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Integrating Sustainability into Workforce Development: Examining Organisational Performance Through Staff Training Practices

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ABSTRACT

Organisations are increasingly implementing sustainability into staff training to strengthen resilience, capability, and long-term performance. In Higher Education Institutions (HEIs) sector, sustainability-integrated staff training is important due to growing institutional pressures related to governance, inclusivity, and sustainable organisational management. This study examines the role of sustainability practices in enhancing organisational performance through staff training within Malaysian public universities. Grounded in Human Capital Theory and Sustainable Human Resource Management (HRM), the study conceptualises sustainability practices as strategic organisational capabilities. A quantitative cross-sectional survey was conducted involving 317 administrative staff from Malaysian public universities, and the data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings reveal that staff training significantly influences sustainability practices ($\beta = 0.58$, $p < .01$) and organisational performance ($\beta = 0.76$, $p < .01$). Sustainability practices were also found to mediate the relationship between staff training and organisational performance (VAF = 56.46%). Among the sustainability dimensions, social sustainability is the strongest mediating factor, followed by environmental, institutional, and economic sustainability. This study contributes to Sustainable HRM research by showing how sustainability practices function strategically within workforce development. The findings also provide important information for universities and organisations seeking to improve organisational effectiveness, institutional resilience, and sustainability-driven performance.

Keywords: Higher Education Institutions (HEIs), Organisational Performance, Staff Training, Sustainable Human Resource Management (HRM), Sustainability Practices

1. INTRODUCTION

Sustainability has become a defining strategic priority for contemporary organisations operating in complex economic, environmental, and social environments. As concerns over climate change, resource depletion, social inequality, and ethical governance continue to grow, sustainability is no longer viewed as an optional corporate activity but has become an essential part of organisational strategy. In response, organisations across sectors are integrating sustainability principles into their operational strategies, governance structures, and Human Resource Management (HRM) systems to encourage long-term competitiveness, institutional resilience, and stakeholder trust (Soomro et al., 2026; Sult et al., 2024).

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In this context, staff training has become a key factor to embed sustainability into organisational culture and employee behaviour (Faisal-E-alam, 2024; Olaleye et al., 2026; Soomro et al., 2026). Traditional training programmes primarily focused on improving technical competencies and operational efficiency; however, contemporary organisations have recognised the strategic importance of integrating sustainability-oriented knowledge, ethical responsibility, and environmentally conscious behaviour into employee development initiatives (Patwa et al., 2025; Soomro et al., 2026). Sustainability-focused training enables employees to align organisational goals with broader environmental and social values (Seethalakshmi et al., 2026). Recent research shows workforce development drives employee engagement, commitment, and performance. Sustainability-integrated training aligns employee values with institutional goals, encouraging proactive behaviour and shared purpose (Seethalakshmi et al., 2026; Swathi & Johnpaul, 2025).

Recent evidence suggests sustainability oriented HRM boosts workforce capability and resilience through greater employee motivation and sustainability awareness (Kalyani et al., 2026; Soomro et al., 2026). However, existing studies have focused mostly on behavioural outcomes rather than broader performance impacts. Also, most current evidence comes from conceptual or cross-sectional studies, which don't show how sustainability-integrated training builds lasting organisational capability. These findings highlight the need for further research examining sustainability as a strategic organisational capability developed through staff training.

Human Capital Theory (Becker, 1962) says that organisations that invest in employee knowledge, skills, and competencies will increase individual productivity and organisational performance. In this view, staff training is a key investment that builds stronger, more adaptable, and more competitive organisations. By improving employee competency, sustainability awareness, and behavioural, training initiatives directly contribute to institutional effectiveness and performance outcomes. Complementing Human Capital Theory, Sustainable HRM provides the conceptual foundation for understanding how sustainability practices mediate the training–performance relationship. Strategic HRM conceptualises HR systems as enablers of sustainability by embedding environmental, social, and institutional goals into organisational processes (Anshima et al., 2025; Konakay et al., 2025). Sustainability oriented training not only increases technical competencies; but also organisational values, ethical responsibility, and sustainability-driven behaviours. This integration makes sustainability practices as a strategic organisational capability, a mediating factor through which workforce development investments are shown into sustained institutional outcomes.

Recent research now sees sustainability-driven training as a core capability, not a minor HRM task. Grounded in Human Capital Theory, sustainability-integrated training improves employee competency, organisational adaptability, and long-term competitiveness through the integration of environmental responsibility, ethical governance, and sustainability awareness into workforce behaviour. Empirical studies consistently support this relationship. Kalyani et al. (2026) found that Sustainable HRM practices improved employee motivation and organisational performance through enhanced workforce engagement, whilst Soomro et al. (2026) reported that sustainability-oriented training strengthens employee skill and organisational growth. These findings suggest that sustainability-integrated workforce development contributes to organisational resilience and institutional effectiveness.

Researchers have also tied sustainability-oriented training to employee green behaviour, organisational commitment, and retention. Bodhi et al. (2025) for example, found that sustainability practices improved performance by encouraging green behaviour among staff. Employee engagement and retention follow a similar pattern (Ojha et al., 2025). Farzana et al. (2025) and Fryc and Brown (2025) both point to leadership commitment and a sustainability-oriented culture as a driver of stronger employee engagement and better sustainability integration, even across quite different organisational settings. A notable gap in the literature is

the limited integration of staff training, sustainability practices, and organisational performance within a single conceptual framework.

Prior research also focuses on direct training–performance relationships whilst providing limited explanation of how sustainability practices operationally translate workforce development into organisational outcomes. Existing evidence is derived within corporate and industrial contexts and relies on cross-sectional designs, limiting broader institutional applicability and long-term understanding of sustainability integration. Systematic reviews by Alrifae (2026) and Sult et al. (2024) similarly concluded that empirical evidence explaining the mediating role of sustainability practices between staff training and organisational performance remains insufficient. Limited study has specifically conceptualised and validated sustainability practices as a strategic organisational function mediating the workforce development–performance relationship within Malaysian public universities. Sustainability frameworks are well studied in corporate settings, but their role in Malaysian public universities are still limited. This provides a gap that the present study addresses directly.

This study examines how sustainability practices help staff training improve organisational performance, contributing to Sustainable HRM research and offering practical guidance for building resilience and sustainability in line with the Sustainable Development Goals (SDGs).

2. METHODS

2.1 Research Design

This study adopted a quantitative cross-sectional survey design to examine the role of sustainability practices in enhancing organisational performance through staff training in Malaysian public universities. A quantitative approach was appropriate for testing the hypothesised relationships among latent constructs and evaluating the mediating effect of sustainability practices using Partial Least Squares Structural Equation Modelling (PLS-SEM). PLS-SEM was selected due to its suitability for analysing complex mediation models and its robustness in handling non-normal data and exploratory organisational research. Ethical considerations were strictly observed, including voluntary participation, informed consent, anonymity, and confidentiality in accordance with Malaysian university research ethics guidelines.

2.2 Participants and Setting

The study focused on administrative staff in Malaysian public universities because they play strategic operational roles in governance, human resource coordination, student services, and sustainability implementation. Their involvement in institutional support systems, accessibility services, and inclusive practices makes them relevant for examining sustainability-oriented workforce development and organisational performance.

Malaysian public universities were selected due to their increasing sustainability obligations, institutional accountability pressures, and inclusive education commitments aligned with the Malaysian Education Blueprint 2015–2025 (Higher Education), the Persons with Disabilities Act 2008, and the United Nations SDGs. Compared with private institutions, public universities possess broader responsibilities related to accessibility, equity, and public service delivery, making sustainability integration especially important for institutional effectiveness. Despite growing policy emphasis on sustainable higher education, empirical evidence regarding the mediating role of sustainability practices within Malaysian HEIs remains limited. A total of 317 respondents participated in the study. A purposive sampling technique was employed to recruit administrative staff from 20 Malaysian public universities located across Peninsular Malaysia. Purposive sampling was appropriate given the need to target respondents with direct

involvement in institutional governance, human resource operations, and sustainability implementation. University Research Offices at each participating institution provided institutional endorsement, and Department Heads provide access to eligible administrative staff. A structured online questionnaire was distributed electronically via institutional email and departmental communication channels over a six-week data collection period. Out of 420 questionnaires distributed, 334 responses were received, of which 317 were deemed valid and complete for analysis, yielding a usable response rate of 75.5%. This response rate is considered adequate for PLS-SEM analysis based on recommendations by Hair and Alamer (2022), who suggest a minimum sample of 100–250 for complex mediation models. The demographic and employment characteristics of the respondents are presented in Table 1.

Table 1 Demographic and Employment Profile of Respondents (N = 317)

Variable	Category	Frequency	Percentage (%)
Gender	Male	161	50.8
	Female	156	49.2
Age	25–35 years	69	21.8
	36–45 years	211	66.6
	46–55 years	28	8.8
	56 years and above	9	2.8
Education	Doctorate	6	1.9
	Master's degree	79	24.9
	Bachelor's degree	227	71.6
	Diploma/Certificate	5	1.6
Length of Service	Less than 5 years	21	6.6
	6–10 years	94	29.7
	11–15 years	127	40.1
	16–20 years	47	14.8
	21 years and above	28	8.8

2.3 Instrumentations

The survey instrument was adapted from established scales in organisational and sustainability management literature. Staff training was measured across seven dimensions, including training needs analysis, management support, training policies, training resources, training activities, transfer of learning, and training evaluation. The scale was adapted from Sult et al. (2024) and Olaleye et al. (2026), comprising 28 items in total. A sample item for training activities reads: "The training programmes conducted in this institution are relevant to my current job responsibilities". Sustainability practices comprised four dimensions: social, economic, institutional, and environmental sustainability. The 16-item scale was adapted from Alrifae (2026) and Kisahwan et al. (2025). A sample item for social sustainability reads: "This institution actively promotes employee well-being, inclusivity, and equity in the workplace". Organisational performance was assessed using six dimensions, namely internal processes, financial outcomes, stakeholder satisfaction, learning and growth, quality improvement, and environmental impact. The 24-item scale was adapted from Mohamad Azizie et al. (2025) and Yoo (2024). A sample item reads: "The quality of services delivered by this institution has improved over the past three

years". All items were measured using a seven-point Likert scale ranging from 1 ("strongly disagree") to 7 ("strongly agree"), consistent with recommendations for reducing central tendency bias and capturing greater response variability (Afshar & Hafez, 2021). Content validity was established through expert review involving specialists in human resource development, sustainability, and higher education management. A pilot study involving 30 respondents was subsequently conducted, resulting in minor revisions to improve item clarity and readability.

2.4 Data Analysis

Data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) via SmartPLS 3.0. Reliability was assessed via Cronbach's alpha and composite reliability (threshold > .70). Convergent validity was confirmed through average variance extracted (AVE > .50), and discriminant validity was verified using the heterotrait–monotrait (HTMT) ratio and Fornell–Larcker criterion. Common method variance was mitigated through procedural controls (anonymity assurance, item wording variation) and assessed statistically using Harman's single-factor test and a marker-variable technique, with results indicating no significant bias. Harman's single-factor test revealed that the first extracted factor accounted for 23.47% of the total variance, well below the critical 50% threshold, indicating that common method variance was not a dominant concern. Additionally, the marker-variable technique produced negligible changes in path coefficients upon inclusion of the marker variable (maximum change: $\Delta\beta = 0.02$), further confirming that common method bias did not materially distort the study findings.

3. RESULTS

3.1 Discriminants Validity

Prior to discriminant validity assessment, the reliability and convergent validity of all constructs were confirmed. Table 1 presents the measurement model results, including Cronbach's Alpha (α), Composite Reliability (CR), Average Variance Extracted (AVE), and Outer Loadings for all indicators. All constructs exceeded reliability thresholds (α > .70; CR > .70) and convergent validity criteria (AVE > .50; Outer Loadings > .708). For example, Staff Training demonstrated α = .887, CR = .901, and AVE = .563; Sustainability Practices yielded α = .874, CR = .893, and AVE = .547; and Organisational Performance showed α = .912, CR = .924, and AVE = .571. These results confirm adequate reliability and convergent validity of the measurement model prior to structural analysis.

Discriminant validity was assessed using the heterotrait–monotrait ratio (HTMT) and the Fornell – Larcker criterion. HTMT values below 0.90 indicate acceptable discriminant validity for conceptually related constructs. As presented in Table 2, all HTMT values were below the recommended threshold, and the bootstrapped confidence intervals did not include the value of 1.00, confirming that the constructs were empirically distinct and free from problematic multicollinearity. The complete HTMT matrix with bootstrapped 95% confidence intervals is reported in Table 2. Selected values include: Staff Training (ST) – Organisational Performance (OP): HTMT = 0.812 [95% CI: 0.781, 0.843]; ST – Sustainability Practices (SP): HTMT = 0.774 [95% CI: 0.741, 0.809]; and SP – OP: HTMT = 0.793 [95% CI: 0.762, 0.821]. All confidence intervals exclude 1.00, confirming discriminant validity across all construct pairs.

The Fornell – Larcker criterion was subsequently examined to strengthen the robustness of the measurement model assessment. As shown in Table 3, the square root of the Average Variance Extracted (AVE) for each construct, represented by the bold diagonal values, exceeded the inter-construct correlations. This result further confirms satisfactory discriminant validity, indicating that each construct shared greater variance with its own indicators than with other constructs in

the model. The HTMT and Fornell–Larcker results show that the measurement model achieved adequate discriminant validity and was suitable for subsequent structural model analysis.

Table 2 Assessment of Discriminant Validity Using the HTMT Criterion

	TNA	TA	EC	I	IN	F	TC	Q	TP	T	IP	EV	TPc	LG	EVL	ST	S	TMS
TNA																		
TA	0.716																	
EC	0.614	0.707																
I	0.465	0.329	0.743															
IN	0.626	0.568	0.812	0.582														
F	0.691	0.655	0.815	0.759	0.709													
TC	0.680	0.847	0.514	0.290	0.44	0.632												
Q	0.716	0.638	0.672	0.463	0.689	0.692	0.739											
TP	0.714	0.821	0.643	0.483	0.603	0.639	0.745	0.730										
T	0.605	0.759	0.659	0.288	0.553	0.541	0.774	0.539	0.566									
IP	0.613	0.686	0.854	0.614	0.868	0.854	0.539	0.697	0.675	0.547								
EV	0.550	0.446	0.745	0.751	0.560	0.818	0.390	0.563	0.473	0.441	0.701							
TPc	0.727	0.641	0.792	0.583	0.702	0.688	0.578	0.581	0.492	0.737	0.691	0.809						
LG	0.719	0.536	0.668	0.796	0.670	0.821	0.531	0.846	0.701	0.341	0.735	0.724	0.603					
EVL	0.604	0.727	0.811	0.599	0.738	0.805	0.661	0.891	0.776	0.607	0.804	0.776	0.665	0.783				
ST	0.497	0.486	0.72	0.657	0.731	0.779	0.293	0.587	0.601	0.410	0.865	0.641	0.482	0.634	0.683			
S	0.630	0.670	0.873	0.879	0.775	0.884	0.523	0.682	0.675	0.485	0.869	0.805	0.725	0.892	0.880	0.803		
TMS	0.881	0.729	0.68	0.453	0.692	0.725	0.753	0.786	0.745	0.619	0.752	0.670	0.773	0.748	0.729	0.506	0.698	

Note: All results achieved discriminant validity based on the HTMT0.90 criterion. The HTMT inference analysis also indicated no discriminant validity issues in the study findings. Training Activities (TA), Training Cost (TC), Trainer (T), Training Needs Analysis (TNA), Training Participants (TPc), Top Management Support (TMS), Training Policy (TP), Environment (EV), Economic (EC), Social (S), Institutional (I), Financial (F), Stakeholders (ST), Internal Process (IP), Learning & Growth (LG), Quality (Q), Environmental (EVL), and Innovation (IN).

Table 3 Fornell–Larcker Criterion

	TNA	TA	EC	I	IN	F	TC	Q	TP	T	IP	EV	TPc	LG	EVL
TNA	**0.848**														
TA	0.645	**0.789**													
EC	0.583	0.613	**0.806**												
I	0.449	0.296	0.698	**0.912**											
IN	0.597	0.507	0.743	0.558	**0.952**										
F	0.640	0.575	0.738	0.690	0.660	**0.855**									
TC	0.582	0.707	0.458	0.262	0.394	0.529	**0.828**								
Q	0.663	0.565	0.618	0.435	0.642	0.630	0.624	**0.887**							
TP	0.664	0.711	0.584	0.460	0.565	0.580	0.603	0.648	**0.890**						
T	0.559	0.663	0.591	0.279	0.514	0.494	0.660	0.494	0.517	**0.898**					
IP	0.579	0.604	0.777	0.584	0.813	0.781	0.474	0.643	0.612	0.498	**0.807**				
EV	0.512	0.394	0.690	0.695	0.523	0.732	0.346	0.515	0.434	0.395	0.650	**0.837**			
TPc	0.653	0.543	0.703	0.520	0.628	0.596	0.498	0.513	0.435	0.634	0.615	0.711	**0.876**		
LG	0.666	0.473	0.621	0.741	0.626	0.736	0.448	0.769	0.632	0.319	0.682	0.660	0.528	**0.855**	
EVL	0.511	0.587	0.678	0.513	0.629	0.674	0.516	0.735	0.634	0.512	0.679	0.651	0.538	0.647	**0.898**
ST	0.473	0.429	0.646	0.623	0.690	0.715	0.254	0.542	0.552	0.378	0.804	0.593	0.432	0.587	0.580
S	0.571	0.560	0.783	0.820	0.701	0.787	0.435	0.601	0.595	0.428	0.777	0.733	0.628	0.801	0.711
TMS	0.821	0.646	0.631	0.425	0.643	0.653	0.645	0.718	0.682	0.563	0.690	0.614	0.680	0.680	0.603

3.2 Structural Model Evaluation

3.2.1 Direct Effects

The structural model results are presented in Table 4. Staff training demonstrated a significant positive effect on organisational performance (β = 0.76, t = 25.71, p < .01), supporting H_1. Staff training also significantly influenced sustainability practices (β = 0.58, t = 14.32, p < .01), supporting H_2. In addition, sustainability practices positively affected organisational performance (β = 0.45, t = 9.87, p < .01), confirming H_3. Overall, the findings indicate that both staff training and sustainability practices are important drivers of organisational effectiveness within Malaysian public universities.

Table 4 Structural Model Results: Direct and Mediating Effects

Hypothesis	Path	β	t-value	p-value	Decision
H1	Staff Training → Org. Performance	0.76	25.71	< .01	Supported
H2	Staff Training → Sustainability Practices	0.58	14.32	< .01	Supported
H3	Sustainability Practices → Org. Performance	0.45	9.87	< .01	Supported
H4 (Mediation)	ST → SP → Org. Performance (VAF = 56.46%)	0.37	—	< .01	Supported

Note. ST = Staff Training; SP = Sustainability Practices; β = standardised path coefficient; VAF = variance accounted for.

Figure 2 illustrates the direct structural relationships between staff training and organisational performance prior to the inclusion of the mediating construct.

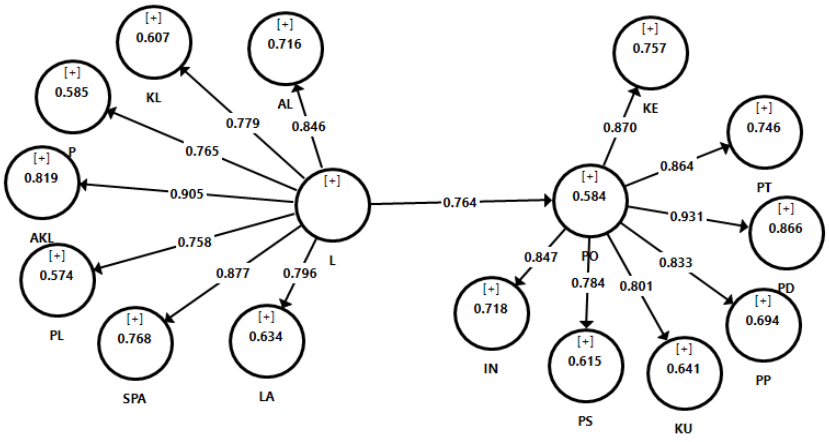

Figure 2. Direct Structural Relationships Between Staff Training and Organisational Performance

3.2.2 Mediating Effects

The mediation analysis revealed that sustainability practices significantly mediated the relationship between staff training and organisational performance (β = 0.37, p < .01; VAF = 56.46%), thereby supporting H_4. The bootstrapped indirect effect was β = 0.26 [95% CI: 0.198, 0.319], based on 5,000 bootstrap subsamples. As the confidence interval excludes zero, the

indirect effect is statistically significant at p < .01. Given that the direct effect of Staff Training on Organisational Performance remained statistically significant after the inclusion of Sustainability Practices as a mediator (β = 0.76, p < .01), the mediation is classified as partial mediation. The results indicate that sustainability-oriented organisational practices account for a substantial proportion of the overall effect of staff training on institutional performance. In addition, sustainability practices demonstrated a direct positive effect on organisational performance (β = 0.45, t = 9.87, p < .01), supporting H_3. Among the sustainability dimensions, social sustainability emerged as the strongest mediator (β = 0.56, p < .01), followed by environmental (β = 0.48, p < .01), institutional (β = 0.43, p < .01), and economic sustainability (β = 0.39, p < .01). These findings highlight the importance of socially sustainable organisational environments in strengthening workforce capability, institutional commitment, and organisational effectiveness. Figure 3 presents the final structural model illustrating the direct and mediating relationships among staff training, sustainability practices, and organisational performance.

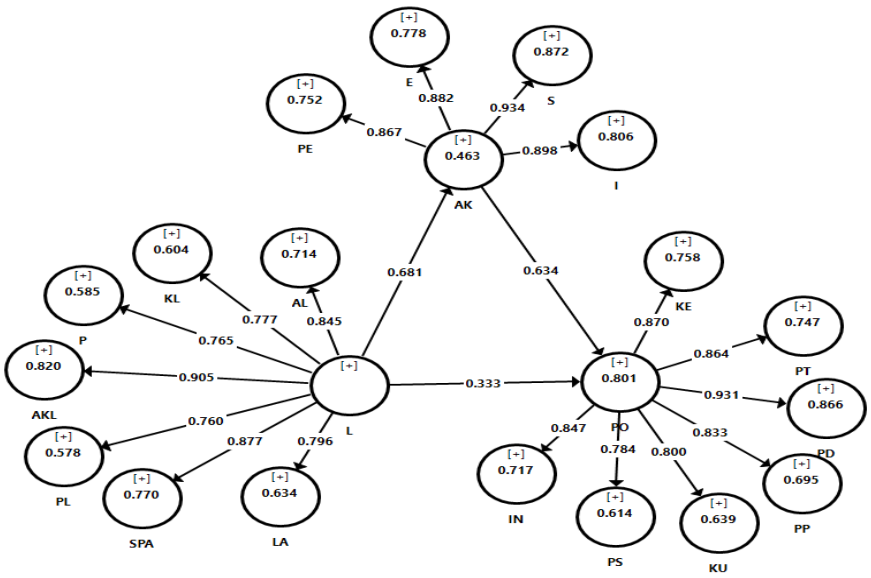

Figure 3. Structural Model of the Mediating Role of Sustainability Practices

3.2.3 Model Fit and Predictive Relevance

The structural model provides satisfactory explanatory power and predictive relevance. The coefficient of determination (R^2) values for sustainability practices (R^2 = .34) and organisational performance (R^2 = .67) indicate moderate to substantial explanatory capability (Hair et al., 2019). Predictive relevance was further confirmed through Q^2 values greater than zero, suggesting adequate predictive accuracy of the model. In addition, the standardised root mean square residual (SRMR = 0.061) was below the recommended threshold of 0.08, indicating acceptable model fit. These results confirm the adequacy, robustness, and predictive capability of the proposed structural model for examining the relationships among staff training, sustainability practices, and organisational performance within Malaysian public universities.

4. DISCUSSIONS

The findings of this study indicate that staff training shows a strong positive influence on organisational performance (β = 0.76, p < .01), suggesting that workforce development remains a fundamental determinant of institutional effectiveness. Similar findings were reported by Soomro et al. (2026), who examined sustainability-oriented training and development

programmes and found that employee competency enhancement significantly contributes to organisational growth and long-term sustainability objectives.

Within the higher education context, the importance of sustainability-oriented workforce development has become more important due to growing institutional obligations associated with inclusivity, accessibility, and sustainable governance. The present study extends previous literature by demonstrating that sustainability-oriented training positively influences sustainability practices within Malaysian public universities ($\beta = 0.58$, $p < .01$). This finding shows that training initiatives incorporating sustainability values, ethical responsibility, inclusivity, and environmental awareness can shape organisational culture and employee behaviour beyond traditional technical competency development. Recently, Kisahwan et al. (2025) examined E-HRM and sustainable performance in Indonesian universities using Structural Equation Modelling (SEM) and reported that digital HRM systems, when supported by green organisational culture and transformational leadership, improved sustainable institutional performance. These findings will reinforce the strategic role of sustainability oriented HRM systems in strengthening organisational resilience within HEIs.

The mediation analysis in the current study further revealed that sustainability practices account for more than half of the total effect between staff training and organisational performance (VAF = 56.46%). This result provides important theoretical evidence that sustainability practices function as enabling organisational mechanisms that help translate workforce development investments into sustained institutional outcomes. Previous studies had highlighted the mediating role of sustainability-oriented organisational systems. For example, Mohamad Azizie et al. (2025) reported that organisational citizenship behaviour mediated the relationship between sustainability-oriented training and organisational performance, while Yoo (2024) found that sustainability oriented organisational culture improved employee commitment and service quality through HRM integration. Although these studies primarily focused on corporate or environmental management settings, the study extends the discussion by empirically validating sustainability practices as a mediating organisational factor within public university systems.

One important finding of this study is that social sustainability was the strongest mediating factor, followed by environmental, institutional, and economic sustainability. It shows the growing importance of socially sustainable organisational environments characterised by equity, employee well-being, accessibility, inclusivity, and collaborative culture. This finding is consistent with the institutional characteristics of Malaysian public universities, where social sustainability is deeply embedded in both institutional policy and national regulatory obligations. Under the Persons with Disabilities Act 2008 and the Malaysian Education Blueprint 2015–2025, public universities are mandated to promote accessibility, equity, and inclusive service delivery, which means that sustainability-oriented training in these institutions places considerable emphasis on social responsibility, equitable workplace practices, and community-oriented values. When employees learn about social sustainability through training, they treat others more fairly, work better with stakeholders, and help improve service. This helps the institution do better overall. This may also reflect Malaysia's collectivist work culture, where group norms and loyalty carry more weight than in individualist settings, which would explain why social sustainability outperforms the economic and environmental dimensions. This finding advances Sustainable HRM literature by highlighting how national policy frameworks and cultural values shape the salience of specific sustainability dimensions within HEI performance systems.

Methodologically, the present study contributes to sustainability and organisational management literature through the application of Partial Least Squares Structural Equation Modelling (PLS-SEM) in examining complex mediating relationships within HEIs. The model demonstrated substantial explanatory power ($R^2 = .67$) and acceptable model fit (SRMR = 0.061), indicating strong predictive capability and structural robustness.

Despite these contributions, several important challenges remain unresolved within sustainability and higher education research. First, much of the existing literature remains heavily concentrated within corporate, manufacturing, and industrial contexts, limiting understanding of sustainability-oriented workforce development in HEIs. Second, many previous studies focus predominantly on environmental sustainability dimensions whilst giving comparatively limited attention to social sustainability, organisational inclusivity, and employee well-being. Third, the widespread reliance on cross-sectional survey designs continues to limit causal interpretation and long-term assessment of sustainability integration processes.

The findings of this study carry important implications for higher education institutions and policymakers. Universities seeking to improve organisational performance should integrate sustainability-oriented competencies into staff development programmes, especially those related to inclusivity, accessibility, ethical governance, and social responsibility. Leadership commitment, sustainability-oriented organisational culture, and institutional support systems are also important for workforce development initiatives into sustained organisational outcomes. Future research should extend the present study by incorporating longitudinal and mixed-method approaches to examine how sustainability-oriented workforce development evolves over time within higher education systems. Comparative studies across ASEAN universities and HEIs would further increase the generalisability of sustainability oriented HRM research. In addition, future investigations should examine the role of digital learning platforms, green leadership, and institutional governance in strengthening sustainability integration and inclusive organisational performance within universities.

5. CONCLUSION

This study examined the mediating role of sustainability practices in the relationship between staff training and organisational performance within Malaysian public universities. The findings show that staff training improves both sustainability practices and organisational performance, with sustainability practices explaining over half of the training–performance relationship (VAF = 56.46%). Social and environmental sustainability were the strongest mediators, showing that inclusive, equity-focused institutions perform better. The findings suggest that universities should integrate sustainability-oriented competencies, particularly those related to inclusivity, accessibility, and ethical responsibility, into staff development and professional training programmes. Greater alignment between organisational performance systems, sustainability objectives, and inclusive education policies may further strengthen institutional resilience and long-term effectiveness. These recommendations are closely aligned with Malaysia's sustainability agenda and the United Nations SDGs, particularly SDG 4 (Quality Education) and SDG 10 (Reduced Inequalities).

This study also makes two main theoretical contributions. First, it extends Human Capital Theory by showing that sustainability-integrated training builds lasting organisational results, not just employee skills. Second, it advances Sustainable HRM research by treating sustainability practices as a core strategy, not just an ethical add-on, which helps explain how HRM systems drive institutional performance. This study also fills a gap in research on sustainability-focused workforce development in Malaysian universities. By showing that social sustainability is the strongest mediator between training and performance, this study offers useful insight for policymakers and university administrators working within the Malaysian Education Blueprint 2015–2025 and the United Nations SDGs framework. These findings are also relevant for ASEAN universities facing similar pressures around inclusivity, governance, and sustainability. Future studies could use longitudinal or mixed-method designs, compare ASEAN universities, and explore digital learning, green leadership, and governance.

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