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https://assumptionjournal.au.edu/index.php/AU-GSB

AI Adoption and Innovative Behavioral Strategies Leading to Performance Through Innovative Work Behaviors of Support Staff in Higher Educational Institutions

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Received: May 24, 2025. Revised: August 1, 2025. Accepted: August 06, 2025

Abstract

At a time when AI has become an integral part of everyday life, it serves as an important tool to promote innovation in the workplace and increase work efficiency. **Purpose:** The aim of this study is to investigate the impact of the adoption of AI, innovative behavioral strategies and innovative work behaviors on the job performance of support staff in higher education institutions. In addition, the role of innovative work behavior as a mediating variable between AI adoption, innovative behavioral strategies and job performance is investigated. **Research design, data, and methodology:** A sample of 422 support staff from higher education institutions in Bangkok and surrounding areas was used for the study. The data was collected using questionnaires and analyzed using Structural Equation Modeling (SEM). **Results:** The results show that AI adoption and innovative work behavior have a significant positive impact on job performance. Furthermore, innovative work behavior is a mediating factor between AI adoption and innovative behavioral strategies concerning job performance. **Conclusions:** The results suggest that AI adoption alone is not sufficient to enhance job performance. Instead, promoting innovative work behavior through innovative behavioral strategies, AI ethics guidelines and the development of adaptive job performance can enable support staff to work more efficiently and actively contribute to educational innovation in higher education institutions.

Keywords: AI Adoption, Innovative Behavioral Strategies, Innovative Work Behavior, Job Performance

JEL Classification Code: L25, O32, M12, M54

1. Introduction

1.1 Background

The rapid advancement of digital technology has significantly impacted all sectors, including higher education management, which is evolving towards Education 4.0. The goal is to equip learners with essential cognitive, social, interactive, and technological skills (Mukul & Büyüközkan, 2023; Oliveira & De Souza, 2022). Artificial Intelligence (AI) has become a crucial tool in this transformation, as reflected in the increasing investment and competition among AI developers. AI has permeated nearly every aspect of human life, including transportation, smartphones, entertainment systems, financial tools, education practices, retail businesses, and healthcare systems (Capasso & Umbrello, 2023).

In the context of higher education, AI applications extend beyond student support and play a critical role in assisting faculty members and administrative staff. AI is being used for curriculum design, teaching methodologies, data analysis, and performance tracking (Chen et al., 2020). In Thailand, higher education institutions have recognized the importance of AI adoption, leading to increased investment in AI training programs for all staff members. Additionally, universities have actively developed policies to promote innovative work behaviors, aiming to improve academic operations, teaching, research, and administrative services. These efforts also

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drive organizational innovation, enhancing national and international competitiveness (Boonpetchkaew et al., 2024).

Consequently, AI adoption has become a key factor of interest among higher education institutions. According to Chatterjee and Bhattacharjee (2020), AI implementation in universities has introduced new opportunities in teaching, learning, and administration. Despite being in its early stages, AI has already demonstrated its effectiveness. However, for AI adoption to yield optimal results, it must be supported by innovative behavioral strategies (IBS), which include encouraging feedback, creating enabling conditions, implementing evaluation processes, and formulating policies that stimulate innovative work behaviors (IWB) (AlEssa & Durugbo, 2022).

Innovative Work Behavior (IWB) is gaining significant attention in modern organizations as it becomes an indispensable factor for fostering creativity and adaptation. Employees who engage in exploring, generating, championing, and implementing new ideas help align the organization with rapid changes in the technological landscape (Al-Omari et al., 2019). Moreover, IWB serves as a key linking factor between AI adoption, IBS, and job performance (Zirar, 2023).

The components of IWB—idea exploration, idea generation, idea championing, and idea implementation—enable employees to adapt to new technologies and enhance their work efficiency (Sjahruddin et al., 2024). Farrukh et al. (2023) emphasized that employees who exhibit high levels of IWB tend to better adapt to changes and problem-solving. Similarly, Siregar and Suma (2024) found that innovative work behaviors contribute significantly to job performance, allowing employees to enhance their potential and develop problem-solving skills, ultimately driving organizational success.

Therefore, the study of job performance should be examined in connection with these factors to highlight the importance of adaptive capabilities rather than focusing solely on task completion. Pradhan and Jena (2017) categorized job performance into three dimensions: 1. Task Performance – Efficiency in executing assigned tasks 2. Adaptive Performance – Ability to adjust to changes in the work environment, and 3. Contextual Performance – Contribution to organizational development and cooperation with colleagues

Although AI adoption and IWB have attracted attention in both academic and business sectors, there are still significant research gaps regarding AI's impact on support staff in higher education institutions. Furthermore, empirical studies exploring the relationship between IBS, IWB, and job performance remain scarce. Since IWB plays a crucial mediating role in explaining how AI adoption and IBS influence job performance, further research is needed to address this gap.

1.2 Research Objectives

This study aims to:

1. Examine the impact of AI adoption, IBS, and IWB on job performance among support staff in higher education institutions in Bangkok and surrounding areas.

2. Investigate the mediating role of IWB in the relationship between AI adoption, IBS, and job performance.

The findings of this study will help higher education institutions understand the role of AI and innovative behavioral strategies in enhancing the capabilities of support staff. Additionally, the study provides policy recommendations for improving administrative efficiency in response to technological advancements. Furthermore, it contributes to academic knowledge on the significance of innovative work behavior in higher education, serving as a foundation for future research.

2. Literature Review

2.1 Conceptual Framework and Research Hypothesis Development

This research is based on the Dynamic Capabilities Theory (Teece et al., 1997), which explains how organizations can develop and utilize dynamic capabilities to adapt to rapid technological changes. Factors such as AI investment, innovation readiness, and supportive policies contribute to fostering innovative work behavior (IWB) and enhancing organizational performance. Additionally, the study applies the Technology-Organization-Environment (TOE) Framework (Tornatzky & Fleischer, 1990) to analyze the factors influencing technology adoption, categorized into three dimensions: 1. Technological Factors – AI readiness and ethical AI practices, 2. Organizational Factors – Organizational culture and management policies, 3. Environmental Factors – Business partnerships and external pressures.

These factors play a crucial role in the successful implementation of AI and its impact on employee work behavior and organizational performance. By integrating dynamic capabilities with the TOE framework, this study systematically examines the relationships between AI adoption, innovative behavioral strategies, innovative work behavior, and job performance, as illustrated in Figure 1. Based on literature reviews, the research hypotheses are formulated as follows:

2.1.1 The Effect of AI Adoption and Job Performance

AI adoption significantly enhances employee performance by improving work processes, reducing errors, and increasing operational efficiency (Venkatesh, 2022). Organizations that

effectively implement AI can enhance decision-making, reduce human workload, and enable employees to focus on strategic tasks (Yu et al., 2023). Research by Elegunde and Osagıe (2020) found a positive correlation between AI adoption and employee performance. However, Taylor et al. (2025) reported that university educators recognize AI's potential for improving efficiency but express ethical concerns. Therefore, ethical AI policies are critical for maximizing AI's benefits while minimizing risks (Nguyen et al., 2023).

H1: AI adoption has a direct positive impact on job performance.

2.1.2 The Effect of Innovative Behavioral Strategies and Job Performance

Innovative Behavioral Strategies (IBS) are structured plans designed to introduce new processes and methods in the workplace, aiming for long-term improvement. IBS consists of four key strategies: Suggestions and perspectives, Enabler Appraisals and interventions, Innovative workplace policies

These strategies encourage creativity and adaptability, improving employee performance (Messmann & Mulder, 2012). Thurlings et al. (2015) highlighted that innovative behavior involves developing, applying, promoting, and modifying ideas to enhance job performance. Medvedeva (2012) also emphasized that strategic planning and quality improvement are essential for fostering innovation.

H2: Innovative behavioral strategies have a direct positive impact on job performance.

2.1.3. The Effect of AI Adoption and Innovative Work Behavior

AI adoption fosters innovative work behavior (IWB) by enabling employees to access new insights and develop innovative approaches (Dwivedi et al., 2021). Chatterjee et al. (2021) found that AI facilitates idea exploration and creative problem-solving. However, Liang et al. (2022) described AI as a double-edged sword, where AI awareness can cause emotional exhaustion while simultaneously motivating employees to innovate. Therefore, successful AI integration requires a supportive work environment and ethical guidelines (Zirar, 2023).

H3: AI adoption has a direct positive impact on innovative work behavior.

2.1.4 The Effect of Innovative Behavioral Strategies and Innovative Work Behavior

Organizations that support feedback, enabling conditions, and innovation policies help employees explore and implement new ideas (Jason & Geetha, 2021). Messmann and Mulder (2012) found that a learning-oriented environment promotes innovation. Gross (2017) further suggested linking creative and strategic thinking enhances organizational progress.

H4: Innovative behavioral strategies have a direct positive impact on innovative work behavior.

2.1.5 The Effect of Innovative Work Behavior and Job Performance

Innovative work behavior is a key factor in enhancing employee performance, as it encourages creative problem-solving and continuous improvement (AlEssa & Durugbo, 2022). Srirahayu et al. (2023) found that organizations with highly innovative employees better adapt to change. Similarly, Berisha et al. (2020) reported that innovation-driven employees exhibit superior job performance.

H5: Innovative work behavior has a direct positive impact on job performance.

2.1.6 The Mediating Effect of Innovative Work Behavior

According to Sociotechnical System Theory, IWB mediates the relationship between AI adoption and job performance by helping employees adopt AI to enhance productivity (Ghorbanzadeh et al., 2024). Paesano (2023) argued that AI should be viewed as an enabler rather than a threat, promoting human creativity. Research by Chen et al. (2024) confirmed that AI positively influences IWB, leading to improved performance. Additionally, Wahab et al. (2024) suggested that IBS fosters IWB, enhancing job performance.

H6: Innovative work behavior mediates the relationship between AI adoption and job performance.

H7: Innovative work behavior mediates the relationship between innovative behavioral strategies and job performance.

3. Research Methods and Materials

3.1 Conceptual Framework

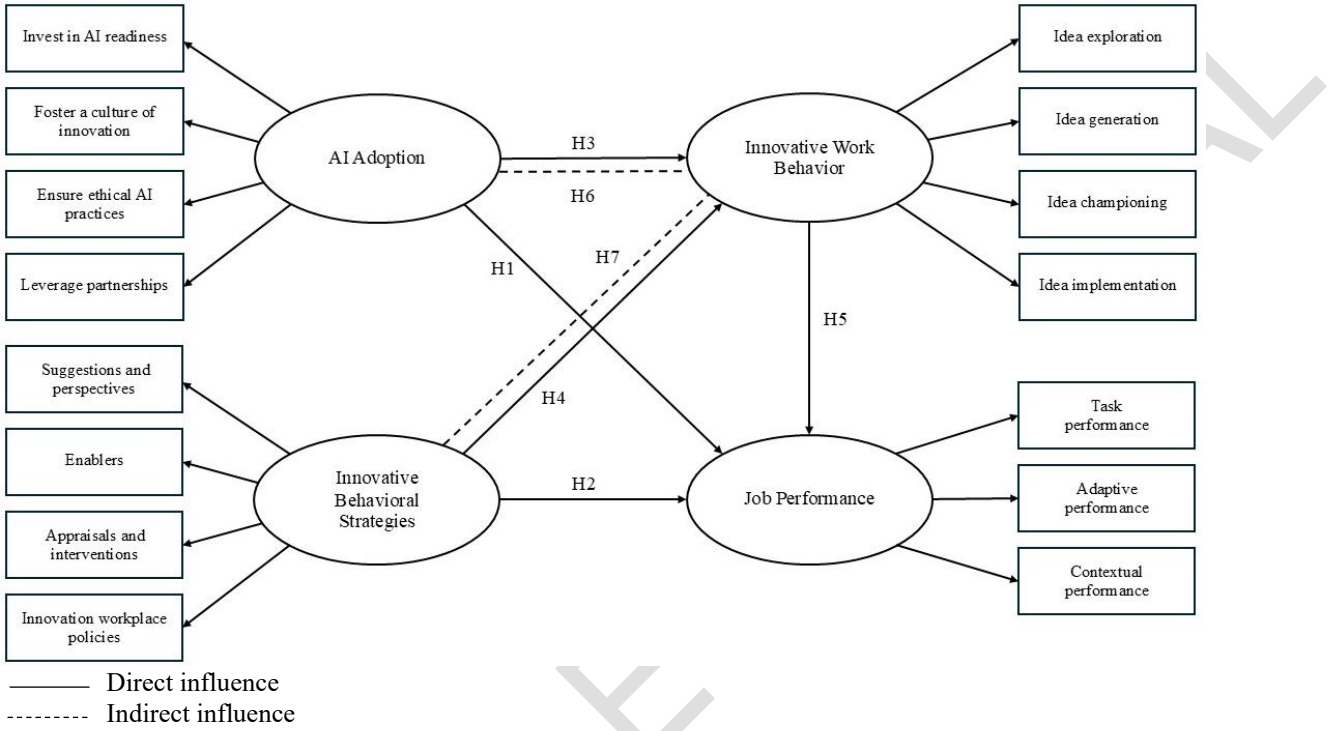

Figure 1: Conceptual Framework

3.2 Research Methodology

3.2.1 Population and Sample

The target population for this study consists of support staff in higher education institutions in Bangkok and its metropolitan areas, totaling 78,863 individuals. The distribution is as follows: Bangkok: 68,196 individuals; Pathum Thani: 8,009 individuals; Nakhon Pathom: 1,972 individuals; Samut Prakan: 438 individuals; Nonthaburi: 231 individuals; Samut Sakhon: 17 individuals. (Ministry of Higher Education, Science, Research, and Innovation, 2023)

The sample size was determined based on Hair et al. (2018, p.280), which suggests that for Structural Equation Modeling (SEM), the sample size should be at least 5:1 per observed variable. For more reliable results, a 15:1 or 20:1 ratio is recommended. Given that the study model includes 15 observed variables, a 20:1 ratio was applied, resulting in a required sample size of 300 individuals. To account for potential errors in data collection, the sample size was increased by 50%, resulting in a total of 450 participants.

The study employed multistage sampling as follows: 1. Simple random sampling – 10 higher education institutions were randomly selected from Bangkok and its metropolitan areas. 2. Quota sampling – 45 participants were selected from each institution to ensure equal representation. 3. After data collection, 422 valid responses were obtained, yielding a response rate of 93.78%, which exceeds the 68% benchmark for acceptable response rates (Holtom et al., 2022).

While this study was not approved by an institutional review board (IRB), all participants were clearly informed of the purpose of the study and the nature of their participation. The study ensured that no personal information was collected or shared and that anonymity and confidentiality were maintained. Participation in the questionnaire was entirely voluntary, and respondents had the right to refuse or withdraw participation at any time without any consequences.

3.2.2 Research Instruments

The primary research instrument was a questionnaire developed from literature reviews. The questionnaire was validated using Item-Objective Congruence (IOC) Index for content validity and Cronbach's Alpha for reliability testing. The questionnaire consists of four main sections: 1. AI Adoption (15 items, 5-point Likert scale) Based on Maestro and Rana (2024) Key dimensions: Invest in AI readiness, Foster a culture of innovation, Ensure ethical AI practices, Leverage partnerships. Cronbach's Alpha: .741 - .928. 2. Innovative Behavioral Strategies (12 items, 5-point Likert scale) Based on AlEssa and Durugbo (2022) Key dimensions: Suggestions and perspectives, Enablers, Appraisals and interventions, Innovation workplace policies. Cronbach's Alpha: .875 - .928. 3. Innovative Work Behavior (12 items, 5-point Likert scale) Based on De Jong and Den Hartog (2008), Key dimensions: Idea exploration, Idea generation, Idea championing, Idea implementation. Cronbach's Alpha: .870 - .914. 4. Job performance (9 items, 5-point Likert scale) Based on Pradhan and Jena (2017), key dimensions are task performance, adaptive performance, and contextual performance. Cronbach's Alpha: .814 - .921. Example item: "I can efficiently perform my assigned tasks in academic or administrative support roles."

3.2.3 Data Analysis

The study employed both descriptive and inferential statistics:

1. Descriptive Statistics: Frequency, percentage, mean, and standard deviation were used to describe sample characteristics.

2. Inferential Statistics: Structural Equation Modeling (SEM) was used to test hypotheses and relationships between variables in two key steps: Measurement Model (Confirmatory Factor Analysis - CFA), Factor Loadings ≥ .5, Construct Reliability (CR) ≥ .7, Average Variance Extracted (AVE) ≥ .5, Discriminant Validity (Fornell-Larcker criterion & HTMT < .90). Structural Model (Path Analysis), Examining direct, indirect, and total effects, evaluating model fit using Chi-square, GFI, AGFI, CFI, NFI, TLI, RMSEA, Model fit criteria were based on Hair et al. (2018, pp. 635-642), ensuring the model aligns with empirical data.

Table 1: Model fit index

Model fit index	Description	Recommended Value
χ^2	Assesses the difference between the observed and estimated covariance matrices. Sensitive to sample size.	Non-significant ($p > .05$)
χ^2/df	Adjusts χ^2 by degrees of freedom to account for model complexity.	≤ 3.00 (Good Fit)
GFI	Measures the proportion of variance and covariance in the sample explained by the model.	≥ .90 (Good Fit), ≥ .95 (Excellent Fit)
AGFI	Adjusted version of GFI that penalizes model complexity.	≥ .90 (Good Fit), ≥ .95 (Excellent Fit)
CFI	Compare the model's fit to an independent (null) model.	≥ .95 (Good Fit), ≥ .90 (Acceptable Fit)
NFI	Assesses the proportionate improvement of the proposed model over a null model.	≥ .90 (Acceptable Fit)
TLI	Similar to CFI but penalizes model complexity more.	≥ .95 (Good Fit), ≥ .90 (Acceptable Fit)
RMSEA	Evaluates model fit based on population error. Adjusted for model complexity.	≤ .06 (Good Fit), ≤ .08 (Acceptable Fit)

Source: Hair et al. (2018, pp.635-642)

4. Research Result

The demographic analysis of the respondents revealed the following: Gender: The majority were female (76.1%), Age Group: Most respondents were aged 31-40 years (39.3%), Education Level: The majority held a bachelor's degree (69.7%), Work Experience: Most had been working for over 10 years (63.5%), Monthly Income: The majority earned between 15,001-20,000 THB (74.2%).

Table 2 Analysis of Mean, Standard Deviation and Structural Validity Test

Factors	$\bar{X}$	SD	Factor Loading	R^2	CR	AVE
AI Adoption					.85	.59
- Invest in AI readiness	3.98	.58	.69	.48		
- Foster a culture of innovation	3.66	.61	.75	.56		
- Ensure ethical AI practices	3.64	.58	.83	.69		
- Leverage partnerships	3.77	.61	.80	.64		
Innovative Behavioral Strategies					.84	.56
- Suggestions and perspectives	3.47	.74	.71	.50		
- Enablers	3.39	.74	.75	.56		
- Appraisals and interventions	3.80	.68	.77	.59		
- Innovation workplace policies	3.72	.72	.76	.58		
Innovative Work Behavior					.86	.61
- Idea exploration	3.97	.63	.78	.61		
- Idea generation	3.76	.66	.77	.59		
- Idea championing	3.66	.79	.81	.66		
- Idea implementation	3.79	.75	.76	.58		
Job Performance					.90	.75

Factors	$\bar{X}$	SD	Factor Loading	R^2	CR	AVE
- Task performance	3.82	.71	.74	.55		
- Adaptive performance	3.77	.74	.93	.86		
- Contextual performance	3.80	.75	.91	.83		

From Table 2, it was found that all variables have factor loadings exceeding the minimum acceptable threshold of .5, indicating the reliability of the indicators. When examining each variable individually: AI Adoption has factor loadings ranging from .69 (lowest) to .83 (highest), demonstrating a strong relationship with its latent construct. Innovative Behavioral Strategies have factor loadings between .71 and .77. Innovative Work Behavior ranges from .76 to .81.

Job Performance has factor loadings between 0.74 and 0.93. These results confirm the measurement validity of each construct.

Additionally, Average Variance Extracted (AVE) was used to assess convergent validity. AVE should be at least .5, ensuring that the construct explains more than half of the variance of its indicators. The results indicate that all variables exceed this threshold: AI Adoption: .59, Innovative Behavioral Strategies: .56, Innovative Work Behavior: .61, Job Performance: .75. These findings confirm that all constructs demonstrate convergent validity.

Lastly, the Construct Reliability (CR) values range from .84 to .90, all exceeding the recommended threshold of .7. This confirms that all latent variables have high structural reliability (Hair et al., 2018).

Table 3: Analysis of Discriminant validity by Fornell-Larcker Criterion and HTMT

Factors	AIA	IBS	IWB	J P
- AI Adoption (AIA)	**.77**	(.83)	(.74)	(.66)
- Innovative Behavioral Strategies (IBS)	.86	**.75**	(.78)	(.63)
- Innovative Work Behavior (IWB)	.75	.79	**.78**	(.68)
- Job Performance (JP)	.66	.61	.65	**.86**

Note: The bolded numbers along the diagonal represent the square roots of AVE, while the numbers below them indicate the correlations between latent variables. The values in parentheses represent the HTMT (Heterotrait-Monotrait) ratio for each latent variable.

From Table 3, the discriminant validity analysis using the Fornell-Larcker Criterion revealed that the square roots of AVE were mostly lower than the correlations between latent variables, indicating potential issues with discriminant validity under this method.

However, when assessed using HTMT, all latent variables had values below 0.90, confirming that each construct remains distinct and that there is no excessive similarity between latent variables (Hair et al., 2017).

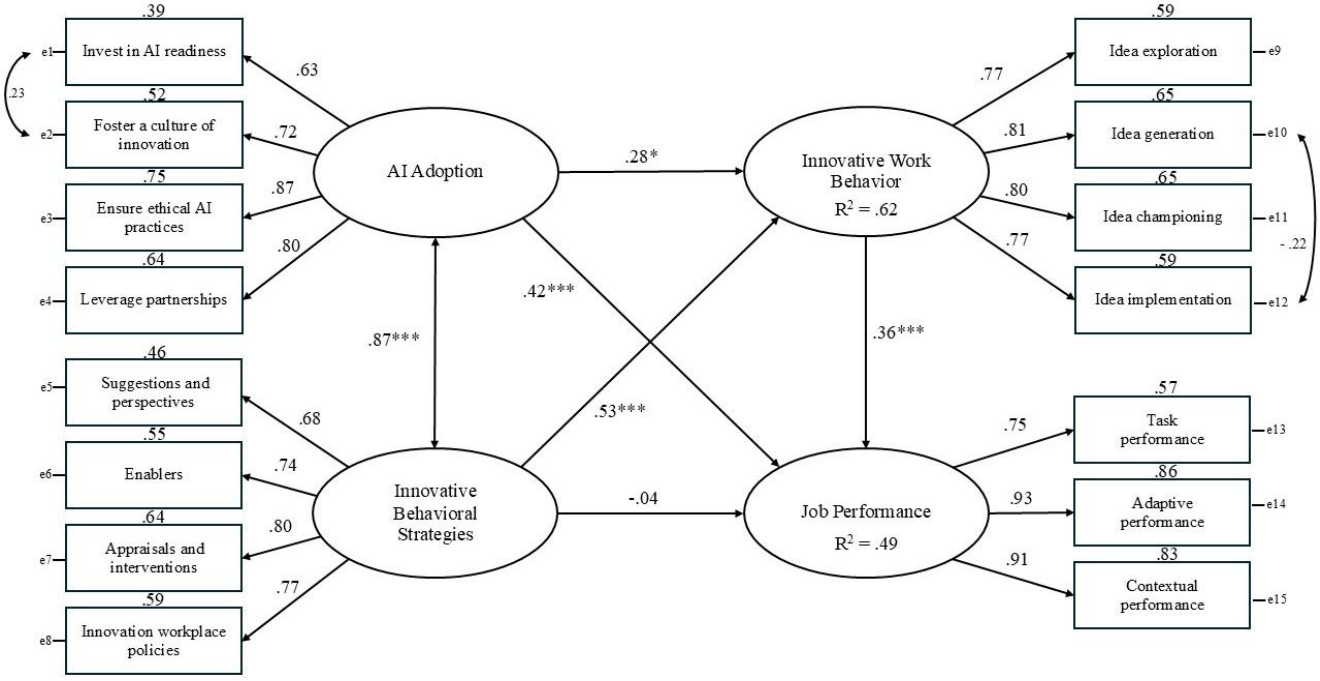

Figure 2: Structural equation model testing results

Table 4: Comparison of before and after MI adjustment of the model

Index	Before Adjustment	After Adjustment	Result
χ^2	581.811	230.338	-
df	85	82	
p-value	.000	.000	Inconsistent
χ^2/df	6.845	2.809	Consistent
GFI	.875	.937	Consistent
AGFI	.824	.908	Consistent
CFI	.873	.962	Consistent
NFI	.855	.943	Consistent
TLI	.843	.951	Consistent
RMSEA	.118	.066	Consistent

From Table 4, the initial model did not exhibit a good fit with empirical data. Therefore, adjustments were made based on Modification Indices (MI) recommendations. After these modifications, the model met the fit criteria specified in Table 1. Although the p-value did not meet the conventional threshold, the model fit was evaluated using TLI and CFI, both of which exceeded .95, indicating that the adjusted model achieved an acceptable fit with the empirical data.

Additionally, the MI adjustments introduced correlations between independent variables, which is theoretically justified. This is because both variables are conceptually related under the Dynamic Capabilities Theory and the Technology-Organization-Environment (TOE) Framework. According to Dwivedi et al. (2023), organizations adopting AI tend to develop innovation-driven policies, such as modifying work processes and strategic decision-making. Furthermore, AI adoption encourages employees to engage more actively in innovative behavioral strategies (Chatterjee et al., 2024). Therefore, the correlation between these variables is theoretically inevitable. As Bughin et al. (2018) noted, organizations implementing AI often adjust employee behavioral strategies to facilitate effective technology integration.

Table 5: The path coefficients obtained from the Structural Equation Model (SEM) analysis

Causal variables	Dependent variables	b	SE	β	t-value	p-value
AI Adoption	Innovative Work Behavior	.27	.11	.28	2.416*	.016
	Job Performance	.40	.12	.42	3.406***	.000
Innovative Behavioral Strategies	Innovative Work Behavior	.53	.12	.53	4.388***	.000
	Job Performance	-.03	.13	-.04	-0.271	.786
Innovative Work Behavior	Job Performance	.35	.08	.36	4.453***	.000

Note: *** $p < .001$, ** $p < .01$, * $p < .05$, b = Unstandardized, and β = Standardized

Table 5 shows that AI Adoption and Innovative Work Behavior have a significant positive direct effect on Job Performance at a statistical significance level of .000, with a predictive power of 49% ($R^2 = .49$). Meanwhile, AI Adoption and Innovative Behavioral Strategies have a significant positive direct effect on Innovative Work Behavior at a statistical significance level ranging from .000 to .016, with a predictive power of 62% ($R^2 = .62$). Upon further analysis, it was found that when Innovative Work Behavior serves as a mediating variable, the relationship between Innovative Behavioral Strategies and Job Performance demonstrates full mediation. In contrast, the relationship between AI Adoption and Job Performance exhibits partial mediation. Therefore, Innovative Work Behavior plays a crucial mediating role in explaining the mechanisms of this model effectively. The direct, indirect, and total effects are presented in Table 6.

Table 6: The direct, indirect, and total effects within the model.

Causal variables	Effects	Dependent variables	
		Innovative Work Behavior ($R^2 = .62$)	Job Performance ($R^2 = .49$)
AI Adoption	DE	.28	.42
	IE	-	.10
	TE	.28	.52
Innovative Behavioral Strategies	DE	.53	-.04
	IE	-	.19
	TE	.53	.15
Innovative Work Behavior	DE	-	.36
	IE	-	-
	TE	-	.36

Note: DE = Direct Effect, IE = Indirect Effect, TE = Total Effect, and R^2 = Represents the predictive power of the model

To summarize, the results indicate that the AI Adoption and Innovative Work Behavior significantly improve Job Performance. Furthermore, the Adoption of AI and Innovative Behavioral Strategies have a significant impact on Innovative Work Behavior. Innovative work behavior was found to fully mediate the effect of Innovative Behavioral Strategies on Job Performance and partially mediate the effect of AI Adoption. Thus, Innovative Work Behavior is an important mediating factor in the explanatory mechanism of the model.

5. Conclusion and Recommendation

5.1 Discussion

The research findings indicate that AI Adoption and Innovative Work Behavior have a significant positive direct effect on Job Performance among support staff in higher education institutions. This highlights the importance of integrating Artificial Intelligence (AI) technology into work processes to enhance operational efficiency within the higher education sector (Chatterjee & Bhattacharjee, 2020).

AI adoption enables support staff to streamline work processes, reduce errors associated with traditional systems, and improve the speed of academic services, such as student database management, academic advising, and research administration. These findings align with the study by Helmiatin et al. (2024), which found that AI integration in education not only transforms student learning but also improves the efficiency of academic management systems. AI enhances educational support systems, reduces faculty workload, and provides greater convenience for students. Meanwhile, Innovative Work Behavior (IWB) encourages staff to develop new approaches to their work, adapt effectively to change, and leverage technology to its fullest potential. This aligns with Nasir et al. (2019), who found that IWB has a direct impact on individual job performance and strengthens an organization's competitive advantage.

Additionally, the results reveal that AI Adoption and Innovative Behavioral Strategies (IBS) positively influence IWB among support staff, suggesting that institutions that systematically promote AI adoption and implement strategies that encourage creative thinking help employees develop work behaviors that enhance performance. Such support can take various forms, including: Training programs on digital technology, providing an open environment for employees to suggest and improve work processes, Developing policies that facilitate technology integration in administrative work. These findings align with Wang et al. (2023), who found that AI enhances teacher efficiency by automating repetitive tasks such as answering student inquiries, scheduling classes, and providing personalized feedback. This allows teachers to focus more on designing innovative learning experiences and fostering critical thinking skills, ultimately improving teaching effectiveness and job satisfaction. Similarly, Abun and Ruadap-Macaspac (2023) emphasized that promoting innovative employee behavior requires a workplace environment that encourages creativity, autonomy, and structural support for employees to maximize their potential.

The Mediating Role of Innovative Work Behavior, the study also highlights the mediating role of IWB, showing that IWB fully mediates the relationship between IBS and Job Performance, while partially mediating the relationship between AI Adoption and Job Performance. This suggests that AI adoption alone may enhance performance to some extent, but when employees exhibit innovative work behaviors, AI can be leveraged more effectively for institutional operations. Meanwhile, IBS must first foster IWB before it can lead to improved job performance. These findings align with Nasir et al. (2019), who found that IWB partially mediates motivation and performance. Similarly, AlEssa and Durugbo (2022) argued that IBS is a key driver of IWB, which ultimately enhances job performance.

Impact on Different Dimensions of Job Performance: When analyzing the weight of each component of Job Performance, the findings suggest that AI Adoption and IWB have a more significant impact on Adaptive Performance and Contextual Performance than Task Performance. Adaptive Performance was strongly influenced by both AI Adoption and IWB, as employees who can quickly adapt to new technologies and learn to use digital tools efficiently are better equipped to respond to changes in modern educational systems (Campbell & Wiernik, 2015). Contextual Performance, which involves collaborating with colleagues, contributing to system improvements, and supporting organizational development, was also influenced by IWB. Support staff with creative thinking tendencies are more likely to collaborate in enhancing work processes and driving organizational change (Azzahra et al., 2024). These findings align with Gerçek (2023), who found that IWB is crucial in improving both Contextual Performance and Adaptive Performance.

The Importance of Ethical AI Practices Moreover, the study found that among the components of AI Adoption, the factor "Ensure Ethical AI Practices" had the highest weighting. This suggests that support staff in higher education institutions highly value the responsible use of AI. Ethical considerations, such as data privacy and AI system transparency, are crucial in AI acceptance and sustainable adoption in universities (Miao et al., 2021). Organizations that prioritize ethical AI guidelines not only enhance employee efficiency but also build trust in AI systems and mitigate risks associated with unchecked technology implementation (Nguyen et al., 2023).

5.2 Implication for the Study

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Training programs on digital technology, providing an open environment for employees to suggest and improve work processes, and Developing policies that facilitate technology integration in administrative work. These findings align with Wang et al. (2023), who found that AI enhances teacher efficiency by automating repetitive tasks such as answering student inquiries, scheduling classes, and providing personalized feedback. This allows teachers to focus more on designing innovative learning experiences and fostering critical thinking skills, ultimately improving teaching effectiveness and job satisfaction. Similarly, Abun and Ruadap-Macaspac (2023) emphasized that promoting innovative employee behavior requires a workplace environment that encourages creativity, autonomy, and structural support for employees to maximize their potential.

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The Importance of Ethical AI Practices Moreover, the study found that among the components of AI Adoption, the factor "Ensure Ethical AI Practices" had the highest weighting. This suggests that support staff in higher education institutions highly value the responsible use of AI. Ethical considerations, such as data privacy and AI system transparency, are crucial in AI acceptance and sustainable adoption in universities (Miao et al., 2021). Organizations that prioritize ethical AI guidelines not only enhance employee efficiency but also build trust in AI systems and mitigate risks associated with unchecked technology implementation (Nguyen et al., 2023).

5.3 Recommendations for Future Research

The findings of this study indicate that AI Adoption and Innovative Behavioral Strategies (IBS) significantly influence the Job Performance of support staff in higher education institutions, with Innovative Work Behavior (IWB) playing a crucial mediating role. However, future research could expand the scope to explore AI adoption and job performance in other professional sectors. Additionally, ethical considerations of AI, such as Trust in AI, Data Privacy, and Algorithmic Bias, should be further examined, as these factors significantly impact AI acceptance in higher education institutions. Moreover, future studies should investigate employees' AI competency development by designing training programs that enhance their ability to utilize AI effectively. Research could also explore the long-term impact of AI skill levels on employee behavior and performance.

Additionally, future research should consider environmental factors that influence AI adoption and IWB, such as Leadership Styles, Organizational Culture, and Technological Infrastructure. Understanding these factors would provide insights into how internal organizational

elements can either support or hinder AI adoption. Furthermore, cross-cultural studies on AI adoption in higher education institutions should be conducted to examine how cultural and governmental policies influence employees' adaptation to AI technologies in different regions.

Lastly, future research should assess the impact of AI on employee well-being and quality of life, including Work-related stress, Job satisfaction, and Work-life balance. Such studies would help design sustainable and employee-friendly policies that support long-term workplace well-being in the AI-driven era.

5.4 Conclusion

This study confirms that AI adoption alone is insufficient to enhance support staff's job performance in higher education institutions. Instead, it must be complemented by Innovative Work Behavior (IWB), driven by Innovative Behavioral Strategies (IBS), ethical AI guidelines, and the development of adaptive job performance. Higher education administrators should focus on integrating technology, organizational culture, and human resource development to create an environment that supports AI adoption in a way that sustainably enhances work efficiency in the long term. Such policies will enable support staff to adapt to technological advancements, work more efficiently, and actively contribute to educational innovation in higher education institutions.

References

Abun, D., & Ruadap-Macaspac, L. G. (2023). Promoting Innovative Work Behavior Through Innovative Work Environment. *Divine Word International Journal of Management and Humanities*, *2*(3), 374-412.

AlEssa, H. S., & Durugbo, C. M. (2022). Systematic review of innovative work behavior concepts and contributions. *Management Review Quarterly*, *72*(4), 1171-1208.

Al-Omari, M. A., Choo, L. S., & Ali, M. A. M. (2019). Innovative work behavior: A review of literature. *International Journal of Psychosocial Rehabilitation*, *23*(2), 39-47.

Azzahra, N. S., Nst, M. A. Y., & Supriadi, S. (2024). The Antecedent Contextual Performance with Innovative Work Behavior as Intervening Variable (Study on Educational Staff at Private Universities in Medan City). *Proceeding Medan International Conference on Economic and Business*, *2*, 1072-1081.

Berisha, B., Ramadani, V., Gërguri-Rashiti, S., & Palalić, R. (2020). The impact of innovative working behaviour on employees' working performance. *Intrapreneurship and Sustainable Human Capital: Digital Transformation Through Dynamic Competences*, 37-49.

Boonpetchkaew, N., Kamak, W., Namraksa, S., & Siri, P. (2024). Assessing the Evolution of Educational Innovative Organizational Management Models in Twenty-First Century Schools: A Qualitative Case Study of Educational Institutions in Krabi, Thailand. *Advance Knowledge for Executives*, *3*(1), 1-9.

Bughin, J., Seong, J., Manyika, J., Chui, M., & Joshi, R. (2018). *Notes from the AI frontier: Modeling the impact of AI on the world economy.* McKinsey Global Institute.

Campbell, J. P., & Wiernik, B. M. (2015). The modeling and assessment of work performance. *Annu. Rev. Organ. Psychol. Organ. Behav.*, *2*(1), 47-74.

Capasso, M., & Umbrello, S. (2023). *Big tech corporations and AI: a social license to operate and multi-stakeholder partnerships in the digital age.* Springer International Publishing.

Chatterjee, S., & Bhattacharjee, K. K. (2020). Adoption of artificial intelligence in higher education: A quantitative analysis using structural equation modelling. *Education and Information Technologies*, *25*, 3443-3463.

Chatterjee, S., Chaudhuri, R., & Vrontis, D. (2024). Does data-driven culture impact innovation and performance of a firm? An empirical examination. *Annals of Operations Research*, *333*(2), 601-626.

Chatterjee, S., Rana, N. P., Dwivedi, Y. K., & Baabdullah, A. M. (2021). Understanding AI adoption in manufacturing and production firms using an integrated TAM-TOE model. *Technological Forecasting and Social Change*, *170*, 120880.

Chen, L., Chen, P., & Lin, Z. (2020). Artificial intelligence in education: A review. *Ieee Access*, *8*, 75264-75278.

Chen, S., Zhang, X., Pan, L., & Hu, M. (2024). Innovative Work Behavior and Job Performance of Corporate Employees in the Age of Artificial Intelligence. *Applied Mathematics and Nonlinear Sciences, 9*(1), 1-17.

De Jong, J. P., & Den Hartog, D. N. (2008). Innovative work behavior: Measurement and validation. *EIM Business and Policy Research*, *8*(1), 1-27.

Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., & Williams, M. D. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International journal of information management*, *57*, 101994.

Dwivedi, Y. K., Sharma, A., Rana, N. P., Giannakis, M., Goel, P., & Dutot, V. (2023). Evolution of artificial intelligence research in Technological Forecasting and Social Change: Research topics, trends, and future directions. *Technological Forecasting and Social Change*, *192*, 122579.

Elegunde, A. F., & Osagıe, R. (2020). Artificial intelligence adoption and employee performance in the Nigerian banking industry. *International Journal of Management and Administration*, *4*(8), 189-205.

Farrukh, M., Meng, F., Raza, A., & Wu, Y. (2023). Innovative work behaviour: the what, where, who, how and when. *Personnel Review*, *52*(1), 74-98.

Gerçek, M. (2023). The impact of organizational empowerment on contextual and adaptive performance: the mediating role of innovative work behavior. *Uluslararası Yönetim İktisat ve İşletme Dergisi*, *19*(2), 243-259.

Ghorbanzadeh, D., Espinosa-Cristia, J. F., Abdelrasheed, N. S. G., Mostafa, S. S. S., Askar, S., & Almufti, S. M. (2024). *Role of innovative behaviour as a missing linchpin in artificial intelligence adoption to enhancing job security and job performance.* Systems Research and Behavioral Science.

Gross, R. (2017). The links between innovative behavior and strategic thinking. *Contemporary Management Research*, *13*(4), 239-254.

Hair, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, *1*(2), 107-123.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2018). *Multivariate data analysis* (8th ed.). Cengage Learning EMEA.

Helmiatin, A., Hidayat, A., & Kahar, M. R. (2024). Investigating the adoption of AI in higher education: a study of public universities in Indonesia. *Cogent Education*, *11*(1), 2380175.

Holtom, B., Baruch, Y., Aguinis, H., & A Ballinger, G. (2022). Survey response rates: Trends and a validity assessment framework. *Human relations*, *75*(8), 1560-1584.

Jason, V., & Geetha, S. N. (2021). Regulatory focus and innovative work behavior: The role of work engagement. *Current Psychology*, *40*(6), 2791-2803.

Liang, X., Guo, G., Shu, L., Gong, Q., & Luo, P. (2022). Investigating the double-edged sword effect of AI awareness on employee's service innovative behavior. *Tourism Management*, *92*, 104564.

Maestro, S., & Rana, P. (2024). Variables Impacting the AI Adoption in Organizations. *International Journal of Science and Research Archive*, *12*(2), 1055-1060.

Medvedeva, T. A. (2012). Developing an innovative style of thinking and innovative behavior. *Systemic Practice and Action Research*, *25*, 261-272.

Messmann, G., & Mulder, R. H. (2012). Development of a measurement instrument for innovative work behaviour as a dynamic and context-bound construct. *Human Resource Development International*, *15*(1), 43-59.

Miao, F., Holmes, W., Huang, R., & Zhang, H. (2021). *AI and education: A guidance for policymakers*. Unesco Publishing.

Ministry of Higher Education, Science, Research and Innovation. (2023). *Number of support staff in the academic year 2023.* https://info.mhesi.go.th/homestat_stf_s.php

Mukul, E., & Büyüközkan, G. (2023). Digital transformation in education: A systematic review of education 4.0. *Technological forecasting and social change*, *194*, 122664.

Nasir, N., Halimatussakdiah, H., Suryani, I., Zuhra, S. E., Armia, S., & Mahdani, M. (2019, January). *How intrinsic motivation and innovative work behavior affect job performance.* Atlantis Press.

Nguyen, A., Ngo, H. N., Hong, Y., Dang, B., & Nguyen, B. P. T. (2023). Ethical principles for artificial intelligence in education. *Education and information technologies*, *28*(4), 4221-4241.

Oliveira, K. K. D. S., & De Souza, R. A. (2022). Digital transformation towards education 4.0. *Informatics in Education*, *21*(2), 283-309.

Paesano, A. (2023). Artificial intelligence and creative activities inside organizational behavior. *International Journal of Organizational Analysis*, *31*(5), 1694-1723.

Pradhan, R. K., & Jena, L. K. (2017). Employee performance at workplace: Conceptual model and empirical validation. *Business perspectives and research*, *5*(1), 69-85.

Siregar, B. A., & Suma, D. (2024). How Innovative Work Behavior Affects Employee Performance: The Mediating Role of Curiosity. *Quality-Access to Success*, *25*(200), 292-298.

Sjahruddin, H., Ariawan, A., Tj, H. W., Efendi, E., & Yuwanda, T. (2024). Antecedents of Innovative Work Behavior and its Impact on Business Performance. *Jurnal Manajemen Indonesia*, *24*(1), 8-20.

Srirahayu, D. P., Ekowati, D., & Sridadi, A. R. (2023). Innovative work behavior in public organizations: A systematic literature review. *Heliyon*, *9*, e13557.

Taylor, D. I., Jack, B. D., & Wami, K. C. (2025). Assessment of awareness and adoption of artificial intelligence tools for enhanced job performance of adult educators in Rivers State-Owned Universities. *International Journal of Educational Management, Rivers State University.*, *1*(1), 113-127.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic management journal*, *18*(7), 509-533.

Thurlings, M., Evers, A. T., & Vermeulen, M. (2015). Toward a model of explaining teachers' innovative behavior: A literature review. *Review of educational research*, *85*(3), 430-471.

Tornatzky, L. G., & Fleischer, M. (1990). *The processes of technological innovation.* Lexington Books.

Venkatesh, V. (2022). Adoption and use of AI tools: A research agenda grounded in UTAUT. *Annals of operations research*, *308*(1), 641-652.

Wahab, F. A., Subramaniam, A., Ho, J. A., & Bali Mahomed, A. S. (2024). Augmenting effect of inclusive and ambidextrous leadership on public university academic staffs' innovative performance: the mediating role of innovative work behavior. *Sage Open*, *14*(1), 21582440241232761.

Wang, X., Li, L., Tan, S. C., Yang, L., & Lei, J. (2023). Preparing for AI-enhanced education: Conceptualizing and empirically examining teachers' AI readiness. *Computers in Human Behavior*, *146*, 107798.

Yu, X., Xu, S., & Ashton, M. (2023). Antecedents and outcomes of artificial intelligence adoption and application in the workplace: the socio-technical system theory perspective. *Information Technology & People*, *36*(1), 454-474.

Zirar, A. (2023). Can artificial intelligence's limitations drive innovative work behaviour?. *Review of Managerial Science*, *17*(6), 2005-2034.