

## RESEARCH ARTICLE

# Workforce diversity and employee performance: Examining the moderating role of organizational culture in Malaysian private universities

Norzanah Mat Nor\*, Hamidey Hamid, Shaliza Alwi\*

AAGBS, Universiti Teknologi MARA, Shah Alam 40450, Malaysia

\* Corresponding author: Norzanah Mat Nor, [norzanah@uitm.edu.my](mailto:norzanah@uitm.edu.my); Shaliza Alwi, [shalizaalwi@uitm.edu.my](mailto:shalizaalwi@uitm.edu.my)

## ABSTRACT

This study investigates the effect of various dimensions of workforce diversity, including age, gender, ethnicity, and educational background, on employee performance, while also considering organisational culture as a moderating factor. A quantitative research design was utilised to gather data from academic and administrative personnel at various private higher education institutions (PHEIs) in Malaysia. The study employed Partial Least Squares Structural Equation Modelling (PLS-SEM) to investigate the relationships among variables, offering empirical insights into the impact of diversity in higher education contexts. The findings demonstrate that each of the four diversity dimensions has a positive impact on employee performance, suggesting that workplaces characterised by inclusivity and diversity promote innovation, collaboration, and overall institutional effectiveness. Among the various factors influencing diversity, gender diversity exhibited the most significant impact on performance outcomes, highlighting the critical need for balanced representation in academic settings. While organisational culture showed a positively correlated with performance, it did not significantly influence the relationship between diversity and performance. This indicates that culture plays a more direct role in enhancing organisational well-being instead of acting as a moderating factor. The results enhance comprehension of diversity management in the Malaysian higher education landscape by merging Social Identity Theory with quantitative modelling techniques. The study emphasises how leaders in higher education can utilise diversity to improve productivity, equity, and the competitiveness of their institutions. This study adds to worldwide conversations regarding inclusive human resource strategies that are in harmony with social sustainability and the objectives of excellence in higher education.

**Keywords:** workforce diversity; organizational culture; employee performance; higher education institutions; Malaysia

## 1. Introduction

The interplay of globalisation and COVID-19 has heightened the importance and complexity of managing diverse, multicultural workplaces. Diversity, when effectively managed, can enhance innovation and competitiveness; conversely, poor management may lead to conflict and coordination issues<sup>[1-3]</sup>. The disruptions caused by the pandemic underscored the importance of adaptive leadership, inclusive practices, and resilient communication<sup>[4-6]</sup>. Workforce diversity encompasses demographic, cultural, informational,

### ARTICLE INFO

Received: 11 November 2025 | Accepted: 9 December 2025 | Available online: 29 December 2025

### CITATION

Mat Nor N, Hamid H, Alwi S. Workforce diversity and employee performance: Examining the moderating role of organizational culture in Malaysian private universities. *Environment and Social Psychology* 2025; 10(12): 4325. doi: 10.59429/esp.v10i12.4325

### COPYRIGHT

Copyright © 2025 by author(s). *Environment and Social Psychology* is published by Arts and Science Press Pte. Ltd. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), permitting distribution and reproduction in any medium, provided the original work is cited.

organisational, and cognitive dimensions, whereas diversity management refers to deliberate inclusion policies and practices that transform diversity into performance results<sup>[7,8]</sup>. A substantial amount of research connects diversity to employee and organisational outcomes, although the findings are inconsistent: numerous studies indicate positive impacts of gender, age, ethnicity, and education diversity on performance, while others caution about diminished cohesion and heightened friction in the absence of robust inclusion efforts. Organisational culture serves as a crucial moderator, influencing conflict resolution, shared identity, norms, and behaviour. Various culture models, such as those proposed by Schein, elucidate how culture can enhance or mitigate the impacts of diversity. Robust and cohesive cultures generally foster commitment, coordination, and the achievement of goals, leading to enhanced performance.

In Malaysia, a multiethnic society, diversity presents both advantages and challenges. The national workforce has expanded, exhibiting significant sectoral shifts; however, diversity initiatives, particularly within higher education, continue to be inconsistent. Research conducted in Malaysian settings, including universities, construction, hospitality, and banking, reveals diverse relationships between diversity and performance. It underscores the importance of policy initiatives, such as women's representation and the inclusion of persons with disabilities, while also noting ongoing gaps in implementation. Government reforms and strategic plans within Higher Education Institutions (HEIs), such as the NHESP and MEB 2015–2025, promote internationalisation and quality. Faculty diversity and mobility are regarded as essential factors for achieving academic excellence, enhancing learning environments, and preparing graduates for a multicultural world.

Private higher education institutions are essential yet encounter financial constraints, fluctuations in enrolment intensified by COVID-19, regulatory requirements, difficulties in attracting and retaining talent, and increasing managerialism. The workloads of academic staff and expectations regarding key performance indicators have increased across teaching, research, administration, and commercialisation, necessitating effective performance management and a supportive culture. Despite extensive research on service quality, enrolment drivers, and productivity, a significant gap persists: limited studies directly investigate the impact of workforce diversity on employee performance in Malaysian private universities, as well as the moderating role of organisational culture in this relationship.

This study aims to investigate four dimensions of diversity—age, gender, ethnicity, and education—and their impact on employee performance, while considering organisational culture as a moderating factor. The study presents distinct questions and objectives, concentrating on academic staff within specific private universities. It highlights both practical and theoretical contributions: directing HR strategies towards inclusive, high-performing environments; advising policymakers and leaders on the performance implications of diversity; and enhancing scholarship through the application of Social Identity Theory and quantitative methods in a Malaysian higher education institution context. The expected findings seek to assist private universities in bolstering talent, maintaining quality, and improving competitiveness in accordance with national higher education objectives.

## **2. Methods**

This quantitative, deductive study examines how workforce diversity—age, gender, ethnicity, and education—affects academic staff performance at Malaysian private institutions, with organisational culture as a moderating variable. A systematic questionnaire based on existing research and validated scales is used to describe patterns in a large responder sample and draw generalisable findings. PLS-SEM is the main statistical tool for data analysis in this study. PLS-SEM was chosen to study and predict correlations among multiple latent variables, including independent, moderating, and dependent factors. Ramayah et al.<sup>[9]</sup> claim

that Structural Equation Modelling (SEM) methods evaluate several connected regression models simultaneously, while SPSS analysis only processes one regression equation. Hanafi et al.<sup>[10]</sup>, state that Structural Equation Modelling (SEM) is widely used to assess causal links between constructs with numerous indicators, making it ideal for this study's complex theoretical model. Hair et al.<sup>[11]</sup> also noted that PLS-SEM is particularly useful in social science research, where non-normal data and small sample sizes are common, which matches the dataset and goals of the current study. Methodological differences from previous statistical approaches are shown in this work. Covariance-Based SEM (CB-SEM) validates theories using huge, normally distributed datasets. Instead, PLS-SEM prioritises theory building and prediction accuracy, allowing non-normal data distributions<sup>[12,19]</sup>. Multiple regression analysis and ANOVA investigate direct connections or group differences but not measurement reliability and validity. Thus, PLS-SEM is better for exploratory and predictive research since it evaluates both the measurement model and the structural model simultaneously.

The process of developing the questionnaire was thorough and grounded in well-established literature. Instruments were modified from established measures, including the Employee Work Performance Questionnaire<sup>[13,14]</sup> and organisational culture scales developed by Mande et al.<sup>[15]</sup>. A preliminary test was carried out with a limited number of participants to enhance the wording, ensure clarity, and assess construct relevance. In accordance with the guidance provided by Sekaran and Bougie<sup>[16]</sup> and Ramayah et al.<sup>[9]</sup>, evaluations were conducted by specialists in human capital management and workforce diversity to determine the validity of constructs and the suitability of the scale. Cognitive interviews were conducted to assess respondents' comprehension of the items. The final instrument included reverse-coded items to reduce response bias, adhering to established best practices as outlined by Chyung et al.<sup>[17]</sup>.

The sample and data collection focused on academic and administrative staff at Malaysian private higher education institutions. Participants with institutional management and performance experience were selected using purposive sampling. Most data were collected via online surveys, which made it accessible and promoted participation. SPSS was used to edit, code, check normalcy, and find outliers before analysis. The second stage of analysis, utilising SmartPLS 3, examined study hypotheses using PLS-SEM. This survey included a variety of Malaysian private higher education schools. Malaysia had 53 private universities, including branch campuses, 10 foreign university branches, 38 university colleges, and 351 colleges as of July 31, 2017, according to the Ministry of Higher Education. As Malaysia's higher education hub, the Klang Valley region (Selangor, Kuala Lumpur, Cyberjaya, and Putrajaya) hosts most of its private universities, hence 36 were added to the sampling frame. Data was selected using probability-based, proportionate stratified random sampling. This strategy allowed the researcher to balance representation across institutions of different sizes and types while maintaining statistical correctness<sup>[16,18]</sup>. The population was 7,576 academic staff members, and 200 responders (2.64%) were sampled. The findings were more representative and generalisable due to this sampling strategy, reflecting Malaysia's PHEIs' demographic variety. The participants were mostly academic professionals and administrators from the selected institutions with postgraduate degrees and administrative and teaching experience. Demographic diversity helped the study understand private higher education, improving its validity and dependability.

Statistical methods were used to improve structural model analysis latent construct linkages. Bootstrapping was used to calculate confidence intervals (CIs) for all structural route coefficients ( $\beta$ ). Bootstrapping lets you empirically estimate standard errors and build 95% confidence intervals. The intervals indicate a 95% confidence range for the true population parameter. According to Hair et al.<sup>[19]</sup>, a path coefficient is statistically significant if its confidence interval is not zero. This method ensures

coefficient estimate stability and accuracy, especially when data distributions deviate from normality. Confidence intervals show structural path certainty, improving interpretability, according to the thesis.

VIFs were calculated for all exogenous variables to test multicollinearity among predictor constructs. Partial Least Squares Structural Equation Modelling (PLS-SEM) uses the Variance Inflation Factor (VIF) to identify collinearity concerns that could affect path estimates<sup>[20]</sup>. The thesis indicates that the VIF values for all constructs—Age Diversity (1.162), Educational Background Diversity (1.196), Ethnicity Diversity (1.208), Gender Diversity (1.185), and Organisational Culture (1.426) are significantly below the recommended threshold of 5.0<sup>[21]</sup>. No major multicollinearity concerns were found, confirming model estimates and predictor construct independence. Calculated path coefficients ( $\beta$ ) evaluated the strength and direction of links among constructs. The significance of each  $\beta$  value was determined using bootstrapping-derived t-statistics and p-values. The study emulated Ramayah et al.<sup>[9]</sup> by using a one-tailed test, directional hypotheses, and significance at  $p < 0.05$ . Using  $\beta$  estimates, confidence intervals, and multicollinearity diagnostics (VIF) improved the reliability and interpretability of the suggested model.

### 3. Results

The study assessed the measurement model to ensure that all constructs: Workforce Diversity (age, gender, ethnicity, and educational background diversity), Organisational Culture, and Employee Performance—satisfied the criteria for reliability and validity within the PLS-SEM framework. Internal consistency reliability was initially assessed using Cronbach's Alpha (CA) and Composite Reliability (CR), as recommended by Hair et al.<sup>[20]</sup> and Ramayah et al.<sup>[9]</sup>. The findings demonstrated that all constructs attained CA values between 0.715 and 0.903, and CR values ranging from 0.55 to 0.92, indicating how the items suggest the latent construct. The reliability estimates, represented by Cronbach's Alpha ( $\alpha$ ), were determined by analysing the average inter-item correlation alongside the quantity of items in each construct. Cronbach's Alpha serves as a standard metric for assessing internal consistency, reflecting the extent to which items within a scale are correlated and reliably measure the same latent construct<sup>[16,19]</sup>. The pilot reliability test in this study exhibited satisfactory internal consistency across all constructs. The Cronbach's Alpha coefficients, as shown in **Table 1**, ranged from 0.73 to 0.90, indicating good to excellent reliability. The results were obtained by calculating the average inter-item correlation among the scale items, taking into account both the number of items and their variance contributions. The constructs of Age Diversity, Gender Diversity, Ethnic Diversity, Educational Background Diversity, Employee Performance, and Organisational Culture included between 4 and 11 items each, with Cronbach's Alpha values surpassing the 0.70 threshold, which is typically considered acceptable for both exploratory and confirmatory research<sup>[22]</sup>. Higher Alpha values, exemplified by 0.90 for Employee Performance, suggest robust inter-item correlation, indicating that the items assess a cohesive construct. The results confirmed the internal consistency of the instrument's items and demonstrated that each construct's items significantly contributed to the scale's reliability.

Consequently, the application of  $\alpha$  estimates, obtained from average inter-item correlations and item counts, validated the stability and reliability of the measurement instrument prior to the comprehensive data collection and analysis. Convergent validity was evaluated using the Average Variance Extracted (AVE), which varied from 0.55 to 0.68, surpassing the minimum threshold of 0.50<sup>[19]</sup>. This indicated that each construct accounted for over fifty percent of the variance in its indicators. The research utilised a reflective measurement model, aligning with the recommendations of Hair et al.<sup>[19]</sup>, wherein causality is directed from the construct to its indicators, making it appropriate for behavioural and management studies. The minimum factor loading values range from 0.72 to 0.93, indicating strong relationships between the observed items and their respective constructs. The measurement model demonstrates strong reliability and validity, as all

constructs exhibit high factor loadings above 0.70, indicating that each item effectively represents its underlying construct. Constructs such as Employee Performance ( $\leq 0.93$ ) and Organizational Culture ( $\leq 0.82$ ) show particularly strong correlations, reflecting precise and consistent measurement, while others like Ethnicity Diversity ( $\leq 0.72$ ) and Gender Diversity ( $\leq 0.76$ ) remain within acceptable thresholds. The consistently high factor loadings across constructs confirm good convergent validity, suggesting that the indicators collectively provide an accurate and reliable representation of the latent variables within the model. **Table 1** presents the results of the assessment of the measurement model for constructs.

**Table 1.** Results of the assessment of the measurement model for constructs.

Construct	Number of items	Minimum factor loading	AVE	CR	$\alpha$
Age Diversity	4	$\leq 0.77$	0.55	0.78	0.73
Educational Background	7	$\leq 0.78$	0.68	0.57	0.78
Employee Performance	10	$\leq 0.93$	0.63	0.92	0.90
Ethnicity Diversity	7	$\leq 0.72$	0.60	0.55	0.71
Gender Diversity	8	$\leq 0.76$	0.61	0.62	0.74
Organizational Culture	11	$\leq 0.82$	0.65	0.84	0.78

Abbreviations: AVE: Average variance extracted; CR: Composite reliability;  $\alpha$ : Cronbach's alpha.

Subsequently, discriminant validity was assessed to confirm that each construct was empirically distinct from the others. Three methodologies were employed: cross-loadings, the Fornell–Larcker criterion, and the Heterotrait–Monotrait (HTMT) ratio<sup>[9,20]</sup>. According to the Fornell–Larcker criterion, the square root of each construct's AVE (diagonal values) exceeds its correlations with other constructs (off-diagonal values), thereby confirming that each construct accounts for more variance with its own indicators than with those of other constructs<sup>[21,23]</sup>. The HTMT ratio offered further support for discriminant validity, as all values were below the recommended threshold of 0.90<sup>[20]</sup>. Bootstrapped HTMT confidence intervals did not include the value 1.0, thereby further confirming sufficient discriminant validity. The combined results confirmed that all constructs were distinct and devoid of multicollinearity issues. The measurement model exhibited acceptable reliability, convergent validity, and discriminant validity, thereby affirming the robustness of the measurement framework and its suitability for further structural model analysis<sup>[18,19]</sup>.

The findings presented in **Table 2** illustrate the discriminant validity of the constructs, which is assessed based on the square roots of the AVE values and the inter-construct correlations.

**Table 2.** Discriminant Validity constructs based on AVE square roots and inter-construct correlations.

Item	(1)	(2)	(3)	(4)	(5)	(6)
Age Diversity (1)	<b>0.742</b>	0.120	0.244	0.117	0.022	0.046
Education Background Diversity (2)	0.120	<b>0.825</b>	0.301	0.210	0.164	0.046
Employee Performance (3)	0.244	0.301	<b>0.794</b>	0.210	0.164	0.046
Ethnicity Diversity (4)	0.117	0.210	0.210	<b>0.775</b>	0.164	0.446
Gender Diversity (5)	0.022	0.164	0.164	0.164	<b>0.781</b>	0.541
Organizational Culture (6)	0.046	0.046	0.046	0.446	0.541	<b>0.806</b>

Values on the diagonal (in bold) denote the square roots of the Average Variance Extracted (AVE) for each construct. Off-diagonal values represent bivariate correlations among constructs. Discriminant validity is confirmed when the square root of each construct's AVE exceeds its correlations with other constructs. Abbreviation: AVE: Average Variance Extracted.

The HTMT results indicate that all values are significantly below 0.85, hence affirming robust discriminant validity among all constructs in the model. Each construct: Age Diversity, Educational Background, Employee Performance, Ethnicity Diversity, Gender Diversity, and Organisational Culture embody a distinct dimension with minimal conceptual overlap. The correlations between Ethnic Diversity and Organisational Culture (0.45) and Gender Diversity and Organisational Culture (0.54) are significantly elevated yet remain within acceptable thresholds, indicating moderate associations while preserving sufficient differentiation. The measuring approach exhibits exceptional discriminant validity, affirming the strength and uniqueness of each construct.

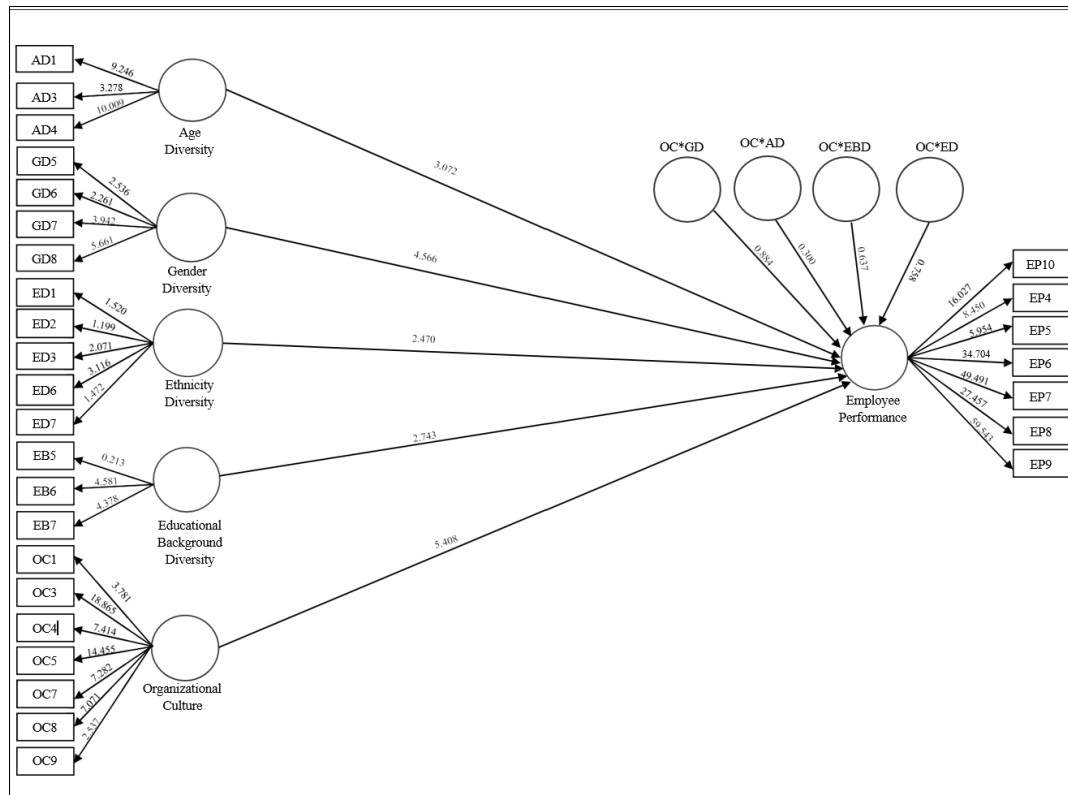
**Table 3** displays the results of structural equation modelling, indicating that all dimensions of workforce diversity exert a beneficial impact on employee performance. Gender diversity ( $\beta=0.281$ ,  $p=0.00$ ) has the most significant influence, succeeded by age ( $\beta=0.229$ ,  $p=0.05$ ), educational background ( $\beta=0.185$ ,  $p=0.06$ ), and ethnic diversity ( $\beta=0.155$ ,  $p=0.01$ ). Statistical evidence demonstrates that increased diversity in gender, age, education, and ethnicity improves cooperation, creativity, and overall employee performance, highlighting the necessity of cultivating an inclusive and diverse workplace environment.

**Table 3.** Structural equation modeling results for workforce diversity dimensions and employee performance.

Hypothesis	$\beta$	Std dev	$p$ -value	Decision
Age Diversity => Employee Performance	0.229	0.139	0.05	Supported
Educational Background Diversity => Employee Performance	0.185	0.068	0.06	Supported
Ethnicity Diversity => Employee Performance	0.155	0.063	0.01	Supported
Gender Diversity => Employee Performance	0.281	0.062	0.00	Supported

*Note:* Sig.  $p$ -values <0.05

**Figure 1** depicts the structural equation model (SEM) that analyses the links between aspects of workforce diversity and employee performance, with organisational culture serving as a moderating variable. The model has five latent constructs: Age Diversity, Gender Diversity, Ethnicity Diversity, Educational Background Diversity, and Organisational Culture, each assessed using many observable indicators (e.g., AD1–AD4 for age diversity). The arrows from these latent factors to Employee Performance signify direct effects, whilst the interaction terms (OCGD, OCAD, OCEBD, OCED) illustrate the moderating influence of organisational culture on these connections. The standardised coefficients (numerical values on the arrows) indicate the strength of the correlations, with higher values signifying more substantial impacts. The model indicates that all dimensions of diversity favourably impact employee performance, with organisational culture enhancing these impacts through its moderating role.



**Figure 1.** Structural Equation Model Illustrating the Relationships between Workforce Diversity Dimensions, Organizational Culture, and Employee Performance.

**Note:** AD = Age Diversity; GD = Gender Diversity; EB = Educational Background Diversity; ED = Ethnicity Diversity; OC = Organizational Culture.

## 4. Discussion

This study examines the substantial impact of workforce diversity on employee performance in private universities. Age diversity was shown to improve performance by promoting collaboration, innovation, and mentorship in higher education institutions. The findings indicate that a diverse age workforce enhances productivity by facilitating knowledge sharing between younger and older employees, hence augmenting creativity, adaptability, and problem-solving capabilities. To capitalise on these advantages, institutions ought to implement inclusive recruitment, flexible work arrangements, and mentoring initiatives. These findings corroborate previous research from Egypt, Ghana, and Nepal, which consistently indicated that variety in education, ethnicity, and age enhances employee performance<sup>[24-26]</sup>.

The study suggested that gender diversity has a beneficial effect on employee performance, and the results validated this correlation. Findings demonstrate that businesses exhibiting equitable gender representation achieve improved performance, innovation, and productivity. Previous studies, such those by Mushtaque et al.<sup>[27]</sup> and Khan and Jahan<sup>[29]</sup>, corroborate these findings, noting enhanced team performance and positive employee outcomes in gender-diverse settings. Parajuli<sup>[29]</sup> and Setati et al.<sup>[30]</sup> similarly asserted that fair gender representation fosters non-discriminatory behaviours, professional development, and organisational success. Gender diversity enhances teamwork, creativity, and decision-making by incorporating a wider array of perspectives and experiences<sup>[31,32]</sup>. Diverse teams exhibit more adaptability, innovation, and efficacy in tackling issues.

Furthermore, gender-diverse leadership improves financial performance and strategic decision-making, while inclusive workplaces draw and keep talented individuals, hence enhancing motivation and engagement. In higher education institutions, gender diversity is essential for fostering innovation, academic performance, and a constructive work environment. Universities can promote gender equality by emphasising gender balance in hiring, providing flexible work options, tackling gender bias, and guaranteeing equitable compensation. Leadership development initiatives, diversity management strategies, unconscious bias training, and inclusive recruitment methods are crucial for promoting equality and inclusion. To enhance gender diversity, institutions ought to promote the recruitment and advancement of women through mentoring, transparent hiring practices, and family-friendly policies. Establishing thorough anti-harassment and family leave policies, augmenting gender equality knowledge, and promoting women in leadership roles may cultivate an inclusive culture. In summary, fostering gender diversity in universities improves employee performance, stimulates creativity, facilitates equitable growth, and bolsters institutional competitiveness by cultivating a fair, inclusive, and motivated academic staff.

The results indicate a favourable relationship between ethnic diversity and employee performance, corroborating the third hypothesis. Ethnic diversity, characterised by differences in race, language, culture, and beliefs, fosters innovation, creativity, and problem-solving among personnel. Research conducted by Setati et al.<sup>[30]</sup> and Zhuwao<sup>[31]</sup> substantiates that workforce diversity markedly enhances organisational performance by promoting innovation and entrepreneurship. In Malaysian private higher education institutions, ethnic diversity enhances pedagogy and research, expands competencies and understanding, and fosters reciprocal learning and collaboration. A diverse academic workforce fosters inclusivity, trust, and respect, resulting in increased motivation and productivity. Moreover, diversity elevates institutional prestige and draws exceptional talent. To enhance performance via diversity, institutions ought to bolster the recruitment of under-represented groups, offer diversity training, mentorship, and cultural awareness initiatives, and enact inclusive policies. Establishing a friendly and courteous environment enhances communication, creativity, and problem-solving, hence elevating institutional performance and academic brilliance.

The study demonstrates that variety in educational backgrounds favourably impacts employee performance, as a varied combination of educational kinds fosters innovation, information sharing, and productivity. Varied educational experiences enhance comprehensive intellectual skills, creativity, and problem-solving capabilities<sup>[33,34]</sup>. Leadership is essential for inspiring and unifying varied skills to attain organisational objectives. Employees from diverse academic backgrounds contribute unique perspectives, cognitive abilities, and knowledge, enhancing team collaboration and decision-making<sup>[35-37]</sup>. Organisations that encourage educational variety promote adaptation, ongoing learning, and creativity. To enhance performance, higher education institutions ought to foster inclusivity, honour diversity, engage with stakeholders, and implement diverse hiring practices. Integrating social justice themes and promoting culturally responsive spaces enhances engagement. Diversity in educational backgrounds increases institutional excellence by fostering creativity, collaboration, and overall staff effectiveness.

While organizational culture was anticipated to enhance the relationship between workforce diversity and employee performance, various theoretical and contextual factors may account for the lack of a significant moderating effect. Previous research suggests that the influence of culture as a moderating factor is significantly dependent on organizational maturity, the consistency of leadership, and the degree to which employees internalize cultural values<sup>[39,40]</sup>. In numerous Malaysian private universities, organizational culture may exist at a formal or symbolic level; however, it is not adequately integrated into daily work practices to



impact the influence of diversity on performance. Cultural norms may not sufficiently amplify or attenuate the effects of diversity variables.

The findings may indicate cultural homogeneity within the organizational context. Malaysian private universities typically adhere to standardized governance frameworks, uniform human resource policies, and analogous institutional missions. This relative uniformity may decrease variability in culture, thereby limiting its statistical capacity to serve as a moderator. Diversity dynamics may directly influence performance, independent of cultural mechanisms. Empirical studies in higher education indicate that workforce diversity influences performance via mechanisms like task specialization, information-sharing, and innovation—pathways that do not necessarily depend on cultural reinforcement<sup>[38,41]</sup>. This may elucidate why diversity constructs continued to be significant predictors, whereas the moderating pathway did not exhibit the same significance. The non-significant result suggests a necessity for enhanced cultural interventions, including leadership-driven culture development, diversity-inclusive policies, and more structured communication frameworks. In the absence of these elements, organizational culture may lack the strength necessary to influence the relationship between diversity and performance.

This study provides important quantitative insights; however, it is not without its limitations. Simplifying intricate human behaviours into quantifiable variables can potentially miss significant qualitative subtleties and contextual elements. This quantitative approach may oversimplify experiences and overlook the deeper motivations at play. Even with meticulous preparation, unexpected factors can influence results. Furthermore, although Partial Least Squares Structural Equation Modelling (PLS-SEM) is appropriate for small samples, inadequate sample sizes can lead to biased or unreliable outcomes, thereby constraining the overall validity and generalisability of the study. Future research should investigate this framework in various cultural and sectoral contexts to elucidate the impact of workforce diversity on behaviours and employee performance. The integration of quantitative and qualitative methods, including in-depth interviews, yields deeper insights into employee experiences and motivations. Future research should encompass not only Malaysia's private higher education sector but also public universities, manufacturing, and finance. This study theoretically enhances the understanding of workforce diversity via Social Identity Theory, indicating that organisational culture does not moderate the relationships between diversity and performance. However, diversity in gender, ethnicity, and education positively influences employee outcomes and institutional effectiveness.

This study underscores significant practical implications for improving workforce diversity and employee performance within Malaysian higher education institutions. Encouraging inclusivity via diverse recruitment, cross-cultural training, and equitable evaluation enhances collaboration and productivity. The integration of employees across various age groups, ethnicities, and educational backgrounds fosters innovation, creativity, and effective problem-solving. Institutions ought to adopt diversity-oriented hiring practices, provide cultural competence training, and establish teamwork initiatives to foster inclusive environments. Flexible work arrangements and open communication significantly improve satisfaction and engagement. Practical advantages encompass enhanced productivity, improved retention rates, and elevated creativity resulting from diverse perspectives. Employee engagement increases when individuals perceive themselves as valued and included, facilitated by mentorship, diversity initiatives, and equitable career development opportunities. Embracing workforce diversity enables higher education institutions to create inclusive, innovative, and efficient work environments, thereby improving teaching and learning outcomes. Leaders are essential in demonstrating inclusivity and creating employee resource groups that enhance cultural understanding and collaboration. These practices enhance institutional excellence, elevate employee morale, and prepare organisations for sustained success in Malaysia's multicultural context.

## 5. Conclusion

This study provides novel insights into how workforce diversity enhances employee performance in Malaysian higher education institutions. By integrating demographic, cultural, and educational diversity, it underscores diversity as a strategic asset rather than a challenge. The findings contribute to existing literature by linking inclusivity practices with measurable outcomes such as job satisfaction, innovation, and productivity. Practically, it offers a framework for university leaders to implement diversity-driven policies that foster equity and engagement. Overall, the study advances understanding of diversity management, emphasizing its critical role in achieving institutional excellence, sustainable performance, and Malaysia's vision for inclusive higher education.

## Author contributions

Conceptualization, N.MN. and S.A.; methodology, MN.N.; software, H.H.; validation, N.MN; formal analysis, H.H.; investigation, S.A.; resources, H.H.; data curation, H.H.; writing—original draft preparation, H.H.; writing—review and editing, S.A.; visualization, S.A.; supervision, N.MN.; project administration, H.H.; funding acquisition, H.H. All authors have read and agreed to the published version of the manuscript.

## Conflict of interest

The authors declare no conflict of interest.

## References

1. Krishnan T, Rahman N, & Sulaiman Z. Diversity and innovation in Malaysian organizations. *Asian Academy of Management Journal*. 2017;22(2):45–63.
2. Roberson Q, Ryan A, & Ragins B. The evolution of diversity research. *Journal of Applied Psychology*. 2017;102(3):465–480.
3. Maqsoom A, Khan F, & Imran M. Workforce diversity in the construction sector. *Sustainability*. 2023;15(8):6451.
4. Harwani N, Ismail F, & Noor M. The pandemic impact on leadership and inclusion. *Journal of Contemporary Management*. 2020;11(3):23–37.
5. Farooq M, Malik H, & Ahmad T. Leadership adaptability during COVID-19. *Asian Journal of Business Management*. 2021;13(1):87–101.
6. Ghewari R, Naik M, & Khan P. COVID-19 and human resource resilience: A study on diversity inclusion. *Global Business Review*. 2021;22(4):1209–1224.
7. Shifnas F, & Sutha P. Workforce diversity management practices in education. *International Journal of Business and Management Invention*. 2016;5(3):50–59.
8. Yadav S, & Lenka U. Diversity management: A systematic review. *Equality, Diversity and Inclusion: An International Journal*. 2020;39(2):149–172.
9. Ramayah T, Cheah J, Chuah F, Ting H, Memon MA. *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using SmartPLS 3.0: An Updated Guide and Practical Example*. Kuala Lumpur (MY): Pearson Malaysia; 2018.
10. Hanafi W, Alias M, Ramayah T. *Quantitative Data Analysis with SmartPLS*. Kuala Lumpur (MY): Pearson; 2017.
11. Hair JF, Hult GTM, Ringle CM, Sarstedt M. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. 2nd ed. Thousand Oaks (CA): Sage Publications; 2014.
12. Ong CH, Puteh F. The use of SEM techniques in business research: A review and recommendation. *Asian J Econ Bus Account*. 2017;5(3):1–13.
13. Bekele A, Shigutu A, Tensay A. *Employee Work Performance Questionnaire*. 2007.
14. Zhuwao S. *The Mediating Role of Employee Engagement on the Relationship between Talent Management and Employee Retention in the South African Public Service [dissertation]*. Johannesburg (ZA): University of the Witwatersrand; 2017.
15. Mande B, Wanjiku S, & Chege P. Diversity and employee performance: Kenyan context. *African Journal of Business Management*. 2019;13(4):109–118.
16. Sekaran U, Bougie R. *Research Methods for Business: A Skill-Building Approach*. 8th ed. Hoboken (NJ): John Wiley & Sons; 2019.

17. Chyung SY, Roberts K, Swanson I, Hankinson A. Evidence-based survey design: The use of reverse-coded items in Likert scales. *Perform Improv.* 2018;57(3):38–45.
18. Iliyasu Z, Etikan I. Comparison of stratified and simple random sampling in quantitative research. *Int J Appl Res.* 2021;7(4):8–15.
19. Hair JF, Hult GTM, Ringle CM, Sarstedt M. *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM)*. 2nd ed. Thousand Oaks (CA): Sage Publications; 2019.
20. Sarstedt M, Hair JF, Cheah JH, Becker JM, Ringle CM. How to specify, estimate, and validate higher-order constructs in PLS-SEM. *Aust Mark J.* 2021;29(2):144–56.
21. Hair JF, Ringle CM, Sarstedt M. PLS-SEM: Indeed, a silver bullet. *J Mark Theory Pract.* 2011;19(2):139–52.
22. Pallant J. *SPSS Survival Manual: A Step by Step Guide to Data Analysis Using IBM SPSS*. 6th ed. Maidenhead (UK): McGraw-Hill Education; 2016.
23. Fornell C, Larcker DF. Evaluating structural equation models with unobservable variables and measurement error. *J Mark Res.* 1981;18(1):39–50.
24. Said D, Youssef D, El-Bayaa N, Alzoubi YI, Zaim H. The impact of diversity on job performance: evidence from private universities in Egypt. *Acta Innovations.* 2023.
25. Andoh JS, Ghansah B, Okogun-Odompley JN, Benuwa BB. Impact of workplace diversity on employee performance: A case of some selected private universities in Ghana. In *Research Anthology on Changing Dynamics of Diversity and Safety in the Workforce 2022* (pp. 1088-1102). IGI Global.
26. Lama PB, Budhathoki PB, Ojha HP. Fostering an Inclusive Academic Workforce: Assessing the Impact of Age, Ethnic and Educational Diversity on Employee Performance. *Business Ethics and Leadership.* 2025 Mar 31;9(1):167-79.
27. Mushtaque I, Khan MI, Ahmed R. The impact of gender diversity on group performance in organizations. *J Manag Res.* 2021;8(2):99–115. doi:10.29145/jmr/82/080204
28. Khan M, & Jahan F. Ethnic diversity and performance outcomes. *Journal of Human Resource Management.* 2021;9(1):55–68.
29. Parajuli D. Managing workforce diversity in Nepalese organizations. *Journal of Management Studies.* 2021;14(2):90–101.
30. Setati M, Mokwena S, Phiri T. Workforce diversity and organizational performance: A study of gender inclusivity. *Afr J Bus Manag.* 2019;13(6):210–20. doi:10.5897/AJBM2019.8805
31. Zhuwao, S. (2017). *Workforce Diversity and Its Effects on Employee Performance In a Higher Education Institution In South Africa: A Case of the University of Venda.*
32. Krishnan T. Gender diversity and its effects on team creativity and innovation. *Int J Organ Behav.* 2020;25(2):112–27. doi:10.1108/IJOB-2020-0105
33. Stephen, J. K., Mathuva, E., & Mwenda, P. (2018). Influence of Workforce Diversity Recruitment on Productivity of Selected Public Organizations in Mombasa County. *Strategic Journal of Business & Change Management*, 5(1), 428–457
34. Muvinya Muange, R., & Willy Kiptoo, etich. (2020). Effect of Workforce Ethnic Diversity and Education Background diversity on Employee Performance in Selected Universities in Kenya. In *International Journal of Innovative Science and Research Technology* (Vol. 5, Issue 7).
35. Savita Pal, & Jain, M. K. (2021). Impact of Workforce Diversity on Employee Performance: An Empirical Assessment of Sugar Mill, Meerut, Uttar Pradesh. *International Journal of Trade & Commerce-IIARTC*, 10(1), 210–219
36. Khan M, Rehman S, & Malik N. Moderating role of culture in diversity–performance link. *International Journal of Organizational Leadership.* 2019;8(3):231–243.
37. Khaskheli A. Workforce diversity and employee performance: A study of universities in Pakistan. *Journal of Management Research.* 2021;13(1):87–96.
38. Guillaume YR, Dawson JF, Priola V, Sacramento CA, West MA. Managing diversity in organizations: An integrative model and research agenda. *J Manage.* 2017;43(1):89–116.
39. Hartnell CA, Kinicki AJ, Schneier CE, Waldman DA. How organizational culture influences organizational effectiveness: A meta-analytic investigation. *J Appl Psychol.* 2019;104(6):761–80.
40. Schein EH. *Organizational Culture and Leadership*. 5th ed. Hoboken (NJ): Wiley; 2017.
41. Shen J, Chanda A, D’Netto B, Monga M. Managing diversity through human resource management: An international perspective and conceptual framework. *Int J Hum Resour Manag.* 2009;20(2):235–51.