CHAPTER III

RESEARCH RESULTS

3.1. Introduction

This chapter presents the results of data analysis using SmartPLS 3.0. The analysis includes the evaluation of the measurement model (outer model) and the structural model (inner model). The measurement model assessment focuses on validity and reliability, while the structural model assessment examines the relationships between variables, hypothesis testing, and mediation effects.

3.2 SmartPLS Data Analysis

3.2.1 Measurement Model Analysis (Outer Model Analysis)

3.2.1.1 Outer Loadings

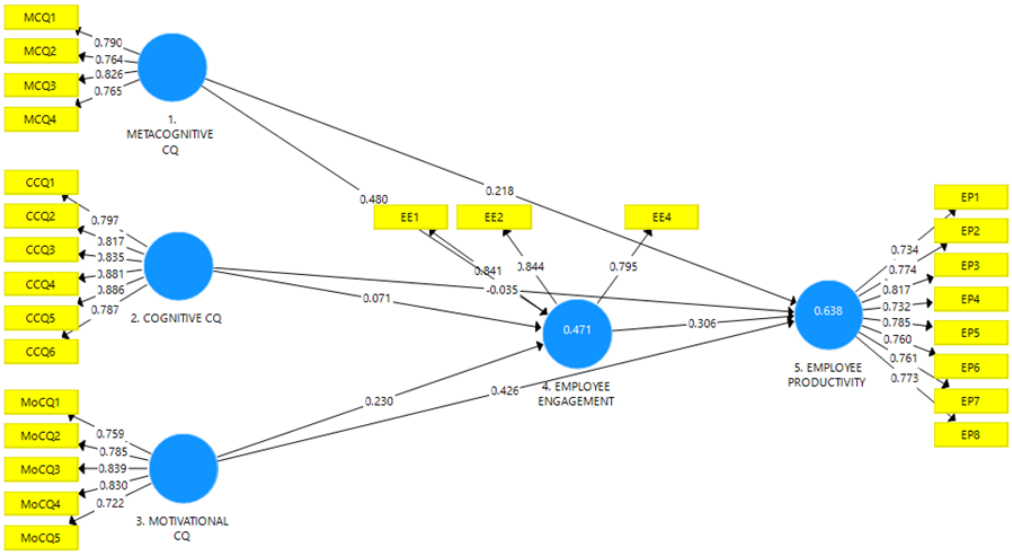

Figure 3. The Outer loading diagram from SmartPLS 3.0

Table 3. Outer Loadings of Research Variables

Variable	Indicator	Outer Loading
Metacognitive Cultural Intelligence	MCQ1	0.790
	MCQ2	0.764

Variable	Indicator	Outer Loading
	MCQ3	0.826
	MCQ4	0.765
Cognitive Cultural Intelligence	CCQ1	0.797
	CCQ2	0.817
	CCQ3	0.835
	CCQ4	0.881
	CCQ5	0.886
	CCQ6	0.787
Motivational Cultural Intelligence	MoCQ1	0.759
	MoCQ2	0.785
	MoCQ3	0.839
	MoCQ4	0.830
	MoCQ5	0.722
Employee Engagement	EE1	0.841
	EE2	0.844
	EE4	0.795
Employee Productivity	EP1	0.734
	EP2	0.774
	EP3	0.817
	EP4	0.732
	EP5	0.785
	EP6	0.760
	EP7	0.761
	EP8	0.773

Source: SmartPLS Output, processed (2026)

3.2.1.2 Construct Reliability and Convergent Validity

The validity and reliability of the measurement model were assessed using outer loading values, Cronbach's alpha, rho_A, composite reliability, and Average Variance Extracted (AVE). The validity test was conducted by examining the outer loading values of each indicator. As shown in Table 3.1, all indicators of Metacognitive Cultural Intelligence, Cognitive Cultural Intelligence, Motivational Cultural Intelligence, Employee Engagement, and Employee Productivity have outer loading values above the recommended threshold of 0.70. This indicates that all indicators have strong relationships with their respective constructs and meet

the criteria for indicator validity. Therefore, all indicators were retained for further analysis.

The reliability test was conducted to assess the internal consistency of each construct. As presented in Table 3.2, Cronbach's alpha values range from 0.768 to 0.913, which exceeds the minimum recommended value of 0.70. The composite reliability values range from 0.866 to 0.932, also exceeding the recommended threshold of 0.70. In addition, all rho_A values are above 0.70, confirming the reliability of the constructs. The AVE values range from 0.589 to 0.697, which are above the minimum threshold of 0.50. These results indicate that all constructs have acceptable reliability and convergent validity. Therefore, the measurement model is suitable for further analysis. The table of detailed results is in Table 3.2.

Table 3. Construct Reliability and Validity

Variable	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Metacognitive CQ	0.795	0.796	0.867	0.619
Cognitive CQ	0.913	0.918	0.932	0.697
Motivational CQ	0.846	0.847	0.891	0.621
Employee Engagement	0.768	0.768	0.866	0.684
Employee Productivity	0.900	0.902	0.920	0.589

Source: SmartPLS Output, processed (2026)

3.2.1.3 Discriminant Validity

3.2.1.3.1 Heterotrait-Monotrait Ratio (HTMT)

A further measure of discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT). Based on the results presented in Table 3.3, all HTMT values are below the recommended threshold of 0.90, indicating that the constructs are empirically distinct. Specifically, the HTMT values between Metacognitive Cultural Intelligence and Cognitive Cultural Intelligence (0.575),

Motivational Cultural Intelligence (0.731), Employee Engagement (0.836), and Employee Productivity (0.775) indicate acceptable discriminant validity. Similarly, the HTMT values among Cognitive Cultural Intelligence, Motivational Cultural Intelligence, Employee Engagement, and Employee Productivity are also within acceptable limits. The highest HTMT value is 0.836, which occurs between Metacognitive Cultural Intelligence and Employee Engagement, and this value remains below the critical threshold of 0.90. Therefore, the results confirm that the constructs used in this study are sufficiently distinct and measure different concepts. This supports the discriminant validity of the measurement model.

Table 3. Heterotrait-Monotrait Ratio (HTMT)

Variables	MCQ	CCQ	MoCQ	EE	EP
1. Metacognitive CQ					
2. Cognitive CQ	0.575				
3. Motivational CQ	0.731	0.512			
4. Employee Engagement	0.836	0.489	0.683		
5. Employee Productivity	0.775	0.427	0.814	0.803	

Source: SmartPLS Output, processed (2026)

All HTMT values are below the threshold of 0.90, indicating satisfactory discriminant validity among the constructs.

3.2.1.3.2 Fornell-Larcker Criterion

The discriminant validity of the constructs was also evaluated using the Fornell-Larcker Criterion. This criterion assesses whether the square root of the Average Variance Extracted (AVE) of each construct is greater than its correlations with other constructs in the model. In this study, MCQ refers to Metacognitive Cultural Intelligence, CCQ refers to Cognitive Cultural

Intelligence, MoCQ refers to Motivational Cultural Intelligence, EE refers to Employee Engagement, and EP refers to Employee Productivity.

Table 3. Fornell-Larcker Criterion

Variables	MCQ	CCQ	MoCQ	EE	EP
1. Metacognitive CQ	**0.787**				
2. Cognitive CQ	0.499	**0.835**			
3. Motivational CQ	0.601	0.454	**0.788**		
4. Employee Engagement	0.654	0.416	0.551	**0.827**	
5. Employee Productivity	0.657	0.394	0.711	0.670	**0.767**

Source: SmartPLS Output, processed (2026)

As presented in Table 3.4, the diagonal values, which represent the square root of AVE, are higher than the correlation values in both the vertical and horizontal comparisons. The square root of AVE for Metacognitive Cultural Intelligence is 0.787, which is greater than its correlations with Cognitive Cultural Intelligence (0.499), Motivational Cultural Intelligence (0.601), Employee Engagement (0.654), and Employee Productivity (0.657). Similarly, the square root of AVE for Cognitive Cultural Intelligence is 0.835, which is greater than its correlations with Metacognitive Cultural Intelligence (0.499), Motivational Cultural Intelligence (0.454), Employee Engagement (0.416), and Employee Productivity (0.394). The square root of AVE for Motivational Cultural Intelligence is 0.788, which is greater than its correlations with Metacognitive Cultural Intelligence (0.601), Cognitive Cultural Intelligence (0.454), Employee Engagement (0.551), and Employee Productivity (0.711). Furthermore, the square root of AVE for Employee Engagement is 0.827, which is greater than its correlations with Metacognitive Cultural Intelligence (0.654), Cognitive Cultural Intelligence (0.416), Motivational Cultural Intelligence (0.551), and Employee

Productivity (0.670). Finally, the square root of AVE for Employee Productivity is 0.767, which is greater than its correlations with Metacognitive Cultural Intelligence (0.657), Cognitive Cultural Intelligence (0.394), Motivational Cultural Intelligence (0.711), and Employee Engagement (0.670). Therefore, each construct has a higher relationship with its own indicators than with other constructs, confirming that discriminant validity has been established based on the Fornell-Larcker Criterion.

3.2.2 Structural Model Analysis (Inner Model Analysis)

3.2.2.1 R-Square (Coefficient of Determination)

The coefficient of determination (R-Square) was used to assess the predictive accuracy of the structural model. The R-Square values indicate the extent to which the independent variables explain the variance in the dependent variables. The results are presented in Table 3.5.

Table 3. R-Square Values

Variables	R Square	R Square Adjusted
Employee Engagement	0.471	0.456
Employee Productivity	0.638	0.624

Source: SmartPLS Output, processed (2026)

Based on Table 3.5, the R-Square value for Employee Engagement is 0.471, indicating that 47.1% of the variance in Employee Engagement is explained by Metacognitive, Cognitive, and Motivational Cultural Intelligence. Meanwhile, the R-Square value for Employee Productivity is 0.638, meaning that 63.8% of the variance in Employee Productivity is explained by the independent variables and Employee Engagement. These results suggest that the model has moderate to substantial explanatory power.

3.2.2.2 F-Square (Effect Size)

The effect size (f^2) was used to assess the impact of each exogenous construct on the endogenous constructs in the structural model. Based on accepted standards, f2 values of 0.02, 0.15 and 0.35 represent small, medium and large effects respectively. The results presented in Table 3.6 exercise different degrees of influence of the variables. Metacognitive Cultural Intelligence has a moderate effect on Employee Engagement (f^2 = 0.251) and a small effect on Employee Productivity (f^2 = 0.061). The Cognitive Cultural Intelligence has no significant impact on the Employee Engagement (f 2 = 0.007) or Employee Productivity (f 2 = 0.002), since both are less than the minimal value of 0.02. The Motivational Cultural Intelligence has a small impact on Employee Engagement (f 2 = 0.061) as well as a moderate impact on Employee Productivity (f 2 = 0.288) meaning that it has a greater impact on increasing productivity. Moreover, there is a small to medium impact of Employee Engagement on Employee Productivity (f 2 = 0.137) as well. All in all, these results indicate that Motivational Cultural Intelligence and Metacognitive Cultural Intelligence have a greater role in the model but Cognitive Cultural Intelligence does not.

Table 3. Effect Size (f^2)

Variables	Employee Engagement	Employee Productivity
Metacognitive CQ	0.251	0.061
Cognitive CQ	0.007	0.002
Motivational CQ	0.061	0.288
Employee Engagement		0.137
Employee Productivity		

Source: SmartPLS Output, processed (2026)

3.2.2.3 Collinearity Statistics (VIF)

Collinearity statistics were assessed using the Variance Inflation Factor (VIF) to examine the presence of multicollinearity among the constructs in the model. A VIF value below 5 indicates that there is no multicollinearity issue. The results for both outer and inner VIF values are presented in Table 3.7 and Table 3.8.

3.2.2.3.1 Outer VIF Values

The outer VIF values assess collinearity among the indicators of each construct. As shown in Table 3.7, all indicator VIF values range between 1.410 and 3.440, which are well below the threshold of 5. This indicates that there is no multicollinearity among the measurement items, and all indicators are suitable for inclusion in the model.

Table 3. Outer VIF Values

Indicators	VIF	Indicators	VIF
CCQ1	2.036	EP1	1.870
CCQ2	2.480	EP2	2.022
CCQ3	2.779	EP3	2.367
CCQ4	3.440	EP4	1.844
CCQ5	3.355	EP5	2.087
CCQ6	1.943	EP6	1.978
EE1	1.705	EP7	2.147
EE2	1.717	EP8	2.311
EE4	1.410	MCQ1	1.628
		MCQ2	1.545
		MCQ3	1.788
		MCQ4	1.471
		MoCQ1	1.755
		MoCQ2	1.889
		MoCQ3	2.322
		MoCQ4	2.174
		MoCQ5	1.587

Source: SmartPLS Output, processed (2026)

3.2.2.3.2 Inner VIF Values

The inner VIF values assess collinearity among the latent variables in the structural model. As presented in Table 3.8, all VIF values range from 1.400 to 2.176, which are also below the recommended threshold of 5. This indicates that there is no multicollinearity issue among the predictor constructs in explaining Employee Engagement and Employee Productivity.

Table 3. Inner VIF Values

Variables	Employee Engagement	Employee Productivity
Metacognitive CQ	1.740	2.176
Cognitive CQ	1.400	1.410
Motivational CQ	1.646	1.746
Employee Engagement		1.891
Employee Productivity		

Source: SmartPLS Output, processed (2026)

Overall, all VIF values are below the threshold of 5, confirming that there are no multicollinearity issues in the model and that the structural model is suitable for further analysis.

3.2.2.4 Model Fit

The model fit was evaluated to assess how well the proposed model represents the observed data. The assessment was conducted using several fit indices, including the Standardized Root Mean Square Residual (SRMR), d_ULS, d_G, Chi-Square, Normed Fit Index (NFI), and RMS Theta. The results are presented in Table 3.9. The value of SRMR is 0.073 which is lower than the required value of 0.08, which shows that the model fits well. The d_ULS and d G values are quite low indicating that there is a small difference between the actual and the estimated covariance matrices.

Table 3. Model Fit Summary

Fit Indices	Saturated Model	Estimated Model
SRMR	0.073	0.073
d_ULS	1.864	1.864
d_G	0.876	0.876
Chi-Square	511.829	511.829
NFI	0.734	0.734

Source: SmartPLS Output, processed (2026)

Though the NFI value of 0.734 is a bit less than the ideal value of 0.90, it is acceptable in the partial least squares structural equation modeling (PLS-SEM), especially in the exploratory research. All these findings show that the model exhibits a satisfactory degree of fit.

Table 3. RMS Theta

Index	Value
RMS Theta	0.154

Source: SmartPLS Output, processed (2026)

Although the SRMR value of 0.073 is below the recommended threshold of 0.08, indicating acceptable model fit, the NFI value of 0.734 is below the ideal threshold of 0.90. In addition, the RMS Theta value of 0.154 exceeds the recommended threshold of 0.12, suggesting the possibility of some degree of model misspecification. Therefore, the model fit results should be interpreted with caution. Nevertheless, the model remains acceptable for further structural analysis because the main assessment in PLS-SEM focuses on construct reliability, convergent validity, discriminant validity, explanatory power, collinearity, and the significance of the structural paths.

3.2.2.5 Path Coefficient (Hypothesis Testing)

Table 3. Hypothesis Testing Results

Hypothesis	Relationship	Beta (O)	T-Value	P-Value	Decision

Hypothesis	Relationship	Beta (O)	T-Value	P-Value	Decision
H1	Metacognitive CQ → Employee Engagement	0.480	4.573	0.000	Supported
H2	Cognitive CQ → Employee Engagement	0.071	0.658	0.511	Not Supported
H3	Motivational CQ → Employee Engagement	0.230	1.917	0.056	Not Supported
H4	Metacognitive CQ → Employee Productivity	0.218	2.224	0.027	Supported
H5	Cognitive CQ → Employee Productivity	-0.035	0.509	0.611	Not Supported
H6	Motivational CQ → Employee Productivity	0.426	4.099	0.000	Supported
H7	Employee Engagement → Employee Productivity	0.306	3.478	0.001	Supported

Source: SmartPLS Output, processed (2026)

Hypothesis testing is conducted using bootstrapping with the following criteria:

T-value > 1.96 → Significant

P-value < 0.05 → Significant

3.2.2.5.1 Interpretation of Results

H1: Metacognitive CQ → Employee Engagement

Metacognitive Cultural Intelligence has a positive and significant effect on employee engagement (β = 0.480, T = 4.573, P < 0.001). This indicates that employees who are more aware of cultural differences tend to be more engaged in their work.

H2: Cognitive CQ → Employee Engagement

Cognitive CQ has a positive but not significant effect on employee engagement (β = 0.071, T = 0.658, P = 0.511). This implies that knowledge alone does not significantly influence engagement.

H3: Motivational CQ → Employee Engagement

Motivational CQ shows a positive but not significant effect on employee engagement (β = 0.230, T = 1.917, P = 0.056).

H4: Metacognitive CQ → Employee Productivity

Metacognitive CQ has a significant positive effect on employee productivity (β = 0.218, T = 2.224, P = 0.027). This suggests that cultural awareness enhances employee performance.

H5: Cognitive CQ → Employee Productivity

Cognitive CQ has a negative and not significant effect on employee productivity (β = -0.035, T = 0.509, P = 0.611). This suggests limited influence on performance.

H6: Motivational CQ → Employee Productivity

Motivational CQ has a strong positive and significant effect on employee productivity (β = 0.426, T = 4.099, P < 0.001).

H7: Employee Engagement → Employee Productivity

Employee engagement has a significant positive effect on employee productivity (β = 0.306, T = 3.478, P = 0.001).

3.2.2.5.2 Summary of Findings

- Significant relationships: H1, H4, H6, H7
- Non-significant relationships: H2, H3, H5
- Strongest effect: Motivational CQ → Employee Productivity
- Employee engagement mediates only the relationship between metacognitive cultural intelligence and employee productivity. However, employee engagement does not mediate the relationships between

cognitive cultural intelligence and employee productivity or between motivational cultural intelligence and employee productivity.

3.2.2.6 Indirect Effect (Mediation Analysis)

Mediation analysis was conducted to examine whether Employee Engagement mediates the relationship between the dimensions of Cultural Intelligence (Metacognitive Cultural Intelligence, Cognitive Cultural Intelligence, and Motivational Cultural Intelligence) and Employee Productivity. The analysis was performed using the bootstrapping method in SmartPLS, focusing on the significance of indirect effects. The decision criteria for mediation were based on a T-value greater than 1.96 and a P-value less than 0.05.

Table 3. Specific Indirect Effects (Mediation Analysis)

Relationship	Indirect Effect (β)	T-Value	P-Value	Result
Metacognitive CQ → Employee Engagement → Employee Productivity	0.147	2.377	0.018	Significant
Cognitive CQ → Employee Engagement → Employee Productivity	0.022	0.617	0.537	Not Significant
Motivational CQ → Employee Engagement → Employee Productivity	0.071	1.741	0.082	Not Significant

Source: SmartPLS Output, processed (2026)

Based on Table 3.12, the mediation analysis shows different mediation patterns for the three dimensions of Cultural Intelligence. First, Metacognitive Cultural Intelligence has a positive and significant direct effect on Employee Productivity, with $\beta = 0.218$, $T = 2.224$, and $p = 0.027$. Its indirect effect on Employee Productivity through Employee Engagement is also positive and significant, with $\beta = 0.147$, $T = 2.377$, and $p = 0.018$. Since both the direct effect

and the indirect effect are significant, Employee Engagement partially mediates the relationship between Metacognitive Cultural Intelligence and Employee Productivity. This means that Metacognitive Cultural Intelligence improves Employee Productivity directly and also indirectly by increasing Employee Engagement.

Second, Cognitive Cultural Intelligence has a negative and not significant direct effect on Employee Productivity, with $\beta = -0.035$, $T = 0.509$, and $p = 0.611$. Its indirect effect on Employee Productivity through Employee Engagement is also not significant, with $\beta = 0.022$, $T = 0.617$, and $p = 0.537$. Since the indirect effect is not significant, Employee Engagement does not mediate the relationship between Cognitive Cultural Intelligence and Employee Productivity. Therefore, this relationship does not show full mediation or partial mediation.

Third, Motivational Cultural Intelligence has a positive and significant direct effect on Employee Productivity, with $\beta = 0.426$, $T = 4.099$, and $p < 0.001$. However, its indirect effect on Employee Productivity through Employee Engagement is not significant, with $\beta = 0.071$, $T = 1.741$, and $p = 0.082$. Since only the direct effect is significant while the indirect effect is not significant, Employee Engagement does not mediate the relationship between Motivational Cultural Intelligence and Employee Productivity. Therefore, Motivational Cultural Intelligence influences Employee Productivity directly, but not indirectly through Employee Engagement.

3.2.2.7 Total Effect

The total effect represents the combined influence of both direct and indirect effects of exogenous variables on endogenous variables. It provides a comprehensive understanding of the overall impact of each dimension of Cultural Intelligence on Employee Productivity. The results of the total effects are presented in Table 3.13.

Table 3. Total Effects

Relationship	Total Effect (β)
Metacognitive CQ → Employee Productivity	0.365
Cognitive CQ → Employee Productivity	-0.013
Motivational CQ → Employee Productivity	0.497
Employee Engagement → Employee Productivity	0.306

Source: SmartPLS Output, processed (2026)

Based on Table 3.13, Motivational Cultural Intelligence has the strongest total effect on Employee Productivity (β = 0.497), indicating that it is the strongest overall predictor of employee productivity in the model. The total effect (β = 0.365) of Metacognitive CQ on employee productivity is also significant, showing the direct and indirect impact via Employee Engagement. Conversely, Cognitive Cultural Intelligence exhibits an insignificant and negative overall impact (β = -0.013) which verifies its small contribution in productivity influence. Also, there is a positive and significant overall impact of Employee Engagement on Employee Productivity (β = 0.306) that support its significance as a core source of employee performance.

Altogether, the findings underscore that Motivational and Metacognitive Cultural Intelligence have a significant positive impact on the employee productivity, but only Metacognitive Cultural Intelligence has its effects through direct and indirect mechanisms, and the role of the engagement of employees in

the conversion of cultural awareness to better performance cannot be overestimated.