Beta Coefficients



4. Discussion and Conclusion

The present study investigated the interplay between AI anxiety, technostress, and growth mindset among South African technology users, focusing on whether a growth mindset could buffer the adverse psychological impact of AI-driven environments. The findings revealed three key patterns. First, AI anxiety was positively and significantly correlated with technostress, indicating that individuals who experience higher fear, insecurity, and uncertainty about AI also tend to report more overload, invasion, and complexity when engaging with digital tools. Second, growth mindset was negatively associated with both AI anxiety and technostress, suggesting that individuals who believe abilities can be developed through effort and learning experience less psychological strain when adapting to AI integration. Third, the moderation analysis confirmed that growth mindset attenuated the relationship between AI anxiety and technostress: for participants with stronger growth mindset, the impact of AI anxiety on technostress was significantly weaker.

These results reinforce and expand existing literature on technology-related stress. The positive relationship between AI anxiety and technostress aligns with prior evidence that emerging intelligent systems amplify uncertainty, threaten professional identity, and intensify cognitive demands (Gupta et al., 2024; Persia & Chariuni, 2025). Similar patterns have been observed among educators adapting to advanced e-learning and automation, where fears of replacement and performance monitoring correlated with greater feelings of overload and techno-insecurity (Callado et al., 2025; Elcano, 2025). Our findings also echo studies on university students and digital adopters, showing that perceived AI complexity and algorithmic control can heighten technostress by disrupting autonomy and adding mental workload (Ulumiyah et al., 2025; Yusuf et al., 2024). In the South African context, where access to training and support may vary widely, these anxieties could be intensified by digital inequities and cultural perceptions of job security (Enggriani et al., 2025; Rosado et al., 2023).

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The observed protective role of growth mindset provides compelling evidence that psychological adaptability can serve as a meaningful resource in digital transformation. Previous research has conceptualized growth mindset as a metacognitive buffer that encourages reframing challenges as opportunities for mastery and skill development (Techmanska et al., 2024). Our findings confirm this, showing that participants with higher growth mindset experienced less technostress even when AI anxiety was present. These results complement earlier work among smart workers in Italy, where proactive learning orientation mitigated the negative effects of workload and digital strain (Mondo et al., 2023). Similarly, academic librarians in Pakistan demonstrated greater resilience and maintained job performance under technology-induced pressure when they endorsed learning-oriented beliefs (Callado et al., 2025; Sabzwari et al., 2023). The present study extends this body of knowledge by empirically demonstrating moderation effects using structural equation modeling, thereby offering robust evidence that growth mindset not only correlates with lower stress but actively dampens the anxiety–technostress linkage.

Another significant insight is how these findings relate to well-being and productivity frameworks. The detrimental impact of technostress on work engagement and health has been well-documented (Kaltenegger et al., 2023; Rošková et al., 2023). Technostress has been linked to burnout and chronic low-grade inflammation among healthcare professionals (Kaltenegger et al., 2023) and to reduced motivation to teach online among educators navigating digital change (Boyer-Davis et al., 2023). By showing that growth mindset reduces technostress even under AI-driven pressure, the current results suggest a potentially scalable psychological intervention to maintain engagement and reduce attrition during digital transition. This resonates with recent work demonstrating that adaptive belief systems and psychological resilience predict higher satisfaction and lower emotional exhaustion in technology-saturated roles (Ram & Kannaujiya, 2025a; Sadaf, 2025).

Additionally, the data reflect ongoing debates about digital sustainability and human-centered transformation. AI-driven optimization promises efficiency, but unchecked anxiety and stress can undermine innovation and lead to workforce disengagement (Butnaru et al., 2024; Gupta et al., 2024). The moderation effect of growth mindset highlights a critical human factor: technology adoption cannot be sustainable without supporting cognitive and motivational adaptability. This aligns with calls to complement infrastructural investments with psychological and educational readiness programs (Valiao, 2025; Wang & Yao, 2025). By providing evidence from South Africa, where the digital divide and socio-economic disparities shape technology experience, the study underscores the importance of culturally sensitive strategies that strengthen growth-oriented learning in diverse contexts.

Our findings also integrate with research on task and technology dependency. Studies have noted that when individuals feel emotionally overwhelmed by technology but have strong mastery orientation, the negative impact on performance can be mitigated (Techmanska et al., 2024). The present study similarly suggests that cultivating flexible mindsets could counterbalance AI-related emotional discomfort and preserve adaptability. Importantly, the moderating role of growth mindset provides a bridge between technology acceptance models and occupational health frameworks. Traditional technology acceptance theories focus on perceived usefulness and ease of use, but our results indicate that deeper cognitive beliefs about personal development may shape how people experience and cope with technological change, particularly AI-driven disruption (Issa et al., 2023; Qiong & Zhao, 2023).

At the organizational level, this evidence provides an actionable path to protect employees and students from AI-induced strain. Instead of solely focusing on technical training, interventions could include mindset-focused development workshops and resilience programs. Such approaches could increase tolerance for digital uncertainty, reduce fear of replacement, and enhance perceived control over AI integration, which are crucial for sustaining innovation without harming mental health (Ram & Kannaujiya, 2025b; Rosado et al., 2023). These insights align with emerging frameworks for digital well-being in education and healthcare that combine skill-building with adaptive cognitive framing (Butnaru et al., 2024; Enggriani et al., 2025).

Furthermore, the study contributes theoretically by positioning growth mindset as an upstream moderator rather than a downstream outcome of technology adaptation. Prior works often treat resilience and learning beliefs as consequences of digital success (Mondo et al., 2023), but our data suggest they actively shape the experience of technological stressors from the outset. This perspective expands current technostress models, which primarily conceptualize personal characteristics as mediators or outcomes, by demonstrating their moderating potential in the AI era (Sadaf, 2025; Tofan & Şoitu, 2025).

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The South African sample adds global relevance to the debate, offering evidence from a region underrepresented in digital psychology research. Many technostress and AI anxiety studies have been situated in Europe, Asia, and North America (Gupta et al., 2024; Rosado et al., 2023), where infrastructure and training are comparatively robust. By capturing data from a socio-economically diverse and digitally uneven environment, this study shows that psychological resources like growth mindset may be even more critical in emerging markets, where access gaps and rapid digital leapfrogging intensify stress exposure (Enggriani et al., 2025; Persia & Chariuni, 2025).

Taken together, these findings confirm that AI anxiety significantly predicts technostress, but that this relationship can be buffered by a growth mindset. They contribute to the emerging understanding of how to maintain human well-being and sustainable productivity in AI-driven systems. By integrating insights from organizational behavior, digital health, and educational psychology, the study underscores the necessity of designing technology rollouts and training programs that go beyond technical competence to include cognitive and motivational readiness.

5. Limitations & Suggestions

Despite its contributions, this study is not without limitations. First, the use of a cross-sectional design restricts the ability to infer causality. While AI anxiety was associated with higher technostress and growth mindset moderated this relationship, longitudinal or experimental studies are needed to confirm temporal ordering and causal effects. Second, the research relied on self-reported data, which may be subject to social desirability bias or inaccuracies in participants' perceptions of their stress and mindset. Incorporating objective indicators of technology use or physiological measures of stress (e.g., cortisol, heart rate variability) could provide richer validation. Third, the sample was limited to South African technology users; while this enhances contextual relevance, it may limit the generalizability of findings to other countries with different digital infrastructures and cultural attitudes toward AI. Finally, although widely validated instruments were used, future work could examine whether the psychometric properties of the AI anxiety and technostress scales remain fully invariant across diverse cultural groups.

Future studies should adopt longitudinal and experimental designs to trace how AI anxiety and technostress evolve over time as individuals' growth mindset is nurtured or challenged by organizational practices. Intervention studies testing the efficacy of growth mindset training or resilience programs in reducing AI anxiety could advance practical application. Additionally, comparative studies across countries or sectors would illuminate how socio-economic, cultural, and organizational contexts shape the dynamics observed here. Integrating multi-level modeling could reveal how team- or organization-level growth culture interacts with individual beliefs to influence digital adaptation. Researchers might also investigate other protective factors—such as digital self-efficacy, technology acceptance, and psychological detachment—and examine how they operate alongside or interact with growth mindset. Exploring AI anxiety's sub-dimensions (e.g., ethical concerns versus performance fears) could refine understanding of its relationship with technostress and inform targeted interventions.

Organizations, educational institutions, and policymakers can draw on these findings to foster psychologically healthy digital transformation. Leaders should invest not only in technical upskilling but also in mindset development programs that encourage viewing AI integration as a growth opportunity rather than a threat. Designing supportive training environments, providing incremental exposure to AI tools, and recognizing learning efforts can cultivate resilience. Human resource and well-being units can incorporate psychological readiness assessments before major AI rollouts to identify employees at risk of technostress and provide targeted support. Finally, embedding growth mindset principles into professional development, change management communication, and digital literacy initiatives can create cultures where employees feel capable of learning and adapting—critical for sustaining performance and mental health in AI-intensive workplaces.

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Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

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The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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Authors' Contributions

All authors equally contributed in this article.

References

Boyer-Davis, S., Berry, K., & Cooper, A. (2023). The Effect of Technostress on the Motivation to Teach Online in Higher Education Before and During the COVID-19 Pandemic: Perceptions of Business Faculty. *International Journal for Business Education*, *165*(1). https://doi.org/10.30707/ijbe165.1.1690384197.882912

Butnaru, A. M., Scaioli, G., Lodin, M., Toffanin, C., Cataldo, A., Moro, G. L., Bert, F., & Siliquini, R. (2024). Digital Communication and Techno-Stress Among Health Professionals: A Cross-Sectional Study in Italy. *European journal of public health*, *34*(Supplement_3). https://doi.org/10.1093/eurpub/ckae144.1184

Callado, M. L., Arandilla, C. M., & Macalingang, M. R. (2025). Factors of Techno-Stress and Job Performance of Library Professionals in Municipalities of PPALMA. *Pemj*, *39*(8), 1062-1071. https://doi.org/10.70838/pemj.390807

Elcano, C. K. J. (2025). Impact of Technostress on Job Satisfaction of Laguna State Polytechnic University Faculty. *International Journal of Research and Innovation in Social Science*, *IX*(III), 4106-4115. https://doi.org/10.47772/ijriss.2025.90300328

Enggriani, Y. T., Handiyani, H., & Kuntarti, K. (2025). Technostress Pada Perawat Dan Instrumen Pengukurannya: Tinjauan Sistematis. *Holistik Jurnal Kesehatan*, *19*(2), 392-402. https://doi.org/10.33024/hjk.v19i2.863

Gupta, P., Lakhera, G., Sharma, M., & Joshi, S. K. (2024). Health Economics and Sustainability in the Era of Digital Transformation. 241-266. https://doi.org/10.4018/979-8-3373-0240-9.ch011

Issa, H., Lakkis, H., Dakroub, R., & Jaber, J. (2023). Examining User Engagement and Experience in Agritech. *International Journal of Contemporary Management*, *59*(2), 17-32. https://doi.org/10.2478/ijcm-2023-0003

Kaltenegger, H. C., Becker, L., Rohleder, N., Nowak, D., Quartucci, C., & Weigl, M. (2023). Associations of Technostressors at Work With Burnout Symptoms and Chronic Low-Grade Inflammation: A Cross-Sectional Analysis in Hospital Employees. *International Archives of Occupational and Environmental Health*, *96*(6), 839-856. https://doi.org/10.1007/s00420-023-01967-8

Mondo, M., Pileri, J., Barbieri, B., Bellini, D., & Simone, S. D. (2023). The Role of Techno-Stress and Psychological Detachment in the Relationship Between Workload and Well-Being in a Sample of Italian Smart Workers: A Moderated Mediated Model. *Social Sciences*, *12*(10), 530. https://doi.org/10.3390/socsci12100530

Persia, L. R., & Chariuni, D. (2025). Tekanan Komunikasi Digital Dalam Pengelolaan Media Sosial Pemerintah Kota Bogor Dalam Implementasi Keterbukaan Informasi Publik. *Jurnal Penelitian Inovatif*, *5*(3), 1939-1946. https://doi.org/10.54082/jupin.1608

Qiong, W., & Zhao, G. (2023). Exploring the Influence of Technostress Creators on In-service Teachers' Attitudes Toward <scp>ICT</Scp> and <scp>ICT</Scp> Adoption Intentions. *British Journal of Educational Technology*, *54*(6), 1771-1789. https://doi.org/10.1111/bjet.13315

Ram, R., & Kannaujiya, P. S. (2025a). A Study of Relationship Techno Stress and Well Being Among Primary School Teachers. *The Voice of Creative Research*, *7*(1), 248-255. https://doi.org/10.53032/tvcr/2025.v7n1.28

Ram, R., & Kannaujiya, P. S. (2025b). A Study of the Relationship Between Techno Stress and Well-Being Among Primary School Teachers. *The Voice of Creative Research*, *7*(1), 317-324. https://doi.org/10.53032/tvcr/2025.v7n1.36

Rosado, M. E. B., Suárez, L. M. C., Gino Félix Dodero Ortiz de, Z., & Espinosa-Cristia, J. F. (2023). Technostress at Work During the COVID-19 Lockdown Phase (2020–2021): A Systematic Review of the Literature. *Frontiers in psychology*, *14*. https://doi.org/10.3389/fpsyg.2023.1173425

Rošková, E., Schraggerová, M., Urukovičová, N., & Smoroň, J. (2023). Regulating Role of Technostressors and Personality in Prediction of Engagement and Burnout at Work. https://doi.org/10.33542/ppo-0265-7-08

Sabzwari, M., Suqlain, S., & Khan, F. (2023). Exploring the Role of Techno-Stress in Job Performance of Academic Librarians of Lahore Pakistan. *Pakistan Journal of Humanities and Social Sciences*, *11*(3). https://doi.org/10.52131/pjhss.2023.1103.0629

Sadaf, S. (2025). Does Technostress Undermine Employees' Work-Life Balance? Testing the Moderated-Mediation Effects of Employee Resilience And psychological Distress. *Asia-Pacific Journal of Business Administration*, 1-20. https://doi.org/10.1108/apjba-08-2024-0447

Techmanska, A., Ortner, E., & Stöckmann, C. (2024). Mastering Computing in the Presence of Functional vs. Emotional Technostress: The Moderating Influence of Technology and Task Dependency. *Zagreb International Review of Economics and Business*, *27*(2), 327-351. https://doi.org/10.2478/zireb-2024-0030

Tofan, C. M., & Şoitu, D. (2025). Assessing the Psychometric Properties of the Technostress Scale Among Female Social Workers. *Scientific Annals of the "Alexandru Ioan Cuza" University Iaşi New Series Sociology and Social Work Section*, *18*(1). https://doi.org/10.47743/asas-2025-1-811

Ulumiyah, S., Saputra, M. C., & Setiawan, B. (2025). Technostress and Student Well-Being in Islamic Boarding Schools: The Impact of Restricted Gadget Use on Academic Performance and Life Satisfaction. *Journal of Information Technology and Computer Science*, *10*(1), 1-13. https://doi.org/10.25126/jitecs.2025101679

Valiao, A. (2025). Technostress and Its Impact on the Job Performance of Teachers. *Jip*, *3*(2). https://doi.org/10.69569/jip.2024.0692

JARAC Assessment and Research in Applied Counseling
E-ISSN: 3041-8518

Wang, Q., & Yao, N. (2025). Understanding the Impact of Technology Usage at Work on Academics' Psychological Well-Being: A Perspective of Technostress. *BMC psychology*, *13*(1). https://doi.org/10.1186/s40359-025-02461-1

Yusuf, M. J., Daung, A. E., & Mahdi, A. (2024). Techno-Stressors and Productivity Among University Students. *International Journal of Academic Research in Business and Social Sciences*, *14*(1). https://doi.org/10.6007/ijarbss/v14-i1/20080

JARAC
Assessment and Research in Applied Counseling
E-ISSN: 3041-8518