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Evaluating the Effects of AI-Powered Training Programs on Skill Development and Career Growth

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Abstract: *This study explores the multifaceted influence of AI Training, Development, Awareness, and Integration on Employee Engagement and Performance across various sectors in India. The research posits several hypotheses, including the direct effects of AI training and awareness on employee engagement, and the mediating role of engagement in enhancing employee performance. Data collected from employees reveal that AI Training and Development significantly boost engagement by increasing employees' comfort and competence with AI technologies. Additionally, heightened AI Awareness fosters deeper employee engagement, leading to improved performance. The study also finds that AI Integration positively impacts performance, mediated through engagement. These findings underscore the importance of AI-related initiatives in organizations, highlighting that both direct and indirect pathways through employee engagement are critical for maximizing the benefits of AI in the workplace.*

Keywords: AI Training, AI Development, AI Awareness, AI Integration, Employee Engagement, Employee Performance.

I. INTRODUCTION

The rapid advancement of Artificial Intelligence (AI) and its integration into various organizational processes has fundamentally altered the workplace landscape globally, including in India. As organizations increasingly adopt AI technologies, understanding their impact on employee engagement and performance becomes critical for sustaining competitive advantage and fostering innovation. Recent studies highlight the transformative potential of AI, particularly in enhancing operational efficiency, decision-making, and strategic management (Bag et al., 2021; Dwivedi et al., 2021).In the context of leadership, the adoption of AI intersects with various leadership behaviors and organizational dynamics. For instance, research by Asif et al. (2021) underscores the importance of sustainable leadership in educational institutions, revealing how leadership behaviors influence not just immediate outcomes but also long-term sustainability. Similarly, Arshad et al. (2022) explore the role of team climate in moderating the relationship between servant leadership, employee ambidexterity, and work performance, highlighting the nuanced ways in which leadership can affect employee outcomes in AI-integrated environments.

AI's influence extends beyond leadership to impact broader organizational practices, including sustainable manufacturing and the circular economy (Bag et al., 2021). In India, where the manufacturing sector plays a pivotal role in economic development, the integration of AI into sustainable practices is of particular relevance. Moreover, the rise of AI has prompted discussions around the ethical implications of its use in consumer markets (Du & Xie, 2021), an area that Indian businesses are increasingly navigating.Employee engagement and performance remain central to the discourse on AI adoption. Payambarpour and Hooi (2015) emphasize the positive impact of talent management on organizational performance through enhanced employee engagement. This relationship is particularly pertinent in AI-driven environments, where continuous learning and development are crucial for maintaining employee engagement (Maity, 2019). Furthermore, the role of AI in mitigating job burnout and enhancing career competency has been documented by Kong et al. (2021), suggesting that AI can be a double-edged sword—offering both opportunities and challenges in the workplace.The methodology of evaluating AI's impact often involves advanced analytical tools, such

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as Partial Least Squares Structural Equation Modeling (PLS-SEM), which has been widely used to assess complex relationships in organizational research (Hair et al., 2019; Sarstedt et al., 2019). The application of these tools allows for a more nuanced understanding of how AI influences various facets of organizational life, from leadership and culture to employee behavior and performance.In summary, as India continues to integrate AI across sectors, understanding its multifaceted impact on employee engagement and performance is essential. The insights from recent literature provide a robust foundation for exploring these dynamics, particularly in the Indian context, where rapid technological adoption is reshaping traditional organizational practices. The current study aims to build on this foundation, offering new perspectives on the role of AI in enhancing employee engagement and performance in India.

Objectives:

- To evaluate the impact of AI Training and Development on Employee Engagement across various sectors in India
- To analyze the mediating role of Employee Engagement in the relationship between AI Awareness and Employee Performance.
- To investigate the influence of AI Integration on Employee Performance through the mediation of Employee Engagement.

II. METHODOLOGY

The research population for this study comprises employees working in various sectors across India where artificial intelligence (AI) is being integrated into operations. Given the diverse nature of AI applications, the population spans industries such as IT, finance, healthcare, manufacturing, and retail. The sampling frame was designed to capture a representative mix of organizational roles, experience levels, and exposure to AI.A stratified random sampling method was employed to select 386 respondents. This approach ensures representation from different strata (sectors, job roles, experience levels) within the population, thereby enhancing the generalizability of the findings. The sample size of 386 was determined using statistical power analysis (Cohen, 1992), ensuring adequate power to detect significant effects of the independent variables on the dependent variable.

Method of Data Collection:

The primary data collection method was a structured questionnaire survey. The questionnaire, developed based on the conceptual framework and a thorough literature review, included items measuring AI Training and Development, AI Awareness, AI Integration, Employee Engagement, and Employee Performance. Each item was rated on a 5-point Likert scale.

Questionnaire Survey:

The questionnaire targeted employees who have been exposed to AI technologies in their workplaces. This included respondents from various levels, ranging from those directly operating AI tools to those in managerial positions responsible for AI implementation and oversight.The questionnaires were distributed electronically through email and professional networking platforms. This method was selected for its efficiency, cost-effectiveness, and ability to reach a geographically dispersed population (Kronsik & Presser, 2009; Rasoolimanesh, 2022). The online format also allowed respondents to maintain anonymity and complete the survey at their convenience, which likely contributed to higher response rates and more honest responses.

The respondents play a critical role in this study as they are the primary users and beneficiaries of AI technologies in the workplace. Their insights provide valuable information about AI's real-world impact on employee engagement and performance. Previous research has emphasized the importance of employee perspectives in understanding the adoption and implications of new technologies in organizational settings (Brougham & Haar, 2018). Their engagement and performance serve as direct indicators of AI's successful integration into organizational processes.

Descriptive Statistics:

Descriptive statistics provide a summary of the respondents' characteristics and key variables.

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Table 1: Descriptive Statistics of Respondents

Category	Number of Respondents	Percentage (%)
IT Sector	78	20.21
Finance Sector	61	15.80
Healthcare Sector	94	24.35
Manufacturing Sector	42	10.88
Junior Level Employees	39	10.10
Mid-Level Employees	39	10.10
Senior Level Employees	33	8.55

Reliability Analysis

Reliability analysis checks the internal consistency of the measurement scales using Cronbach's Alpha.

Table 2: Reliability Analysis (Cronbach's Alpha)

Constructs	Cronbach's Alpha (α)
AI Integration	0.83
AI Training and Development	0.78
AI Awareness	0.81
Employee Engagement	0.86
Employee Performance	0.82

Validity Analysis

Convergent Validity: Measured using Average Variance Extracted (AVE) and factor loadings.

Discriminant Validity: Ensures constructs are distinct using correlations and square root of AVE.

Table 3: Convergent Validity (AVE and Factor Loadings)

Constructs	AVE	Factor Loading Range
AI Integration	0.52	0.66 - 0.88
AI Training and Development	0.55	0.64 - 0.86
AI Awareness	0.58	0.69 - 0.84
Employee Engagement	0.63	0.71 - 0.91
Employee Performance	0.56	0.68 - 0.89

Table 4: Discriminant Validity (Correlations and AVE)

Constructs	AI Integration	AI Training	AI Awareness	Employee Engagement	Employee Performance
AI Integration	0.72	0.42	0.38	0.52	0.47
AI Training and Development	0.42	0.73	0.46	0.57	0.52
AI Awareness	0.38	0.46	0.76	0.63	0.55
Employee Engagement	0.52	0.57	0.63	0.79	0.73
Employee Performance	0.47	0.52	0.55	0.73	0.75

Note: The diagonal values represent the square root of the AVE for each construct, which should be higher than the correlations with other constructs to confirm discriminant validity.

Hypothesis Testing Results

Hypothesis	Path Coeff	t-Value	Standard Error	Result
H1 (AI Integration -> Employee Engagement)	0.26	5.21	0.05	Supported
H2 (AI Training -> Employee Engagement)	0.31	5.89	0.05	Supported
H3 (AI Awareness -> Employee Engagement)	0.22	4.35	0.05	Supported

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H4 (Employee Engagement -> Employee Performance)	0.42	6.02	0.07	Supported

Impact of AI Integration on Employee Engagement

The statistical analysis reveals a significant positive relationship between AI Integration and Employee Engagement (Path Coefficient = 0.26, t-Value = 5.21). This indicates that as organizations integrate AI into their operations, employees are more likely to become engaged in their work. AI Integration may streamline processes, reduce mundane tasks, and empower employees with advanced tools, thereby fostering a more engaging work environment.

Interpretation: AI Integration facilitates a more dynamic and interactive work environment, leading to higher levels of employee involvement and enthusiasm. Employees may feel more valued and equipped to perform their tasks effectively when AI technologies are seamlessly integrated into their workflows.

Influence of AI Training and Development on Employee Engagement

AI Training and Development also showed a significant positive effect on Employee Engagement (Path Coefficient = 0.31, t-Value = 5.89). This suggests that when organizations invest in training programs that enhance employees' AI-related skills and competencies, it significantly boosts their engagement levels. Training initiatives may build employees' confidence in using AI tools and technologies, reducing resistance to change and increasing job satisfaction.

Continuous learning and development opportunities, particularly in AI, are crucial for keeping employees motivated and engaged. By equipping employees with the necessary skills to thrive in an AI-driven environment, organizations can cultivate a culture of continuous improvement and innovation.

Role of AI Awareness in Promoting Employee Engagement

The study also found a significant relationship between AI Awareness and Employee Engagement (Path Coefficient = 0.22, t-Value = 4.35). This indicates that employees who are more aware of the potential and implications of AI technologies are more likely to engage with their work. Awareness could come from transparent communication from leadership about AI initiatives, as well as efforts to involve employees in the AI adoption process.

Awareness of AI's benefits and challenges allows employees to better understand and appreciate the role of AI in their organization. This knowledge fosters a sense of alignment with the organization's strategic goals, leading to increased engagement and commitment to their roles.

Effect of Employee Engagement on Employee Performance

The direct relationship between Employee Engagement and Employee Performance was found to be strongly significant (Path Coefficient = 0.42, t-Value = 6.02). Engaged employees are more likely to exhibit higher levels of performance, as they are more committed, motivated, and aligned with the organization's objectives. This finding underscores the critical importance of fostering engagement as a means to drive performance outcomes.

Employee Engagement is a powerful predictor of performance. Engaged employees not only perform better but also contribute to a positive organizational culture, leading to better overall organizational outcomes. Companies should prioritize engagement strategies as a core component of their HR practices.

III. CONCLUSION

The analysis confirms that AI Integration, AI Training, and AI Awareness positively influence Employee Engagement, which in turn enhances Employee Performance. Mediation analysis further supports that Employee Engagement serves as a significant mediator in the relationship between AI-related factors and Employee Performance. This study offers a comprehensive analysis of the influence of AI Integration, Training, and Awareness on Employee Engagement and Performance across various sectors in Pakistan. The data, collected from 386 respondents, revealed significant insights into how AI factors contribute to enhancing organizational outcomes.

AI Integration: The positive path coefficient (0.26) indicates that effective AI integration into work processes leads to higher employee engagement. This suggests that employees feel more involved and motivated when AI tools are seamlessly incorporated into their daily tasks, likely due to increased efficiency and reduced mundane work.

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AI Training and Development: With the highest path coefficient (0.31), AI Training and Development emerges as the most influential factor in boosting employee engagement. This highlights the critical role of training programs in equipping employees with the necessary skills to adapt to AI technologies, thereby increasing their confidence and satisfaction at work.

AI Awareness: The study also found that AI Awareness (path coefficient 0.22) significantly affects employee engagement. Awareness initiatives help employees understand the benefits and potential of AI, reducing resistance and fostering a culture of innovation.

Employee Engagement as a Mediator: Employee engagement was found to be a significant mediator between AI-related factors and employee performance. The mediation analysis shows that higher engagement leads to better performance, reinforcing the idea that engaged employees are more productive, innovative, and committed to their roles.

Impact on Employee Performance: The strong relationship between employee engagement and performance (path coefficient 0.42) underscores the importance of focusing on engagement strategies to drive organizational success. When employees are engaged, they are more likely to perform at higher levels, contributing to the overall efficiency and competitiveness of the organization.

In summary, this research underscores the critical role of AI in shaping the future of work. By strategically focusing on AI-related factors, organizations can unlock new levels of employee engagement and performance, ensuring long-term success in a rapidly evolving technological landscape.

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