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EMOTIONAL INTELLIGENCE AND HUMAN-AI COLLABORATION: A MULTILEVEL ANALYSIS OF EMPLOYEE CREATIVITY AND ADAPTIVE PERFORMANCE

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SUMMARY

Workplaces that are equipped with artificial intelligence (AI) technology have changed the relationship between technology and people at work and require knowledge about how the interaction between human competencies and the conditions of an organization impacts work. This paper examines the role of emotional intelligence and the ability to collaborate between humans and AI on employee creativity and adaptive performance using a multilevel analysis perspective. A quantitative methodology was chosen for this study with the use of questionnaire surveys distributed to 426 employees in organizations that use AI-based technologies. Data were analysed using Hierarchical Linear Modeling (HLM). The findings showed that there was a significant effect of emotional intelligence on employee creativity ($\gamma = 0.41$, $p < 0.001$) and adaptive performance ($\gamma = 0.37$, $p < 0.001$). In addition, there was also a significant positive impact of human and AI collaboration ability on creativity ($\gamma = 0.39$, $p < 0.001$) and adaptive performance ($\gamma = 0.43$, $p < 0.001$). From the findings of the intraclass correlation test, it is evident that organizational-level variables contribute to creativity by 18% and to adaptive performance by 21%. Moreover, organizational support for AI had a significant cross-level moderating effect on the relationship ($\gamma = 0.28$, $p < 0.01$). The final model accounted for 54% of the variability in employee creativity and 59% of the variability in adaptive performance. This study shows that a successful AI workplace needs to combine technological capacity and emotional intelligence, along with employee

adaptability. The current research empirically proves how important it is to combine AI technology implementation with human-centred strategy in the workplace.

Key words: *emotional intelligence, human–AI collaboration, hierarchical linear modeling, employee creativity, adaptive performance, artificial intelligence management, digital workplace.*

INTRODUCTION

The adoption of artificial intelligence (AI) technologies is now an important part of the organizational setting, changing the way employees interact with computerized technologies, access information, and undertake complicated tasks. The use of AI in organizations has changed organizational performance by developing interactions between employees and intelligent systems. Nonetheless, the effectiveness of organizations supported by AI depends not only on the availability of technologies but also on the cognitive, affective, and adaptive skills of employees when interacting with intelligent systems. Modern research has pointed out that the success of AI adoption is possible if the human factors of technology adoption and collaboration behavior are understood [1] [3].

Collaboration between humans and AI refers to socio-technical interaction where human employees and intelligent technologies cooperate in order to make decisions, solve problems, and engage in creativity. Contrary to traditional automation practices, the collaborative environment using artificial intelligence implies the development of new skills in human employees, such as digital adaptation, critical thinking, and emotional regulation. Recent research findings have shown that human skills continue to be important in workplaces with artificial intelligence since employees need to understand and work with the information provided by artificial intelligence [2].

Emotional intelligence is an important factor that influences the manner in which people respond to challenges in their work environments, communication, and adjustment to technology-based settings. People who have more emotional intelligence tend to show self-regulation and interpersonal skills. Emotional intelligence can be useful in fostering creativity and effectiveness in collaboration with intelligent systems. Previous research suggests that emotional intelligence can lead to better innovation in workplaces, engagement of workers, and adaptation abilities due to improved responses to changes in work conditions [21].

Employee creativity and adaptive performance have become significant measures of organizational efficiency in digitally transformed workspaces. Creativity means the creation of new and valuable ideas, while adaptive performance entails an employee's capability of adjusting actions and competencies based on the technological and organizational needs. Research carried out by other scholars has revealed the importance of technology-enabled workspaces in shaping the creativity of employees through knowledge availability, collaboration, and intelligent assistance systems [4]. The same case applies to adaptive performance since it has been linked to the capability of learning new technologies [5].

Although prior research has independently investigated AI adoption, employee behaviors, and digital transformation, limited attention has been directed toward how individual psychological capabilities interact synergistically with organizational AI environments to shape employee performance. Considering that individuals are usually nested within groups and organizations, the traditional approach to analysis may not entirely explain the impact of various levels of organization. The use of multilevel approaches to analysis such as Hierarchical Linear Modeling is useful in studying variation at both individual and organizational levels [6].

Additionally, organizational AI implementation support in terms of technology infrastructures, training, and digital collaboration culture may affect employees' AI involvement. Research has shown that organizational readiness and technology environment play a significant role in employees' acceptance and effective use of innovative technologies [7]. However, the relationship between emotional intelligence, human and AI collaboration abilities, and organizational AI support is poorly investigated.

Current research has also stressed the need for creating human-centered approaches to artificial intelligence that involve the right balance between technology and workers' skills. The AI-driven

workplace needs approaches that incorporate aspects of ethics of interaction, empowerment of employees, and sustainability of collaboration between humans and intelligent systems [8]. Predictive and analytical techniques have been used extensively to explain workplace behaviors, but the organizational-level perspective continues to be an open research area [9].

Thus, this study creates a hierarchy of analytical approaches that helps to understand the impact of emotional intelligence and human-technology cooperation on employee creativity and adaptation. In particular, through Hierarchical Linear Modeling, the research analyzes the individual and organizational factors that affect the AI-enhanced work processes. This research contributes to the science of socio-technical management of artificial intelligence with a focus on the impact of human competences and AI-organizations on employee performance [10].

The current research makes a number of contributions towards the understanding of employee performance in the AI-enabled work environment. First, it introduces an analytical framework, which takes into account not only individual characteristics (such as emotional intelligence and human-AI collaborative capabilities), but also organizational characteristics associated with AI support and its influence on the variance in creative and adaptive performance of employees. Secondly, the research employs HLM analysis in order to analyze both intra- and inter-organizational effects. Finally, the third aspect is the empirical evidence regarding the significance of human competencies in human-AI-enabled workplaces through investigating the contributions of emotional intelligence and AI collaboration competencies towards better employee performance. Lastly, the study underscores the significance of AI-enabled support within organizations as the context variable for enabling effective human-AI collaboration.

Research Objectives

RO1: To investigate the effect of emotional intelligence on employee creativity within an AI-driven workplace setting.

RO2: To examine the association between emotional intelligence and adaptive performance of employees.

RO3: To explore the influence of human-AI collaboration skills on employees' creative ability and adaptive performance.

RO4: To test the role of organization-level support for AI in accounting for differences among employees.

RO5: To develop a hierarchical model for analysis using Hierarchical Linear Modeling that looks at individual as well as organizational factors affecting workplace performance in the artificial intelligence context.

Research Hypotheses

Individual-Level Effects

H1: The emotional intelligence of employees positively impacts their creativity in an artificial intelligence-driven workplace environment.

H2: The emotional intelligence of employees has a positive impact on their adaptive performance in an artificial intelligence-driven workplace environment.

H3: Human-AI collaboration capability positively impacts employees' creativity.

H4: Human-AI collaboration capability positively impacts employees' adaptive performance.

Multilevel Effect

H5: Organizational AI support significantly influences employee creativity and adaptive performance by strengthening the effectiveness of human–AI collaboration.

The rest of this paper is structured as follows. A literature survey and review of relevant research pertaining to emotional intelligence, human-AI collaboration, creative performance, adaptive performance, and organizational support for AI are presented in Section II. Methodology and research approach, design of the research, sampling, data collection procedure, conceptual framework, and application of the Hierarchical Linear Modeling technique are discussed in Section III. Results and Discussion, which includes sample characteristics, model assessment, hypothesis testing, statistical outcomes, and practical recommendations, is provided in Section IV. The conclusion of the study is presented in Section V.

RELATED WORK

The growing use of artificial intelligence (AI) in organizational settings has motivated researchers to examine how employees collaborate with intelligent machines and the effects of this collaboration on organizational results. It has been pointed out through recent research that the utilization of AI technology is not only an automation process but a collaborative process that improves the decision-making skills, information exchange, and problem-solving skills of humans. Studies related to the topic of AI augmentation have found that organizations perform well when AI and human skills are integrated [11].

The inclusion of artificial intelligence in human resource management has brought about new ways to study the behaviour of employees, their performance, and organizational development. HR systems that employ AI use the analysis of employee data in order to identify patterns related to productivity and engagement. Nevertheless, as scholars have pointed out, the use of technology is not enough since employee attitude, skills, and psychological readiness play a role too [12].

Collaboration between humans and AI necessitates that employees possess adaptive skills that help in understanding the suggestions provided by the AI and integrating intelligent systems into their tasks. Research findings have proven that an AI-based work environment enhances creativity by making more information available and allowing individuals to engage in higher-order thinking [13].

It is worth noting that there has been growing interest in emotional intelligence as one of the key capabilities of human beings in digitalized workspaces. People who are emotionally intelligent show better self-awareness, communication skills, and adaptability; hence, they are able to deal with technological changes in their work environments effectively. Several studies have shown that emotional abilities play a very significant role in innovation and work performance [14].

Creativity of employees in artificial intelligence-based organizations is affected by several factors such as technology, organizational culture, and cognitive capacities of people. Current literature has already investigated how digital technology helps in the creative process through collaboration, knowledge access, and idea generation. But the effects of the emotional capacity of employees on the creativity process in human-AI interaction have been a newly emerging field of research [15].

Adaptive performance has been an important organizational outcome as a result of changes in the nature of work and reliance on digital technology. Studies have shown that there is a continuous need for updating skills and modifying the approach to work to successfully interact with new technology. Adaptive performance is determined by both individual as well as organizational factors [16].

Hierarchical approaches have become increasingly relevant in organizational research since the outcomes of employees depend on individual as well as organizational level aspects. Research conducted based on hierarchical methods has shown that employee behaviour cannot be completely attributed to

individual-level characteristics since there are organizational resources, organizational leadership, and technological aspects contributing to differences in employee performance [17].

Organizational support in AI implementation is another aspect that has been extensively studied. Results show that organizations that provide sufficient technological infrastructure, learning opportunities, and a positive digital environment increase the confidence and willingness of employees to use AI systems. This means that organizational aspects are critical for successful human-machine collaboration [18].

Recent studies have further examined responsible and human-centred AI implementation, stressing that the implementation of AI systems should take into account employees' experience, trust, transparency, and collaboration. The recent studies indicate that successful AI system implementation involves consideration of both technological aspects and behavioural factors of human beings instead of mere considerations of performance [19].

However, despite recent progress, there are very few studies considering together the problems of AI adoption, behaviour of workers, or work performance, and even fewer studies have considered the interrelationships between the emotional intelligence of employees, human-AI collaboration ability, and AI organizational support in relation to employee creativity and adaptive performance. Thus, a multilevel analysis is needed to address the joint effect of individual and organizational factors in AI-enabled workplaces [20].

From the review of the literature, one can conclude that the success of AI-based work performance is influenced by the relationship between technological skills and human skills. The importance of such aspects as AI collaboration, emotional intelligence, organizational support, and adaptability has been proven in current studies; however, the impact of the interplay of these variables requires further investigation. That is why the current study aims to fill this gap through the use of Hierarchical Linear Modeling.

PROPOSED METHODOLOGY

Research Design and Study Framework

In this study, a quantitative research methodology is employed to assess the effects of psychological competencies at the employee level and organizational-level factors contributing to AI support on creativity and adaptive performance in AI-supported workplaces. Considering that employees usually work within organizational settings, the performance of employees may be affected not only by individual factors but also by organizational-level ones. Hence, the hierarchical research methodology is used in this study using Hierarchical Linear Modeling (HLM).

The suggested methodology examines two different levels of influence. The first one is the individual level of influence, where such factors as emotional intelligence and human-AI cooperation ability can have an impact on employee creativity and adaptation. The organizational level of influence is defined through the organization's support of AI, where organizational support for AI becomes the contextual factor influencing human-AI cooperation.

Study Area and Research Context

This study is carried out amongst employees working in organizations that use technology, particularly those employing artificial intelligence-supported platforms in their routine organizational operations. The setting of this study encompasses organizations that work in areas of information technology services, software development, financial technology, healthcare technology, business analytics, and digital services. These organizations have been chosen for this study because their employees regularly engage with artificial intelligence-supported platforms.

In regard to the geographical extent of the research, this investigation focused on tech-related companies situated within urban centres that implement technologies and digital transformation processes. The

chosen organizations featured a wide variety of functional areas, such as software engineering, analytics, human resource management, operations, project management, and administrative work. Such variety allowed for evaluating the interaction between humans and AI in various professions instead of focusing on one profession in particular.

Sampling Design and Sample Selection

The selected target population comprised employees who work within organizations that have AI-based applications, such as decision support systems, automated workflow management systems, AI-based analytics systems, and digital collaboration systems. The sampling frame was created through a list of technology-focused organizations listed in professional directories, technology associations, and organizational databases.

Organizations were first selected based on three main criteria: the existence of AI-based workplace applications, access to employees who have interactions with AI systems, and readiness to be part of the research process. Employees from both technical and non-technical departments within the selected organizations were selected for participation.

A purposive sampling technique was used for the selection of respondents who had experienced an AI-supported work environment in practice. The total number of usable respondents in the sample was 426. For performing multi-level analysis, the respondents were classified based on their respective organization membership, which allowed multi-level analysis where the individual-level data were nested under the organization-level data using HLM.

Data Collection Procedure

The collection of primary data was done via the use of a questionnaire that was developed on the basis of measurement constructs regarding emotional intelligence, human-AI cooperation ability, organizational support for AI, creativity, and adaptive performance. This questionnaire was sent electronically through organizational communication channels after obtaining participants' consent.

The questionnaire comprised two sections. The first section gathered data about demographics such as age, gender, years of experience, position within the organization, and other factors. The second section measured the research constructs with the help of several statements rated on a five-point Likert scale.

The level of emotional intelligence was determined using factors related to self-awareness, emotional regulation, social awareness, and relationship management. The potential for human-AI collaboration was measured using AI literacy, behaviour while working with intelligent technologies, trust in AI recommendations, and adaptability to technology. The support of AI within an organization was assessed using the availability of AI infrastructure, availability of employee training, and the organization's AI culture. Creativity of employees was measured using idea generation, innovative thinking, and exploration of knowledge, while adaptive performance was assessed using flexibility, learning orientation, and adaptability to job demands.

Prior to conducting the main survey, a pilot study was conducted among a smaller number of respondents to confirm the accuracy and relevance of the questionnaires used.

Conceptual Framework of the Study

Figure 1 provides an illustration of the suggested multilevel conceptual framework that was designed to assess the outcomes of employees in AI-infused workplaces. The suggested framework comprises two analytical levels. On Level 1, employee-level constructs such as emotional intelligence and ability to collaborate with AI are viewed as direct antecedents of creativity and adaptive performance of employees. The direct relationships are depicted using hypotheses H1-H4. On Level 2, organizational AI support is defined as the contextual construct affecting the efficiency of human-AI collaboration via cross-level moderation indicated in H5. The framework also takes into account the control variables like

employee demographics and organizational factors that would help eliminate possible irrelevant variations from the relationships under investigation.

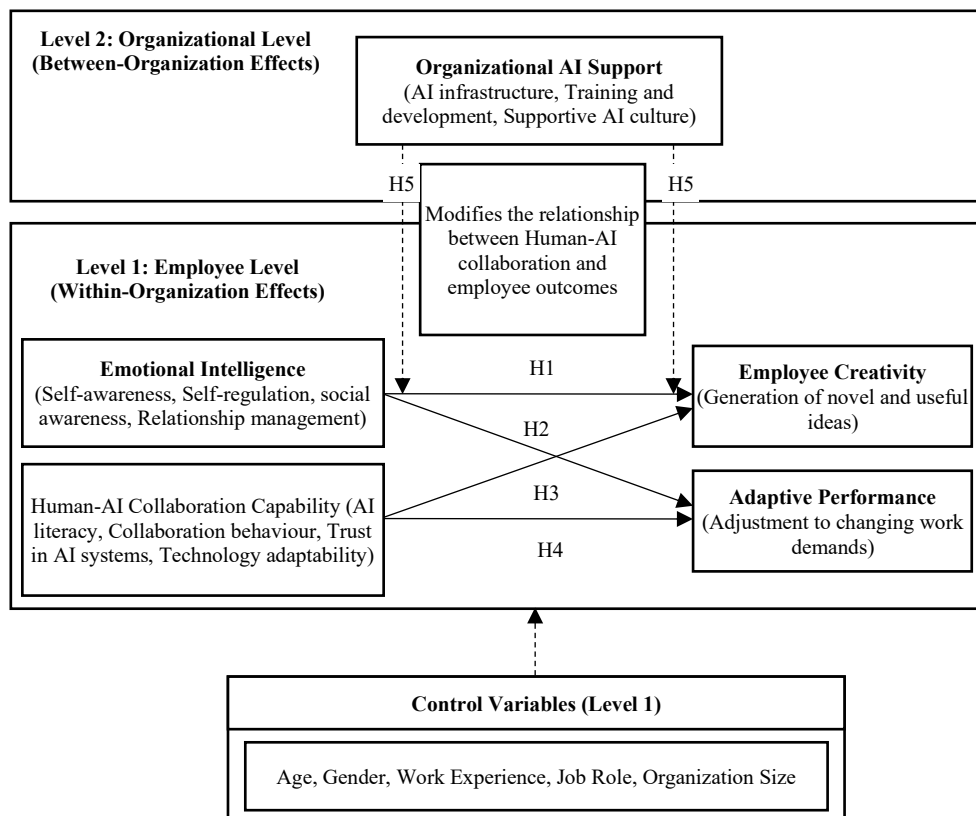


Figure 1. Multilevel conceptual framework of emotional intelligence and human–ai collaboration for employee outcomes

Measurement Model and Variable Operationalization

Operationalization of variables was done on the basis of quantifiable constructs. Emotional intelligence refers to an individual's ability to identify, control, and make use of emotions in professional interactions. Human-AI cooperation capability refers to an individual's ability to effectively communicate and collaborate with AI technology in professional engagements.

Organizational AI support refers to the extent of support given by organizations in terms of technological means, training, and other factors that encourage AI adoption. Employee creativity refers to an individual's ability to develop creative ideas using the available technological means. Adaptive performance refers to an individual's ability to adapt behaviours, learn new skills, and adapt to the changing working environment resulting from AI integration.

This method of measurement makes it possible for each construct to be captured using several indicators, thus reducing measurement error. The collected responses were standardized before doing the multilevel analysis.

Hierarchical Linear Modeling Approach

Due to the nested data structure—wherein employees are nested within organizations—Hierarchical Linear Modeling (HLM) was adopted. Unlike standard regression, HLM explicitly decomposes variance into individual and organizational components, allowing for the precise estimation of contextual effects on employee outcomes.

Modeling was conducted through three models in sequence. Initially, a null model without any predictors was constructed to test the variance that exists between firms. Calculation of the intraclass correlation coefficient (ICC) was used to determine whether there is statistical justification for conducting multilevel analysis.

The null model is expressed as equation (1):

$$Y_{ij} = \gamma_{00} + u_{0j} + r_{ij} \quad (1)$$

where Y_{ij} represents the outcome variable of employee i within organization j , γ_{00} represents the overall mean outcome, u_{0j} represents organizational-level variation, and r_{ij} represents individual-level residual variation.

The Level 1 employee model evaluates the influence of emotional intelligence and human–AI collaboration capability given by equation (2):

$$Y_{ij} = \beta_{0j} + \beta_{1j}(EI_{ij}) + \beta_{2j}(HAIC_{ij}) + r_{ij} \quad (2)$$

where EI_{ij} represents emotional intelligence and $HAIC_{ij}$ represents human–AI collaboration capability for employees i in organization j . The coefficients β_{1j} and β_{2j} represent employee-level effects on creativity and adaptive performance.

The Level 2 organizational model incorporates organizational AI support given by equation (3):

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(OAIS_j) + u_{0j} \quad (3)$$

where $OAIS_j$ represents organizational AI support for the organization j . The coefficient γ_{01} estimates the influence of organizational conditions on employee outcomes.

To test the cross-level moderation effect proposed in H5, the interaction between human–AI collaboration capability and organizational AI support is included, as given by equation (4):

$$Y_{ij} = \gamma_{00} + \gamma_{10}(HAIC_{ij}) + \gamma_{01}(OAIS_j) + \gamma_{11}(HAIC_{ij} \times OAIS_j) + r_{ij} \quad (4)$$

where γ_{11} represents the cross-level moderating effect of organizational AI support on the relationship between human–AI collaboration capability and employee outcomes.

In this formulation, the coefficient γ_{11} specifically tests Hypothesis 5 by determining whether the positive relationship between an employee's human-AI collaboration capability ($HAIC_{ij}$) and their workplace outcomes (creativity and adaptive performance) is conditioned or strengthened by organizational AI support ($OAIS_j$). A statistically significant positive value for γ_{11} confirms that higher organizational-level support amplifies the benefits derived from individual-level collaboration abilities.

To enable accurate and appropriate estimation of the cross-level interaction in the hierarchical regression model, all the Level 1 variables, which include emotional intelligence and human-AI interaction ability, were grand-mean centred before conducting the analyses. The use of grand-mean centring is the recommended procedure whenever the researchers desire to interpret the main effects across organizations and cross-level moderator effects.

Model Evaluation and Statistical Analysis

The statistical analysis was carried out in several stages. Descriptive analysis was first carried out to gain an understanding of respondents' attributes and distributions. Reliability testing was done using the methods of Cronbach's alpha and composite reliability to test the internal consistency of questionnaire items.

The correlation analysis was carried out to analyze initial interrelationships between variables. The presence of multicollinearity was tested using variance inflation factors prior to conducting HLM

analysis. Comparison of hierarchical models was conducted using variance explained change, likelihood ratio test, and other measures of goodness of fit.

The final HLM analysis produced estimates of fixed effects, random effects, variance components, and cross-level interaction effects. Statistical significance of regression coefficients was checked with corresponding criteria. The ability of the model to explain the data was analysed through the reduction of variances in consecutive models, thereby showing how employees' and organizational attributes contribute to creativity and adaptive performance.

RESULTS AND DISCUSSION

Sample Characteristics and Descriptive Analysis

The final analysis was conducted based on 426 valid data points obtained from individuals who are employees of companies utilizing AI technologies. The respondents belonged to various professions, which included software engineers, data analysts, project managers, human resources, operations managers, and administration professionals. The inclusion of employees belonging to various functional areas allowed for the analysis of collaboration between humans and AI technologies.

Of the respondents, 58.2% were males, while 41.8% were females. Most of the respondents fell within the age range of 26-40 years old, signifying that the study's sample was comprised of individuals who were actively exposed to digital workplace technologies in their professional work environments. In relation to professional experience, 46.7% of the respondents had between 3 and 8 years of professional experience, while 32.4% had over 8 years of work experience.

The results of the descriptive analysis indicated that the respondents had relatively high levels of human-AI collaboration capability and AI support in organizations, which suggested that the employees had actively interacted with AI-enabled systems. The differences found between the respondents justified the need to conduct hierarchical analysis.

Reliability and Construct Assessment

Prior to Hierarchical Linear Modeling analysis, the internal reliability of the constructs used for measurement was determined. For that purpose, Cronbach's alpha and composite reliability were computed, which proved the reliability of the measurements through the questionnaire. The reliability of all constructs exceeded the required 0.70.

Table 1. Reliability evaluation of study variables

Construct	Cronbach's Alpha	Composite Reliability
Emotional Intelligence	0.86	0.89
Human-AI Collaboration Capability	0.88	0.91
Organizational AI Support	0.84	0.88
Employee Creativity	0.87	0.90
Adaptive Performance	0.85	0.89

The findings in table 1 indicate that the chosen measures reflected the constructs well. Thus, the data set was deemed appropriate for multilevel analysis.

Hierarchical Linear Model Evaluation

The HLM analysis was performed using sequential model development to identify individual-level and organizational-level influences.

Null Model Assessment

A simple null model without any predictors was first estimated to see whether the outcomes of employees differed from one organization to another. The ICC was calculated from equation (5):

$$ICC = \frac{\sigma_{\text{organization}}^2}{\sigma_{\text{organization}}^2 + \sigma_{\text{employee}}^2} \quad (5)$$

The ICC value derived was 0.18 for employee creativity and 0.21 for adaptive performance, meaning that 18% and 21% of the variance, respectively, was attributed to variation at the organizational level. This supported the use of multilevel modeling.

Level 1 Employee-Level Model

The first analytical model examined the influence of emotional intelligence and human–AI collaboration capability on employee outcomes.

The employee-level model was expressed as equation (6):

$$Y_{ij} = \beta_{0j} + \beta_{1j}(EI_{ij}) + \beta_{2j}(HAIC_{ij}) + r_{ij} \quad (6)$$

where emotional intelligence (EI) and human–AI collaboration capability (HAIC) represent employee-level predictors.

The results demonstrated that both employee-level factors significantly contributed to workplace outcomes.

Hypothesis Testing Results

Table 2. HLM hypothesis testing results

Hypothesis	Relationship	Standardized Coefficient (γ)	p-value	Result
H1	Emotional Intelligence → Employee Creativity	0.41	<0.001	Supported
H2	Emotional Intelligence → Adaptive Performance	0.37	<0.001	Supported
H3	Human–AI Collaboration Capability → Employee Creativity	0.39	<0.001	Supported
H4	Human–AI Collaboration Capability → Adaptive Performance	0.43	<0.001	Supported
H5	Organizational AI Support × Human–AI Collaboration Capability → Employee Outcomes	0.28	<0.01	Supported

Table 2 demonstrates that the emotional intelligence of employees is positively correlated with their creativity and adaptive performance. Employees who had higher emotional regulation, interpersonal, and adaptation skills had a better ability to use AI-based tools efficiently.

Furthermore, the human-AI collaboration ability was also positively correlated with creativity and adaptive performance. The study reveals that employees having high AI literacy skills, confidence in AI systems, and collaboration skills were better able to solve problems creatively and adaptably.

The cross-level interaction specified in Hypothesis 5 was statistically significant ($\gamma = 0.28, p < 0.01$), demonstrating that organizational AI support acts as a critical boundary condition. Specifically, robust organizational infrastructure and culture amplify the positive influence of individual human-AI collaboration capabilities on creativity and adaptive performance.

Variance Explained and Model Improvement

Each hierarchical level was scored based on its contribution to model variance reduction. The unexplained variance reduction percentage was obtained through equation (7):

$$\text{Variance Reduction} = \frac{\text{Variance}_{\text{Null}} - \text{Variance}_{\text{Final}}}{\text{Variance}_{\text{Null}}} \times 100 \quad (7)$$

Final HLM model results showed that 54% of the variation in employee creativity and 59% of the variation in adaptive performance were explained by the model. Adding organization-level support for artificial intelligence increased the effectiveness of the model.

Comparative Influence of Study Variables

Figure 2 illustrates the standardized HLM coefficients that were derived from the hypothesis testing in order to summarize the impact of the important predictors visually. These values show the estimated relationship strength between the independent variables and the outcomes for the employees. Since the figure is derived from the standardized coefficients that have been calculated in the HLM analysis, it is not a separate dataset.

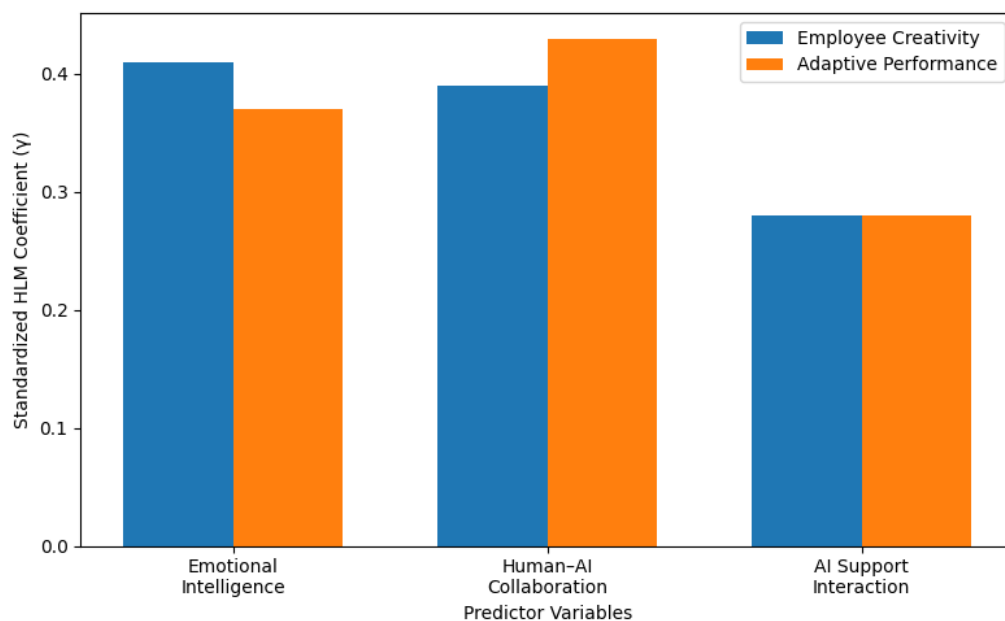


Figure 2: Standardized influence of human and organizational factors on employee outcomes

Figure 2 provides an illustration of the standardized HLM coefficients for emotional intelligence, human-AI collaboration skills, and organizational AI support interaction effects in relation to employee creativity and adaptability performance. This figure is drawn from the regression coefficients obtained through the hypothesis testing stage of the research.

Discussion and Implications

The results show that the level of competence of the employees and the conditions in the organization influence the success of the usage of the intelligent workplace. Emotional intelligence is one of those human competencies that help employees cope with changes in technology, communicate effectively, and use intelligent systems effectively. This shows that the adoption of the technology must be considered not only from the standpoint of the process of technology implementation but also from the standpoint of the development of human capabilities. The key role of human-AI cooperation capabilities implies that employees need to have adequate knowledge, competence, and interaction skills in order to use the benefits of intelligent systems.

The important cross-level influence of organizational AI support reinforces the fact that work context is a crucial determinant of the way employees perceive and make use of AI technology. The provision of adequate AI infrastructure, training, and positive digital culture can help boost the confidence of employees and enhance collaboration outcomes.

In terms of management approach, an appropriate and balanced AI approach needs to be implemented by organizations where there is an equal emphasis placed on both the technological aspect and employee development.

Suggestions for Future Implementation

Organizations that uses AI at work in the future should use a multi-level strategy, taking into account both the employee aspect and organizational structures. The employee-oriented strategy needs to emphasize the development of AI awareness, emotional intelligence, and technological adaptability, while the organizational strategy should take care of responsible AI implementation, infrastructure creation, and a learning environment.

Further research may develop this model by using longitudinal data sets to analyze changes in the human-AI interaction process over time. Other organizational aspects, like the supportive role of management, AI governance, and ethical practices of AI, could also be analysed.

CONCLUSION

The present study explored the impact of emotional intelligence and human–AI collaboration ability on creativity and adaptive performance of employees by applying a multilevel analysis approach. The HLM technique was applied to study individual-level and organizational-level factors in the context of AI-equipped work settings. The results showed that emotional intelligence impacted the creativity of employees ($\gamma = 0.41$, $p < 0.001$) and their adaptive performance ($\gamma = 0.37$, $p < 0.001$). Employees who were more emotionally intelligent performed well in the context of utilizing AI-based work systems. The ability to work together with AI also made significant contributions to creativity ($\gamma = 0.39$, $p < 0.001$) and adaptive performance ($\gamma = 0.43$, $p < 0.001$). This confirms that the skill of interacting with AI and adaptability to technologies and working with machines are important factors. The multilevel approach revealed organizational differences based on ICC scores of 0.18 for creativity and 0.21 for adaptive performance. In addition, the support of AI at the organizational level showed a substantial cross-level effect ($\gamma = 0.28$, $p < 0.01$) that enhanced the impact of collaboration between humans and AI on employees' outcomes. Ultimately, the final hierarchical model accounted for 54% of the total variance in employee creativity and 59% of the total variance in adaptive performance, underscoring the substantial predictive utility of integrating individual competencies with organizational-level support.

Further research can take this study forward by employing longitudinal methodologies to explore the development of employee adjustment in various phases of AI deployment. Other organizational variables, such as governance of AI, leadership support, ethics in AI, and organizational learning ability, can also be included to obtain a more comprehensive perspective on sustainable AI adoption. Future research can also combine HLM with predictive analytics and explainable AI methodologies to generate individual-specific approaches to enhance the collaboration between human and AI in the workplace.

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