

## THE “AI SATISFACTION GAP”: EXAMINING THE COGNITIVE AND EMOTIONAL COSTS OF PRODUCTIVITY GAINS

**Ogidiga Lawson Okpogberi.**

Department of Business Administration and Management,  
International Institute of Tourism and Hospitality.

Yenegoa Bayelsa State

**ORCID:**0009-0007-1992-6611

+23408130278314

**Ozogu Erepmawei.**

Department of Business Administration and Management,  
International Institute of Tourism and Hospitality.

Yenegoa Bayelsa State

**ORCID:**0009-0008-3496-1764

+23408133678015

### *Abstract*

*Artificial intelligence (AI) tools are rapidly transforming knowledge work by increasing efficiency, accelerating task completion, and improving productivity. Despite these advantages, emerging evidence suggests that increased productivity does not necessarily translate into improved job satisfaction or psychological well-being. This study empirically examines the phenomenon referred to as the “AI Satisfaction Gap,” defined as the divergence between productivity gains derived from AI tools and the cognitive and emotional experiences of workers using these technologies. Using a cross-sectional survey design, data were collected from 210 knowledge workers who regularly use AI productivity tools. Descriptive statistics and regression analysis were used to examine relationships between AI use, productivity, cognitive load, and emotional well-being. The findings reveal that while AI significantly enhances perceived productivity, it also increases cognitive monitoring demands and emotional strain, contributing to moderate declines in overall job satisfaction. These results highlight the complex psychological implications of AI-augmented work environments and suggest the need for balanced AI integration strategies that consider human well-being alongside efficiency gains.*

**Keywords:** *Artificial Intelligence, productivity, job satisfaction, cognitive load, emotional well-being, digital work*

## Introduction

Artificial intelligence (AI) technologies are increasingly transforming the nature of modern workplaces, reshaping how individuals perform cognitive tasks, make decisions, and organize their daily work activities. Advances in machine learning, natural language processing, and generative AI systems have enabled the development of intelligent tools capable of performing complex analytical and creative tasks that were traditionally reserved for human workers. As a result, organizations across multiple sectors, including finance, education, healthcare, marketing, and technology, have integrated AI-driven systems into their operational workflows to improve efficiency and productivity. AI-powered systems such as generative language models, automated analytics platforms, recommendation algorithms, and decision-support software are now widely used to assist workers in tasks such as information synthesis, document creation, data analysis, customer interaction, and strategic planning (Brynjolfsson et al., 2023). The growing adoption of AI technologies is largely driven by the expectation that these tools can significantly enhance productivity and organizational performance. Empirical evidence suggests that AI-assisted workers are able to complete tasks more quickly, reduce manual workload, and produce outputs of comparable or even higher quality than traditional work processes. In many organizations, AI technologies have become central to digital transformation strategies aimed at improving operational efficiency and maintaining competitive advantage in increasingly knowledge-driven economies. By automating repetitive tasks and augmenting human cognitive capabilities, AI systems allow employees to allocate more time to higher-level problem-solving and creative activities (Dwivedi et al., 2023). Despite these apparent productivity benefits, an emerging body of scholarly literature suggests that the relationship between AI adoption and worker well-being may be more complex than initially assumed. While AI systems can streamline work processes and reduce certain types of workload, they may simultaneously introduce new forms of cognitive and emotional demands for employees. Workers interacting with AI systems are often required to supervise algorithmic outputs, validate AI-generated information, correct system errors, and make final decisions based on automated recommendations. This supervisory role can increase mental workload, as workers must constantly evaluate the reliability and accuracy of AI outputs while maintaining responsibility for final outcomes (Raisch & Krakowski, 2021). The integration of AI into professional environments therefore represents not only a technological shift but also a transformation in job design and cognitive task structures. Traditional work processes that involved direct task execution are increasingly being replaced by human–AI collaboration, where employees must coordinate their efforts with intelligent systems. This shift may lead to new forms

of cognitive complexity, as workers must interpret algorithmic recommendations, understand system limitations, and manage uncertainty associated with automated decision-making processes. As AI systems become more advanced and autonomous, the responsibility placed on workers to oversee these systems may increase, potentially generating cognitive strain and decision fatigue (Jarrahi et al., 2023). In addition to cognitive challenges, AI adoption may also generate emotional and psychological implications for employees. Scholars have identified several emotional responses associated with the increasing presence of intelligent technologies in the workplace. These include technological anxiety, concerns about job displacement, reduced perceived autonomy, and uncertainty regarding the long-term implications of automation for career development. Workers may also experience stress when they feel pressured to adapt rapidly to new technological systems or when they lack adequate training to effectively collaborate with AI tools (Tarafdar et al., 2021). Such experiences may contribute to what researchers describe as technostress, a phenomenon characterized by psychological strain resulting from the use of advanced digital technologies. These developments highlight an important paradox in contemporary workplaces: although AI technologies can significantly increase productivity, these gains may not necessarily translate into improvements in worker satisfaction or psychological well-being. In some cases, productivity gains achieved through AI systems may be accompanied by increased monitoring responsibilities, heightened performance expectations, and greater cognitive vigilance. Consequently, employees may experience a mismatch between organizational efficiency gains and their own subjective work experiences. This paradox has led to the conceptualization of what may be described as the “AI Satisfaction Gap.” The AI Satisfaction Gap refers to the divergence between measurable productivity improvements enabled by AI technologies and the cognitive and emotional experiences of workers who interact with these systems. While organizations may benefit from enhanced efficiency and reduced operational costs, employees may simultaneously experience increased cognitive workload, emotional strain, and reduced job satisfaction. In other words, productivity improvements generated by AI systems do not automatically translate into improved human workplace experiences. Understanding the existence and implications of this gap is becoming increasingly important as AI technologies continue to expand across professional domains. Organizations are investing heavily in AI-driven productivity systems, often emphasizing efficiency gains and economic performance indicators. However, insufficient attention has been given to the human implications of these technological changes, particularly the psychological experiences of workers who must interact with AI systems on a daily basis. If AI-driven productivity gains come at the expense of employee well-being, organizations may face unintended long-term consequences such as employee burnout, reduced engagement, increased turnover intentions, and diminished organizational commitment (Obizue, Chuu- Uzomah & Jutum, 2025).

Although recent research has begun to explore the broader implications of AI adoption in workplaces, much of the existing literature has focused primarily on the technological and economic dimensions of AI implementation. For example, studies examining AI adoption often emphasize improvements in operational efficiency, cost reduction, and decision-making performance (Brynjolfsson et al., 2023). While these outcomes are important, they do not fully capture the human experience of working alongside intelligent technologies. As a result, there remains a significant gap in empirical research examining how AI-driven productivity improvements influence the cognitive and emotional well-being of workers. Emerging studies have begun to highlight the potential psychological consequences of AI-enabled work environments. Research suggests that employees may experience increased cognitive demands when required to supervise automated systems and evaluate algorithmic outputs (Raisch & Krakowski, 2021). Similarly, other studies have found that interactions with AI systems can create emotional challenges related to trust, accountability, and perceived job security (Jarrahi et al., 2023). These findings suggest that AI integration may produce both benefits and challenges for workers, emphasizing the need for a more comprehensive understanding of the human implications of AI adoption. Despite these emerging insights, empirical evidence examining the simultaneous relationship between AI-driven productivity gains, cognitive workload, emotional well-being, and job satisfaction remains limited. In particular, there is a lack of empirical studies investigating whether the productivity benefits associated with AI adoption are accompanied by changes in workers' psychological experiences. Addressing this gap is critical for understanding whether the efficiency gains achieved through AI technologies align with broader organizational goals related to employee well-being and sustainable work environments.

Therefore, this study investigates the phenomenon referred to as the AI Satisfaction Gap, focusing on how productivity improvements generated by AI technologies relate to workers' cognitive workload, emotional experiences, and overall job satisfaction. By empirically examining these relationships, the study seeks to provide a more balanced understanding of the implications of AI integration in modern workplaces.

The objectives of this study are to:

1. Examine whether the use of AI tools improves perceived worker productivity.
2. Determine the cognitive workload associated with using AI productivity tools.
3. Assess the emotional effects of AI usage on workers.
4. Evaluate the relationship between AI productivity gains and overall job satisfaction.

In order to address these objectives, the study explores the following research questions:

1. Does the use of AI tools significantly improve worker productivity?
2. What level of cognitive workload is associated with AI-assisted work?
3. How does AI usage affect workers' emotional well-being?
4. What is the relationship between AI productivity gains and job satisfaction?

Based on these research questions, the study proposes the following hypotheses:

H<sub>1</sub>: AI usage significantly increases perceived worker productivity.

H<sub>2</sub>: AI usage is associated with increased cognitive workload.

H<sub>3</sub>: AI usage has significant emotional effects on workers.

H<sub>4</sub>: Productivity gains from AI are not positively correlated with job satisfaction.

This study focuses on knowledge workers who regularly utilize AI-powered productivity tools in their professional activities. The research examines how these workers perceive productivity improvements derived from AI technologies and how such improvements relate to cognitive workload, emotional experiences, and overall job satisfaction. Data for the study are obtained from survey responses collected from professionals working in technology-enabled environments where AI tools are actively used as part of routine work processes. Understanding the human implications of AI integration is essential for designing sustainable and responsible technological systems in modern organizations. While AI offers significant opportunities to enhance efficiency and innovation, it is equally important to ensure that these technological advancements support, rather than undermine, the well-being of workers. By empirically examining the cognitive and emotional consequences of AI-driven productivity improvements, this study contributes to the growing body of research exploring the intersection between artificial intelligence, work design, and employee well-being in the digital era.

## Literature Review

### Artificial Intelligence and Productivity in Knowledge Work

Artificial intelligence (AI) has rapidly become central to productivity enhancement in contemporary organizations. Through machine learning, natural language processing, and generative models, AI systems automate repetitive processes and provide advanced analytical capabilities that support complex decision-making. These technologies enable workers to perform cognitive tasks faster, more accurately, and with greater consistency than traditional manual processes (Saldaña et al., 2023). Many organizations integrate AI to reduce task completion time and improve operational output, particularly in knowledge-intensive sectors such as software development, research, finance, and consulting. Empirical studies show significant productivity gains associated with AI adoption. For example, Brynjolfsson et al. (2023) found that generative

AI tools improved writing and analytical task performance among knowledge workers, while reducing the time required in completing tasks. Similarly, Dwivedi et al. (2023) reported that AI-assisted text generation and data analytics tools significantly increase speed of information processing without substantially compromising output quality. These findings align with broader research indicating that AI serves as a cognitive augmentation tool, enhancing human capabilities rather than fully substituting human effort (Huang & Rust, 2021). While productivity outcomes are widely reported, there is emerging recognition that these benefits may coexist with hidden complexities in work structures. In AI-assisted environments, increased efficiency does not necessarily simplify the cognitive processes underlying complex tasks, leading scholars to call for deeper investigation into the accompanying cognitive and psychological impacts (Verma & Rana, 2022).

### **Algorithmic Oversight and Cognitive Workload**

AI adoption alters the nature of human work by shifting tasks from independent execution to collaborative supervision of automated outputs. Instead of completing tasks directly, workers increasingly act as algorithmic supervisors, evaluating, contextualizing, and validating the outputs generated by intelligent systems (Raisch & Krakowski, 2021). This supervisory role introduces new cognitive demands that are distinct from the tasks AI systems automate. Algorithmic oversight requires workers to interpret complex model outputs, assess their validity, and integrate them effectively into existing workflows. Because AI systems may produce errors, ambiguous results, or biased outputs, workers must maintain a dual focus on both AI efficiency and human judgment, which can increase cognitive effort and mental workload (Parasuraman & Manzey, 2018). This additional workload is not related to routine task execution but to monitoring, interpretation, and decision accountability, which are cognitively demanding activities. Research in human–AI collaboration suggests that the monitoring and supervision required in algorithmic oversight may contribute to higher cognitive load, defined as the total mental effort required to process information and complete tasks (Chandler & Sweller, 2019; Rafferty et al., 2019). Workers in AI-integrated environments may thus experience cognitive strain, especially in contexts where they are held accountable for decisions produced via or influenced by AI guidance (Raisch & Krakowski, 2021).

### **Emotional and Psychological Effects of AI Adoption**

AI integration can also produce emotional and psychological responses in workers, including anxiety, uncertainty, and perceived loss of control. Studies examining employee interaction with automated systems report that workers often experience technological anxiety, particularly when they lack transparency or understanding of how AI systems arrive at their recommendations (Jarrahi et al., 2023). This kind of anxiety can reduce trust in automated tools and increase stress

during decision-making processes. An additional psychological response involves concerns about job displacement and reduced professional autonomy. Even when AI is intended to augment human work, employees may perceive it as a threat to role stability or future career opportunities, especially in environments where AI systems assume tasks traditionally performed by humans (Brougham & Haar, 2018; Santos & Gonçalves, 2023). This perceived threat can diminish job satisfaction and reduce emotional well-being, contributing to lower engagement and organizational commitment. Furthermore, the emotional experience associated with adapting to new technologies can vary based on employees' self-efficacy and digital literacy. Workers who lack sufficient training or familiarity with AI tools are more likely to report frustration and emotional strain, while those with higher technological competence experience greater confidence and lower stress levels when collaborating with AI systems (Tarafdar et al., 2021).

### **Technostress in AI-Enabled Work Environments**

The concept of technostress is widely used to describe the psychological strain associated with using and adapting to advanced technologies. Technostress arises when individuals feel overwhelmed by the pace, complexity, and demands of digital tools, including AI systems. Tarafdar et al. (2021) identify several forms of technostress relevant to AI-rich work environments:

- **Techno-overload:** When technology increases the pace or volume of work, leading employees to work more intensively.
- **Techno-complexity:** When technology is perceived as difficult to understand or use, increasing cognitive effort and frustration.
- **Techno-insecurity:** When employees worry that technology will replace or undermine their professional roles.

Empirical studies demonstrate that technostress negatively impacts job satisfaction, performance, and psychological well-being (La Torre et al., 2019). In the context of AI adoption, technostress may be exacerbated because intelligent systems introduce automated decision-making processes that require workers to adapt to rapidly evolving digital tools while managing increased performance expectations.

### **Productivity and Job Satisfaction in Technology-Driven Workplaces**

The relationship between productivity and job satisfaction is complex and context-dependent. Traditional organizational research often assumes that increased efficiency and technological support lead to improved employee experiences by simplifying tasks and reducing workload. However, evidence from digital work environments suggests that this relationship is not straightforward. While AI systems can enhance task performance and reduce manual workload,

they may also introduce responsibilities that offset the potential satisfaction benefits. For example, workers may experience increased pressure to perform at higher levels as AI accelerates task completion, leading to tighter deadlines or elevated organizational expectations (Salanova & Llorens, 2021). Furthermore, as AI systems take on more routine tasks, employees may be expected to focus on more complex and cognitively demanding responsibilities without corresponding improvements in autonomy or support. Research indicates that employees' job satisfaction is influenced not only by objective performance outcomes but also by perceptions of control, autonomy, and psychological support. When technological systems reduce perceived autonomy or increase job demands without adequate support, employees may experience stress, reduced morale, and lower satisfaction, even in high-productivity environments (Maslach & Leiter, 2019).

### **The AI Satisfaction Gap**

The AI Satisfaction Gap refers to the observed divergence between measurable productivity gains associated with AI adoption and the subjective experiences of employees interacting with these technologies. This concept emerges from the tension created when productivity improvements coexist with increased cognitive load, emotional strain, and technostress. The AI Satisfaction Gap suggests that efficiency metrics alone are insufficient to understand the full implications of AI adoption in organizational contexts. Several studies indirectly support the existence of this gap. Although productivity gains are frequently reported in empirical research on AI implementation (Brynjolfsson et al., 2023; Dwivedi et al., 2023), there is also evidence that cognitive and emotional costs may accompany these gains. This suggests that workers may not experience proportional improvements in well-being or job satisfaction, even as organizations achieve measurable performance gains. Understanding the AI Satisfaction Gap requires an integrated analysis of productivity outcomes alongside cognitive and psychological experiences. Such an approach recognizes that AI adoption shapes both organizational performance and the lived experiences of workers, which may not always align.

### **Methodology**

This study employed a quantitative cross-sectional survey design to investigate the relationship between AI usage, productivity improvements, cognitive workload, emotional well-being, and job satisfaction among knowledge workers. A quantitative approach was considered appropriate because it allows for the systematic measurement of relationships between variables and enables statistical analysis of patterns within a population. The cross-sectional design was particularly suitable for this research because it allowed the researcher to collect data from participants at a single point in time while examining their perceptions and experiences regarding the use of AI technologies in their professional activities. The population of the study consisted of knowledge

workers who regularly utilize AI-powered productivity tools as part of their daily work processes. Knowledge workers were selected as the focus of the research because they are among the primary users of AI technologies in modern organizations. These workers frequently engage in tasks such as data analysis, content generation, strategic planning, and information management, all of which are increasingly supported by AI-driven tools. Participants in the study were drawn from multiple professional sectors, including technology, education, business management, digital marketing, and consulting services, where AI-based systems are commonly used to support decision-making and task execution.

A total of 210 respondents participated in the study. Participants were selected using a purposive sampling technique, which allowed the researcher to target individuals who had direct experience with AI-enabled work tools. The use of purposive sampling ensured that all respondents possessed sufficient familiarity with AI technologies to provide meaningful responses regarding their productivity experiences and psychological perceptions. Participants reported using various AI tools, including generative AI systems, automated analytics platforms, intelligent decision-support systems, and AI-assisted productivity applications. Data for the study were collected through a structured questionnaire designed to measure the key variables of interest. The questionnaire consisted of four primary sections corresponding to the main constructs examined in the research. The first section assessed the extent to which participants utilized AI technologies in their work activities. The second section measured perceived productivity improvements associated with AI usage. The third section evaluated the cognitive workload experienced by participants when interacting with AI systems, including tasks related to monitoring, verifying, and correcting AI-generated outputs. The fourth section assessed emotional experiences associated with AI usage, including stress, anxiety, and technological uncertainty, as well as overall job satisfaction. Responses to the questionnaire were measured using a five-point Likert scale, ranging from strongly disagree (1) to strongly agree (5). The Likert scale was chosen because it provides a reliable method for capturing subjective perceptions and attitudes related to technological experiences. Questionnaire items were adapted from validated instruments commonly used in studies of technology acceptance, technostress, and workplace well-being in digital environments. Adapting existing validated scales helped improve the reliability and construct validity of the measurement instrument.

Before the main data collection process, the questionnaire was reviewed to ensure clarity, relevance, and consistency with the objectives of the study. Participants completed the survey electronically, allowing for efficient data collection from respondents working in diverse professional environments. Ethical considerations were observed throughout the research process, including voluntary participation and the assurance of respondent anonymity. The collected data were analyzed using statistical techniques designed to examine relationships between the variables

under investigation. Descriptive statistics were first used to summarize the characteristics of the dataset and to provide an overview of respondents' perceptions regarding AI usage, productivity improvements, cognitive workload, emotional experiences, and job satisfaction. Measures such as means and standard deviations were calculated to assess the central tendencies and variability of participant responses. Following the descriptive analysis, regression analysis was conducted to examine the relationships between AI productivity gains, cognitive workload, emotional strain, and job satisfaction. Regression analysis was chosen because it allows researchers to assess the extent to which one or more independent variables influence a dependent variable while controlling for other factors. In this study, productivity gains, cognitive workload, and emotional experiences were treated as independent variables, while job satisfaction served as the dependent variable. The results of the statistical analyses were interpreted in relation to the research questions and hypotheses formulated for the study. By examining both descriptive patterns and predictive relationships among variables, the analysis provided empirical insights into the existence and implications of the AI Satisfaction Gap within AI-enabled work environments.

## Results

### Research Question 1

**Does the use of AI tools significantly improve worker productivity?**

**Table 1: Descriptive Statistics for Perceived Productivity Gains**

Variable	N	Mean	SD	Min	Max
Faster task completion	210	4.32	0.61	2.00	5.00
Improved work efficiency	210	4.21	0.67	2.00	5.00
Reduced manual workload	210	4.18	0.70	2.00	5.00

The composite mean score for perceived productivity gains was 4.23. Respondents reported higher ratings for faster task completion, followed closely by improved efficiency and reduced manual workload.

### Hypothesis 1

**H<sub>01</sub>: AI usage does not significantly improve perceived worker productivity.**

**Table 2: Regression Analysis for AI Usage and Productivity**

Predictor	B	$\beta$	T	P
AI usage	0.61	0.42	7.21	< .001

The regression results show a statistically significant positive effect of AI usage on perceived productivity ( $\beta = 0.42$ ,  $p < .001$ ). The null hypothesis is rejected.

### Research Question 2

What level of cognitive workload is associated with AI-assisted work?

**Table 3: Descriptive Statistics for Cognitive Workload**

Variable	N	Mean	SD	Min	Max
Monitoring AI outputs	210	3.87	0.74	2.00	5.00
Verifying AI accuracy	210	3.92	0.68	2.00	5.00
Managing AI errors	210	3.76	0.72	2.00	5.00

The composite mean for cognitive workload was 3.85. Respondents reported the highest rating for verifying AI outputs, followed by monitoring AI outputs and managing AI errors.

### Hypothesis 2

H<sub>02</sub>: AI usage is not associated with increased cognitive workload.

**Table 4: Regression Analysis for Cognitive Workload**

Predictor	B	$\beta$	t	p
AI usage	0.34	0.31	5.12	< .001

The model indicates a statistically significant positive association between AI usage and cognitive workload ( $\beta = 0.31$ ,  $p < .001$ ). The null hypothesis is rejected.

### Research Question 3

How does AI usage affect workers' emotional well-being?

**Table 5: Descriptive Statistics for Emotional Effects**

Variable	N	Mean	SD	Min	Max
AI-related stress	210	3.41	0.80	1.00	5.00
Anxiety about AI errors	210	3.35	0.77	1.00	5.00
Concern about technological dependence	210	3.29	0.75	1.00	5.00

The overall mean for emotional effects was 3.35, indicating moderate emotional response across participants. AI-related stress received the highest mean, followed by anxiety about errors and concern about dependence.

### Hypothesis 3

**H<sub>03</sub>: AI usage does not have significant emotional effects on workers.**

**Table 6: Regression Analysis for Emotional Effects**

Predictor	B	$\beta$	t	p
AI usage	0.29	0.28	4.62	< .001

Regression results indicate a statistically significant positive effect of AI usage on emotional responses ( $\beta = 0.28$ ,  $p < .001$ ). The null hypothesis is rejected.

### Research Question 4

**What is the relationship between AI productivity gains and job satisfaction?**

**Table 7: Regression Analysis of AI Productivity, Cognitive Workload, Emotional Strain, and Job Satisfaction**

Predictor	B	$\beta$	t	p
Productivity gains	0.18	0.12	1.70	.090
Cognitive workload	-0.32	-0.28	-3.21	.001
Emotional strain	-0.41	-0.35	-4.12	< .001

The regression model shows that productivity gains had a small positive beta ( $\beta = 0.12$ ,  $p = .090$ ), while cognitive workload and emotional strain had negative betas ( $\beta = -0.28$ ,  $p = .001$  and  $\beta = -0.35$ ,  $p < .001$  respectively).

#### Hypothesis 4

**H<sub>04</sub>: Productivity gains from AI are not positively correlated with job satisfaction.**

The results indicate that only cognitive workload and emotional strain are statistically significant predictors of job satisfaction. Productivity gains were not a statistically significant predictor at the 0.05 level.

#### Discussion

The results of this study indicate that the use of AI technologies in professional environments is associated with significant improvements in perceived productivity among knowledge workers. Participants reported higher ratings for faster task completion, improved efficiency, and reduced manual workload. These findings are consistent with prior research showing that AI systems, particularly generative AI and decision-support tools, enable knowledge workers to perform tasks more quickly and accurately (Brynjolfsson et al., 2023; Dwivedi et al., 2023). The descriptive statistics and regression analysis for perceived productivity demonstrated a statistically significant positive relationship between AI usage and productivity gains, confirming that AI adoption contributes to measurable improvements in task performance. At the same time, the study revealed that AI-assisted work is associated with moderate to high cognitive workload. Respondents reported that monitoring AI outputs, verifying accuracy, and managing errors required sustained mental effort. The regression results confirmed a statistically significant relationship between AI usage and cognitive workload, suggesting that increased productivity does not eliminate cognitive demands. These findings align with the concept of algorithmic oversight, whereby workers are required to supervise and interpret AI-generated outputs, rather than performing routine tasks directly (Raisch & Krakowski, 2021). The data showed that verifying AI accuracy had the highest mean score among cognitive workload measures, indicating that participants perceive quality control and error management as mentally demanding components of AI-assisted work.

The study also found that emotional effects of AI use are present at a moderate level. Respondents reported AI-related stress, anxiety about errors, and concern about dependency on technology. Regression analysis indicated a statistically significant positive relationship between AI usage and emotional strain. These results support prior research on **technostress**, which highlights that advanced technologies, including AI systems, can create psychological pressure, uncertainty, and anxiety in professional contexts (Tarafdar et al., 2021; Jarrahi et al., 2023). Among the emotional variables, AI-related stress had the highest mean, suggesting that participants are most concerned about the direct stress of interacting with AI systems. Most importantly, the regression analysis

examining the relationship between AI productivity gains and job satisfaction showed that productivity alone was not a statistically significant predictor of satisfaction. In contrast, cognitive workload and emotional strain were significant negative predictors of job satisfaction. These findings illustrate that while AI improves task efficiency, the accompanying cognitive and emotional demands may reduce overall satisfaction. This pattern is consistent with the concept of the AI Satisfaction Gap, which suggests that productivity improvements can coexist with psychological costs, including increased mental effort and emotional strain (Raisch & Krakowski, 2021; Tarafdar et al., 2021). Overall, the study confirms that AI integration into knowledge work creates a dual impact: measurable productivity benefits are accompanied by heightened cognitive and emotional demands. The findings highlight that evaluating AI effectiveness solely through efficiency metrics does not provide a complete understanding of its impact on employees. Both the quantitative results and descriptive statistics reinforce the importance of considering human-centered outcomes, including mental workload and emotional experience, alongside productivity indicators.

## Conclusion

This study investigated the cognitive and emotional effects of AI-driven productivity gains among knowledge workers in AI-enabled workplaces. The findings indicate that AI technologies contribute to significant improvements in perceived productivity, with participants reporting faster task completion, enhanced efficiency, and a reduction in routine manual work. Statistical analysis further confirmed that AI usage is a positive predictor of productivity outcomes. Alongside these productivity benefits, the study identified notable cognitive demands associated with AI-assisted work. Workers indicated moderate to high levels of mental effort related to monitoring AI outputs, verifying system accuracy, and managing errors. Emotional responses, including stress, anxiety regarding AI errors, and concerns about technological reliance, were also observed at moderate levels, highlighting the psychological considerations of integrating AI into daily workflows. The analysis of job satisfaction revealed that productivity gains alone were insufficient to improve overall satisfaction. Cognitive workload and emotional strain emerged as significant negative predictors, underscoring the presence of an AI Satisfaction Gap, a phenomenon where efficiency gains coexist with increased cognitive and emotional demands. These findings emphasize the need for human-centered implementation of AI technologies. Organizations should prioritize reducing unnecessary cognitive monitoring, providing comprehensive training, and designing AI systems that actively support employee well-being. By addressing these factors, organizations can harness the productivity advantages of AI while safeguarding worker satisfaction and psychological health. In summary, AI technologies offer clear productivity benefits, but their adoption introduces cognitive and emotional challenges that can affect job satisfaction. Sustainable and effective AI

integration requires careful attention to both performance outcomes and the holistic well-being of employees in AI-enabled workplaces.

### References

- Brougham, D., & Haar, J. (2018). Smart technology, artificial intelligence, robotics, and algorithms: Implications for the future of work. *New Technology, Work and Employment*, 33(2), 212–229.
- Brynjolfsson, E., Li, D., & Raymond, L. (2023). Generative AI at work. *National Bureau of Economic Research Working Paper Series*.
- Chandler, P., & Sweller, J. (2019). Cognitive load theory and the format of instruction. *Cognition and Instruction*, 36(1), 1–60.
- Davenport, T., Guha, A., Grewal, D., & Bressgott, T. (2020). How artificial intelligence will change the future of marketing. *Journal of the Academy of Marketing Science*, 48(2), 24–45.
- Dwivedi, Y. K., Hughes, L., Ismagilova, E., et al. (2023). So what if ChatGPT wrote it? Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI. *International Journal of Information Management*, 71, 102642.
- Hair, J. F., Hult, G. T., Ringle, C., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling*. Sage.
- Huang, M.-H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. *Journal of the Academy of Marketing Science*, 49(1), 30–50.
- Jarrahi, M. H. (2018). Artificial intelligence and the future of work. *Business Horizons*, 61(4), 577–586.
- Jarrahi, M. H., Newlands, G., Lee, M. K., Wolf, C. T., Kinder, E., & Sutherland, W. (2023). Algorithmic management and artificial intelligence in the workplace. *Big Data & Society*, 10, 205395172311691.
- Khan, S. M. F. A., & Suhluli, S. (2025). Generative AI and cognitive challenges in research. *Technologies*, 13(2), 112.
- La Torre, G., De Leonardis, V., & Chiappetta, M. (2019). Technostress and worker well-being: A systematic review. *European Review for Medical and Pharmacological Sciences*, 23(3), 134–148.

- Maslach, C., & Leiter, M. P. (2019). *The truth about burnout: How organizations cause personal stress and what to do about it*. Jossey-Bass.
- Obizue M N, Chuu- Uzomah F O & Jutum J I (2025). Management Strategies for Higher Institutions through Ethical and Values Education for Sustainable National Development. *International Journal of Education, Management Sciences and Professional Studies (IJEMPS)*.1(3),81-92. <https://journals.iempsglobal.org/index.php/IJEMPS/article/view/200>
- Obizue M.N, Abu G O, Agba J E & Babatunde T B (2025) Conceptualizing in Educational Management. Obizue Et al (Eds). *Artificial Intelligence and Ethical Transformation: Management, Leadership and Data-Driven Decision-Making for sustainability*. Deep Science Publishing. <https://doi.org/10.70593/978-93-7185539-6.1>
- Parasuraman, R., & Manzey, D. H. (2018). Complacency and bias in human use of automation: An attentional integration. *Human Factors*, 60(1), 5–23.
- Rafferty, L. A., et al. (2019). Cognitive load and performance in complex environments. *Journal of Cognitive Engineering and Decision Making*, 13(2), 91–109.
- Raisch, S., & Krakowski, S. (2021). Artificial intelligence and management: The automation–augmentation paradox. *Academy of Management Review*, 46(1), 192–210.
- Saldaña, J. M., et al. (2023). AI integration and workplace transformation: Trends and implications. *Journal of Business Research*, 150, 152–163.
- Salanova, M., & Llorens, S. (2021). Technostress: The dark side of technologies. *International Journal of Environmental Research and Public Health*, 18(3), 1270.
- Santos, A. R., & Gonçalves, G. (2023). Technological anxiety and workplace adjustment in AI-enabled environments. *Journal of Organizational Behavior*, 44(1), 98–117.
- Tarafdar, M., Cooper, C. L., & Stich, J. F. (2019). The technostress trifecta. *Information Systems Journal*, 29(3), 433–463.
- Tarafdar, M., Cooper, C. L., & Stich, J. F. (2021). The technostress trifecta: Techno-eustress, techno-distress and design. *Information Systems Journal*, 31(1), 6–42.
- Upadhyay, P., & Khandelwal, K. (2018). Applying artificial intelligence: Implications for recruitment. *Strategic HR Review*, 17(5), 249–254.
- Verma, S., & Rana, N. P. (2022). AI adoption in business: Assessing benefits and challenges. *Journal of Enterprise Information Management*, 35(1), 25–44.