CHAPTER 4

RESULTS

4.1 Introduction

The chapter begins with the respondents 'demographic details and their profiles, including the result of a demographic profile, analysis of assumptions, exploratory factor analysis, and the result of confirmatory factor analysis including the goodness of fit of the measurement model, the validity, and reliability. Lastly, a discussion on the structural model validity and mediation analysis.

4.2. The Demographic and Profiling of the Samples

The demographic profiling was undertaken to examine the demographic characteristics of the individuals included to participate in the study. The Table below highlights the various demographic variables that were considered in the thesis. In respect to gender, it can be observed that 38.8 percent of the participants were male while another 61.2 percent of the participants were female. In reference to marital status, it can be observed that 66.4 percent of the participants were single while 33.6 percent were married. Regarding age 67.3, 21.5, and 7.9 percent of the sampled population were

between the ages of 18-30, 31-40, and 41-50 respectively. Notably, 3.3 percent of the sampled populations were above 50 years.

Moreover, it was identified that 93 percent of the participants were Malay/Bumiputra while 4.7, 1.9, and .5 were Chinese, Indians, and others, respectively. In relations to working experience it can be observed that 80.4 percent of the participants have 3-10 years of work experience while 13.6 percent have 10-20 years of work experience. However, 6.1 percent of the respondents have more than 20 years working experience. Moreover, 79.2 percent of the participants are working another organization while 20.8 do not work another organization. In reference to previous sector 5.7 percent of the sampled populations have worked in public organization while 92.3 percent worked previously in private organizations/companies. Coherently, 2.1 percent of the sampled populations were previously self-employed.

Table 4.1 Demographic and Profile Details of Samples

No.	Demographic	Frequency	Percentage
1	**Gender**		
	Male	83	38.8
	Female	131	61.2
2	**Marital status**		
	Single	142	66.4

No.	Demographic	Frequency	Percentage
	Married	72	33.6
3	**Age**		
	18 - 30	144	67.3
	31 - 40	46	21.5
	41 - 50	17	7.9
	More than 50	7	3.3
4	**Race**		
	Malay/Bumiputra	199	93.0
	Chinese	10	4.7
	Indian	4	1.9
	Others	1	.5
5	**Working Experience**		
	3 - 10	172	80.4
	10 - 20	29	13.6
	More than 20	13	6.1
6	**Working Another organization**		
	Yes	80	79.2
	No	21	20.8
7	**Previous Sector**		
	Public Organization	11	5.7
	Private Organization/companies	179	92.3
	Self employed	4	2.1

4.1 Data Screening

To fulfil the assumptions of AMOS, different approaches to data screening were employed such as detecting the missing values, outliers, conducting normality tests, linearity, and homoscedasticity, and checking for multicollinearity between constructs.

4.1.1 Missing Data

Missing data are an issue of significant concern in research as it can affect the results (Sekaran & Bougie, 2010). The surveys were delivered personally to assistant registrars at 7 public universities in Klang Valley. Eliminating the incomplete responses or cases with missing values can produce the accurate estimate of standard error, confidence interval and p-values of the analysis (Allison, 2003). Based on the suggestions of Hair et. al. (2010), when the missing values were still more than 50 per cent and the study fulfils the sample size requirement, researchers are advised to delete the case respondents. Thus, in this study, 214 survey questionnaires had no missing values.

4.1.2 Analysis of assumptions

The measurement model and statistical assumptions were tested. There are multivariate normality, outliers, linearity, homoscedasticity and multicollinearity (Hair et al. 2010). It is important that these assumptions were tested because any violation could affect the validity of the results.

4.1.2.1 Normality

The study needs to be assessed for normality distribution of all items measuring the construct before modeling the structural model and executing SEM. Since SEM employs the parametric statistical approach of modeling, the study needs to assess the normality distribution of all items measuring their respective constructs. According to Awang, Afthanorhan and Asri (2015), the study only needs to show that the values of skewness for all items do not depart from normality since the Maximum Likelihood Estimator (MLE) algorithm is robust to skewed data (Awang, Afthanorhan & Asri 2015; Awang et al., 2018). Thus, the skewness values that fall within the range between -1.0 and 1.0 is considered to be normally distributed if the sample size is less than 200; or between -1.5 and 1.5 is acceptable as normally distributed if the sample size is greater than 200. The assessment of normality distribution for all items is presented in Table 4.2.

Table 4.2 The Assessment of Normality for all Measuring Items

Variable	min	max	**skew**	c.r.	kurtosis	c.r.
Vigor	1.000	6.000	**-.373**	-2.226	.402	1.200
Dedication	1.000	6.000	**-.183**	-1.092	.665	1.985
Absorption	1.000	6.000	**-.146**	-.874	.614	1.833
InRole	1.000	6.000	**-.242**	-1.448	.291	.870
ExtraRole	1.000	6.000	**-.257**	-1.537	.400	1.193
OP1	1.000	6.000	**-.157**	-.936	.588	1.755
OP2	1.000	6.000	**-.213**	-1.275	.666	1.989
OP3	1.000	6.000	**-.112**	-.671	.475	1.418
OP4	1.000	6.000	**-.200**	-1.193	.718	2.145
RS1	1.000	6.000	**-.306**	-1.826	.505	1.507
RS2	1.000	6.000	**-.401**	-2.397	.322	.960
RS3	1.000	6.000	**-.195**	-1.164	.149	.445
RS4	1.000	6.000	**-.215**	-1.283	.564	1.683
HP1	1.000	6.000	**-.608**	-3.629	.676	2.019
HP2	1.000	6.000	**-.724**	-4.322	.966	2.885
HP3	1.000	6.000	**-.540**	-3.225	.348	1.041
SE2	1.000	6.000	**-.448**	-2.673	.577	1.723
SE3	1.000	6.000	**-.202**	-1.206	-.149	-.446
SE4	1.000	6.000	**-.350**	-2.090	-.042	-.127
SE5	1.000	6.000	**-.530**	-3.167	.515	1.538
Multivariate					160.305	39.526

Based on the skewness values presented in Table 4.2, the study concludes that the data distribution does not depart from normality and has met the requirement for the parametric statistical analysis such as correlation, regression, and structural equation modeling (Awang et. al., 2015).

4.1.2.2 Outliers

Outliers refer to any observations that are numerically distant in comparison with the whole dataset (Byrne 2010). According to Schumacher and Lomax (1996), the outliers can affect the parameter estimates. Table 4.3 shows the Mahalanobis distance values and based on the critical chi-square value (refer appendix 1), the case value is 45.315. Therefore, there are ten cases with outliers.

Table 4.3 Mahalanobis Distance Value

Observation number	Mahalanobis d-squared	p1	p2
73	**100.997**	**.000**	**.000**
177	**69.659**	**.000**	**.000**
142	**68.360**	**.000**	**.000**
136	**58.423**	**.000**	**.000**
196	**54.500**	**.000**	**.000**
51	**51.805**	**.000**	**.000**
1	**50.513**	**.000**	**.000**
180	**48.579**	**.000**	**.000**
181	**46.864**	**.001**	**.000**
210	**46.792**	**.001**	**.000**
206	44.706	.001	.000
124	44.052	.001	.000

Before taking any decision in deleting, the researcher examined the data based on the Cook's Distance value in identifying cases (Pallant, 2011) whether those cases have any unjustified influence on the results. The cases with Cook's Distance values larger than 1 found a potential problem (Tabachnick, Fidell & Ullman, 2007). The value of Cook's Distance Table 4.4 shows that its maximum value is 0.107 (less than 1). Therefore, the ten cases were retained because there are no major problems (Pallant, 2011).

Table 4.4 Cook's Distance Table

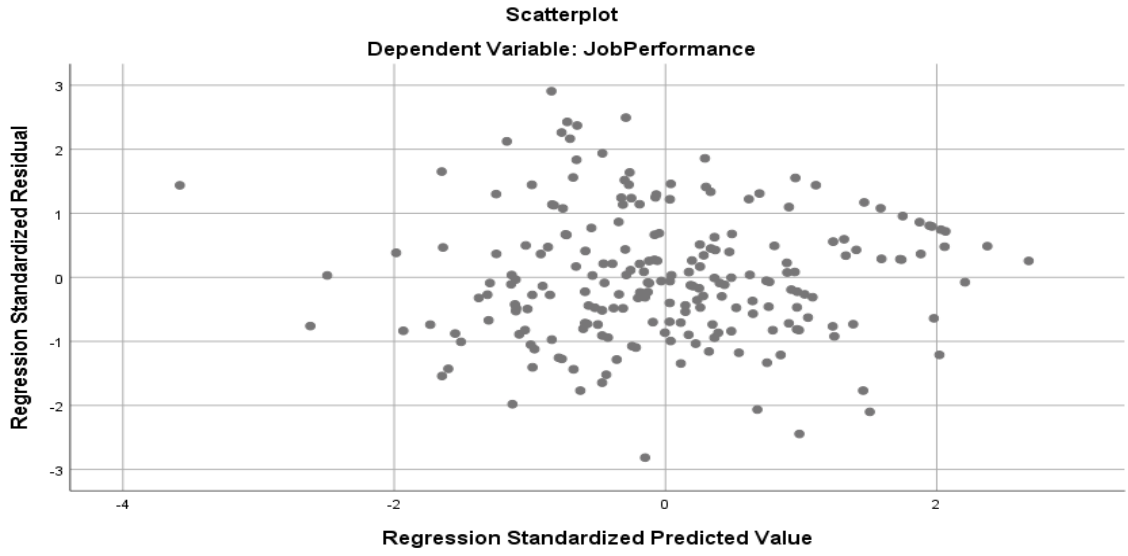
	Minimum	Maximum	Mean	Std. Deviation	N
Cook's Distance	0.000	**0.107**	0.003	0.009	214

4.1.2.3 Linearity and Homoscedasticity

The assessment of linearity was conducted through the residual analysis that resulted from the regression analysis. Moreover, the results of the homoscedasticity test conducted through the scatter plot diagrams of standardized residuals showed that homoscedasticity existed in the set of independent variables and the variance of the dependent variable. According to Pallant (2011), the assumptions of linearity and homoscedasticity can be checked by examining a scatterplot of the standardized residuals. Figure 4.1 highlights that the scatterplot, linearity, and homoscedasticity have been met

(Pallant, 2011) because the scores are concentrated in the center (along with the 0 points). Therefore, the linearity and homoscedasticity are achieved for this data.

Figure 4.1 Scatterplot of the Standardized Residuals



4.1.2.4 Multicollinearity

Multicollinearity, meaning that the component variable items are close to being equal (Zainuddin, 2015). SEMs is a powerful method for dealing with multicollinearity in sets of predictor variables. Multicollinearity is nothing more than when two or more variables are not independent. It is a matter of degree and is diagnosable. When the variables are used as predictors, and their interdependence is high enough, model results are inadequate and misleading. The importance of multicollinearity is to define the

correlation value between variables and that it must not exceed 0.90 and the variable is free from the redundant items (Zainudin, 2015).

Table 4.5 Correlation Matrix

	Self-Efficacy	Hope	Resilience	Optimism	Work Engagement	Job Performance
Self-Efficacy	-					
Hope	.668	-				
Resilience	.312	.275	-			
Optimism	.529	.392	.348	-		
Work Engagement	.405	.184	.448	.626	-	
Job Performance	.556	.281	.400	.620	.717	-

Multicollinearity occurs when the correlation matrix between any two variables is extremely high- if above 0.90, each variable is then a redundant variable (Zainudin, 2015). Table 4.5 shows that all variables correlate between values 0.184 and 0.717. From Table 4.5 it shows that the correlation among the variable is lower than 0.90 and there are no redundant items between variables.

4.2 Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis (EFA) plays a vital role in this study to examine the interrelationships among the items of the psychological capital (self-efficacy, hope, resilience, optimism), work engagement and job performance which are used to reveal the clusters of items that have adequate ordinary variation to justify their grouping together as a factor. In significance, this process compresses a group of items into a smaller set of combination factors for psychological capital (self-efficacy, hope, resilience, optimism), work engagement (vigor, dedication, absorption) and job performance (in role, extra role) with a minimum loss of information, and hence laying the foundation of the structural equation modelling (Hair et al., 2006).

In this study, an exploratory factor analysis (Principal Component Analysis) with Varimax rotation was conducted on the items for the constructs of self-efficacy, hope, resilience, optimism, work engagement and job performance. Applying the principal component analysis with Varimax rotation was deemed an appropriate approach for exploring into the interrelationship among a set of items. This study applied the principal component analysis technique to identify (extract) the number of underlying factors. The degree of eigenvalue was used to obtain the number of underlying factors. Prior to performing the principal component analysis, the suitability of data for the factor analysis was assessed based on Kaiser-Meyer-Olkin.

Measure of Sampling Adequacy (KMO) and Bartlett ‘s Test of Sphericity value. If the results meet the requirement of both assessments, the next step is to determine the number of factors that can be used to best represent the interrelationships among the set of items. Following the determination of the number of factors, these factors are rotated using Varimax rotation to assess the loading pattern of each item on the factors. The Varimax Rotation technique was used to obtain simpler and more interpretable factor solutions (Hair et. al., 2017) The following sub-sections provide a detailed discussion of the EFA outcome using 214 samples for the constructs of psychological capital (self-efficacy, hope, resilience, optimism), work engagement (vigor, dedication, absorption) and job performance (in-role performance, extra role performance).

4.2.1 Psychological Capital (PsyCap)

4.2.1.1 Self-Efficacy

The self-efficacy consists of six items. As shown in Table 4.6, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value was 0.833, exceeding the recommended value of 0.6. The Bartlett ‘s Test of Sphericity $\chi 2\ (6) = 522.745$, $p < 0.001$, also reached statistical significance. Both results indicate that the collected data was suitable for factor analysis. The result for the principal component analysis revealed the presence of only one component with an eigenvalue exceeding 1 (3.059), explaining 76.476% of the variance, respectively. Four items have factor loading above the

minimum significant loading 0.40, ranging from 0.829 to 0.908. meanwhile, two items (SE1, SE6) were removed because the item loading was below 0.40, thus four items are retained for the confirmatory factor analysis. Furthermore, the four items showed satisfactory consistency with a Cronbach Alpha value of 0.897 which is the value greater than 0.7 (Hair et. al., 2006) and this enabled the items to achieve the internal reliability.

Table 4.6 The Summary Result for EFA – Self-Efficacy

No	**`Items**	**Factor 1**
Variable: **SELF EFFICACY**		
SE1	I feel confident analyzing a long-term problem to find a solution.	Removed
SE2	I feel confident in representing my work areas in meetings with management.	.829
SE3	I feel confident contributing to discussions about the organization's strategy.	.899
SE4	I feel confident helping to set targets/goals in my work area.	.908
SE5	I feel confident contacting people outside the organization (e.g. suppliers / customers) to discuss problems.	.859
SE6	I feel confident presenting information to a group of colleagues.	Removed
Eigenvalue		3.059
Percentage of Variance (%)		76.476
KMO Measure of Sampling Adequacy		.833
Approximate Chi-Square		522.745
Sig		.000
Cronbach Alpha		.897

4.2.1.2 Hope

The hope section consists of six items. As shown in Table 4.7, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value was 0.746, exceeding the recommended value of 0.6. The Bartlett ‘s Test of Sphericity $\chi 2$ (6) = 493.198, $p < 0.001$, also reached statistical significance. Both results indicate that the collected data was suitable for the factor analysis. The result for the principal component analysis revealed the presence of only one component with an eigenvalue exceeding 1 (2.601), explaining 86.697% of the variance respectively. Three items have factor loading above the minimum significant loading 0.40, ranging from 0.917 to 0.950. Meanwhile, three items (HP4, HP5, HP6) were removed because the item loading was below 0.40, thus three items are retained for the confirmatory factor analysis. Furthermore, the three items showed satisfactory consistency with a Cronbach Alpha value of 0.922 which is the value greater than 0.7 (Hair et. al., 2006) and this enabled the items to achieve the internal reliability.

Table 4.7 The Summary Result for EFA – Hope

No	`Items	Factor 1
Variable: **Hope**		
HP1	If I should find myself in a traffic congestion at work, I could think many ways to get out of it.	.926
HP2	I am energetically pursuing my work goals.	.950
HP3	I find there is a lot of ways to solve any problem.	.917
HP4	I see myself as being successful at work.	Removed
HP5	I can think of many ways to reach my work goals.	Removed
HP6	At this time, I am meeting the work goals that I have setting for myself.	Removed
Eiganvalue		2.601
Percentage of Variance (%)		86.697
KMO Measure of Sampling Adequacy		.746
Approximate Chi-Square		493.198
Sig		.000
Cronbach Alpha		.922

4.2.1.3 Resilience

The resilience consists of six items. As shown in Table 4.8, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value was 0.792, exceeding the recommended value of 0.6. The Bartlett ‘s Test of Sphericity $\chi 2$ (6) = 478.316, $p < 0.001$, also reached statistical significance. Both results indicate that the collected data was suitable for the factor analysis. The result for the principal component analysis revealed

the presence of only one component with an eigenvalue exceeding 1 (2.974), explaining 74.342% of the variance, respectively. Four items have factor loading above the minimum significant loading 0.40, ranging from 0.838 to 0.885. meanwhile, two items (RS5, RS6) were removed because the item loading was below 0.40, thus four items are retained for the confirmatory factor analysis. Furthermore, the four items showed satisfactory consistency with a Cronbach Alpha value of 0.885 which is the value greater than 0.7 (Hair et. al., 2006) and this enabled the items to achieve the internal reliability.

Table 4.8 The Summary Result for EFA – Resilience

No	**`Items**	**Factor 1**
Variable: **Resilience**		
RS1	When I have a setback at work, I have trouble recovering from it, or moving on.	.838
RS2	I usually manage difficulties one way or another at work.	.852
RS3	I can be "on my own", so to speak, at my work.	.885
RS4	I usually take stressful things at work in stride.	.873
RS5	I can get through difficult times at work because I have experienced difficulties before.	Removed
RS6	I feel I can handle many things at a time in job.	Removed
Eigenvalue		2.974
Percentage of Variance (%)		74.342
KMO Measure of Sampling Adequacy		.792
Approximate Chi-Square		478.316
Sig		.000
Cronbach Alpha		.885

4.2.1.4 Optimism

The optimism consists of six items. As shown in Table 4.9, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value was 0.838, exceeding the recommended value of 0.6. The Bartlett ‘s Test of Sphericity $\chi 2$ (6) = 472.233, $p < 0.001$, also reached statistical significance. Both results indicate that the collected data was suitable for the factor analysis. The result for the principal component analysis revealed the presence of only one component with an eigenvalue exceeding 1 (3.008), explaining 75.188% of the variance respectively. Four items have factor loading above the minimum significant loading 0.40, ranging from 0.855 to 0.877. Meanwhile, two items (OP5, OP6) were removed because the item loading was below 0.40, thus four items are retained for the confirmatory factor analysis. Furthermore, the four items showed satisfactory consistency with a Cronbach Alpha value of 0.890 which is the value greater than 0.7 (Hair et. al., 2006) and this enabled the items to achieve the internal reliability.

Table 4.9 The Summary Result for EFA – Optimism

No	`Items	Factor 1
Variable: **Optimism**		
OP1	When things are uncertain for me at work, I usually expect the best.	.855
OP2	If something can go wrong for me work-wise, it will.	.877
OP3	I always look on the positive side regarding my job.	.875
OP4	I am optimistic about my future pertaining to work.	.861
OP5	In this job, things never work out the way I want to.	Removed
OP6	I approach this job as “every cloud has a silver lining”.	Removed
Eigenvalue		3.008
Percentage of Variance (%)		75.188
KMO Measure of Sampling Adequacy		.838
Approximate Chi-Square		472.233
Sig		.000
Cronbach Alpha		0.890

4.2.2 Work Engagement

The work engagement consists of three elements known as vigor, dedication and absorption. Below are the results of EFA for each element, followed by the EFA result for the variable of work engagement.

4.2.2.1 Vigor

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value for vigor, exceeded the recommended value of 0.6. The Bartlett 's Test of Sphericity $\chi 2$, $p < 0.001$, also reached statistical significance. The result for the principal component analysis revealed the presence of only one component with an eigenvalue exceeding 1, explaining more than 50.00% of the variance respectively. All items have factor loading above the minimum significant loading 0.40, and no items were removed. Furthermore, the satisfactory consistency with a Cronbach Alpha value of vigor showed the value greater than 0.7 (Hair et. al., 2006) and this enabled the items to achieve the internal reliability. This shows that, all items are retained for the confirmatory factor analysis (Table 4.10).

Table 4.10 The Summary Result for EFA – Vigor

No	**Items**	**Factor 1**
Variable: **Vigor**		
VG1	At my work, I feel bursting with energy.	.897
VG2	At my job, I feel strong and vigorous.	.935
VG3	When I get up in the morning, I feel like going to work.	.884
Eigenvalue		2.461
Percentage of Variance (%)		82.040
KMO Measure of Sampling Adequacy		.721
Approximate Chi-Square		391.651
Sig		.000
Cronbach Alpha		.889

4.2.2.2 Dedication

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value for dedication was exceeding the recommended value of 0.6. The Bartlett ‘s Test of Sphericity $\chi 2$, $p < 0.001$, also reached statistical significance. The result for the principal component analysis revealed the presence of only one component with an eigenvalue exceeding 1, explaining more than 50.00% of the variance respectively. All items have factor loading above the minimum significant loading 0.40, and no items were removed. Furthermore, the satisfactory consistency with a Cronbach Alpha value of dedication showed the value greater than 0.7 (Hair et. al., 2006) and this enabled the items to achieve the internal reliability. This shows that all items are retained for the confirmatory factor analysis (Table 4.11).

Table 4.11 The Summary Result for EFA – Dedication

No	**Items**	**Factor 1**
Variable: **Dedication**		
DD1	I am enthusiastic about my work.	.945
DD2	My job inspires me.	.951
DD3	I am proud of the work that I do.	.953
Eigenvalue		2.706
Percentage of Variance (%)		90.206
KMO Measure of Sampling Adequacy		.773
Approximate Chi-Square		601.715
Sig		.000
Cronbach Alpha		.945

4.2.2.3 Absorption

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value for absorption, exceeded the recommended value of 0.6. The Bartlett 's Test of Sphericity $\chi 2$, $p < 0.001$, also reached statistical significance. The result for the principal component analysis revealed the presence of only one component with an eigenvalue exceeding 1, explaining more than 50.00% of the variance respectively. All items have factor loading above the minimum significant loading 0.40, and no items were removed. Furthermore, the satisfactory consistency with a Cronbach Alpha value of absorption showed the value greater than 0.7 (Hair et. al., 2006) and this enabled the items to achieve the internal reliability. This shows that all items are retained for the confirmatory factor analysis (Table 4.12)

Table 4.12 The Summary Result for EFA – Absorption

No	Items	Factor 1
Variable: **Absorption**		
AB1	I feel happy when I am working intensely.	.750
AB2	I am immersed in my work.	.928
AB3	I get carried away when I am working.	.910
Eigenvalue		2.252
Percentage of Variance (%)		75.067
KMO Measure of Sampling Adequacy		.640
Approximate Chi-Square		325.811
Sig		.000
Cronbach Alpha		.831

4.2.3 Job Performance

The job performance consists of two elements known as in role and extra role. Below are the results of EFA for each element, followed by the EFA result for the variable of job performance.

4.2.3.1 In-Role Performance

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value for in-role performance, exceeded the recommended value of 0.6. The Bartlett ‘s Test of Sphericity $\chi 2$, $p < 0.001$, also reached statistical significance. The result for the principal component analysis revealed the presence of only one component with an eigenvalue exceeding 1, explaining more than 50.00% of the variance respectively. All items have factor loading above the minimum significant loading 0.40, and one item was removed. Furthermore, the satisfactory consistency with a Cronbach Alpha value of in-role performance showed the value greater than 0.7 (Hair et. al., 2006) and this enabled the items to achieve the internal reliability. This shows (Table 4.13) that all items are retained for the confirmatory factor analysis.

Table 4.13 The Summary Result for EFA – In Role performance

No	Items	Factor 1
Variable: **In-Role Performance**		
IRP1	I am able to compose written materials concisely.	.742
IRP2	I am able to communicate to diverse audiences.	Removed
IRP3	I am able to communicate one-to-one and in group settings.	.795
IRP4	I am able to complete task within the time given.	.876
IRP5	I am approachable when colleagues need support.	.873
IRP6	I am able to cooperate and coordinate with other administrators	.872
IRP6	I am able to give clear instructions.	.872
IRP7	I am able to monitor performances and gives feedback.	.882
IRP8	I am able to provide coaching in needed skill areas and support professional development.	.887
IRP9	I am able to foster innovation.	.816
IRP10	I am able to compose written materials concisely.	.793
Eigenvalue		6.335
Percentage of Variance (%)		70.385
KMO Measure of Sampling Adequacy		.892
Approximate Chi-Square		1968.786
Sig		.000
Cronbach Alpha		.946

4.2.3.2 Extra-Role Performance

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) value for extra-role performance, exceeded the recommended value of 0.6. The Bartlett‘s Test of Sphericity $\chi 2$, $p < 0.001$, also reached statistical significance. The result for the principal component analysis revealed the presence of only one component with an eigenvalue

exceeding 1, explaining more than 50.00% of the variance respectively. All items have factor loading above the minimum significant loading 0.40, and three items were removed. Furthermore, the satisfactory consistency with a Cronbach Alpha value of extra-role performance showed the value greater than 0.7 (Hair et. al., 2006) and this enabled the items to achieve the internal reliability. This shows (Table 4.14) that all items are retained for confirmatory factor analysis.

Table 4.14 The Summary Result for EFA – Extra Role performance

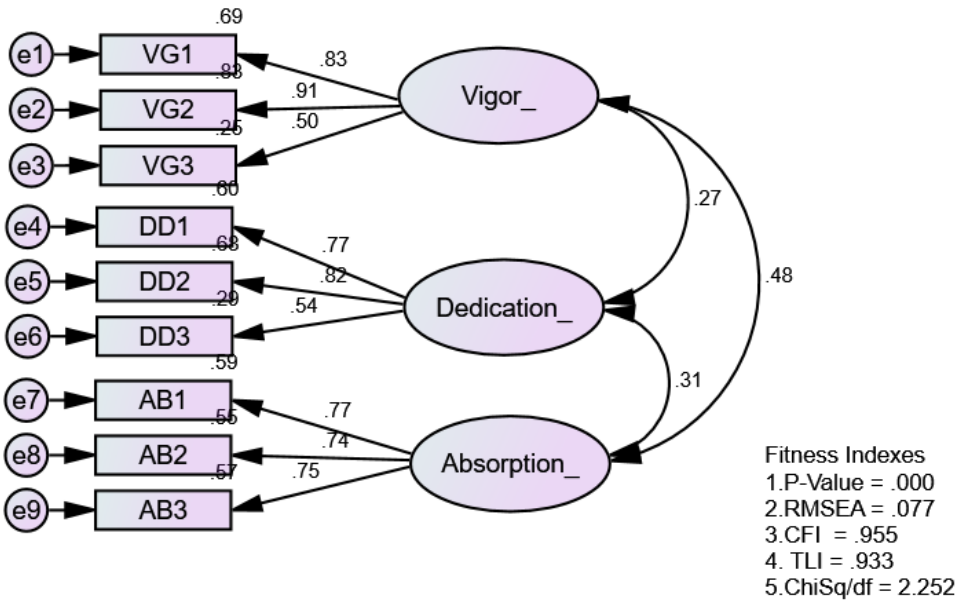
No	Items	Factor 2
Extra Role		
ERP1	I will help to make another worker productive.	.854
ERP2	I will help others who have heavy workloads.	.893
ERP3	I will help others who are absent.	.861
ERP4	I do not complain about my work tasks.	.894
ERP5	I maintain a clean workspace.	.823
ERP6	I will always inform about company development.	.801
ERP7	I will exceed my working hour to finish my tasks.	Removed
ERP8	I always find fault in what my organization is doing.	Removed
ERP9	I am willing to work overtime and over the weekend.	Removed
Eigenvalue		4.387
Percentage of Variance (%)		73.111
KMO Measure of Sampling Adequacy		.874
Approximate Chi-Square		985.161
Sig		.000
Cronbach Alpha		.925

4.3 Individual CFA by Constructs

4.3.1 Work Engagement

The original construct for work engagement was made of three dimensions such as vigor, dedication and absorption. After running the CFA, there is no item low value of factor loading. As it represented in Figure 4.2, the CFA model of work engagement for construct validity is fit the data well [p = 0.000, $\chi 2/df = 2.252$; CFI = .955, TLI = .933 and RMSEA = .077]. The result indicated that all fit indices met the recommended criteria for good fit. The relative Chi-square (χ^2/df) was approaching 0.5, which is indicative of an acceptable fit between the hypothetical model and the sample data. CFI, and TLI were well above .90.

Figure 4.2 CFA Model of Work Engagement



The convergent validity for the AVE value for work engagement construct was (.599) for vigor, dedication (.548), and absorption were (.550). Meanwhile the CR value (.900) for vigor, dedication (.548), and absorption were (.550) has exceeded the recommended value of 0.70 in Table 4.15.

Table 4.15 Factor loading, AVE and CR of Work Engagement

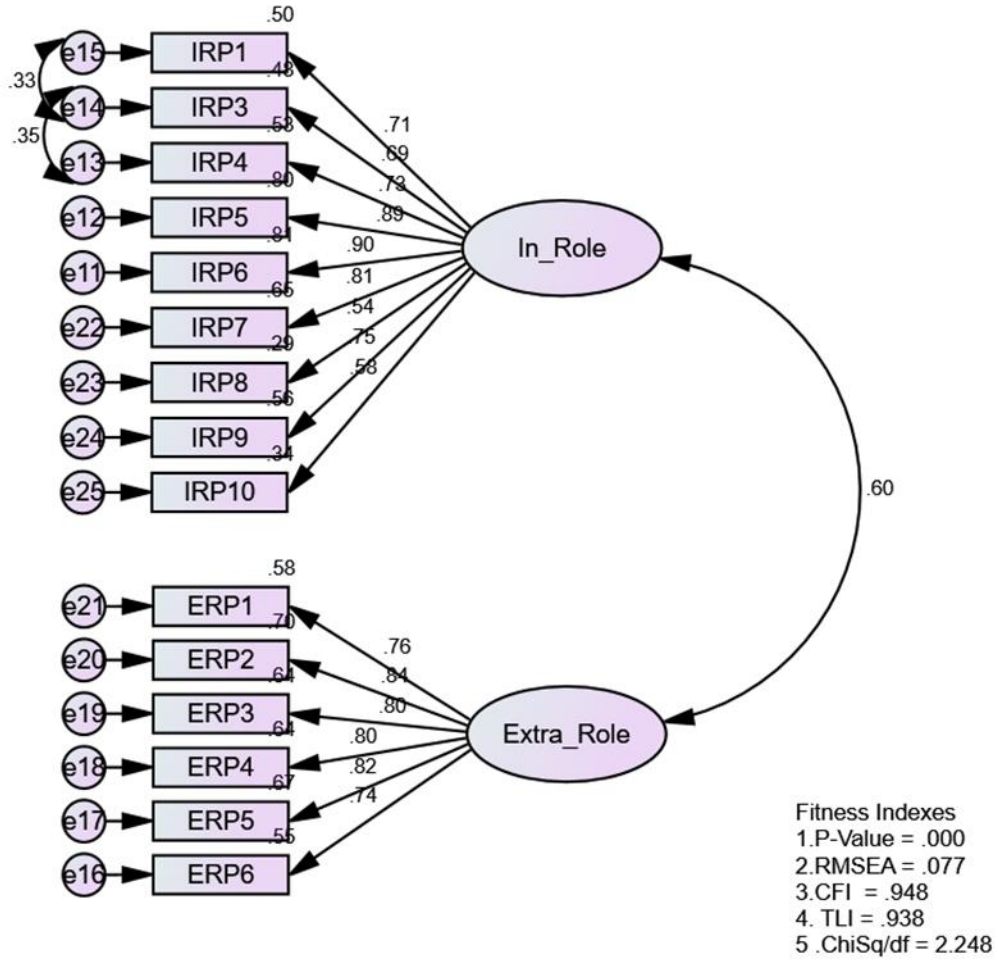
Construct	Factor Loading	AVE	CR
Vigor			
VG1	.83	.580	.617
VG2	.91		
VG3	.50		
Dedication			
CM1	.77	.519	.759
CM2	.82		
CM3	.54		
Absorption			
OB1	.77	.568	.797
OB2	.74		
OB3	.75		

4.3.2 Job Performance

The original construct for work engagement was made of two dimensions such as in role and extra role. After running the CFA, there is no item low value of factor loading. As it represented in Figure 4.3, the CFA model of job performance for construct validity is fit the data well [p = 0.000, $\chi 2/df = 2.248$; CFI = .948, TLI = .938 and RMSEA = .077]. The result indicated that all fit indices met the recommended criteria for good fit. The

relative Chi-square (χ^2/df) was approaching 0.5, which is indicative of an acceptable fit between the hypothetical model and the sample data. CFI, and TLI were well above .90.

Figure 4.3 CFA Model of Job Performance



The convergent validity for the AVE value for job performance construct was (.551) for in role and extra role was (.915). Meanwhile the CR value (.631) for role and extra role was (.911) has exceeded the recommended value of 0.70 in Table 4.16.

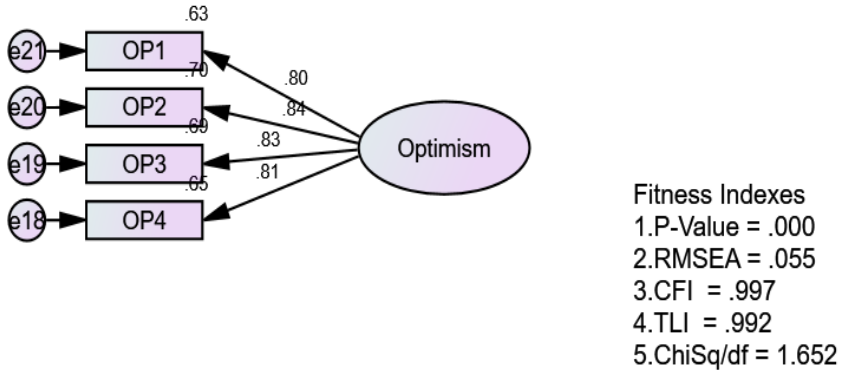
Table 4.16 Factor loading, AVE and CR of Job Performance

Construct	**Factor Loading**	**AVE**	**CR**
In Role		.551	.915
IRP1	.71		
IRP3	.69		
IRP4	.73		
IRP5	.81		
IRP6	.90		
IRP7	.89		
IRP8	.54		
IRP9	.75		
IRP10	.58		
Extra Role		.631	.911
ERP1	.76		
ERP2	.84		
ERP3	.80		
ERP4	.80		
ERP5	.82		
ERP6	.74		

4.3.3 Optimism

The original construct for optimism has 4 items. After running the CFA, there is no item low value of factor loading. As it represented in Figure 4.4, the CFA model of optimism for construct validity is fit the data well [p = 0.000, $\chi 2/df$ = 1.652; CFI = .997, TLI = .992 and RMSEA = .055]. The result indicated that all fit indices met the recommended criteria for good fit. The relative Chi-square (χ^2/df) was approaching 0.5, which is indicative of an acceptable fit between the hypothetical model and the sample data. CFI, and TLI were well above .90.

Figure 4.4 CFA Model of Optimism



The convergent validity for the AVE value for optimism construct was (.673) and the CR value (.891) has exceeded the recommended value of 0.70 in Table 4.17.

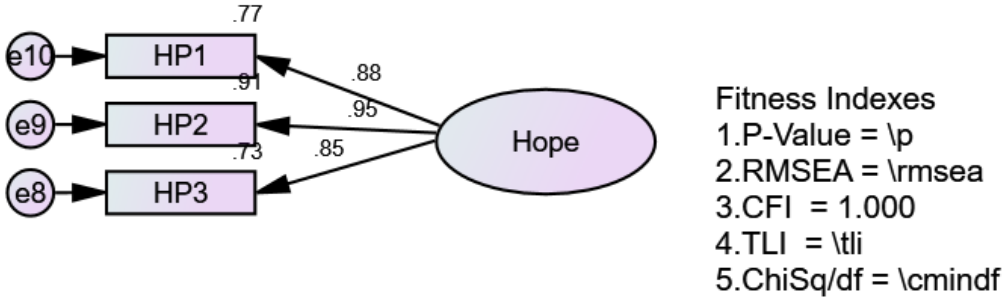
Table 4.17 Factor loading, AVE and CR of Optimism

Construct	Factor Loading	AVE	CR
OP1	.80	.673	.891
OP2	.84		
OP3	.83		
OP4	.81		

4.3.4 Hope

The original construct for hope has 3 items. After running the CFA (Figure 4.5), there is no item low value of factor loading.

Figure 4.5 CFA Model of Hope



The convergent validity for the AVE value for hope construct was (.800) and the CR value (.923) has exceeded the recommended value of 0.70 in Table 4.18.

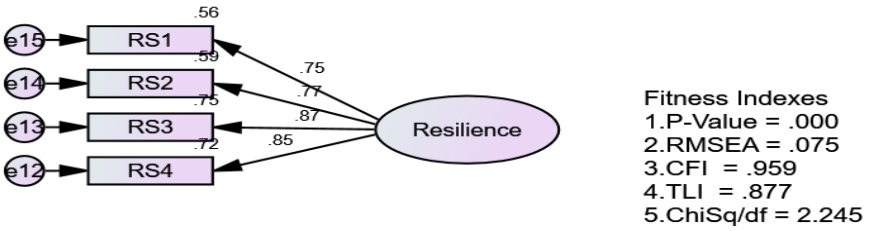
Table 4.18 Factor loading, AVE and CR of Hope

Construct	Factor Loading	AVE	CR
HP1	.88	.800	.923
HP2	.95		
HP3	.85		

4.3.5 Resilience

The original construct for resilience has 3 items. After running the CFA, there is no item low value of factor loading. As it represented in Figure 4.6, the CFA model of resilience for construct validity is fit the data well [p = 0.000, χ2/df = 2.245; CFI = .959, TLI = .877 and RMSEA = .075]. The result indicated that all fit indices met the recommended criteria for good fit. The relative Chi-square (χ^2/df) was approaching 0.5, which is indicative of an acceptable fit between the hypothetical model and the sample data. CFI, was well above .90.

Figure 4.6 CFA Model of Resilience



The convergent validity for the AVE value for resilience construct was (.659) ns the CR value (.885) has exceeded the recommended value of 0.70 in Table 4.19.

Table 4.19 Factor loading, AVE and CR of Resilience

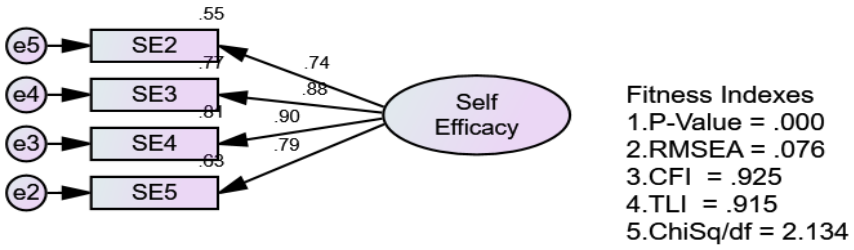
Construct	Factor Loading	AVE	CR
RS1	.75	.659	.885
RS2	.77		
RS3	.87		
RS4	.85		

4.3.6 Self-efficacy

The original construct for self-efficacy has 4 items. After running the CFA, there is no item low value of factor loading. As it represented in Figure 4.7, the CFA model of self-efficacy for construct validity is fit the data well [p = 0.000, $\chi 2/df = 2.134$; CFI = .925, TLI = .915 and RMSEA = .076]. The result indicated that all fit indices met the

recommended criteria for good fit. The relative Chi-square (χ^2/df) was approaching 0.5, which is indicative of an acceptable fit between the hypothetical model and the sample data. CFI, and TLI were well above .90.

Figure 4.7 CFA Model of Self Efficacy



The convergent validity for the AVE value for self-efficacy construct was (.689) and the CR value (.898) has exceeded the recommended value of 0.70 in Table 4.20.

Table 4.20 Factor loading, AVE and CR of Self-Efficacy

Construct	Factor Loading	AVE	CR
SE2	.74	.689	.898
SE3	.88		
SE4	.90		
SE5	.79		

4.4 The Direction of Hypotheses of Model

The study adopted the two-steps approach of modelling and analyzing the structural model namely, Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM). Thus, prior to modelling the structural model and executing Structural Equation Modeling (SEM), the study needs to validate all measurement models of latent constructs for Unidimensionality, Validity, and Reliability (Awang, Afthanorhan & Asri). This validation procedure is called Confirmatory Factor Analysis (CFA). According to Asnawi et al. (2019), the measurement model of latent constructs needs to pass three types of validity namely Construct Validity, Convergent Validity, and Discriminant Validity. The Construct Validity is assessed through the Fitness Indexes of the Measurement Model, while the Convergent Validity is assessed by computing the Average Variance Extracted (AVE), and Discriminant Validity is assessed by developing the Discriminant Validity Index Summary.

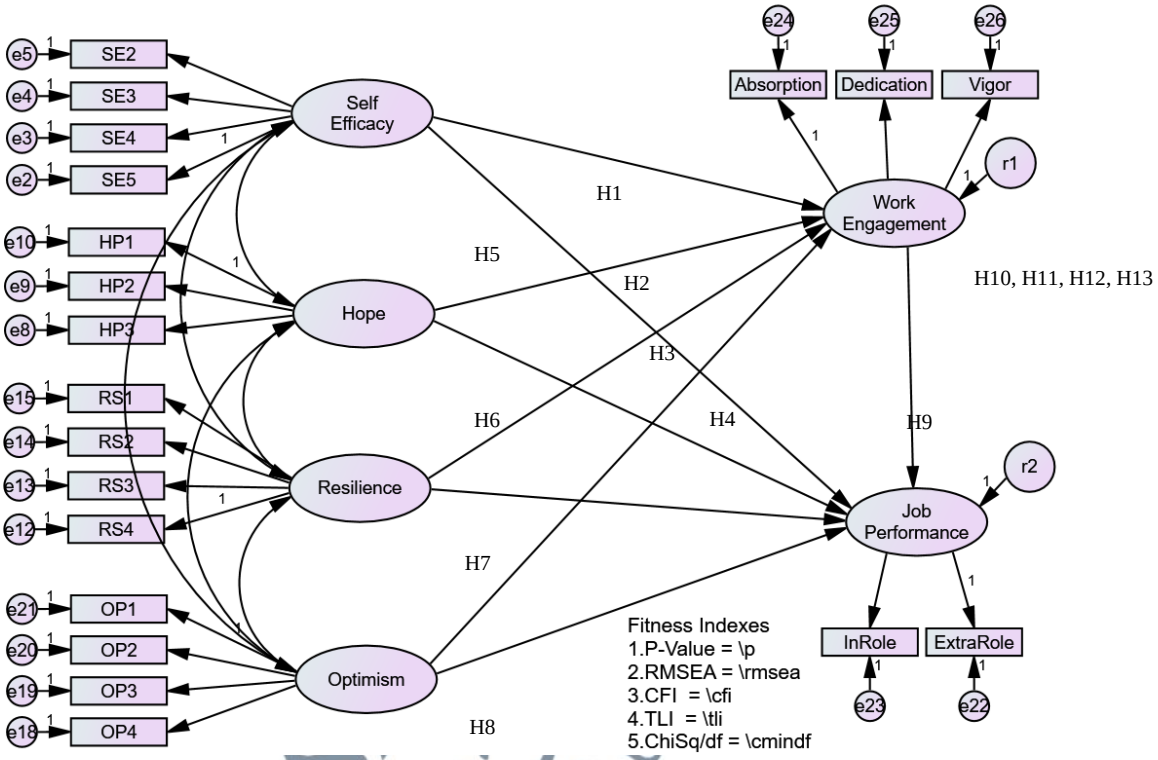
As for the reliability, it is adequate for the study to assess the Composite Reliability (CR) since it replaced the traditional method of computing the Cronbach Alpha for analysis using Structural Equation Modeling (SEM) (Awang et. al., 2015). The particular latent construct is considered valid if its fitness indexes achieved the three Model Fit categories namely Absolute Fit, Incremental Fit and Parsimonious Fit (Awang et. al., 2015). The fitness indexes and their respective threshold values are given in Table 4.21.

Table 4.21 The three categories of model fit and their level of acceptance

Name of category	Name of index	Level of acceptance
Absolute Fit Index	**RMSEA**	RMSEA < 0.1 (ideal < 0.08)
	GFI	GFI > 0.85 (ideal if > 0.90
Incremental Fit Index	AGFI	AGFI > 0.85 (ideal if > 0.9)
	CFI	CFI > 0.85 (ideal if > 0.9)
	TLI	TLI > 0.85 (ideal if > 0.9)
	NFI	NFI > 0.85 (ideal if > 0.90)
Parsimonious Fit Index	**Chisq/df**	Chi-Square/ df < 5.0 (ideal if < 3.0)

The indexes in bold are recommended since they are frequently reported in literature (Awang et. al. (2018). The framework for this study consists of one exogenous construct, one mediator construct and four endogenous constructs. The theoretical framework for this study and the path of interest where the hypotheses were to be tested is presented in Figure 4.8.

Figure 4.8 The Research Framework Showing the hypothesis to be tested in the Study



The hypothetical statements for every path in Figure 4.8 and the method of statistical analysis to be employed are listed in Table 4.22 and Table 4.23 respectively.

Table 4.22 The Direct Effect Hypothesis and Method of Analysis

	Direct Effect Hypothesis	**Method of Analysis**
H1	There is a significant relationship between **Self-Efficacy** and **work engagement**	Path Analysis in SEM
H2	There is a significant relationship between **Hope** and **work engagement**	Path Analysis in SEM
H3	There is a significant relationship between **Resilience and work engagement**	Path Analysis in SEM
H4	There is a significant relationship between **Optimism and work engagement**.	Path Analysis in SEM
H5	There is a significant relationship between **Self-Efficacy** and **job performance**	Path Analysis in SEM
H6	There is a significant relationship between **Hope** and **job performance**	Path Analysis in SEM
H7	There is a significant relationship between **Resilience and job performance**	Path Analysis in SEM
H8	There is a significant relationship between **Optimism and job performance**	Path Analysis in SEM
H9	There is a significant relationship between **Work Engagement and job performance**	Path Analysis in SEM

Table 4.23 The Hypothesis Testing for Mediators and Method of Analysis

	The Hypothesis for testing Mediators	**Method of Analysis**
H10	Work Engagement mediates the relationship between **Self-Efficacy** and **job performance**	Path Analysis in SEM and Bootstrapping
H11	Work Engagement mediates the relationship between **Hope** and **job performance**	Path Analysis in SEM and Bootstrapping
H12	Work Engagement mediates the relationship between **Resilience** and **job performance**	Path Analysis in SEM and Bootstrapping
H13	Work Engagement mediates the relationship between **Optimism** and **job performance**	Path Analysis in SEM and Bootstrapping

Every construct involved in the framework was measured using certain number of items in the questionnaire resulted from the Exploratory Factor Analysis (EFA) procedure based on the data from the actual study (Bahkia et. al., 2019). The items measuring every construct were presented in Figure 4.8.

This study adopted the two-steps approach of Structural Equation Modelling (SEM) as proposed by Awang et. al. (2018). The two analysis steps are:

i. **The measurement models**. The measurement models of all latent constructs need to be validated for validity and reliability through the Confirmatory Factor Analysis (CFA) procedure.

ii. **The structural model**. Once the CFA is completed, the study develops the structural model. The Structural Equation Modelling (SEM) procedure will be employed to estimate the parameter involved and test the hypothesis regarding the inter-relationships among the constructs in the model. Both procedures (CFA and SEM) are carried out using IBM-SPSS-AMOS 25.0.

4.5 The Confirmatory Factor Analysis (CFA)

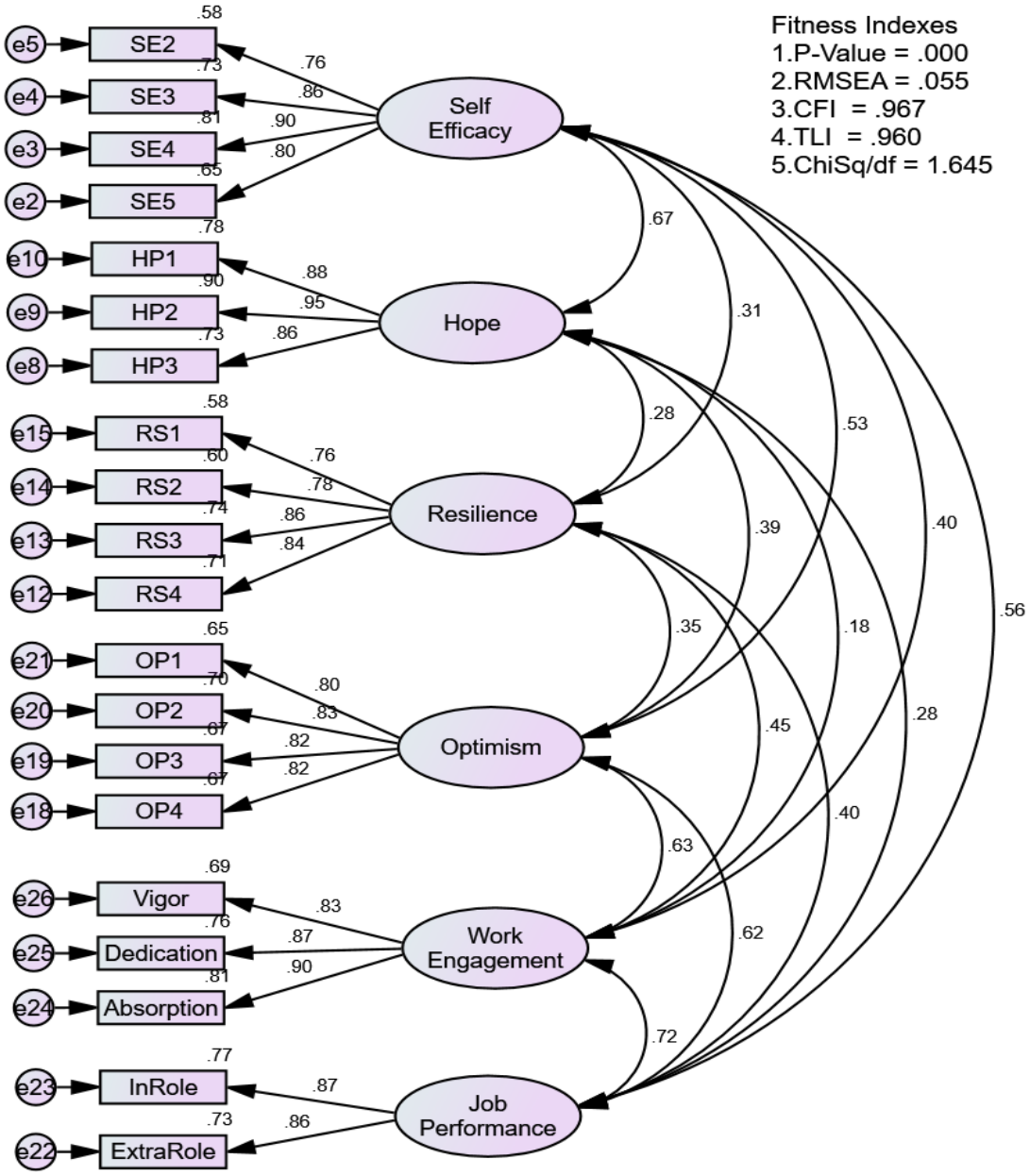
The research framework in Figure 4.8 shows that all constructs in the model are measured using certain number of measuring items in the questionnaire. Every item is measured using an interval scale ranging from 1 to 6 with the given statement (Awang et. al., 2015). This study decided to conduct the CFA procedure for all constructs involved in the study. This particular method of CFA is called Pooled-CFA for the measurement model. Prior to modelling the structural model and executing SEM, the researcher needs to prove the validity and reliability for all constructs. The measurement model of the construct would be assessed for construct validity, convergent validity and discriminant validity (Awang et. al., 2015). The construct validity would be assessed using a set of

fitness indexes, the convergent validity would be assessed using the Average Variance Extracted (AVE) and the discriminant validity would be assessed through the Discriminant Validity index summary (Awang et. al., 2015). The discriminant validity or the multi-collinearity assessment is required to ensure no items are redundant and no constructs are highly correlated. If any pair of exogenous constructs are highly correlated (correlation greater than 0.85), then there exists a serious problem called Multi-collinearity (Awang et. al., 2015). As for the reliability assessment, the study will compute the Composite Reliability (CR) which is closely associated with Cronbach Alpha in the first-generation method of analysis. The CR is computed based on the factor loading for each measuring item, which is more efficient compared to Cronbach Alpha which is computed based on the measurement score for each item. The value for CR should exceed 0.6 for the construct to achieve Composite Reliability (Awang et. al., 2015).

The CFA output is presented in Figure 4.9. The results showed the fitness indexes for all constructs (combined) in the model, the factor loading for every measuring item for every construct and the correlation between constructs in the model. The fitness indexes should meet the threshold values as shown in Table 4.21, the factor loading for every item should be a minimum of 0.6 and the correlation coefficient of any two constructs should not exceed 0.85 (Afthanorhan et al., 2019). There is no item below 0.50 loading, therefore the item is removed. The problem of multi-collinearity occurs if the correlation between any two constructs exceeds 0.85 (highly correlated). Looking at the

correlation values (at the double-headed arrow) between constructs, none of the values were found to be greater than 0.85. Thus, the multi-collinearity problem does not arise. When the pooled-CFA results are obtained, the study could begin the validation procedure for the construct validity, convergent validity, discriminant validity and composite reliability (Awang et. al., 2015).

Figure 4.9 The Results for Pooled-CFA for the Measurement Model of Constructs



4.6 The Assessment for Construct Validity

The fitness Indexes in Figure 4.9 have met the threshold values. The Absolute Fit category namely RMSEA is 0.055 (achieving the threshold of greater than 0.80), the Incremental Fit category namely CFI is 0.967 (achieving the threshold of greater than 0.90), and the Parsimonious Fit category namely the ratio of Chisq/df is 1.645 (achieving the threshold of 3.0). Thus, the measurement model of all latent constructs in Figure 4.3 has achieved the requirement for the Construct Validity (Awang et al, 2015; Awang et. al., 2015).

4.7 The Assessment for Convergent Validity and Composite Reliability

For the assessment of Convergent Validity, the study needs to compute Average Variance Extracted (AVE). The construct achieved Convergent Validity if its AVE exceeds the threshold value of 0.5 (Awang et al., 2015). As for assessing the Composite Reliability, the study needs to compute the CR and its value should exceed the threshold value of 0.6 for this reliability to achieve (Awang et al., 2015). The AVE and CR for all constructs are computed and presented in Table 4.24.

Table 4.24 The Average Variance Extracted (AVE) and Composite Reliability (CR)

Constructs	Code	Loading	CR	AVE
Self-Efficacy	SE2	0.76	0.894	0.679
	SE3	0.86		
	SE4	0.90		
	SE5	0.80		
Hope	HP1	0.88	0.925	0.806
	HP2	0.95		
	HP3	0.86		
Resilience	RS1	0.76		
	RS2	0.78		
	RS3	0.86	0.658	0.885
	RS4	0.84		
Optimism	OP1	0.80	0.668	0.890
	OP2	0.83		
	OP3	0.82		
	OP4	0.82		
Work Engagement	Vigor	0.83	0.752	0.901
	Dedication	0.87		
	Absorption	0.90		
Job Performance	InRole	0.87	0.748	0.856
	ExtraRole	0.86		

With reference to the Average Variance Extracted (AVE) and Composite Reliability (CR) values in Table 4.24, the study found that all AVE and CR exceeded their threshold values of 0.5 and 0.6 respectively (Awang et al., 2018). Thus, the study can conclude that the Convergent Validity and Composite Reliability for all latent constructs in the model have been achieved.

4.8 The Assessment of Discriminant Validity among Constructs

The study needs to assess another type of validity for the model namely, discriminant validity. The discriminant validity assessment is to ensure that no redundant constructs occur in the model. Redundant construct occurs when any pair of constructs in the model are highly correlated. For assessing the discriminant validity, one needs to develop the discriminant validity index summary as shown in Table 4.25. The diagonal values in bold are the square root of the AVE of the respective constructs while other values are the correlation coefficient between the pair of the respective constructs.

Table 4.25 The Discriminant Validity Index Summary

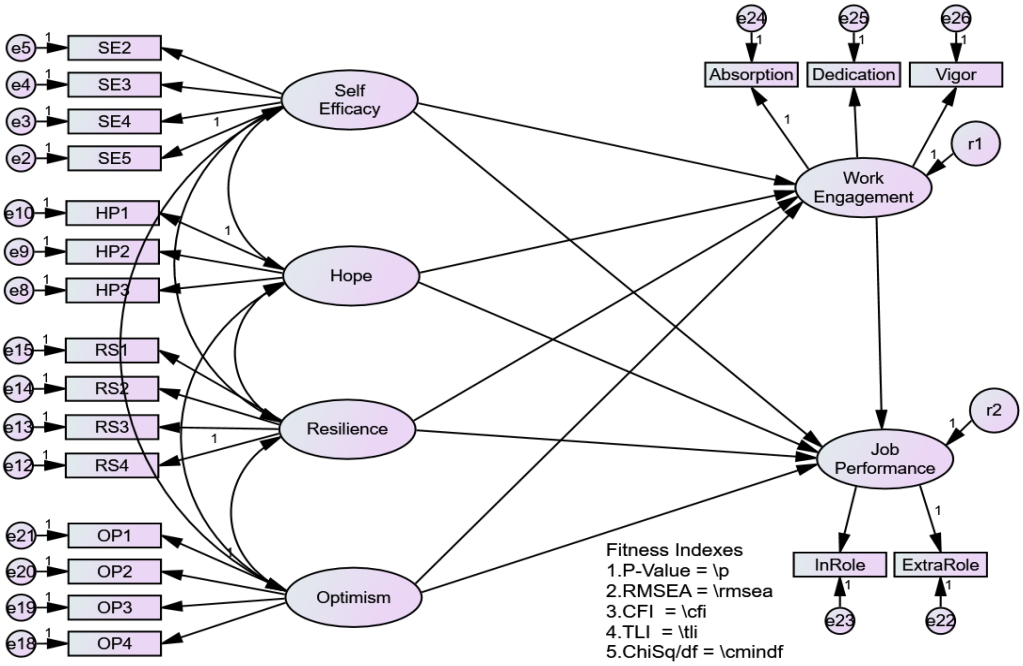
	Self-Efficacy	**Hope**	**Resilience**	**Optimism**	**Work Engagement**	**Job Performance**
Self-Efficacy	**.824**					
Hope	.668	**.897**				
Resilience	.312	.275	**.811**			
Optimism	.529	.392	.348	**.817**		
Work Engagement	.405	.184	.448	.626	**.867**	
Job Performance	.556	.281	.400	.620	.717	**.864**

Referring to Table 4.25, the Discriminant Validity of the respective construct is achieved if the square root of its AVE exceeds its correlation value with other constructs in the model (Awang et al., 2015). In other words, the Discriminant Validity is achieved if the diagonal values (in bold) are higher than any other values in its row and its column. The tabulated values in Table 4.25 meet the threshold of Discriminant Validity. Thus, the study concludes that the Discriminant Validity for all constructs in this study is achieved.

4.9 The Structural Model and Structural Equation Modeling (SEM)

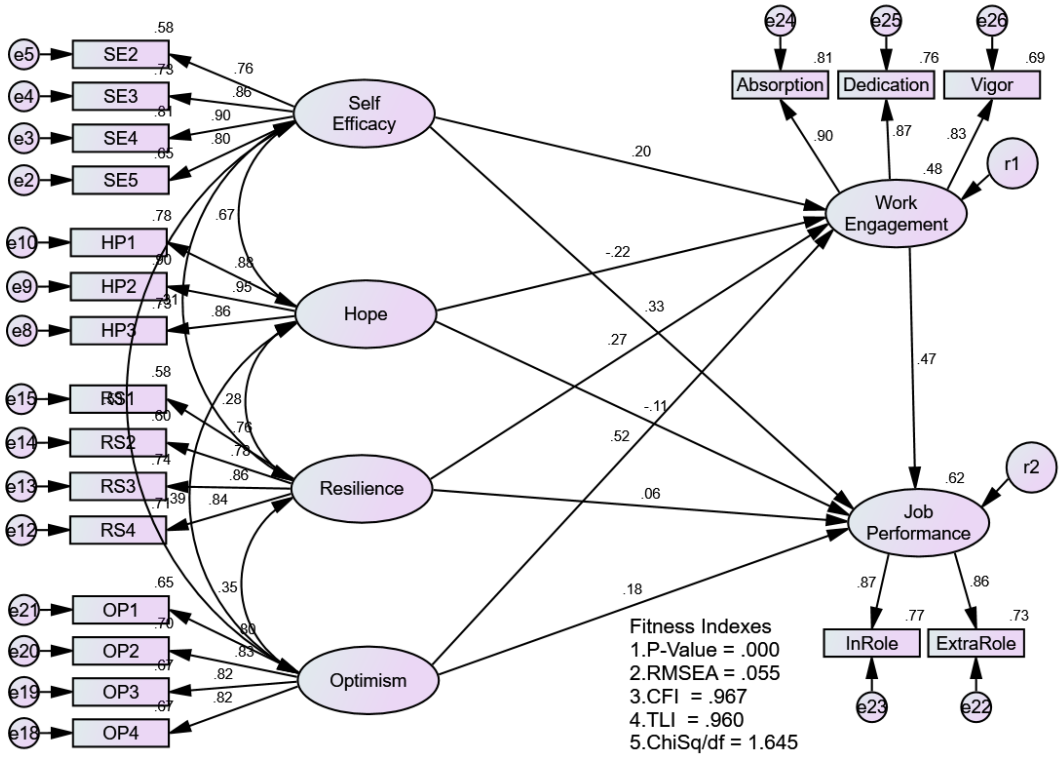
Once the report for the CFA procedure is completed and all values meet the required thresholds for validity and reliability, the researcher can conclude that the measurement models for all latent constructs involved in the model have been validated (Awang et al., 2015). Then, the next step for the researcher is to assemble these constructs into the structural model in order to execute Structural Equation Modeling (SEM). The constructs should be arranged from left to right, beginning with the exogenous constructs at the far left, followed by the mediator constructs in the middle, and the endogenous construct at the far right (Afthanorhan et al., 2019).

Figure 4.10 The Structural Model for this Study



The output resulted from the executing SEM is given in Figure 4.10 for the estimated Standardized Regression Path Coefficients. The results for estimated Regression Path Coefficients between constructs are presented in Figure 4.11.

Figure 4.11 The Estimated Standardized Regression Path Coefficient



The explanation regarding the performance of R^2 (coefficient of multiple determination) of the model (obtained from Figure 4.11) is provided in Table 4.26.

Table 4.26 The Coefficient of Multiple Determination or R^2

Endogenous Construct	**R^2**	**Conclusion**
Work Engagement	**0.48**	The self-efficacy, hope, resilience, optimism manage to explain about 49 percent of the work engagement.
Job Performance	**0.62**	The self-efficacy, hope, resilience, optimism manage to explain about 62 percent of the job performance

The Regression weights or Regression coefficient in the model together with their respective significance is presented in Table 4.27.

Table 4.27 The Regression Weight/ Coefficient and Their Significance

			Estimate	S.E.	C.R.	P	Result
Work_Engagement	<---	Self_Efficacy	.194	.092	2.107	.035	Significant
Work_Engagement	<---	Hope	-.198	.074	-2.672	.008	Significant
Work_Engagement	<---	Resilience	.259	.065	4.007	.000	Significant
Work_Engagement	<---	Optimism	.584	.091	6.441	.000	Significant
Job_Performance	<---	Self_Efficacy	.340	.098	3.476	.000	Significant
Job_Performance	<---	Hope	-.102	.078	-1.307	.191	Not Significant
Job_Performance	<---	Resilience	.057	.067	.850	.395	Not Significant
Job_Performance	<---	Optimism	.210	.104	2.008	.045	Significant
Job_Performance	<---	Work_Engagement	.493	.091	5.438	.000	Significant

Using the results in Table 4.27, the hypothesis is carried out in Table 4.28.

Table 4.28 The Hypothesis Testing for Direct Effect Relationships

	Direct Effect Hypothesis	**P**	**Result**
H1	There is a significant relationship between **Self-Efficacy** and **work engagement**	.035	Supported
H2	There is a significant relationship between **Hope** and **work engagement**	.008	Supported
H3	There is a significant relationship between **Resilience and work engagement**	.000	Supported
H4	There is a significant relationship between **Optimism and work engagement**.	.000	Supported
H5	There is a significant relationship between **Self-Efficacy** and **job performance**	.000	Supported
H6	There is a significant relationship between **Hope** and **job performance**	.191	Not Supported
H7	There is a significant relationship between **Resilience and job performance**	.395	Not Supported
H8	There is a significant relationship between **Optimism and job performance**	.045	Supported
H9	There is a significant relationship between **Work Engagement and job performance**	.000	Supported

The hypothesis testing for the mediation effects of a mediator construct in the model is carried out separately as shown in Table 4.29.

4.10 Hypothesis Testing for Indirect Effect Relationships

Table 4.29 The Hypothesis Testing for Mediators and Method of Analysis

	The Hypothesis for testing Mediators	**Method of Analysis**
H10	Work Engagement mediates the relationship between **Self-Efficacy** and **job performance**	Path Analysis in SEM and Bootstrapping
H11	Work Engagement mediates the relationship between **Hope** and **job performance**	Path Analysis in SEM and Bootstrapping
H12	Work Engagement mediates the relationship between **Resilience** and **job performance**	Path Analysis in SEM and Bootstrapping
H13	Work Engagement mediates the relationship between **Optimism** and **job performance**	Path Analysis in SEM and Bootstrapping

Hypothesis 10 testing is carried out in Table 4.29 and Figure 4.11.

Table 4.30 Testing the Mediator - self-efficacy – work engagement – job performance

H10	Work Engagement mediates the relationship between **Self-Efficacy** and **job performance**

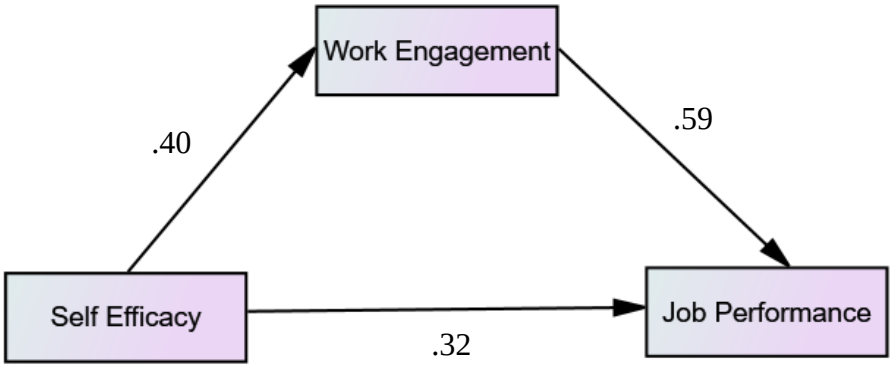


Figure 4.12 Testing the self-efficacy – work engagement – job performance

1. The indirect effect1 **a** = 0.40 (**significant**)
2. The indirect effect2 **b** = 0.59 (**significant**)
3. Total indirect effect **a x b** = (0.40).(0.59) = 0.236
4. The direct effect c = 0.32 (**significant**)
5. Thus, the **mediation occurs** since both a and b are significant
6. The type of mediation is **partial mediation** since the direct effect **c** is **also** significant.

(Maximum Likelihood) bootstrapping procedure using 5000 bootstrap samples with percentile confidence interval 95% and bias-corrected confidence interval 95%.

4.11 Bootstrapping

In referred to above hypotheses results, in order to get the desirable findings; (Maximum Likelihood), a bootstrapping procedure using 5000 bootstrap sample with percentile confidence interval 95% and bias-corrected confidence interval 95% were applied. It is used in applied machine learning to estimate the skill of machine learning models when making predictions on data not included in the training data. The result is presented in the following table. The bootstrap results are summarized in Table 4.25.

Table 4.31 The Bootstrapping Procedure for Confirming Mediation Test in Figure 4.6

	Indirect Effect	**Direct Effect**
Bootstrapping Results	0.236	0.320
Bootstrapping P-Value	0.000	0.000
Result	**Significant**	**Significant**
Mediation Type	Partial Mediation since the direct effect is significant	

Hypothesis 11 testing is carried out in Table 4.26 and Figure 4.7.

Table 4.32 Testing the Mediator - hope – work engagement – job performance

	The Hypothesis for testing a Mediator
H11	Work Engagement mediates the relationship between **Hope** and **job performance**

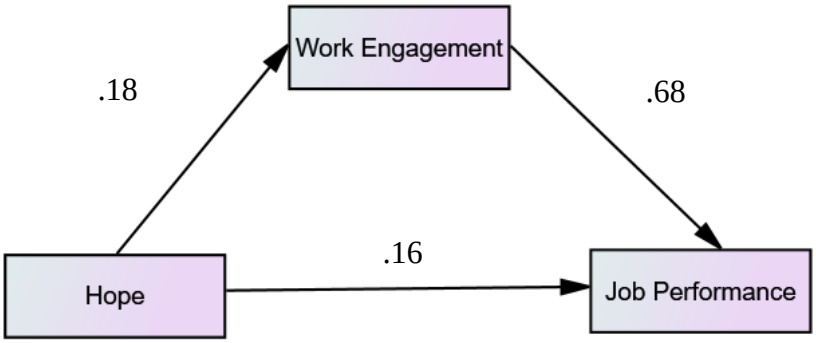


Figure 4.13 Testing the hope – work engagement – job performance

1. The indirect effect1 **a** = 0.18 (**significant**)
2. The indirect effect2 **b** = 0.68 (**significant**)
3. Total indirect effect **axb** = (0.18).(0.68) = 0.122
4. The direct effect c = 0.16 (**significant**)
5. Thus, the **mediation occurs** since both a and b are significant
6. The type of mediation is **partial mediation** since the direct effect **c** is significant.

In order to reconfirm the above mediation test results, this study employed the ML (Maximum Likelihood) bootstrapping procedure using 5000 bootstrap samples with percentile confidence interval 95% and bias-corrected confidence interval 95%. The result is presented in the following table. The bootstrap results are summarized in Table 4.27.

Table 4.33 The Bootstrapping Procedure for Confirming Mediation Test in Figure 4.7

	Indirect Effect	**Direct Effect**
Bootstrapping Results	0.122	0.165
Bootstrapping P-Value	0.024	0.008
Result	**Significant**	**Significant**
Mediation Type	**Partial Mediation** since the direct effect is significant	

The testing of hypothesis 12 is carried out in Table 4.28 and Figure 4.8

Table 4.34 Testing the Mediator - resilience – work engagement – job performance

	The Hypothesis for testing a Mediator
H12	Work Engagement mediates the relationship between **resilience** and **job performance**

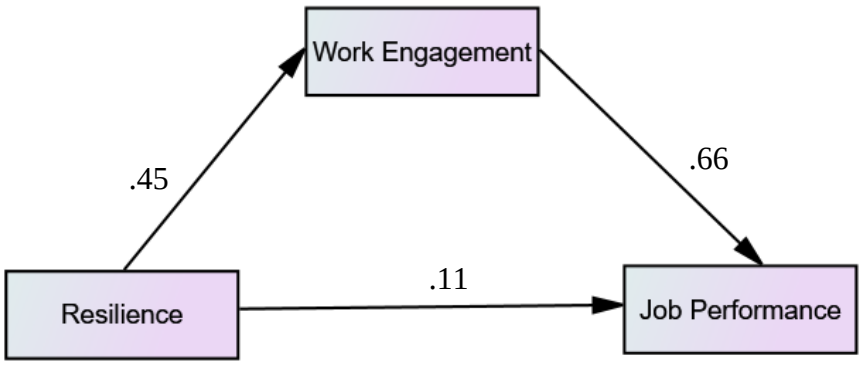


Figure 4.14 Testing the resilience – work engagement – job performance

1. The indirect effect1 **a** = 0.45 (**significant**)
2. The indirect effect2 **b** = 0.66 (**significant**)
3. Total indirect effect **a x b** = (0.45)(0.66) = 0.297
4. The direct effect c = 0.11 (not **significant**)
5. Thus, the **mediation occurs** since both a and b are significant
6. The type of mediation is **full mediation** since the direct effect **c** is not significant.

In order to reconfirm the above mediation test results, this study employed the ML (Maximum Likelihood) bootstrapping procedure using 5000 bootstrap samples with percentile confidence interval 95% and bias-corrected confidence interval 95%. The result is presented in the following table. The bootstrap results are summarized in Table 4.29.

Table 4.35 The Bootstrapping Procedure for Confirming Mediation Test in Figure 4.8

	Indirect Effect	**Direct Effect**
Bootstrapping Results	0.297	0.109
Bootstrapping P-Value	0.000	0.102
Result	**Significant**	**Not Significant**
Mediation Type	Full Mediation since the direct effect is not significant	

The hypothesis 13 testing is carried out in Table 4.30 and Figure 4.9

Table 4.36 Testing the Mediator - optimism – work engagement – job performance

	The Hypothesis for testing a Mediator
H13	Work Engagement is mediated in the relationship between optimism and job performance

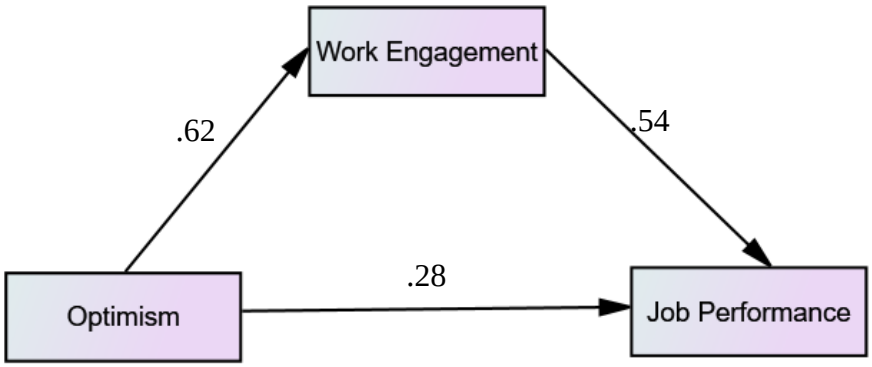


Figure 4.15 Testing the optimism – work engagement – job performance

1. The indirect effect1 **a** = 0.62 (**significant**)
2. The indirect effect2 **b** = 0.54 (**significant**)
3. Total indirect effect **a x b** = (0.621).(0.54) = 0.3348
4. The direct effect c = 0.28 (**significant**)
5. Thus, the **mediation occurs** since both a and b are significant
6. The type of mediation is **partial mediation** since the direct effect **c** is significant.

In order to reconfirm the above mediation test results, this study employed the ML (Maximum Likelihood) bootstrapping procedure using 5000 bootstrap samples with percentile confidence interval 95% and bias-corrected confidence interval 95%. The result is presented in the following table. The bootstrap results are summarized in Table 4.37.

Table 4.37 The Bootstrapping Procedure for Confirming Mediation Test in Figure 4.9

	Indirect Effect	**Direct Effect**
Bootstrapping Results	0.335	0.280
Bootstrapping P-Value	0.000	0.001
Result	**Significant**	**Significant**
Mediation Type	Partial Mediation since the direct effect is significant	

4.12 Summary of Hypothesis Result

This chapter summarizes the data analysis results of the survey responses and quantitative findings. These results obtained from 13 hypotheses, 11 hypotheses are significant and 2 hypotheses are not significant as a summarized in Table 4.38. Figure 4.16 presents the final framework for this study.

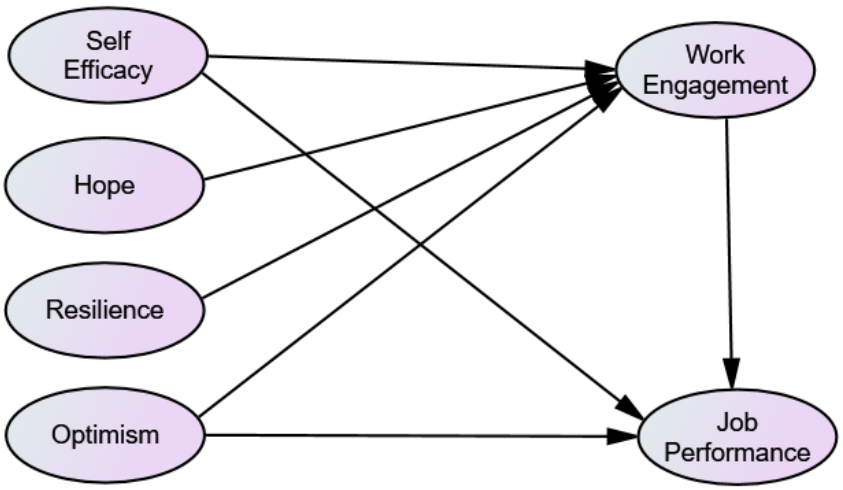


Figure 4.16 Final Model of Study

Table 4.38 Summary Hypothesis Result

	Direct Effect Hypothesis	**Result**
H6	There is a significant relationship between Hope and job performance	Not Supported
H7	There is a significant relationship between Resilience and job performance	Not Supported
H8	There is a significant relationship between Optimism and job performance	Supported
H5	There is a significant relationship between Self-Efficacy and job performance	Supported
H1	There is a significant relationship between Self-Efficacy and work engagement	Supported
H2	There is a significant relationship between Hope and work engagement	Supported

	Direct Effect Hypothesis	Result
H3	There is a significant relationship between Resilience and work engagement	Supported
H4	There is a significant relationship between Optimism and work engagement.	Supported
H9	There is a significant relationship between Work Engagement and job performance	Supported
H10	Work Engagement mediates the relationship between Self-Efficacy and job performance	Supported
H11	Work Engagement mediates the relationship between Hope and job performance	Supported
H12	Work Engagement mediates the relationship between Resilience and job performance	Supported
H13	Work Engagement mediates the relationship between Optimism and job performance	Supported

4.13 Conclusion

This chapter has discussed the results and findings of this research. As a conclusion, a very good response rate has been obtained from the respondents despite their busy schedule. Confirmatory factor analyses were conducted to establish the construct validity of all the variables. Validity and reliability tests were also conducted to determine the internal consistency between items and minimize random errors. Furthermore, discriminant validity indicates a good measurement for all listed items. In this chapter also, the final structural models and the direct hypothesized results between each variable

are clearly presented. Lastly, the mediation results are shown in the final section. Overall, majority of the findings support the hypotheses, namely only two were not supported (Job performance – hope, job performance – resilience). These findings will be discussed further in the next chapter.