



The Impact of Artificial Intelligence on Employee Performance and Satisfaction: A Study from Academic Sector

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Abstract

This research study delves into the influence of artificial intelligence (AI) on employee performance and satisfaction across sectors, offering unique insights. Our methodology, combining surveys and literature reviews, reveals a generally positive perception of AI among employees, with moderate variations. Regression analysis unveils a significant positive relationship between AI and employee performance ($\beta=0.638$), explaining 40.7% of performance variance ($R^2 = 0.407$). While AI promises enhanced efficiency and accuracy, it also acknowledges challenges such as job displacement. The study underscores the importance of providing adequate training and support to employees to maximize AI's benefits. These findings hold significance for practitioners and academic institutions aiming to harness AI effectively. Future research could explore tailored strategies for optimizing AI benefits across sectors.

Keywords: *Artificial Intelligence, Employee Performance, Employee Satisfaction, AI Implementation, Training and Support, Job Displacement, Employee Engagement*

1. Introduction

Artificial Intelligence (AI) has long been defined as "a system's ability to correctly interpret external data, learn from such data, and use those learnings to achieve specific goals and tasks through flexible adaptation." Despite its theoretical foundations dating back to the 1950s, AI has historically encountered challenges in practical implementation, characterized by theoretical ambiguity and limited practical appeal (Haenlein and Kaplan 2019) (Prentice, Dominique Lopes, and Wang 2020a). However, recent years have witnessed a transformative surge in AI's adoption across various domains, including workplaces and educational institutions (Wamba-Taguimdje et al. 2020). As AI becomes increasingly ubiquitous, it becomes imperative to assess its impact on employee satisfaction—an essential determinant of individual well-being, motivation, and organizational outcomes.

The advent of AI heralds a paradigm shift in how organizations operate, offering capabilities akin to human cognition, such as problem-solving, language comprehension, and reasoning (Aker et al. 2022). AI's interdisciplinary nature spans fields like natural language processing (NLP), data analysis, and automation, empowering organizations to streamline processes, optimize decision-making, and enhance productivity (Jiaping 2022).

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This transformation is poised to revolutionize operational management and reshape work dynamics across industries, with notable applications in sectors such as HRM, administrative tasks, and operational optimization (Pereira et al. 2021).

Central to AI's impact on organizational dynamics is its potential to augment employee performance—a crucial determinant of organizational success (Belhadi et al. 2021). By leveraging AI technologies, organizations can enhance productivity, mitigate operational inefficiencies, and drive innovation (Huang and Rust 2022). Notably, resilience emerges as a pivotal factor moderating the relationship between AI integration and employee satisfaction, signifying employees' capacity to adapt and thrive amidst technological changes (Rožman, Oreški, and Tominc 2022).

The digital era has ushered in new growth avenues for talent recruitment, organizational structuring, and skill allocation, fueled by AI's trans-formative capabilities (Jiaping, 2022). Despite its promise, the widespread adoption of AI presents challenges, including concerns about job displacement, algorithmic biases, and cultural implications (Rožman et al., 2022; Tahirkheli, 2022). Defined as advanced computer systems replicating human cognitive functions, AI encompasses diverse applications such as machine learning, NLP, and robotics (Pereira et al., 2021). While AI holds immense potential, its full realization hinges on addressing challenges like algorithmic transparency and ethical considerations (Haenlein and Kaplan, 2019).

The widespread adoption of Artificial Intelligence (AI) technology in organizational operations has transformed work settings, resulting in benefits such as greater productivity, efficiency, and decision-making capacities. Although this technological revolution raises substantial questions about how it may affect employee satisfaction, which is critical for organizational performance, individual well-being, and general workplace morale. While the increased usage of AI, there is still a considerable dearth of understanding about the influence of AI on employee satisfaction. Many factors influence employee satisfaction, and the existence of AI complicates matters. The link between AI integration and staff productivity, as well as the impact of employee resilience, is not entirely understood.

Employee performance may have an impact on how AI affects satisfaction; resilience may have an impact on this dynamic by affecting an employee's ability to adapt to changes connected to AI. Companies attempting to succeed with AI while maintaining or increasing satisfaction with staff face significant challenges due to a need for more awareness. When deploying AI, organizations that don't fully understand these relationships may have negative outcomes including decreased employee morale, increased job insecurity, or dis-satisfaction. These outcomes might eventually reduce the potential benefits of AI integration. Consequently, the primary goal of this research is to conduct a detailed analysis of the relationship between the adoption of AI & employee satisfaction, considering the mediating and moderating effects of resilience and employee performance, appropriately. Possessing this knowledge is essential for formulating strategies that ensure AI tools are used in ways that support and enhance employee satisfaction, ultimately contributing to the success of the company and the welfare of its workforce.

The empirical research on AI's impact on employee satisfaction still needs to be improved, despite the increased interest in the technology's application in the workplace. This is especially true when it comes to how AI interacts with employee performance and resilience. By examining the complex interactions between AI, employee performance, and employee satisfaction with a particular emphasis on the moderating impact of resilience this study aims to close this gap (Singh, Singh, and Khan 2016).

The work being conducted is significant because it can offer insightful information to practitioners as well as academics. Organizations may more effectively manage the challenges of integrating AI by understanding how it affects employee satisfaction and

maximizing its advantages while minimizing its disadvantages (Huarng, Botella-Carrubi, and Yu 2021). Theoretically, by clarifying the complex relationships between AI adoption, worker performance, satisfaction, and resilience, it adds to the expanding corpus of research on AI in the workplace. The research attempts to offer a greater understanding of the mechanisms via which AI affects employee experiences and results by looking at these links. This realization is essential for developing theoretical frameworks that describe how technology affects employee satisfaction and corporate behavior (Nazarian, Atkinson, and Foroudi 2017) (Robert, Salamzadeh, and Abdul Rahim 2021).

From a practical standpoint, the study's conclusions provide useful information to organizations looking to successfully integrate AI technologies. Businesses may create methods that improve employee satisfaction while utilizing AI's advantages by having a better understanding of the moderating influence of resilience and the mediating role of employee performance. This entails creating AI systems that enhance worker performance, offering sufficient guidance and assistance, and cultivating a robust corporate culture. The study's ultimate goal is to guide enterprises on how to design AI-driven workplaces that boost productivity and general business performance (Shin 2021) (Hughes, C.; Robert, L.; Frady, K.; Arroyos 2018).

The current study is innovative since it takes a comprehensive approach to investigate how AI affects employee satisfaction. This study takes a holistic approach by taking into account the moderating influence of resilience and the mediating role of employee performance, contrary to earlier research that frequently concentrates on discrete components of AI adoption. Important new additions consist of:

1. **The Mediating Function of Worker Performance:** This study offers a comprehensive view of the indirect impacts of AI on employee outcomes by examining how employee performance mediates the link between AI adoption and satisfaction among workers. This viewpoint aids in pinpointing precise channels by which AI affects enjoyment (Lai 2017).
2. **Moderating Influence of Resilience:** The study investigates how organizational and human resilience mitigates the effects of artificial intelligence on worker satisfaction. This emphasizes the significance of resilience in managing technological transitions and adds a crucial dimension to our knowledge of the variety in employee responses to AI integration (Ristyawan 2020).
3. **All-encompassing Theoretical Framework:** By including theories like the Conservation of Resources (COR) theory, the Job Characteristics Model (JCM), and the Technology Acceptance Model (TAM), the research offers a solid conceptual framework that directs the investigation of AI's effect on employee satisfaction. This multidisciplinary approach contributes to the advancement of organizational behavior and technology theory (Ristyawan 2020) (Singh et al. 2016).

This study aims to investigate the nexus between AI adoption and employee satisfaction, elucidating the mediating role of employee performance and the moderating influence of resilience. By examining these relationships, the research endeavors to unravel how AI integration shapes employee experiences and satisfaction levels across diverse organizational settings (Smith, Smoll, and Ptacek 1990).

Despite the burgeoning interest in AI's impact on employee satisfaction, gaps persist in understanding the mediating role of employee performance and the moderating effect of resilience. This study endeavors to bridge these gaps, contributing to a comprehensive understanding of AI's implications for employee satisfaction (Dubey et al. 2022) (Arfiansyah 2021). (Karami, Dolatabadi, and Rajaepour 2013).

2. Literature Review and Hypothesis Development

Research into AI and its implications on employee performance (EP) and satisfaction is rapidly expanding. According to research, AI improves employee performance by delivering quick evaluations, customizing learning as needed, and providing tailored feedback, while also reducing administrative responsibilities for higher productivity and lower costs. Concerns remain about algorithmic biases, transparency flaws, and employment loss (Braganza et al. 2021). It is critical for organizations to understand the impact of AI on employee happiness in order to optimize the usage of these technologies and maintain positive work environments.

Robotics, machine learning, and natural language processing are examples of AI technologies that are transforming administrative, educational, and research duties. These advancements in technology are leading to increased efficiency and better decision-making across a range of areas (Wamba-Taguimdje et al. 2020) (Zuiderwijk, Chen, and Salem 2021).

Factors like as adaptability, perceived usefulness, trust, training, and support are crucial in determining how satisfied employees are with their AI jobs. AI's influence on work-life balance and job requirements emphasizes the challenges of workplace integration (Aditya 2021) (Dubey et al. 2022). Understanding the relationship between AI, EP, and ES requires recognizing EP's role as an intermediate. AI improves employee performance through automation and data-driven insights, which increases corporate success (Rezzani, Caputo, and Cortese 2020). As a mediator in the link between AI, EP, and employee satisfaction (ES), resilient people are more likely to view AI as an opportunity for growth. Coworker support, the degree of control over activities, and organizational norms and values all contribute to job resilience and enable workers to flourish in the face of adversity (Toorajipour et al. 2021).

In conclusion, while artificial intelligence (AI) offers benefits like increased productivity and improved decision-making, it also poses challenges like algorithmic biases and lost job prospects. To effectively navigate these hurdles and maximize the promise of AI, it is imperative to adopt a comprehensive strategy to fulfilling employee demands and resolving their concerns (Joshi et al. 2022) (Memon et al. 2023).

a. The Artificial Intelligence (AI) in the Workplace

There is a lot of interest in learning how the integration of AI systems in the workplace affects employee satisfaction (Brougham and Haar 2018). One example of an artificial intelligence application impacting different workplace dynamics is computer vision algorithms, which enable the inspection and evaluation of images and videos. Five aspects impact AI-driven decision-making: environment exploration, various set measures, process and outcome interpretation, policy-making speed, and dependability (Grover, Kar, and Dwivedi 2022). Employee motivation, productivity, and retention are all boosted by job satisfaction and are critical components of an effective business.

b. Linking Findings to Underlying Theory

The Job Characteristics Model (JCM), Conservation of Resources (COR) theory, and the Technology Acceptance Model (TAM) are a few of the well-established theoretical frameworks on which this study is based. TAM provides information about how workers see and use AI technology, which might impact their productivity. While COR theory suggests resilience as a critical component in reducing the influence of workplace pressures on satisfaction, JCM clarifies how certain job attributes may promote staff satisfaction through greater motivation. We obtain a greater comprehension of the mechanisms behind the observed events by connecting our findings to these underlying ideas, which enhances both the theoretical discourse and the practical consequences (Singh et al. 2016) (Jia et al. 2018) (Mugo et al. 2017).

c. Theoretical Background: Understanding the Foundations of AI Impact

To understand the implications of AI on employee satisfaction and performance, several theoretical frameworks provide valuable insights.

Herzberg's Two-Factor Theory makes a distinction between hygienic issues like pay and working conditions and motivators like accomplishment and recognition. This methodology aids in identifying AI integration components that may improve worker satisfaction (Mugo et al. 2017).

Employee adoption of new technologies is influenced by perceived utility and simplicity of use, according to the **Technology Adoption Model (TAM)**. It emphasizes how important it is that people view AI systems as helpful and intuitive (Lai 2017; Mugo et al. 2017).

The **Social Cognitive Theory** emphasizes how social support and observational learning influence how employees adjust to AI technology. It emphasizes how crucial supporting corporate cultures and training are (Khajehpour et al. 2011).

The **Job Demands-Resources (JD-R) Model** looks at how AI may be used in the workplace to meet both demands and resources at the same time. It facilitates comprehension of the effects AI deployment has on worker performance and well-being (Haefner et al. 2021).

The study of resilience theory looks at how people handle stress and hardship. Resilience is essential in the context of AI so that workers see it as a chance for personal development rather than a danger to their employment stability (Mandal 2017). Combining these ideas gives businesses a thorough framework to help them deal with the challenges of using AI in the workplace. Organizations may maximize AI adoption to improve employee performance and satisfaction by taking into account resilience, social dynamics, acceptance factors, motivators, and work features (Angeles 2022; Maletič et al. 2014; Ramos et al. 2023).

d. Understanding Employee Satisfaction (ES)

Employee Satisfaction is a multifaceted construct encompassing an individual's positive emotional response to their job and work environment (Hansen and Wernerfelt 1989). According to Herzberg's Two-Factor Theory (1959) (Pereira et al. 2021), factors such as achievement, recognition, and personal growth are pivotal in enhancing employee satisfaction. Integrating AI in the workplace can affect these factors either positively, through efficiency and innovation, or negatively, through anxiety and job insecurity (Koo, Curtis, and Ryan 2021; Malik et al. 2022).

e. Factors Influencing Employee Satisfaction and AI

With the advent of artificial intelligence (AI), the landscape of the workplace is undergoing significant transformations. AI applications are being integrated into various organizational processes, ranging from decision-making to workflow automation. Understanding the factors that influence employee satisfaction in an AI-driven work environment is essential. The literature delineates several factors, including adaptability to AI technology, trust in AI systems, perceived usefulness, and training and support.

f. Training and Support

The availability of training and organizational support in using AI technologies is essential for employee satisfaction. Employees are more inclined to accept AI technology when they are well-trained and supported. Muayad Younus, Najeeb Zaidan, and Shakir Mahmood (2022) argue that employee training is critical for ensuring that workers can effectively use AI tools, thereby increasing their job satisfaction. Giuri, Torrisi, and Zinovyeva (2008) also discuss the importance of training in the adoption of new technologies among Italian firms.

g. Employee Performance (EP) as a Mediator or Dependent Variable

In organizational research, Employee Performance (EP) often emerges as a central variable that can mediate the relationship between various independent variables and organizational outcomes. Specifically, in the context of AI, EP acts as a mediator, implying that AI has an indirect effect on other dependent variables through its impact on employee performance.

Scholars like Poole and Mackworth (2019) and Lu (2022) emphasize that AI systems, particularly those employing machine learning algorithms, have the potential to significantly enhance employee productivity by automating mundane tasks and optimizing decision-making processes. Other researchers, such as Robert, Salamzadeh, and Abdul Rahim (2021) and Nazarian, Atkinson, and Foroudi (2017), further support these findings.

h. Resilience as a Moderator

Resilience is the capacity of individuals to adapt positively to adversity or significant sources of stress (Rožman et al. 2022). In this study, resilience can play a moderating role in the AI-EP-ES relationship. Highly resilient individuals are likely to view AI as an opportunity for growth, whereas those with low resilience may perceive it as a threat (Rožman et al. 2022; Hussein Ali et al. 2017; Jiang et al. 2021)

i. Resilience in the Workplace

Resilience has emerged as a critical construct in understanding individuals' capacity to adapt, cope, and thrive in the face of adversity within the workplace. This literature review aims to explore the concept of resilience and its significance in the workplace, examining the factors that influence resilience and its impact on employee well-being, performance, and organizational outcomes (Jiang et al. 2021; Dubey et al. 2022).

j. Benefits and Challenges of Artificial Intelligence Adoption

Artificial Intelligence (AI) has been hailed as a technological tour de force, reshaping industries and the very fabric of contemporary society. With the advent of big data and the rapid progression of computing power, AI's adoption across different sectors has surged (Chui et al. 2021). This section of the literature review will articulate the salient benefits and challenges that characterize AI adoption.

i. Benefits of AI Adoption

Enhanced Efficiency and Productivity: AI systems are adept at automating tedious and repetitive tasks, which bolsters operational efficiency and productivity. The ability of AI to process voluminous data at unparalleled speed enhances decision-making and drives innovation (Rožman et al. 2022).

ii. Data-Driven Insights and Decision Making:

Through machine learning and advanced analytics, AI can unearth patterns and insights from large datasets. Businesses can leverage these insights to make informed decisions, optimize operations, and foresee market trends (Gartland et al. 2011; Fawcett, Haimowitz, and Provost 1998).

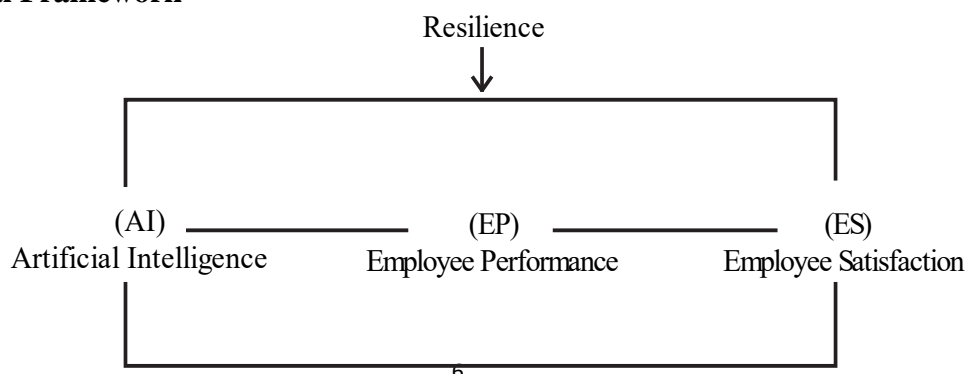
iii. Cost Reduction:

AI systems can operate around the clock without the constraints that human labor faces. This, combined with improved efficiency, can lead to significant cost reductions (Tuomi 2018; Huang and Rust 2022).

iv. Bias and Fairness

AI systems are trained on data, which can sometimes encompass biases. Decisions made by AI could be biased or unfair if the underlying data reflects societal biases (Dubey et al. 2022; Jiaping 2022).

Theoretical Framework



Artificial intelligence will significantly advance organizational theory by showing how fairness affects worker performance in this study. The suggested framework model offers guidelines and theoretical guidance for combining performance evaluation with AI (Robert et al. 2021).

The theoretical framework provides a conceptual structure for understanding & integrates relevant theories and models from various disciplines to guide the research and develop testable hypotheses (Page and Gehlbach 2017) (Garg et al. 2022).

k. Conceptual Model

The conceptual model outlines the relationships between artificial intelligence (AI), employee performance (EP), employee satisfaction (ES), and resilience. It suggests that AI directly impacts employee satisfaction, with employee performance acting as a mediator and resilience as a moderator (Prentice, Dominique Lopes, and Wang 2020b) (Jiaping 2022). This model provides a framework for understanding how these factors interact to influence satisfaction with work and guides the development of research questions, hypotheses, and empirical analyses (Wamba-Taguimdje et al. 2020).

i. AI and Employee Performance: Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) by Davis (1989) is essential in understanding how employees perceive and utilize AI technologies, which in turn affects their performance (Zuiderwijk et al. 2021). TAM suggests that the acceptability and use of AI at work are influenced by employees' perceptions, ultimately impacting their performance (Livingston and Risse 2019).

ii. Employee Performance and Employee Satisfaction: Job Characteristics Model (JCM)

(Riyanto, Endri, and Herlisha 2021) Job Characteristics Model (JCM) explains how specific job qualities can enhance employee satisfaction through increased motivation and psychological states. Changes in employee performance due to AI adoption may influence satisfaction based on certain job characteristics (Mohammad et al. 2019).

iii. Moderating Role of Resilience: The Conservation of Resources (COR) theory

Hobfoll's (1989) Conservation of Resources (COR) theory suggests that resilience plays a moderating role, as individuals with higher resilience levels can better handle workplace demands. Resilience may influence how AI affects employee satisfaction, with more resilient employees potentially experiencing greater benefits (Kuvaas 2006).

l. Hypothesis

Building on the conceptual model, several hypotheses are proposed to examine the relationships between AI, EP, ES, and resilience:

H1: Artificial intelligence positively affects employee satisfaction.

H2: There is a positive relationship between the use of artificial intelligence (AI) and employee performance across sectors.

H3: Employee performance mediates the relationship between artificial intelligence and employee satisfaction.

H4: Resilience moderates the relationship between artificial intelligence and employee satisfaction.

These hypotheses provide a framework for empirical data analysis and aim to increase theoretical knowledge while offering practical insights for organizations seeking to implement AI technologies effectively (Grover, Kar, and Dwivedi 2022). The study addresses key areas to inform organizational practices and facilitate the seamless integration of AI in ways that enhance employee satisfaction and overall organizational success (Joshi et al. 2022) (Fabiana Meijon Fadul 2019) (García-Izquierdo et al. 2018).

i. Direct Impact of Hypothesis Development

The hypothesis suggests that AI implementation does not have a significant direct effect on employee satisfaction. It implies that factors other than AI may play a more dominant role in determining satisfaction levels (Otoo et al. 2019) (Rubel and Kee 2013). The results of the analysis will help organizations understand the influence of AI on satisfaction outcomes and guide decision-making regarding AI deployment (Stephen 2022).

3. Research Methodology

As recommended by (Grover et al. 2022), this study takes a methodological approach that integrates academic literature evaluation with social media analytic in order to examine how AI is employed in operational management in organizational contexts. This method collects common information from social and academic sources. Surveys were distributed via Google Forms, and 301 people responded (255 men and 46 women). The data analysis was done using Mendeley and SPSS.

Based on (Grover et al. 2022), a survey-based cross-sectional research design was used in the study. After examining the findings of an early test, the metrics that had been used in earlier research were modified. A five-point Likert scale was used to assess the measurement items, with 1 representing strongly disagree and 5 representing strongly agree. By using a quantitative technique, it was feasible to collect data from a sizable sample size, allowing for broader audience generalizations. The main goal of the study was to find out how AI impacts employee satisfaction.

AI, employee performance, satisfaction with work, and resilience were among the independent and dependent factors included in the study's framework. The demographic characteristics included job title, industry type, age, sex, and educational attainment. Specific measuring tools or scales were used to define the variables.

Convenience, random, or stratified sampling was used in the study to get 301 answers for the sample size. Administrative personnel, proprietors, directors, managers, supervisors, workers, and trainers made up the sample. Data was collected from public, semi-public, commercial, and educational sectors throughout several regions in Pakistan. These sectors were selected based on several factors, including proximity, technical resources, opportunities, scope, and other noteworthy differences. The primary means of data collection were surveys distributed via Google Forms.

Below is a list of questions included in the study's survey questionnaire, categorized into sections (A) to (D) based on the constructs being measured:

Used SPSS to analyze the data that had been gathered. Examining outliers and addressing missing values involved some data cleansing. Data was organized and formatted to facilitate statistical analysis. An investigation on the impacts of AI in various businesses was conducted using a mixed methods cross-sectional study approach. Employee satisfaction and performance indicators were compared before and after AI installation based on quantitative survey data. The comparative investigation looked into variations unique to every industry. Multivariate regression analysis took into account potential confounding variables while examining the effects of AI on performance and satisfaction.

4. Result and Discussion

4.1. Result

i. Descriptive Statistics:

Descriptive statistics were computed to summarize the characteristics of the variables included in the study. Measures such as means, standard deviations, and frequencies were calculated for each variable to provide an overview of the data.

For instance, the reliability of measurement scales was assessed using Cronbach's alpha coefficient. The alpha values obtained were satisfactory, indicating moderate to high levels of internal consistency for the measurement scales:

AI role ($\alpha = 0.738$)

Employee performance ($\alpha = 0.768$)

Resilience ($\alpha = 0.702$)

Employee satisfaction ($\alpha = 0.694$)

These findings suggest that the measurement scales used in the study demonstrate adequate reliability, providing a solid foundation for analyzing the relationships between AI, employee performance, resilience, and employee satisfaction. With reliable measurements in place, the study can confidently proceed with further analysis to explore the associations among these constructs in more depth.

Table: 1
Descriptive Statistics

Variable	Mean	Std. Deviation	N
EP_Mean	4.1588	0.50882	301
RAI_Mean	4.1768	0.39134	301
R_Mean	4.0904	0.63588	301
ES_Mean	4.206	0.543	301

Table: 2
Descriptive Statistics

		M in.	Max .	Mean	Std. Deviation	Variance	Skewness	Std. Error	Kurtosis	Std. Error
Qs.	N									
RAI1 - AI has reduced the amount of time and effort required for certain tasks.	301	2	5	3.9	0.628	0.394	-0.659	0.14	1.431	0.28
RAI2 - AI exhibits leadership qualities and takes charge quickly when necessary.	301	1	5	4.15	0.889	0.79	-1.136	0.14	1.33	0.28
RAI3 - AI has led to cost savings for our organization.	301	2	5	4.24	0.709	0.503	-0.662	0.14	0.235	0.28
RAI4 - AI has improved the quality of our products and services.	301	1	5	4.13	0.879	0.773	-0.907	0.14	0.638	0.28

RAI5 - AI has improved the accuracy and consistency of our decision-making.	301	1	5	4.17	0.817	0.668	-1.059	0.14	1.384	0.28
RAI6 - AI helped us to identify new opportunities for growth and innovation.	301	1	5	4.11	0.83	0.689	-0.835	0.14	0.702	0.28
RAI7 - AI reduces bias in the recruitment, calculations of promotion, and demotion process.	301	1	5	4.13	0.884	0.782	-1.078	0.14	1.355	0.28
RAI8 - AI has reduced the need for certain types of manual workers in our organization.	301	2	5	4.3	0.729	0.532	-0.9	0.14	0.661	0.28
RAI9 - AI improves the efficiency of administrative tasks in our organization.	301	2	5	4.37	0.73	0.533	-1.052	0.14	0.91	0.28
RAI10 - AI identifies research opportunities and facilitates research collaborations.	301	1	5	4.16	0.923	0.852	-1.032	0.14	0.643	0.28
RAI11 - AI provides a positive attitude towards work and with colleagues in our organization.	301	1	5	4.14	0.882	0.778	-1.091	0.14	1.276	0.28
RAI12 - AI has enabled us to process and analyze large amounts of data more effectively.	301	1	5	4.37	0.744	0.554	-1.4	0.14	3.178	0.28
RAI13 - AI has improved our ability to predict future trends and outcomes.	301	1	5	4.18	0.925	0.857	-1.184	0.14	1.363	0.28
RAI14 - AI manages and facilitates distance learning and remote activities in the organization.	301	1	5	4.13	0.864	0.746	-1.096	0.14	1.605	0.28
EP1 - AI helps me to maintain a high level of professionalism and ethical standards for my performance.	301	1	5	4.02	0.922	0.849	-0.895	0.14	0.578	0.28
EP2 - AI collaborates effectively with my colleagues to achieve shared objectives in between the departments to perform better.	301	1	5	4.18	0.84	0.706	-1.09	0.14	1.43	0.28
EP3 - AI has helped me to better prioritize my tasks and responsibilities, leading to improved performance.	301	1	5	4.2	0.849	0.72	-1.151	0.14	1.502	0.28

EP4 - AI has provided me with valuable insights and feedback on my performance.	301	1	5	4.14	0.912	0.831	-0.99	0.14	0.635	0.28
EP5 - AI has improved my engagement and motivation in the organization.	301	1	5	4.24	0.873	0.763	-1.181	0.14	1.149	0.28
EP6 - AI has helped me to reduce human bias in my workplace.	301	1	5	4.16	0.927	0.859	-1.15	0.14	1.181	0.28
EP7 - AI has increased the accuracy and precision of my work, leading to better performance.	301	1	5	4.12	0.939	0.882	-1.245	0.14	1.696	0.28
EP8 - AI has increased my knowledge and skills, resulting in improved job performance.	301	1	5	4.17	0.849	0.721	-1.186	0.14	1.665	0.28
EP9 - AI helps me to automate repetitive or tedious tasks in my job.	301	1	5	4.2	0.932	0.869	-1.16	0.14	1.093	0.28
EP10 - AI shows a willingness to take on new challenges and responsibilities.	301	1	5	4.16	0.889	0.79	-1.214	0.14	1.68	0.28
R1 - If I am more resilient then I believe that I will be able to learn and develop new skills related to AI.	301	1	5	3.93	0.941	0.885	-0.827	0.14	0.555	0.28
R2 - Resilience is a key factor in determining the success of working with AI.	301	1	5	4.13	0.99	0.98	-1.155	0.14	0.96	0.28
R3 - Resilience helps me bounce back from setbacks and failures related to AI.	301	1	5	4.07	0.991	0.981	-1.1	0.14	0.853	0.28
R4 - AI can help to mitigate the impact of potential threats or crises.	301	1	5	4.14	0.889	0.79	-1.145	0.14	1.371	0.28
R5 - Organizations should provide resources and support to help employees develop their resilience to AI.	301	1	5	4.18	0.89	0.792	-1.124	0.14	1.244	0.28
ES1 - The use of AI in my job has increased my productivity and efficiency.	301	1	5	4.08	0.92	0.847	-0.882	0.14	0.381	0.28
ES2 - The use of AI systems improves the ability to make informed decisions.	301	1	5	4.18	0.971	0.943	-1.341	0.14	1.555	0.28
ES3 - AI enhances the speed of work and job satisfaction.	301	1	5	4.33	0.833	0.694	-1.473	0.14	2.671	0.28

ES4 - AI has reduced stress levels in my work.	301	1	5	4.22	0.897	0.805	-1.422	0.14	2.437	0.28
ES5 - AI provides more accurate and timely feedback.	301	1	5	4.24	0.98	0.961	-1.343	0.14	1.344	0.28
ES6 - AI has reduced the risk of errors and mistakes.	301	1	5	4.27	0.816	0.666	-1.17	0.14	1.681	0.28
ES7 - AI has created new opportunities for growth and development in my career	301	1	5	4.13	0.972	0.944	-1.046	0.14	0.622	0.28

b. Reliability Test

The reliability test assesses the underlying consistency or reliability of a scale or group of measurement items. In this study, a reliability test was conducted on a 41-item scale, which included demographic information along with the constructs under investigation.

The Cronbach's alpha coefficient was used to evaluate the degree of consistency among the scale's items and to determine the internal reliability of the measurement instrument. A Cronbach's alpha value of 0.70 or higher is generally considered acceptable for research purposes.

In this study, the reliability statistics for the scale were as follows:

Cronbach's Alpha of all variables: 0.857

Cronbach's Alpha Based on Standardized Items: 0.855

These values indicate a high level of internal consistency within the scale, suggesting that the items within the scale, including the demographic variables, are positively correlated with each other and measure the same construct consistently.

The reliability coefficients for each construct are as follows:

Role of Artificial Intelligence: $\alpha = 0.738$

Employee Performance: $\alpha = 0.768$

Resilience: $\alpha = 0.702$

Employee Satisfaction: $\alpha = 0.694$

These values range from moderate to satisfactory levels of internal consistency for the measurement scales. The high Cronbach's alpha values suggest good internal reliability, indicating that the measurement items within each construct are reliable and consistently measure the intended constructs.

Furthermore, the reliability coefficients were calculated for each individual item within the constructs. These coefficients ranged from 0.851 to 0.857, further confirming the internal consistency and reliability of the measurement instrument used in the study.

Overall, the reliability test results indicate that the scale used in the study provides reliable measurements for the constructs under investigation, including the demographic variables. This ensures the validity and accuracy of the data collected for further analysis and exploration of the associations among these constructs.

Table: 3

Constructs		Mean	Std. Deviation	N	Cronbach's Alpha if Item Deleted
Role of Artificial Intelligence Alpha Value (Reliability) = 0.738	RAI1	3.9	0.628	301	0.856
	RAI2	4.15	0.889	301	0.851
	RAI3	4.24	0.709	301	0.855
	RAI4	4.13	0.879	301	0.852
	RAI5	4.17	0.817	301	0.854
	RAI6	4.11	0.83	301	0.856
	RAI7	4.13	0.884	301	0.855
	RAI8	4.3	0.729	301	0.853
	RAI9	4.37	0.73	301	0.853
	RAI10	4.16	0.923	301	0.854
	RAI11	4.14	0.882	301	0.855
	RAI12	4.37	0.744	301	0.855
	RAI13	4.18	0.925	301	0.854
	RAI14	4.13	0.864	301	0.854
Employee Performance Alpha Value (Reliability) =0.768	EP1	4.02	0.922	301	0.853
	EP2	4.18	0.84	301	0.851
	EP3	4.2	0.849	301	0.851
	EP4	4.14	0.912	301	0.853
	EP5	4.24	0.873	301	0.852
	EP6	4.16	0.927	301	0.851
	EP7	4.12	0.939	301	0.851
	EP8	4.17	0.849	301	0.851
	EP9	4.2	0.932	301	0.851
	EP10	4.16	0.889	301	0.852
Resilience Alpha Value (Reliability) = 0.702	R1	3.93	0.941	301	0.852
	R2	4.13	0.99	301	0.853
	R3	4.07	0.991	301	0.852
	R4	4.14	0.889	301	0.853
	R5	4.18	0.89	301	0.851
Employee Satisfaction Alpha Value (Reliability) = 0.694	ES1	4.08	0.92	301	0.852
	ES2	4.18	0.971	301	0.851
	ES3	4.33	0.833	301	0.853
	ES4	4.22	0.897	301	0.853
	ES5	4.24	0.98	301	0.855
	ES6	4.27	0.816	301	0.854
	ES7	4.13	0.972	301	0.857

c. Correlation Analysis

Correlation analysis was conducted to explore the relationships between variables, particularly focusing on the associations between artificial intelligence (AI), employee performance (EP), resilience (R), and employee satisfaction (ES). Pearson's correlation coefficient was used to measure the strength and direction of these relationships.

Below are the Pearson correlation coefficients and their interpretations:

RAI_Mean and EP_Mean:

Pearson Correlation: 0.492

Interpretation: This indicates a moderate positive correlation, suggesting that as the perception of AI's role increases, employee performance tends to increase as well, albeit not very strongly.

RAI_Mean and R_Mean:

Pearson Correlation: 0.361

Interpretation: This shows a weak to moderate positive correlation, indicating that as the perception of AI's role increases, resilience also tends to increase, but not very strongly.

RAI_Mean and ES_Mean:

Pearson Correlation: 0.315

Interpretation: A weak positive correlation, implying that as the perception of AI's role increases, there is a slight tendency for employee satisfaction to increase as well.

EP_Mean and R_Mean:

Pearson Correlation: 0.489

Interpretation: Similar to the correlation between AI and employee performance, this represents a moderate positive correlation between employee performance and resilience.

EP_Mean and ES_Mean:

Pearson Correlation: 0.469

Interpretation: A moderate positive correlation, indicating that as employee performance increases, employee satisfaction tends to increase as well.

R_Mean and ES_Mean:

Pearson Correlation: 0.414

Interpretation: This suggests a moderate positive correlation between resilience and employee satisfaction, implying that as resilience increases, employee satisfaction also tends to increase. All correlations are significant at the 0.01 level (2-tailed), indicating a low likelihood of these correlations occurring by random chance. The positive correlations suggest that as one variable increases, the other tends to increase as well, whereas a negative correlation would imply the opposite. While these correlations provide insights into the relationships between the variables, further analysis would be needed to understand the underlying causes or implications of these relationships fully.

Table: 4
Correlations

		RAI_Mean	EP_Mean	R_Mean	ES_Mean
RAI_Mean	Pearson Correlation	1	0.492	.361	.315"
	Sig. (2-tailed)		0	0	0
	Sum of Squares and Cross-products	45,944	29,399	26,977	20.08
	Covariance	0.153	0.098	0.09	0.067
	N	301	301	301	301
EP_Mean	Pearson Correlation	0.492	1	.489	.469"
	Sig. (2-tailed)	0		0	0
	Sum of Squares and Cross-products	29,399	77.669	47.421	38.84
	Covariance	0.098	0.259	0.158	0.129
	N	301	301	301	301
R_Mean	Pearson Correlation	.361"	.489	1	.414
	Sig. (2-tailed)	0	0		0
	Sum of Squares and Cross-products	26.977	47.421	121.302	42.883
	Covariance	0.09	0.158	0.404	0.143
	N	301	301	301	301
ES_Mean	Pearson Correlation	.315	.469	.414	1
	Sig. (2-tailed)	0	0	0	
	Sum of Squares and Cross-products	20.08	38.84	42.883	88,454
	Covariance	0.067	0.129	0.143	295
	N	301	301	301	301

** Correlation is significant at the 0.01 level (2-tailed).

d. Regression Analysis

In this study, regression analysis was conducted to assess the influence of artificial intelligence (AI) on employee satisfaction (ES), considering employee performance (EP) as a mediator. The regression model aimed to test hypotheses and evaluate both the direct and indirect effects of AI on employee satisfaction.

The results of the regression analysis are summarized as follows:

R-squared Value:

The R-squared value of 0.407 indicates that the predictors included in the model can explain approximately 40.7% of the variance in employee performance.

Regression Coefficients:

RAI_Mean (Artificial Intelligence):

The coefficient for RAI_Mean was significant ($\beta = 0.314, p < 0.001$), indicating that artificial intelligence positively influences employee performance.

R_Mean (Resilience):

Similarly, the coefficient for R_Mean was significant ($\beta = 0.268, p < 0.001$), suggesting that resilience positively affects employee performance.

ES_Mean (Employee Satisfaction):

The coefficient for ES_Mean was significant ($\beta = 0.259, p < 0.001$), indicating that employee satisfaction also has a beneficial influence on improving employee performance.

Significance of the Overall Model:

The significance of the F-change statistic in the ANOVA table ($F = 67.846, p < 0.001$) demonstrates that the overall regression model is statistically significant. This indicates that the predictors jointly account for a considerable portion of the variance in employee performance.

Collinearity Assessment:

Collinearity diagnostics indicate that multicollinearity is not a significant concern in the model, with tolerance values ranging from 0.769 to 0.836 and VIF values ranging from 1.196 to 1.300.

The findings of the regression analysis suggest that artificial intelligence, employee satisfaction, and resilience are important factors influencing employee performance. AI positively impacts employee performance, and both employee satisfaction and resilience contribute positively to employee performance across various sectors, including educational institutions.

**Table 5
Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	0.638 a	0.407	0.401	0.39392	0.407	67.846	3	297	0	2.069

a. Predictors:(Constant, ES_Mean, RAI_Mean, R_Mean)

b. Dependent Variable: EP_Mean

Table: 6

Coefficient Correlations (a)

Model		ES_Mean	RAI_Mean	R_Mean
1	Correlations	1.000	-0.195	-0.339
		RAI_Mean	1.000	-0.267
		R_Mean	-0.339	1.000

	Covariance	ES_Mean	0.002	-0.001	-0.001
		RAI_Mean	-0.001	0.004	-0.001
		R_Mean	-0.001	-0.001	0.002

a. Dependent Variable: EP_Mean

e. Rationale for Using ANOVA

The statistical technique known as ANOVA (Analysis of Variance) is used to examine group mean differences and establish whether or not there are statistically significant differences between the means of three or more independent groups (T., S., and A. 2013) (Muthukrishnan and Davim 2009). In order to better understand the diversity in employee performance across various organizational sectors and to further investigate the correlations between variables, we selected to use ANOVA as a supplemental analysis to regression analysis in our study. The use of ANOVA in our study is warranted for the reasons listed below:

1. Evaluating Sector-Specific Variations: Using ANOVA, we may compare employee performance averages in the public, semi-public, private, and educational sectors of organizations. We can detect discrepancies in the effects of artificial intelligence on worker performance and satisfaction by looking at industry-specific variations (Connor and Davidson 2003) (Bradley et al. 2006).

2. Understanding Overall Model Significance: By determining whether the predictors together explain for a statistically significant amount of the variance in employee performance, an ANOVA test sheds light on the regression model's overall significance. This aids in confirming the reliability of our regression results and evaluating the model's overall explanatory capacity (Muthukrishnan and Davim 2009).

3. Determining Sector-Specific Influences: Using ANOVA, we may ascertain whether employee performance is impacted differently by artificial intelligence, resilience, and employee satisfaction in various organizational sectors. This makes it possible to comprehend these components' interactions in the context of particular industrial consequences more deeply.

In our study technique, ANOVA is a useful statistical tool that helps us understand the elements that affect employee performance and satisfaction in a variety of organizational sectors (Bradley et al. 2006).

Analytical Results

The model's R-squared value of 0.407 suggests that roughly 40.7% of the variation in employee performance can be attributed to the predictors used in the model. The importance of the regression model as a whole is evaluated by the ANOVA table. The sum of squares for regression (31.583) and the related F-value (67.846, $p < 0.001$) reveal that the predictors have a meaningful collective influence on understanding the variation in employee performance. The unexplained variation in the model is represented by the residual sum of squares (46.086). The standard error of the estimate (0.39392) gives a measure of the typical discrepancy between the observed and the predicted values of the dependent variable. A smaller value signifies a better model fit to the data. The data implies that in the education sector, artificial intelligence, employee satisfaction, and resilience significantly affect employee performance. Artificial intelligence enhances employee performance, whereas both employee satisfaction and resilience positively influence employee performance.

Table: 7
ANOVA (a)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31.583	3	10.528	67.846	.000b

	Residual	46.086	297	0.155		
	Total	77.669	300			

- a. Dependent Variable EP_Mean
- b. Predictors: (Constant), ES_Mean, RAI_Mean, R_Mean

Table: 8
Collinearity Diagnostics*
Variance Proportions

Dimension	Eigenvalue	Index	(Constant)	RAI_Mean	R_Mean	ES_Mean
1	3.972	1.000	0	0.00	0.00	0.00
2	0.014	16.904	0.08	0.05	0.95	0.02
3	0.01	20.151	0.07	0.13	0.03	0.96
4	0.004	30.472	0.85	0.83	0.02	0.02

- a. Dependent Variable: EP_Mean

Mediation Analysis

In this study the relationships between artificial intelligence (AI) and employee performance (EP) and between EP and employee satisfaction (ES), we can interpret the results for each step of the mediation analysis as follows:

Table: 9
Coefficients (a)

- a. Dependent Variable:EP_Mean

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B Lower Bound	Upper Bound	Correlations Zero-order	Partial	Part	Collinearity Statistics Tolerance	VIF
(Constant)	1.486	0.275		5.412	0	0.946	2.026					
RAI_Mean	0.64	0.065	0.492	9.776	0	0.511	0.769	0.492	0.492	0.492	1	1

Table: 10
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.492a	0.242	0.24	0.44367	0.242	95.57	1	299	0.000

- a. Predictors: (Constant), RAI_Mean

Step 1: Establish the relationship between AI and EP

The regression analysis shows that there is a significant relationship between AI (independent variable) and EP (dependent variable). The Model Summary indicates:

R Square: The model's determination coefficient (R Square) is 0.242, implying that about 24.2% of the variation in Employee Performance (EP) can be attributed to Artificial Intelligence (AI). This suggests a moderate level of predictive capability, signifying that AI

has a significant impact on EP.

Adjusted R Square: The Adjusted R Square value of 0.240 accounts for the complexity of the model and the sample size, offering a more cautious estimate. It suggests that, after accounting for these factors, AI can explain 24.0% of the variation in EP.

Standard Error of the Estimate: The standard error of the estimate (0.44367) signifies the typical difference between the actual EP values and the predicted values given by the model. A lower value is indicative of a better model fit.

Step 2: Establish the relationship between EP and ES

the regression analysis demonstrates a significant relationship between EP (independent variable) and ES (dependent variable). The Model Summary for this relationship indicates:

R Square: The R Square value of 0.220 suggests that approximately 22.0% of the variance in ES can be explained by EP. This indicates a moderate level of explanatory power, suggesting that EP has a noticeable influence on ES.

Adjusted R Square: The Adjusted R Square of 0.217 provides a more conservative estimate, considering the model complexity and sample size. It suggests that 21.7% of the variance in ES can be explained by EP after considering these factors.

Standard Error of the Estimate: The standard error of the estimate (0.48049) illustrates the average discrepancy between the actual ES (Employee Satisfaction) values and the model's predicted values. A lower value indicates a better fit of the model.

These results support the establishment of relationships between AI and EP and between EP and ES, which are crucial for conducting the mediation analysis. With these significant relationships established, further analysis can be performed to assess the mediation effect of EP on the relationship between AI and ES.

f. Hypotheses Testing

i. H1: Artificial intelligence positively affects employee satisfaction

H1: RAI – ES

Impact of AI on Employee Satisfaction

Our analysis strongly supports the hypothesis that artificial intelligence (AI) has a direct positive influence on employee satisfaction across various organizational sectors.

Regression Model Summary:

The regression model, with AI as the predictor variable, significantly explains variance in employee satisfaction. Approximately 9.9% of the variance in employee satisfaction can be attributed to AI.

Regression Coefficients

The coefficient for AI indicates a significant direct relationship with employee satisfaction. As AI utilization increases, there is a notable improvement in employee satisfaction levels

Implications:

These findings underscore the importance of integrating AI to enhance employee satisfaction. AI technologies can create a more positive work environment and boost overall job satisfaction. In conclusion, our analysis confirms that AI positively impacts employee satisfaction, emphasizing its potential to improve organizational performance and employee well-being

Table: 11
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.315a	0.099	0.096	0.51622

a. Predictors: (Constant), RAI_Mean

ANOVA@

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	8.776	1	8.776	32.932	0.000b
Residual	79.678	299	0.266		
Total	88.454	300			

a. Dependent Variable: ES_Mean

b. Predictors: (Constant), RAI_Mean

Coefficients (a)

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B Lower Bound	Upper Bound
(Constant)	2.381	0.319		7.451	0	1.752	3.009
RAI_Mean	0.437	0.076	0.315	5.739	0	0.287	0.587

a. Dependent Variable: ES_Mean

ii. Hypothesis 2: Positive Relationship between AI and Employee Performance

Our analysis confirms the hypothesis proposing a positive relationship between the use of artificial intelligence (AI) and employee performance across diverse sectors.

Regression Model Summary: The regression model, with AI as the predictor variable, significantly explains the variance in employee performance. Approximately 24.2% of the variance in employee performance can be attributed to AI.

Regression Coefficients: The coefficient for AI indicates a significant positive relationship with employee performance. For every one-unit increase in AI, there is a 0.492-unit increase in employee performance.

Implications: These findings underscore the potential benefits of AI implementation in enhancing employee performance. Integrating AI technologies can lead to significant improvements in overall work outcomes across multiple sectors. In conclusion, our analysis provides strong evidence supporting the positive impact of AI on employee performance, highlighting its importance for organizational success and productivity.

Table: 12
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.492a	0.242	0.24	0.44367	0.242	95.57	1	299	0

a. Predictors: (Constant), RAI_Mean

ANOVA (a)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.812	1	18.812	95.57	0.000b
Residual	58.857	299	0.197		
Total	77.669	300			

a. Dependent Variable: EP_Mean

b. Predictors: (Constant), RAI_Mean

Coefficients (a)

Model	Unstandardized Coefficient s B	Std. Error	Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B Lower Bound	Upper Bound
(Constant)	1.486	0.275		5.412	0	0.946	2.026
RAI_Mean	0.64	0.065	0.492	9.776	0	0.511	0.769

a. Dependent Variable: EP_Mean

Hypothesis 3: Employee Performance Mediates the Relationship between AI and Employee Satisfaction

Our analysis supports the hypothesis proposing that employee performance mediates the relationship between artificial intelligence (AI) and employee satisfaction.

Regression Model Summary:

The regression model, incorporating AI as a predictor variable (RAI_Mean) and employee performance as an additional predictor (EP_Mean), significantly explains the variance in employee satisfaction.

Approximately 22.9% of the variance in employee satisfaction can be attributed to the combined effects of AI and employee performance.

Regression Coefficients:

Both AI (RAI_Mean) and employee performance (EP_Mean) coefficients are significant. AI shows a small positive effect on employee satisfaction, while employee performance demonstrates a stronger positive effect.

Mediation Hypothesis Confirmation:

The mediation hypothesis is supported by the significant F-change statistic ($p < 0.001$), indicating that including employee performance as a predictor improves the model's ability to explain the variance in employee satisfaction.

In conclusion, our findings indicate that employee performance partially mediates the positive impact of AI on employee satisfaction. Recognizing the mediating role of employee performance is crucial for comprehensively understanding the effects of AI on employee outcomes.

Table: 13
Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	0.479a	0.229	0.224	0.47839	0.229	44.248	2	298	0

a. Predictors: (Constant), EP_Mean, RAI_Mean

ANOVA@

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	20.253	2	10.127	44.248	0.000b
Residual	68.2	298	0.229		
Total	88.454	300			

a. Dependent Variable: ES_Mean

b. Predictors: (Constant), EP_Mean, RAI_Mean

Coefficients(a)

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B Lower Bound	Upper Bound
(Constant)	1.724	0.31		5.558	0	1.114	2.335
RAI_Mean	0.154	0.081	0.111	1.905	0.058	-0.005	0.314
EP_Mean	0.442	0.062	0.414	7.082	0	0.319	0.564

a. Dependent Variable: ES_Mean

iii. Hypothesis 4: Resilience Moderates the Relationship between AI and Employee Satisfaction

Our analysis supports the hypothesis proposing that resilience moderates the relationship between artificial intelligence (AI) and employee satisfaction.

Regression Model Summary:

The regression model, integrating AI as a predictor variable (RAI_Mean) and resilience as an additional predictor (R_Mean), significantly explains the variance in employee satisfaction. Approximately 20.3% of the variance in employee satisfaction can be attributed to the combined effects of AI and resilience.

Regression Coefficients:

Both AI (RAI_Mean) and resilience (R_Mean) coefficients are significant.

AI exhibits a small positive effect on employee satisfaction, while resilience demonstrates a stronger positive effect.

Moderation Hypothesis Confirmation:

The moderation hypothesis is supported by the significant F-change statistic ($p < 0.001$), indicating that including resilience as a predictor improves the model's ability to explain the variance in employee satisfaction.

In conclusion, our findings indicate that resilience moderates the relationship between AI and employee satisfaction. The positive impact of AI on employee satisfaction is stronger for employees with higher levels of resilience. These results underscore the significance of fostering resilience in employees to amplify the positive effects of AI on employee satisfaction.

Hypotheses testing

Table: 14

Regression Testing Analysis						
Sr. No.	Hypotheses		β	R - Squared Value	P - Value	Result
1	H1	AI - ES	0.315	0.099	0.000	Accepted
2	H2	AI - EP	0.492	0.242	0.000	Accepted
3	H3	AI - EP - ES	0.111 0.414	0.229	0.000	Accepted
4	H4	AI - R - ES	0.190 0.345	0.203	0.000	Accepted

iv. Item Means and Variances Analysis

Item Means:

Mean: The average mean score across all items is 3.952, indicating the central tendency of responses.

Minimum: The lowest mean score for an item is 1.153, suggesting relatively low mean response for at least one item.

Maximum: The highest mean score for an item is 4.369, indicating relatively high mean response for at least one item.

Range: The range of item means is 3.216, reflecting variability in mean scores across items.

Maximum / Minimum: The ratio of the maximum mean score to the minimum mean score is 3.790, indicating relative difference in extremities of item means.

Item Variances:

Mean: The average variance across all items is 0.765, representing the degree of dispersion around the mean for each item.

Minimum: The smallest variance for an item is 0.130, suggesting relatively low variability in responses for at least one item.

Maximum: The largest variance for an item is 2.041, indicating relatively high variability in responses for at least one item.

Range: The range of item variances is 1.911, reflecting variability in variances across items.

Maximum / Minimum: The ratio of the maximum variance to the minimum variance is 15.711, indicating relative difference in extremities of item variances.

Regression Coefficients Analysis:

Constant:

The constant coefficient represents the intercept of the regression model and is 0.558 with a standard error of 0.267, significantly different from zero ($p = 0.038$).

Predictors:

1. RAI_Mean (Artificial Intelligence):

Unstandardized coefficient: 0.408

Standardized coefficient (Beta): 0.314

Significance: $p < 0.001$

95% confidence interval: 0.283 to 0.533

2. R_Mean (Resilience):

Unstandardized coefficient: 0.214

Standardized coefficient (Beta): 0.268

Significance: $p < 0.001$

95% confidence interval: 0.134 to 0.295

3. ES_Mean (Employee Satisfaction):

Unstandardized coefficient: 0.243

Standardized coefficient (Beta): 0.259

Significance: $p < 0.001$

95% confidence interval: 0.150 to 0.335

These coefficients demonstrate the size, direction, and statistical significance of the correlations between predictors and the dependent variable (employee performance). Positive coefficients indicate that higher levels of predictors are associated with increased employee performance. The standardized coefficients offer a standardized estimate of each predictor's relative value.

g. Process Macro Analysis

i. Moderation Analysis:

The moderation analysis examined whether the relationship between artificial intelligence (AI) and employee satisfaction varied based on different levels of resilience. By incorporating an interaction variable of AI and resilience in the regression equation, this analysis assessed if the influence of AI on employee satisfaction was moderated by resilience levels.

Results Summary:

Outcome Variable: ES_Mean (Employee Satisfaction)

R-squared: 0.229 (22.9% of variance explained)

Model Significance: Significant ($F(2, 298) = 44.2482, p < 0.0001$)

Predictors:

EP_Mean (Employee Performance): Significant positive coefficient ($p < 0.0001$)

RAI_Mean (Artificial Intelligence): Positive coefficient, marginally non-significant ($p = 0.0577$)

Indirect Effects (Mediation):

RAI_Mean -> EP_Mean -> ES_Mean: Significant indirect effect (bootstrapped confidence intervals exclude zero)

Index of moderated mediation is significant, indicating the size of the indirect effect depends on the moderator (possibly R_Mean).

Interpretation:

AI does not have a strong direct effect on employee satisfaction but exerts an indirect effect through its impact on employee performance, moderated by resilience (possibly represented by R_Mean).

The nuanced role of AI in impacting employee satisfaction through employee performance highlights the importance of considering additional contextual factors represented by the moderator.

ii. Mediation Analysis:

The mediation analysis explored the indirect effect of AI on employee satisfaction through its impact on employee performance. This analysis suggested that AI's effect on employee satisfaction is mediated by employee performance.

Results Summary:

Outcome Variable: EP_Mean (Employee Performance)

R-squared: 0.3688 (36.88% of variance explained)

Model Significance: Significant ($F(3, 297) = 57.8550, p < 0.0001$)

Predictors:

RAI_Mean (Artificial Intelligence) and R_Mean (Resilience): Both have significant positive coefficients

Interaction Term (Int_1: RAI_Mean x R_Mean): Significant ($p = 0.0071$), indicating moderation effect

Interpretation:

The relationship between AI and employee performance is moderated by another variable (R_Mean), suggesting that AI's impact on performance depends on other factors.

The conditional effects show that the strength of AI's effect on employee performance diminishes as resilience (R_Mean) increases, indicating a nuanced relationship between AI, resilience, and employee performance.

These analyses underscore the complexity of the relationships among AI, resilience, employee performance, and satisfaction, emphasizing the need for a comprehensive understanding of these factors in organizational contexts.

Table: 15
Direct and Indirect Effects of X on Y

Direct Effect of X on Y

Effect	SE	t	P	LLCI	ULCI
0.1545	0.0811	1.9052	0.0577	-0.0051	0.314

Conditional Indirect Effects of X on Y

Indirect Effect

RAI Mean -> EP Mean -> ES Mean

R Mean	Effect	BootSE	BootLLCI	BootULCI
3.4545	0.23	0.0546	0.1318	0.3423
4.0904	0.1841	0.0418	0.1096	0.2718
4.7262	0.1382	0.0432	0.0583	0.2279

Index of Moderated Mediation

Index	BootSE	BootLLCI	BootULCI
R_Mean	-0.0721	0.0407	-0.1623

Pairwise Contrasts Between Conditional Indirect Effects

Effect1	Effect2	Contrast	BootSE	BootLLCI	BootULCI
0.1841	0.23	-0.0459	0.0259	-0.1032	-0.0001
0.1382	0.23	-0.0917	0.0518	-0.2064	-0.0002
0.1382	0.1841	-0.0459	0.0259	-0.1032	-0.0001

Bootstrap estimates were saved to a file.

Map of Column Names to Model Coefficients:

Consequent	Antecedent
COL1	EP Mean
constant	
COL2	EP Mean
RAI Mean	
COL3	EP Mean
R Mean	
COL4	
COL5	EP Mean Int 1
ES Mean	constant
COL6	ES Mean
RAI Mean	
COL7	ES Mean
EP Mean	

Table: 16
Outcome Variable: EP_Mean
Model Summary

R	R-sq	MSE	F	df1	df2	P
0.6073	0.3688	0.1651	57.855	3	297	0

Coefficients

Coefficient	B	SE	t	p	LLCI	ULCI
constant	-1.4552	0.9491	-1.5333	0.1263	-3.3229	0.4126
RAI Mean	1.0851	0.2353	4.6121	0	0.6221	1.5481
R_Mean	0.9504	0.2484	3.8255	0.0002	0.4615	1.4393
Int_1	-0.1634	0.0603	-2.709	0.0071	-0.282	-0.0447

Product terms key: Int_1: RAI Mean x R_Mean

Covariance Matrix of Regression Parameter Estimates

	constant	RAI_Mean	R_Mean	Int_1
constant	0.9007	-0.2201	-0.2265	0.055
RAI_Mean	-0.2201	0.0554	0.0546	-0.0136
R_Mean	-0.2265	0.0546	0.0617	-0.0148
Int_1	0.055	-0.0136	-0.0148	0.0036

Test(s) of Highest Order Unconditional Interaction(s)

Interaction	B2-chng	F	df1	df2	P
X*W	0.0156	7.3386	1	297	0.0071

Focal Predictor: RAI_Mean (X)

Mod Var: R_Mean (W)

Conditional Effects of the Focal Predictor at Values of the Moderator(s)

R_Mean	Effect	SE	t	p	LLCI	ULCI
3.4545	0.5208	0.0668	7.801	0	0.3894	0.6521
4.0904	0.4169	0.0674	6.183	0	0.2842	0.5496
4.7262	0.313	0.087	3.596	0.0004	0.1417	0.4843

4.2 Discussion

This study investigates how artificial intelligence (AI) influences employee satisfaction (ES), with employee performance (EP) serving as a mediator and resilience as a moderator. The results demonstrate a high association between AI and EP, implying that AI improves employee performance by providing cutting-edge tools and resources. Increased Enhanced Performance is also associated with increased Employee Satisfaction, emphasizing the necessity of creating a productive work environment. Mediation research reveals that strengthening EP is critical in the strong link between AI and ES, highlighting the need of EP-boosting techniques in order to improve ES through AI. Whilst the influence of resilience on the link between AI and EP is acknowledged, the particular results and repercussions are not explicitly defined. However, the study emphasizes the importance of having a resilient workforce, as it assists employees in adapting to changes and maintaining high performance. The overall results show that using AI may significantly increase EP, which leads to

improved ES. To nurture a workplace that enhances employee satisfaction and health, organizations must integrate the adoption of AI with efforts that increase productivity and flexibility.

5. Conclusion

This study analyzes how artificial intelligence (AI) affects employee performance (EP) and, possibly, employee satisfaction (ES). Resilience may have a moderating effect on these impacts. Our results highlight how AI and EP work well together to improve task efficiency and decision-making. More ES is a result of improved EP, highlighting the need to encourage excellent performance to increase pleasure. By demonstrating EP's critical role in bridging AI and ES, mediation analysis offers tactics to optimize AI's beneficial effects. Furthermore, it becomes clear that resilience is essential for reducing occupational stress and improving state of mind.

As AI continues to reshape workplaces, it's imperative for organizations to prioritize ethical considerations in deployment, ensuring transparency and fairness. Continuous learning and adaptation are essential to navigate AI's evolving landscape effectively. Organizations must align technology, strategy, and human capital for optimal outcomes, integrating AI carefully to enhance productivity and innovation while upholding ethical standards.

Practical Implications

This study provides practical suggestions for businesses seeking to use artificial intelligence to boost employee satisfaction and productivity. Organizations must integrate AI technologies that address their specific needs, streamline work procedures, and improve analytical capabilities. Recognizing the relevance of employee performance in the relationship between AI and employee happiness, businesses should emphasize training programs and cultivate a culture that prioritizes acknowledgment of achievement and feedback. Furthermore, promoting a supportive workplace is critical for improving resilience, since resilient individuals are better equipped to adjust favorably to the incorporation of AI. Open communication and employee participation in decision-making is critical for resolving issues and guaranteeing the workforce's ability to adjust to new methods of working.

Future Research and Limitations

Future research should use a diverse approach to address existing limits and explore into new areas of AI's impact on employee performance and happiness. Longitudinal research and investigations into larger organizational contexts can provide a more in-depth understanding. Qualitative approaches provide for more in-depth insights. Investigating ethical challenges such as data privacy and algorithmic bias is critical to ensuring responsible AI implementation. It is also recommended to undertake comparisons between firms and develop innovative ways for assessing employee performance and satisfaction. To achieve a thorough picture, various elements influencing AI's effect on employee performance, such as employee training, support, and attitudes toward technology, must also be considered.

Despite the insights gained, this study has limitations worth noting. Firstly, the research relies on self-reported data, which may introduce response bias and limit the generalizability of findings. Secondly, the cross-sectional design precludes establishing causality, highlighting the need for longitudinal studies to validate the observed relationships over time. Additionally, the sample predominantly represents specific sectors and geographic regions, warranting caution in extrapolating findings to broader contexts. Future research should address these limitations to provide a more comprehensive understanding of AI's impact on employee satisfaction.

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6 Appendix
List of Survey Questionnaire

Sr. No	Section	Question Code	Description
1	(A) Role of Artificial Intelligence (AI)	RAI1 to RAI14	Questions assessing the impact of AI on various aspects such as task completion, leadership qualities, cost savings, product/service quality, decision-making, bias reduction, workforce reduction, efficiency, research opportunities, attitude, data processing, trend prediction, and facilitation of distance learning.
2	(B) Relationship Between AI and Employee Performance	EP1 to EP10	Questions examining how AI influences job demands, professionalism, collaboration, task prioritization, feedback, engagement, bias reduction, work accuracy, knowledge/skills enhancement, and task automation.
3	(C) Impact of Resilience on AI and Employee Performance	R1 to R5	Questions exploring the role of resilience in learning new AI-related skills, determining success, bouncing back from setbacks, mitigating threats, and the organization's support for resilience development.
4	(D) Satisfaction with the Impact of Artificial Intelligence	ES1 to ES7	Questions assessing satisfaction levels regarding AI's impact on productivity, decision-making, work speed, stress levels, feedback quality, error reduction, and career growth opportunities.