CHAPTER 4

DATA ANALYSIS RESULTS

4.1 Introduction

The main objective of this chapter is to explain the results from data analysis. The chapter begins with the explanation of respondents' demographic. Then, the chapter presents the preliminary data analysis results, which included data screening, filtering, cleaning, verifying, missing values, and descriptive analysis. Following this, the chapter presents the results of the analysis, including the result analysis of assumptions, exploratory factor analysis, and the result of confirmatory factor analysis, including the goodness of fit of the construct reliability, the construct's convergent validity and the constructs discriminant validity. Finally, a structural model of SEM-Amos was performed to test the hypotheses and examine the mediation effect.

4.2 Response Rate

As mentioned in previously in chapter 3, the minimum sample size for this study in 234 respondents. However, the questionnaire was distributed to 260 respondents. The completed questionnaire received was 260 questionnaires, which means 100 percent response rate. Therefore, the total number respondents in this study are 260.

4.3 Preliminary Analysis

Some preliminary analyses must be conducted first to answer the study's research questions and objectives through statistical analysis (Pallant, 2013). Nonetheless, to carry out such preliminary analysis, the data should be coded and keyed into a particular data file of a researcher's choice, depending on the requirements of the study. SPSS Version 25 was used in this study for data coding and screening.

4.3.1 Missing Values Analysis

The surveys were delivered online to 260 academic staff in three Islamic university colleges. According to Verma (2013), data screening is done to discover missing values and outliers. Data missing value has become a serious source of concern and may have grown popular in almost every study. The number of data missing in a study varies, as does the degree of its impact. For example, if it's less than 1%, it's not a concern; if it's less than 5%, it's acceptable and manageable, if it's more than 15%, it requires drastic measures and advanced procedures to fix it (Acuna & Rodriguez, 2004). It is very unusual to complete all the returned questionnaires, especially when dealing with human beings as respondents (Pallant, 2013). Hence, this study tries to discover and treat such missing data appropriately. A frequency table was duly generated via descriptive statistics to detect missing information.

This study used Google Forms to collect data. Each item is set as compulsory to answer. As a result, a complete (without data missing issue) response received from the respondents. Thus, non-response bias is not required.

4.3.2 Assessment of Outliers

The second assumption concerns outliers, representing cases whose scores differ substantially from others in a particular set of data (Byrne & Barbara, 2010). According to Beniger and colleagues (1980), outliers can be seen as observations or subsets of observations which appear to be inconsistent with the remainder of the data" (p. 7). Similarly, other researchers also stated that outliers signify observations that describe an unusual arrangement of values of two or more constructs. It is due to outliers possessing values that have an extreme resemblance to one another and in a related condition (Hu et al., 1990; Rousseeuw & Hubert, 2011). Outliers usually occur in random distribution. Nevertheless, they are frequently symbolic either of measurement error or that the population undergoes hard-tail distribution. Examining outliers is essential because avoiding preliminary investigation of outliers can change statistical tests if the outlier happens to be problematic (Hair et al., 2010).

Table 4.1: Observation Farthest from the Centroid (Mahalanobis distance)

Observation number	Mahalanobis d-squared	p1	p2
56	105.902	.000	.000
231	101.050	.000	.000
20	93.810	.000	.000
120	77.277	.000	.000
159	72.486	.000	.000
119	65.153	.000	.000
181	60.992	.000	.000
193	59.260	.000	.000
37	55.119	.000	.000
3	53.768	.000	.000
136	51.488	.000	.000
1	44.926	.003	.000
127	44.164	.003	.000
146	43.930	.004	.000
241	43.848	.004	.000
247	43.609	.004	.000
91	42.275	.006	.000

Observation number	Mahalanobis d-squared	p1	p2
73	41.633	.007	.000
26	39.840	.011	.000
61	38.441	.016	.000
40	38.290	.017	.000
23	36.290	.028	.000
109	36.048	.030	.000
243	35.812	.032	.000
131	35.388	.035	.000
78	34.859	.040	.000
210	34.843	.040	.000
83	34.534	.043	.000
171	34.055	.048	.000
115	33.997	.049	.000
254	33.565	.054	.000
228	33.460	.056	.000
223	32.618	.067	.000
25	32.209	.074	.001
32	32.103	.076	.001
36	32.089	.076	.000
96	31.870	.080	.000
221	31.854	.080	.000
67	31.267	.091	.001
34	31.047	.095	.002
42	30.518	.106	.007
195	30.475	.107	.005
113	30.464	.108	.003
200	30.395	.109	.002
95	30.204	.114	.003
87	30.135	.115	.002
8	29.927	.120	.003
196	29.597	.129	.006
203	29.456	.132	.007
55	29.364	.135	.006
236	29.118	.142	.009
258	29.118	.142	.006
135	29.112	.142	.004
208	28.789	.151	.009
63	28.726	.153	.007
99	28.137	.171	.038
141	27.836	.181	.068
214	27.706	.186	.073
205	27.519	.192	.091
184	27.326	.199	.116
14	26.923	.214	.231
16	26.764	.220	.261
190	26.750	.221	.222
51	26.499	.231	.301

Observation number	Mahalanobis d-squared	p1	p2
102	26.082	.248	.497
137	25.826	.259	.602
93	25.785	.261	.572
81	25.721	.264	.557
100	25.711	.264	.508
211	24.886	.303	.893
242	24.874	.303	.870
139	24.653	.314	.913
215	24.531	.320	.924
33	24.515	.321	.907
94	24.242	.335	.951
165	24.192	.337	.946
11	24.144	.340	.941
143	24.120	.341	.929
191	23.980	.348	.943
240	23.555	.371	.986
62	23.519	.373	.984
116	23.421	.378	.985
92	23.394	.380	.982
162	23.362	.382	.978
224	23.352	.382	.972
167	23.288	.386	.971
90	23.232	.389	.969
187	23.013	.401	.984
173	22.917	.406	.986
18	22.667	.421	.994
13	22.657	.421	.992
235	22.452	.433	.996
249	22.368	.438	.997
182	22.296	.442	.997
103	22.183	.449	.997
197	22.140	.452	.997
60	21.887	.467	.999
15	21.794	.472	.999
57	21.771	.474	.999
52	21.753	.475	.999

4.3.3 Data Distribution

The normality assessment was made by evaluating the skewness of every item. The skewness value of 1.0 or lower indicates the data was normally disseminated. However, if the sample size is greater than 200, skewness value up to 1.5 still indicates the data was

normally disseminated (Hair et al., 2010). In addition, the data was normally disseminated when Critical Region (CR) for the skewness does not exceed 8.0.

Table 4.2 shows the results from the Maximum Likelihood Estimator (MLE) in SEM Amos. It shows that the skewness range is 0.041 to -1.501, which is below 1.5. The Critical Region (CR) for skewness also does not exceed 8.0. Based on these results, the data of this study achieved the requirement for normality data.

Table 4.2: Assessment of Normality

Variable	min	max	skew	c.r.	kurtosis	c.r.
LMX1	1.000	7.000	-.124	-.813	-.405	-1.333
LMX2	1.000	7.000	-.375	-2.465	-.433	-1.425
LMX3	1.000	7.000	-.426	-2.804	-.288	-.947
LMX4	1.000	7.000	-.393	-2.588	-.078	-.258
LMX5	1.000	7.000	-.559	-3.681	-.026	-.084
LMX6	1.000	7.000	-.877	-5.773	.714	2.351
LMX7	1.000	7.000	-.663	-4.368	.358	1.178
HRMP_Remuneration	1.000	5.000	-.484	-3.187	.079	.259
HRMP_TrainingDevelopment	1.000	5.000	-.751	-4.946	1.052	3.463
HRMP_CareerDevelopment	1.000	5.000	-.488	-3.210	.533	1.756
HRMP_WorkLifeBalance	1.000	5.000	-.743	-4.888	.933	3.070
Personality_Conscientiousness	2.800	7.000	-.590	-3.884	.323	1.062
Personality_Extraversion	2.250	7.000	-.253	-1.668	-.349	-1.147
Personality_Agreeableness	3.000	7.000	-.256	-1.684	-.040	-.131
Personality_Neuroticism	2.000	7.000	-.528	-3.476	.340	1.118
Personality_Openess	2.500	7.000	-.340	-2.240	-.151	-.499
WE_Vigour	1.333	6.000	-.666	-4.382	.441	1.451
WE_Dedication	.333	6.000	-1.063	-6.997	2.030	6.683
WE_Absortion	1.000	6.000	-.633	-4.169	.387	1.274
JPTeaching	2.571	5.000	-1.501	-9.880	3.016	9.927
JPResearch	1.000	5.000	.416	2.736	-.683	-2.250
JPPublication	1.000	5.000	.041	.273	-1.198	-3.944
Multivariate					158.791	39.396

4.4 Descriptive Statistics

4.4.1 Demographics Characteristics of the Participants

The total number of respondents in this study is 260. This section presented the demographic profile of the respondents. Demographic characteristics in this study include institutions, gender, age, marital status, level of education, position, job status, monthly earnings, and length of services in current institutions (see Table 4.3).

Table 4.3: Demographic Data of Respondents (*n*=260)

Characteristics		**Frequency**	**Percentage**
Institutions	KUIS	155	60
	KUIM	75	29
	KUIPs	30	11
Gender	Male	106	40.8
	Female	154	59.2
Age	21 – 30 Years	24	9.2
	31 – 40 Years	118	45.4
	41 – 50 Years	99	38.1
	Over 50 Years	19	7.3
Marital Status	Married	210	80.8
	Single	44	16.9
	Divorced	6	2.3
Level of Education	Bachelor's Degree	27	10.4
	Master's Degree	174	66.9
	Ph.D. or Equivalent	59	22.7
Position	Junior Lecturer	34	13.1
	Lecturer/ Tutor	172	66.2
	Senior Lecturer	51	19.6
	Associate Professor	3	1.2
	Professor	0	0.0

Job Status	Permanent	176	67.7
	Contract	84	32.3
Monthly Earning	RM2,001.00 to RM4,000.00	76	29.2
	RM4,001.00 to RM6,000.00	123	47.3
	RM6,001.00 to RM8,000.00	45	17.3
	Over RM8,000	16	6.2
Length of Service (in the current institution)	Less than 5 Years	60	23.1
	5 to 10 Years	79	30.4
	11 to 15 Years	68	26.2
	Over 15 Years	53	20.4

As presented in Table 4.3, the population of the study was almost evenly distributed. Respondents from KUIS accounted for sxty percent for (60%) of the total number of respondents, while respondent from KUIM twenty-nine (29%), and respondents from KUIPs only elevent percent (11%). The majority of the respondents who participated in the survey were females, constituting 154 respondents who represented 59.2% of total respondent, while the remaining 106 respondents (or 40.8%) were males.

Regarding the age group, 24 respondents (or 9.2% of the participants), were between 21-30 years. This is followed by the age group between 31-40 years with 118 respondents, which accounted for 45.4% of the total sample. Also, the age group between 41 and 50 occupied 99 respondents, which make up 38.1% of the sample. Similarly, in the age group of over 50 years there were, only 19 respondents participating in the survey representing 7.3%.

Regarding marital status, married people occupied the largest number, with 210 respondents representing 80.8%. In comparison, single people were represented by 44 respondents, which accounted for 16.9%, and divorced people make up the smallest number on respondent with only six, representing 2.3%.

Next, in terms of academic qualifications, the majority of the respondents were master's degree holders with 174 respondents representing 66.9%. This is followed by PhD or equivalent with 59 respondents, which accounted for 22.7% of the total respondents. Meanwhile, only 27 respondents with degree level qualification took part in the study, representing 10.4% of the sample.

Job position category is also considered as one of the demographic characteristics with lecturers taking the highest number with 172 respondents representing 66.2%. In contrast, senior lecturer constitutes 51 participants representing 19.6% of the sample, and the junior lecturers constitute 34 participants representing 13.1% of the total participants. Associate professors make up the smallest number of respondents in terms of job position with only three persons responding to the questionaire, representing only 1.2% and no response from the professor position.

Additionally, the majority of the respondents who participated in this study held permanent job status, which accounted for 67.7%, representing 176 participants. In contrast, the remaining 84 respondents (or 32.3%) indicated they were under contract status.

In terms of monthly earnings, the majority of respondents, (123 respondent or 47.3%) had earned their salary between RM4001-RM6000. This is followed by monthly earnings between RM2001-RM4000 which represented 76 respondent or 29.2%. While a

minority of respondents earned their salary between RM6001-RM8000, representing 45 respondents (or 17.3%). As for the salary over RM8000, it was represented by 16 respondents or 6.2% of the total sample.

Finally, regarding the length of service in the institution, the majority of the respondents, 79 respondent (or 30.4%), had a length of service between 5 to 10 years. In contrast, in the 11-15 years-of-service category, 68 persons responded, representing 26.2%, whila another 23.1% or 60 respondents have served less than five years. In comparison, a minority of the respondents i.e. 53 participants representing 20.4% of the total sample size have more than five years of service.

4.4.2 Descriptive Analysis of variables

In this study, descriptive statistics of the study variables were presented. Essentially, the mean and standard deviation were computed to determine the descriptive characteristics of the present study variables. The results are shown in Table 4.4.

Table 4.4: Descriptive Statistics and Correlation Matrix

Variables	M	SD	JP	HRMP	LMX	WE	PS
JP	3.41	.69	**0.869**				
HRMP	3.59	.59	.131*	**0.821**			
LMX	4.76	1.09	.091	.518**	**0.922**		
WE	4.54	.89	.269**	480**	.439**	**0.923**	
PS	5.21	.73	.298**	.310**	.406**	.638**	**0.923**

Notes: M=Mean; SD=Standard Deviation; JP= Job Performance; HRMP= HRM practices; LMX= LMX, WE= Work Engagement; PS= Personality

Table 4.4 above presents the descriptive statistics of all the study variables. According to Shahnon & Davenport (2001), the descriptive statistics provided each

variable's mean and standard deviation results. The results show that the mean and standard deviation for Job Performance is 3.41 and 0.69. Similarly, the mean and standard deviation for HRM practices are 3.59 and 0.59, while 4.76 and 1.09 are for LMX. In addition, the mean and standard deviation for work engagement is 4.54 and 0.89, and 5.21 and 0.73 for Personality. The correlation between variables are positive and significant except for the relationship between LMX and Job Performance, which is positive but not significant.

4.5 AMOS-SEM Analysis

This study applies a two-stage approach in performing SEM analysis (Anderson & Gerbing, 1988). The measurement model is developed in the first stage by specifying the causal relationships between the observed variables (items) and the latent variables. It was performed using Confirmatory Factor Analysis (CFA) before testing the structural model. Through the process of CFA, the issues of convergent validity and construct reliability have been addressed.

Once the scale had been developed in stage one, the second stage analysis was carried out by developing the structural model. This step aims to test causal relationships among the latent constructs as posited by the theory (Anderson & Gerbing, 1998). These two stages are discussed in more detail in the following sub-section.

4.5.1 Measurement Model

4.5.1.1 Stage One: Confirmatory Factor Analysis for Individual Construct.

As mentioned above, the measurement model is developed to specify how a set of measured items reflect the latent constructs they are supposed to measure. Thus, to verify

which items or indicators correspond to latent variables, this study applies the CFA approach commonly used in social science research. CFA is just a method for confirming a theory or rejecting the proposed theory (Hair et al., 2010). Therefore, as the measurement in this study is based on theory and previous research, the CFA techniques would be preferred to validate the measurement. Each of the constructs was analysed separately to assess the unidimensionality, validity and reliability of the constructs.

To achieve the measurement model's unidimensionality, two requirements must be fulfilled. First, the factor loading for the indicators of each construct should be above 0.5. Any item with a low factor loading should be dropped from the analysis. Second, a number of goodness fit indices have been used to assess whether the measurement model (CFA) fits the data. After the unidimensionality procedure has been acceptably completed, the validity and reliability of each construct are assessed.

The following subsection presents a detailed discussion of how the observed variables (items) are linked to their underlying latent construct using CFA techniques. The five constructs for this study were job performance, HRM practices, LMX, work engagement, and personality.

1. CFA for Job Performance Construct

Table 4.5 shows the job performance construct was initially measured using three components. First, JPT with seven items. Second, JPR with five items. Third, JPP with four items.

Based on Figure 4.5, all items show acceptable factor loading, which is above 0.50. However, there are two items (JPT2 and JPR3) that show unacceptable factor loading,

which is below 0.50 and above 1.00. The factor loading for JPT2 is 1.07, while the factor loading for JPR3 is 0.38. Therefore, these two items were removed from further analysis. After deleting these two items, the CFA results showed the fitness index was sufficient and within the recommended level (GFI=0.87, AGFI=0.81, CFI=0.86, RMSEA= 0.10, and $\chi 2$ /df = 3.98). It means the model fits the data adequately. Figure 4.2 shows the measurement model after deleting JPT2 and JPR3.

Table 4.5: Description of Job Performance Construct

Component	Component Label	Items	Item Label	Item Deleted
Job Performance -Teaching	JPT	I attend my lessons always.	JPT2	Deleted
		I enter my class at the right time (i.e., not late).	JPT3	
		I give notes to my students.	JPT5	
		I give a test, assignment and field/practical work to the students in every course I teach.	JPT6	
		I mark all the assignments given to students.	JPT7	
		I release the CA scores to students before the examination commences.	JPT9	
		I read and correct students' projects.	JPT10	
Job Performance -Research	JPR	My conference papers are published in the conference proceedings	JPR3	Deleted
		My research articles have been published in a foreign journal.	JPR5	
		I have participated in sponsored national research.	JPR6	
		My research articles have been published in a newspaper/magazine.	JPR7	
		I have participated in sponsored international research.	JPR8	
Job Performance -Publication	JPP	I have authored a book (s).	JPP1	
		I have co-authored a book(s).	JPP2	
		I have contributed chapters to the Book of Readings.	JPP3	
		I have contributed chapters to an edited book.	JPP4	

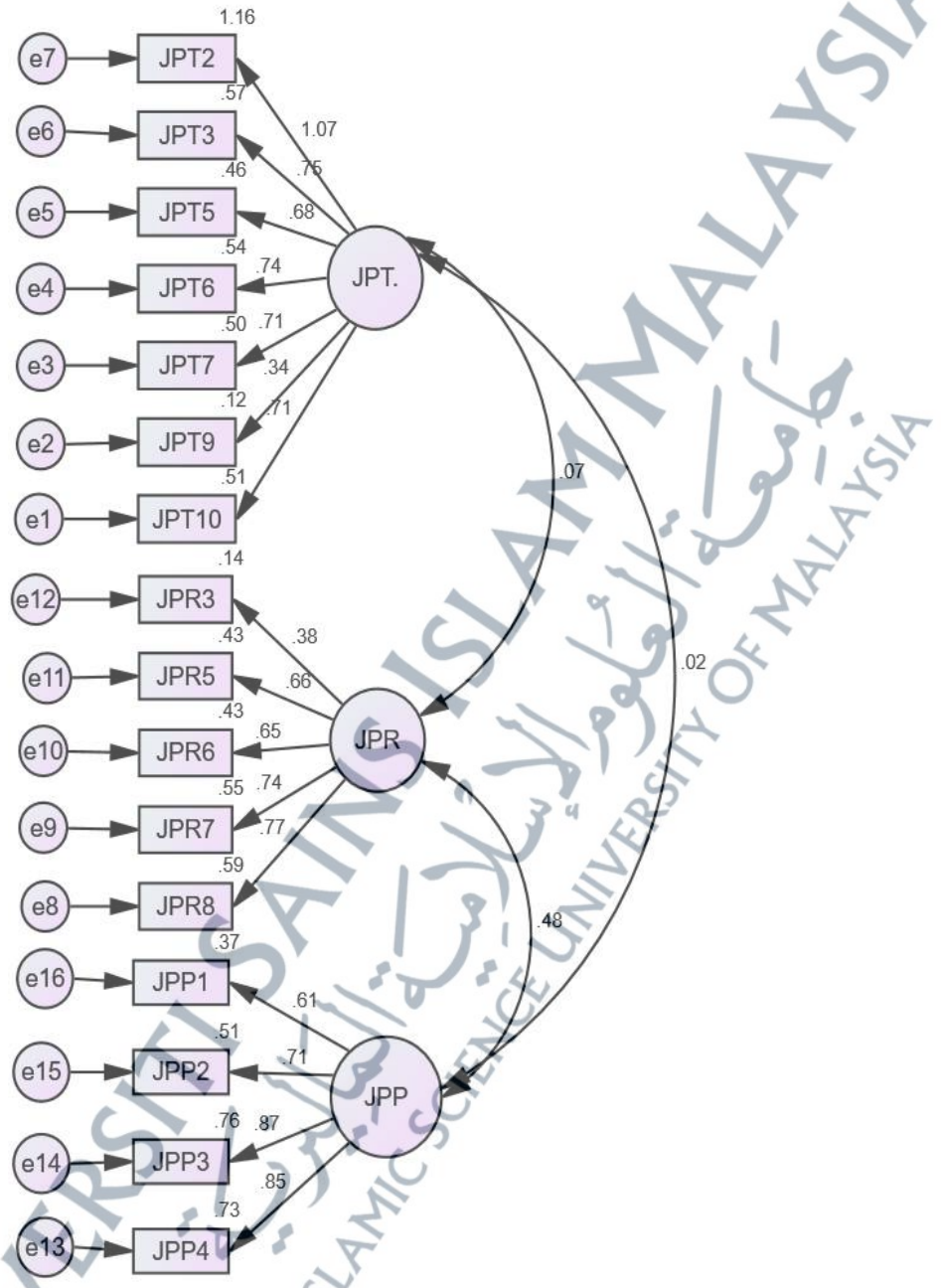


Figure 4.1: The CFA Output for Job Performance Construct

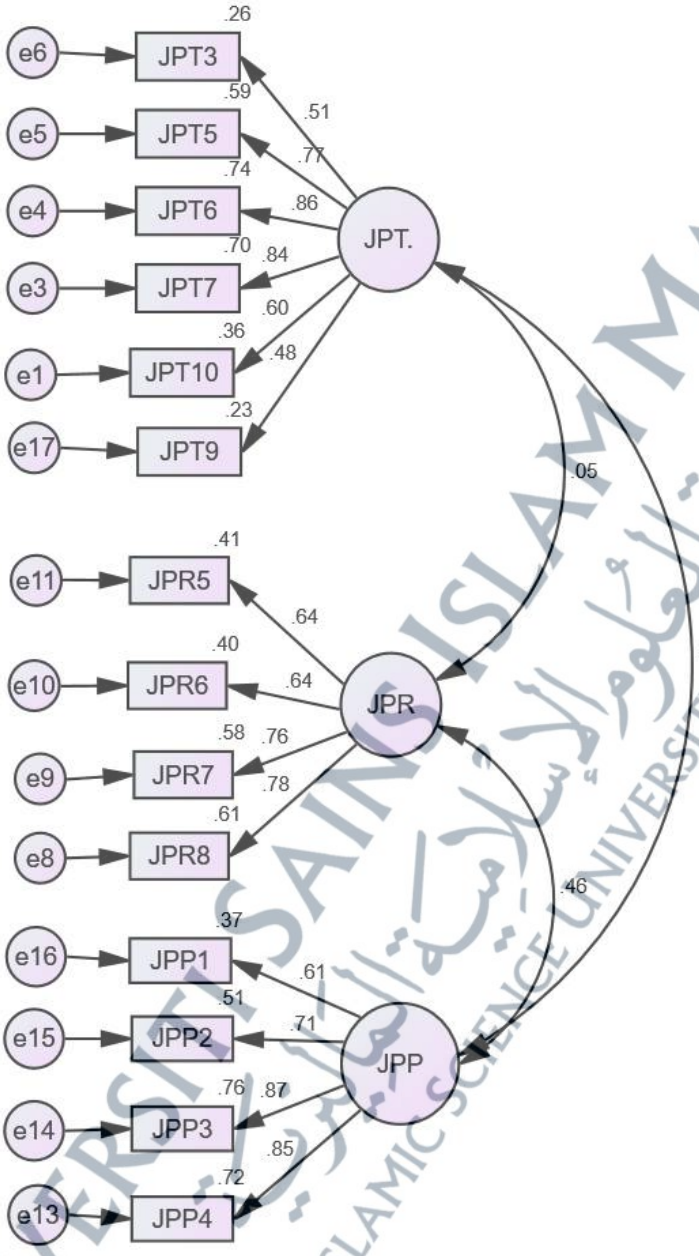


Figure 4.2: The CFA Output for Job Performance Construct after Removing JPT2 and JPR3

2. CFA for HRM Practices construct.

As presented in Table 4.6, the HRM Practices construct was initially measured using four components. First, HRMP-Rem with four items. Second, HRMP-TD with three items. Third, HRMP-CDO with three items, fourth, HRMP-WLB with three items.

The CFA output (see Figure 4.3) indicates that all items show accepted factor loading, which is above 0.50. The results also showed that this model fits the data adequately (GFI=0.91, AGFI=0.86, CFI=0.94, RMSEA= 0.08 and $\chi 2$ /df = 2.98).

Table 4.6: Description of HRM Practices Construct.

Component	Component Label	Items	Item's Label
Remuneration and Rewards	HRMP-Rem	The rewards and recognition I receive from this job are attractive	HRMRem1
		The remuneration and reward are fair.	HRMRem2
		I am satisfied with the income I receive.	HRMRem3
		I am satisfied with the benefits I receive (e.g., leave, allowances etc.).	HRMRem4
Training and Development	HRMP-TD	When people start new jobs in this organisation, they are given enough guidance and training.	HRMTD1
		This organisation gives a commitment to ongoing training and development of the staff.	HRMTD2
		The training and development I have received have improved my performance.	HRMTD3
Career Development Opportunities	HRMP-CDO	Enough time and effort are spent on career planning.	HRMCDO1
		I am given opportunities for my career in progression in this organisation.	HRMCDO2
		There are enough opportunities for my career to progress in this organisation.	HRMCDO3
Work-life Balance	HRMP-WLB	I can have a good balance between work and other activities.	HRMWLB1
		I can be involved in both work and non-work-related activities.	HRMWLB2

	My work allows me to have time for social activities outside work.	HRMWLB3

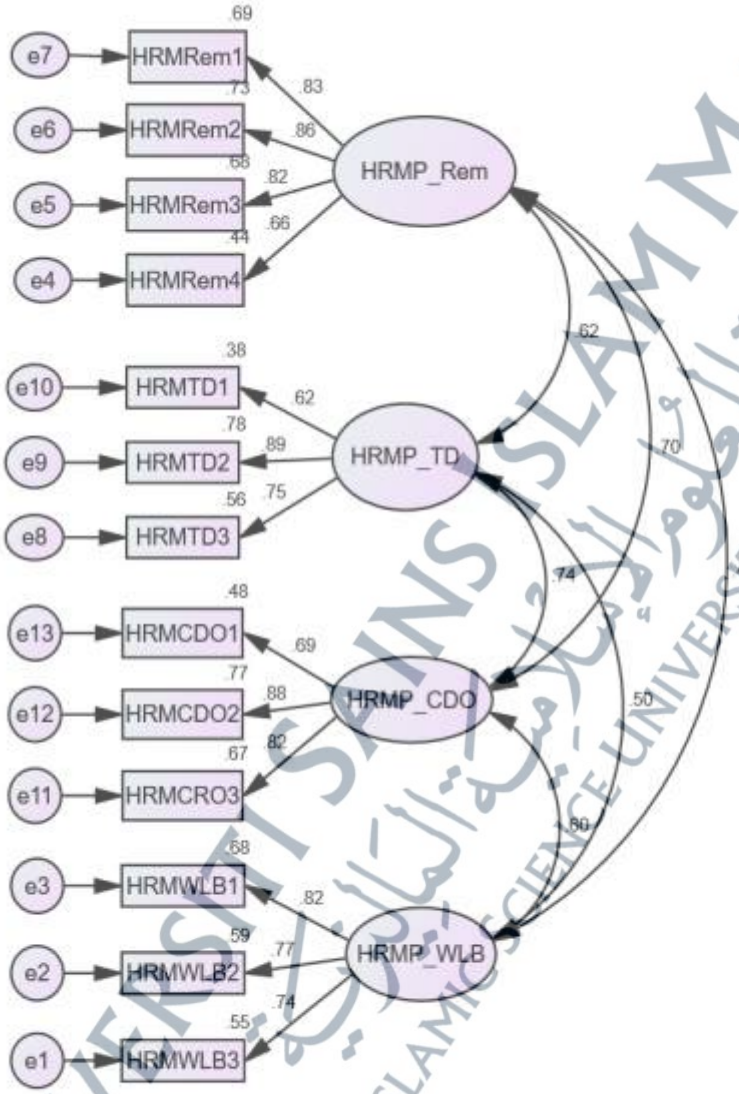


Figure 4.3: The CFA output of HRM practices construct.

3. CFA for LMX Construct

Table 4.7 shows that the LMX construct was initially measured using seven items (LMX1, LMX2, LMX3, LMX4, LMX5, LMX6, LMX7). The CFA output (see Figure 4.4) indicates that all items show acceptable factor loading, which is above 0.50. However, one item, which is LMX3 has been deleted from the drawing due to showing unacceptable factor loading (below 0.50). In addition, a covariate has been created between LMX1 and LMX6 because the value of modification indices showing that these two items are interrelated. As a result, the fitness indices were sufficient and within the recommended level ($\chi 2$ /df = 5.29, CFI=0.967 and RMSEA 0.12.).

Table 4.7: Description of LMX Construct.

Construct	Construct Label	Items	Item's Label	Item Deleted
Leader-member exchange	LMX	When I really need it, I can count on my manager to 'bail me out even at his own expense.	LMX1	
		My manager understands my problems and needs.	LMX2	
		My manager recognizes my potential.	LMX3	Deleted
		I know where I stand with my manager.	LMX4	
		My manager has enough confidence in me that he/she would defend and justify my decisions if I was not present to do so.	LMX5	
		My working relationship with my manager is effective.	LMX6	
		Regardless of how much power the manager has built into his or her position, my manager would personally be inclined to use his/her power to help me solve problems in my work.	LMX7	

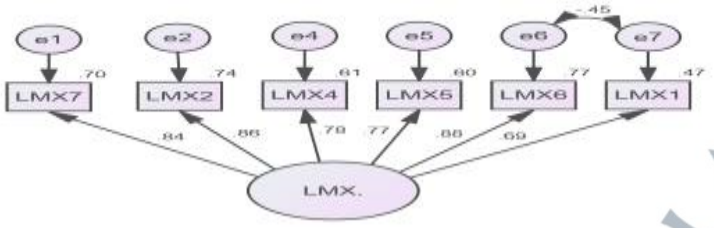


Figure 4.4: The CFA output for LMX construct.

4. CFA for Work Engagement Construct.

Table 4.8 shows that the work engagement construct was initially measured using three components. First, WE-Vi with three items. Second, WE-De with three items. Third, WE-Ab with three items. The CFA output (see Figure 4.5) indicates that all items show acceptable factor loading, which is above 0.50. However, one item, which is WEVi3 has been deleted from the drawing due to showing unacceptable factor loading (below 0.50). As a result, the measurement model showing accepted fitness index model ($\chi 2$ /df = 4.14, CFA= 0.97 and RMSEA= 0.11).

Table 4.8: Description of Work Engagement Construct

Component	Component Label	Items	Item Label	Item Deleted
Vigour	WE-Vgr	At my work, I feel bursting with energy.	WEVi1	
		At my job, I feel strong and vigourous.	WEVi2	
		When I get up in the morning, I feel like going to work.	WEVi3	Deleted
Dedication	WE-De	I am enthusiastic about my job.	WEDe1	
		My job inspires me.	WEDe2	
		I am proud of the work that I do.	WEDe3	
Absorption	WE-Abs	I feel happy when I am working intensely.	WEAb1	
		My job inspires me.	WEAb2	
		I am proud of the work that I do.	WEAb3	

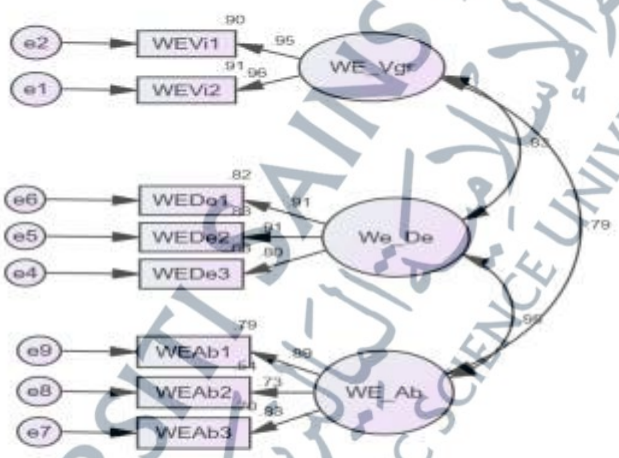


Figure 4.5: The CFA Output for Work Engagement Construct after Removing Item WE-Vi3

5. CFA for Personality Construct

As presented in Table 4.9, the personality construct was initially measured using five components: first, PS-Con with five items; second, PS-Extra with four items; third, PS-Agree with four items; fourth, PS-Neu with four items; fifth, PS-Open with four items. The CFA output (see Figure 4.6) indicates that all items show acceptable factor loading, which is above 0.50. However, one item, which is PSCon4 has been deleted from the drawing due to showing unacceptable factor loading (below 0.50). As a result, the measurement model showing accepted fitness index model ($\chi 2$ /df = 2.71, CFA= 0.917 and RMSEA= 0.081).

Table 4.9: Description of Personality Construct, Component and Items

Component	Component Label	Items	Item Label	Item Deleted
Conscientiousness	PS-Con	I am always prepared.	PSCon1	
		I get chores done right away.	PSCon2	
		I pay attention to details.	PSCon3	
		I like order.	PSCon4	Deleted
		I follow a schedule.	PSCon5	
Extraversion	PS-Extra	I feel comfortable around people.	PSExtra1	
		I start conversations.	PSExtra2	
		I talk to a lot of different people at parties.	PSExtra3	
		I do not mind being the centre of attention.	PSExtra4	
Agreeableness	PS-Agree	I sympathise with others' feelings.	PSAgree1	
		I have a soft heart.	PSAgree2	
		I take time out for others.	PSAgree3	
		I feel others' emotions.	PSAgree4	
Neuroticism	PS-Neu	I seldom feel blue.	PSNeu1	
		I feel comfortable with myself.	PSNeu2	
		I readily overcome setbacks.	PSNeu3	
		I am relaxed most of the time.	PSNeu4	
Openness	PS-Open	I have a rich vocabulary.	PSOpen1	
		I have a vivid imagination.	PSOpen2	
		I have excellent ideas.	PSOpen3	
		I am full of ideas.	PSOpen4	

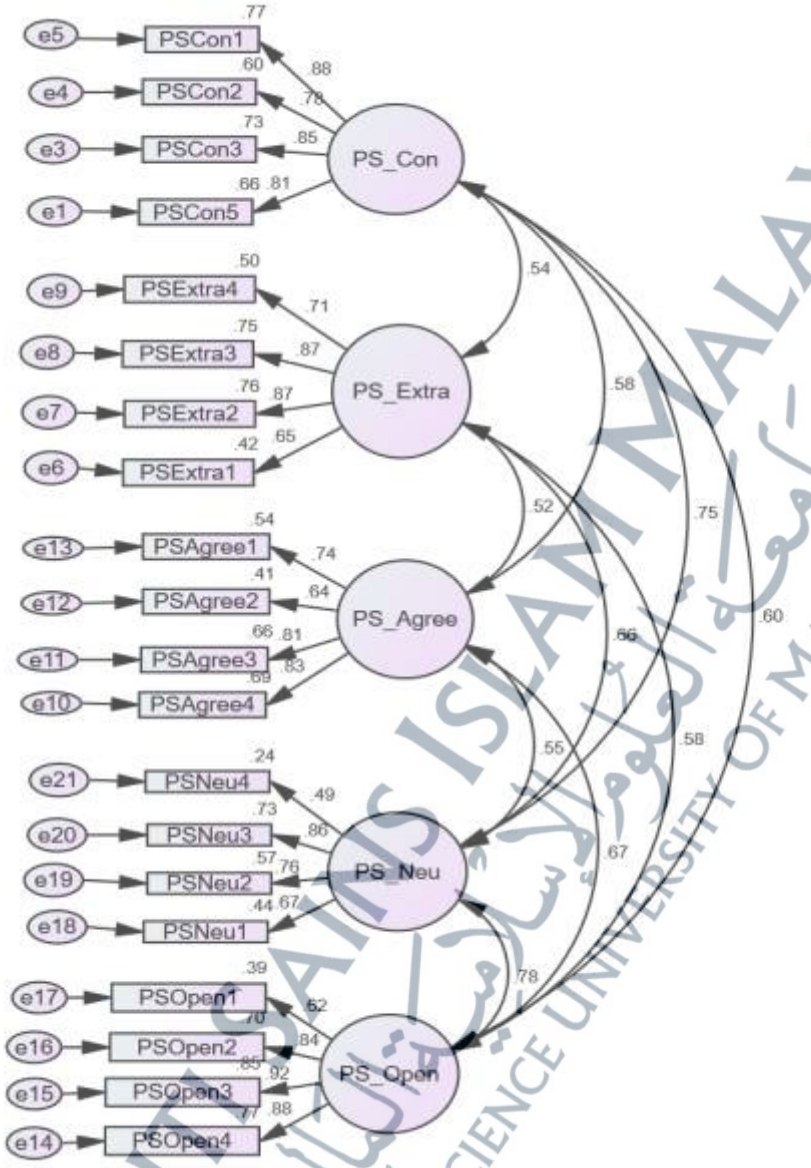


Figure 4.6: The CFA Output for Personality Construct.

6. Assessing the Validity and Reliability of Construct

Once the CFA procedure for every construct is completed, it is essential to assess the validity and reliability for each construct. The validity of the construct was evaluated through convergent validity. Convergent validity assumes that the set of indicators or items uniquely represents the underlying construct. It can be assessed by computing the Average Variance Extracted (AVE) (Fornell & Larker, 1981). If the AVE score is equal to or greater than 0.50, the convergent validity for the construct is confirmed (Fornell & Larker, 1981) The reliability refers to how individual items are consistent in their measurements (Hair et al., 2010). The rule of thumb is if the value of composite reliability (CR) is equal to or greater than 0.6, then the measuring instrument is said to be reliable (Hair et al., 2010). Table 4.10 to 4.14 presents the standardised factor loadings, the results of AVE and construct reliability for the individual construct.

Table 4.10: Factor Loading, Average Variance Expected and Construct Reliability of Job Performance

Component	Item	Factor Loading	AVE (≥ 0.5)	CR (≥ 0.6)
JPT	JPT3	0.508	0.52	0.87
	JPT5	0.768		
	JPT6	0.863		
	JPT7	0.835		
	JPT9	0.481		
	JPT10	0.601		
JPR	JPR5	0.643	0.50	0.80
	JPR6	0.635		
	JPR7	0.76		
	JPR8	0.78		
JPP	JPP1	0.607	0.59	0.85
	JPP2	0.713		
	JPP3	0.873		
	JPP4	0.851		

Table 4.11: Factor Loading, Average Variance Expected and Construct Reliability of HRM Practices

Component	Item	Factor Loading	AVE (≥ 0.5)	CR (≥ 0.6)
HRM-Rem	HRMRem1	.832	0.81	0.95
	HRMRem2	.856		
	HRMRem3	.824		
	HRMRem4	.664		
HRM-TD	HRMTD1	.619	0.60	0.80
	HRMTD2	.886		
	HRMTD3	.748		
HRM-CDO	HRMCDO1	.692	0.64	0.84
	HRMCDO2	.880		
	HRMCDO3	.820		
HRM-WLB	HRMWLB1	.822	0.60	0.82
	HRMWLB2	.767		
	HRMWLB3	.740		

Table 4.12: Factor Loading, Average Variance Expected and Construct Reliability of LMX

Construct	Item	Factor Loading	AVE (≥ 0.5)	CR (≥ 0.6)
LMX	LMX1	.688	0.65	0.92
	LMX2	.860		
	LMX4	.781		
	LMX5	.775		
	LMX6	.879		
	LMX7	.835		

Table 4.13: Factor Loading, Average Variance Expected and Construct Reliability of Work Engagement

Component	Item	Factor Loading	AVE (≥ 0.5)	CR (≥ 0.6)
WE-Vgr	WEVi1	.950	0.90	0.97
	WEVi2	.955		
WE-De	WEDe1	.906	0.76	0.90
	WEDe2	.908		
	WEDe3	.796		
WE-Abs	WEAb1	.886	0.67	0.86
	WEAb2	.733		
	WEAb3	.834		

Table 4.14: Factor Loading, Average Variance Expected and Construct Reliability of Personality

Component	Item	Factor Loading	AVE (≥ 0.5)	CR (≥ 0.6)
PS-Con	PSCon1	.876	0.69	0.89
	PSCon2	.776		
	PSCon3	.852		
	PSCon5	.814		
PS-Extra	PSExtra1	.650	0.61	0.86
	PSExtra2	.871		
	PSExtra3	.867		
	PSExtra4	.710		
PS-Agree	PSAgree1	.737	0.58	0.84
	PSAgree2	.643		
	PSAgree3	.811		
	PSAgree4	.832		
PS-Neu	PSNeu1	.667	0.50	0.79
	PSNeu2	.755		
	PSNeu3	.856		
	PSNeu4	.494		
PS-Open	PSOpen1	.880	0.68	0.89
	PSOpen2	.919		
	PSOpen3	.840		
	PSOpen4	.624		

Overall, the result of AVE presented in the Table 4.10 to 4.14 clearly shows that the convergent validity for single constructs has been achieved, as all the constructs exceeded the suggested level of 0.50. The analysis shows that the AVE ranged from 0.50 to 0.90. Values for AVE greater than 0.50 would mean that more than half of the variances observed in the items were explained by underlying constructs. It confirms that all items measure only a single construct.

Besides AVEs, CR values for all constructs vary from 0.79 to 0.97, which is greater than 0.60. This result suggests that the instruments used to measure the latent construct are reliable and consistently represent the same latent construct. At this point, it can be

concluded that the constructs in the model reflect convergent validity and construct reliability.

4.5.1.2 Stage Two: Measurement Model Assessment

The measurement Model represents the second stage in SEM analysis after the first stage of the CFA single construct. In this model, all latent constructs involved in the study should be assessed together without assignment to exogenous or endogenous. At this stage, the assessment of the measurement model was made into two categories. First, to test for model fit. Second, to test the discriminant validity.

The initial measurement model incorporated five latent constructs; job performance, HRM practices, LMX, work engagement and personality. All these latent constructs are placed at one level and analysed in simultaneous analysis to determine the extent to which it is consistent with the data. If the goodness of fit is adequate and fulfils the discriminant validity requirement, it can proceed to the next stage (structural model) to test the hypotheses. Figure 4.7 presents the measurement model that was tested for the scenarios.

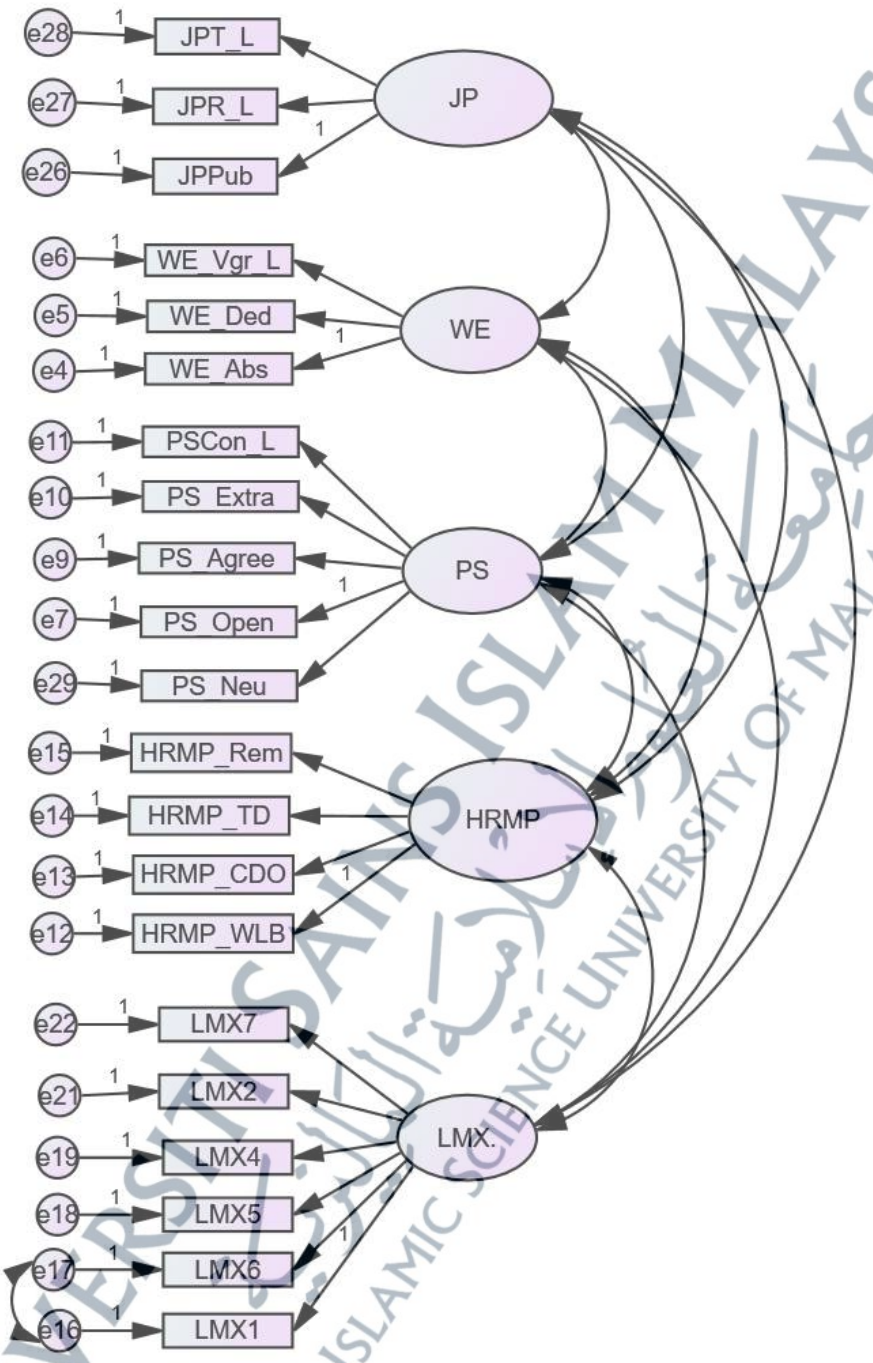


Figure 4.7: The Measurement Model Combining All Latent Constructs Simultaneously

As shown in Table 4.15, the assessment of fit (overall fit) demonstrates adequate model fit as it meets the requirements of certain fit indices as discussed earlier ($\chi 2$ /df = 2.80; CFI = 0.89; RMSEA = 0.08). The result indicates that the data from the sample fit the model.

Table 4.15: The Fitness Index for Measurement Model

Name of Category	Name of Index	Index Value
Absolute fit	RMSEA	0.08
Incremental fit	CFI	0.89
Parsimonious fit	Relative χ^2 (CMIN/df)	2.80

After the fitness of the measurement model is completed, this study computes the validity and reliability of the construct and summarises it in Table 4.16.

Table 4.16: The Composite Reliability (CR) and AVE for All Constructs

Construct	Item	Factor Loading	AVE (≥ 0.5)	CR (≥ 0.6)
JP	JPT	0.186	0.52	0.87
	JPR	0.663		
	JPP	0.625		
HRMP	HRMP- Rem	0.749	0.55	0.83
	HRMP-TD	0.739		
	HRMP-CDO	0.862		
	HRMP-WLB	0.605		
LMX	LMX1	0.686	0.65	0.92
	LMX2	0.864		
	LMX4	0.782		
	LMX5	0.775		
	LMX6	0.877		
	LMX7	0.834		
WE	WE-Vgr_L	0.810	0.77	0.91
	WE-Ded	0.938		
	W-Abs	0.881		
PS	PS-Con_L	0.730	0.53	0.85
	PS-Extra	0.726		
	PS-Agree	0.628		
	PS-Open	0.774		
	PS-Neu	0.803		

Table 4.16 shows the Average Variance Extracted (AVE) and the Composite Reliability (CR) value for all model constructs. The analysis shows that the AVE is ranged between 0.52 to 0.77. It means all constructs meet the requirement for convergent validity. In addition, the CR values for all constructs vary from 0.83 to 0.92. It means all constructs have a good reliability value.

In the last steps of the Measurement Model, the study assessed the discriminant validity of constructs to clarify that they are not redundant to each other. The discriminant validity for the construct is achieved if the model's independent variable's correlation does not exceed 0.85 (Fornel & Larker, 1981, Awang, 2015). The study also developed the Discriminant Validity Index summary for all constructs involved in the model to ensure that they are discriminant among each other. The AVE values (in bold) are shown in the Discriminant Validity Index Summary Table (see Table 4.17).

Table 4.17: The Discriminant Validity Index Summary

Construct	JP	HRMP	LMX	WE	PS
JP	**.51**				
HRMP	.150	**.60**			
LMX	.013	.595***	**.64**		
WE	.301***	.501***	.420***	**0.80**	
PS	.392***	.329***	.406***	.704***	**0.54**

Notes: JP= job performance; HRMP= HRM practices; LMX= LMX, WE= work engagement; PS= personality.

Overall, the discussion in this section provides evidence to support the validity and reliability of the measurement model. The final measurement model fits relatively well and

meets the requirements of several fit indices. Subsequently, it is now opportune to examine the structural model to test the hypotheses of this study.

4.5.2 Structural Model

4.5.2.1 The Structural Model Validity

A structural model has been defined by Hair and colleagues (2010) as a transition of the measurement model to a structural model that is strictly based on a theory with a set of structural equations. In other words, the hypothesised relationships will be empirically investigated by assigning which constructs (variables) are believed to be critical factors that influence the endogenous construct (variable).

Following the measurement model validity confirmation, the structural model is specified by assigning relationships from one construct to another based on the conceptual framework developed in previous chapter (Chapter Two). Table 4.18 shows the hypotheses proposed in this study.

Table 4.18: Underlying Hypotheses

Hypothesis Statement		Hypotheses
H1	HRM Practices → Job Performance	HRM practices are positively and significantly related to job performance.
H2	HRM Practices → Work Engagement	HRM practices are positively and significantly related to work engagement.
H3	HRM Practices → Personality	HRM practices are positively and significantly related to personality.
H4	LMX → Job Performance	LMX is positively and significantly related to job performance.
H5	LMX → Work Engagement	LMX is positively and significantly related to work engagement.
H6	LMX → Personality	LMX is positively and significantly related to personality.

H7	Work Engagement → Job Performance	Work engagement is positively and significantly related to job performance.
H8	Personality → Job Performance	Personality is positively and significantly related to job performance.
H9	HRM Practices → Work Engagement → Job Performance	Work engagement will mediate the relationship of HRM practices and job performance.
H10	HRM Practices → Work Engagement → Job Performance	Work engagement will mediate the relationship between LMX and job performance.
H11	HRM Practices → Personality →Job Performance	Personality will mediate the relationship of HRM practices and job performance.
H12	LMX → Personality → Job Performance	Personality will mediate the relationship between LMX and job performance.

The structural model was assessed by examining three issues. First, the structural model should satisfy the goodness-of-fit based on the same fit indices as applied earlier in assessing the measurement model (Anderson & Gerbing, 1988; Kline, 2005). Second, the effect of individual exogenous variables on the endogenous variable was carefully examined once the hypothesised model was confirmed. Finally, the multiple correlations were examined to determine the proportion of variance explained by the exogenous constructs in the theoretical model (Hair et al., 2010). Figure 4.8 shows the Structural Model.

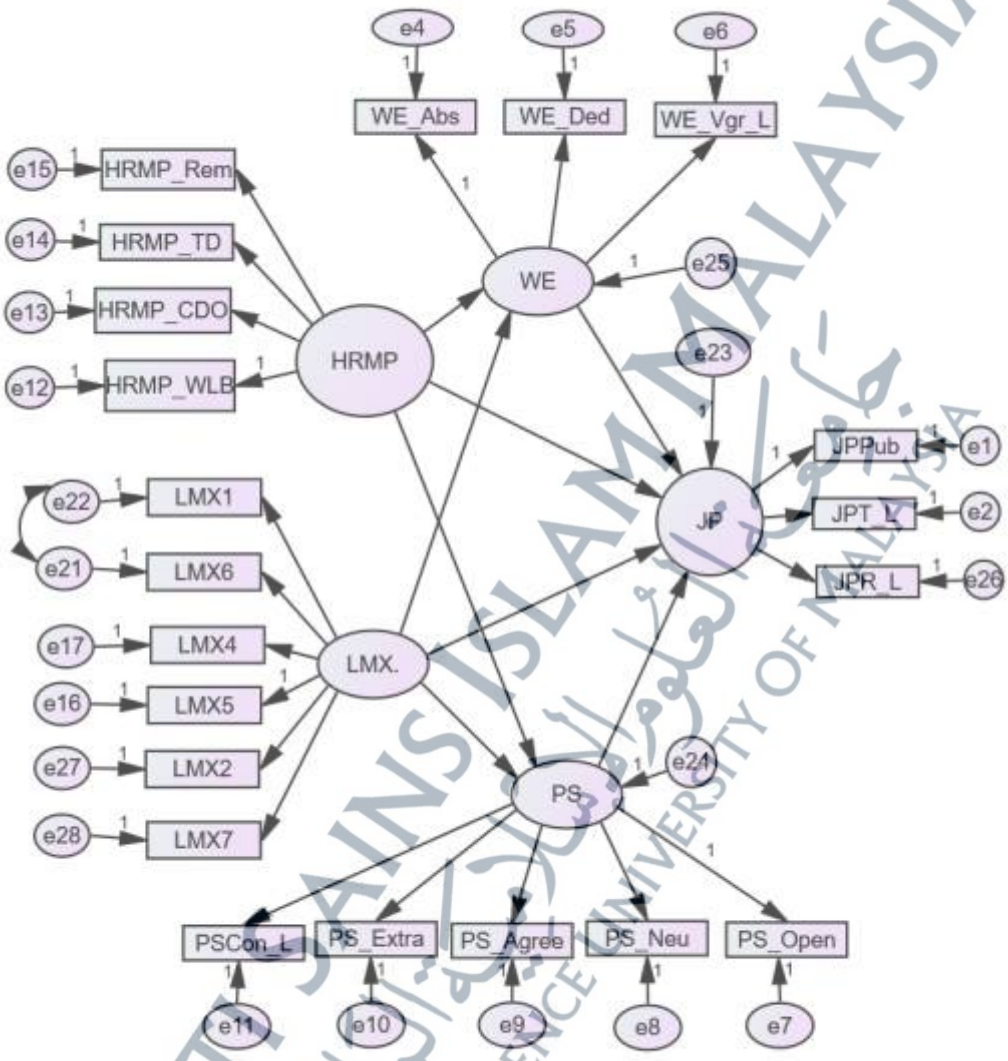


Figure 4.8: The Structural Model

4.5.2.2 Evaluation of Goodness of Fit Indices for Hypothesised Model

The structural model's overall goodness of fit was evaluated using the same set of fit indices explained earlier to evaluate the measurement model. Table 4.19 reports the goodness of fit indices for the Structural Model:

Table 4.19: The Fitness Indices for Structural Model

Name of category	Name of indice	Indice value	Comments
1. Absolute fit	RMSEA	0.10	The required level achieved
2. Incremental fit	CFI	0.84	The required level achieved
3. Parsimonious fit	Chisq/df	3.76	The required level achieved

Based on the results in Table 4.19, the structural model fits the data adequately ($\chi 2$ /df = 3.76; CFI = 0.84; RMSEA= 0.10). It is due to the value for $\chi 2$ /df is smaller than 5.0, and the CFI achieved the required fitness level. Although the RMSEA value is 0.10, several researchers regard this value as acceptable (Hu & Bentler, 1999; Brown & Cudeck, 1993). As all the fit indices suggest a good fit between the structural model and the data, no modification was attempted (Tabachnick & Fidell, 2007).

4.5.2.3 Structural Parameter Estimates for Structural Model

Next, the proposed hypotheses were examined by looking at the significance, signs and magnitude of the estimated coefficients to determine the influence of a particular exogenous on its endogenous construct. The size of the influence of every exogenous construct in the structural model is summarised in Table 4.20.

Table 4.20: The Regression Path Coefficients and Their Significance Based on P-Value < 0.05

Constructs				Estimate	S.E	Beta	C.R	P	Result
H1	JP	<---	HRMP	.182	.200	.10	.916	.360	Not Significant
H2	WE	<---	HRMP	.700	.146	.40	4.800	***	Significant
H3	PS	<---	HRMP	.292	.130	.19	2.238	.025	Significant
H4	JP	<---	LMX	-.197	.083	-.25	-2.370	.018	Significant
H5	WE	<---	LMX	.194	.058	.25	3.353	***	Significant
H6	PS	<---	LMX	.234	.057	.34	4.088	***	Significant
H7	JP	<---	WE	.118	.115	.12	1.033	.302	Not Significant
H8	JP	<---	PS	.428	.135	.37	3.162	.002	Significant

Note 1: JP= job performance; HRMP= HRM practices; LMX= LMX, WE= work engagement; PS= personality.
Note 2: Significant level: p<0.05
The critical value indicates the significant level of factor loading. The minimum critical ratio value of 1.960 is required for the factor loading to be significant (Byrne, 2010)

Table 4.20 shows two paths that are not significant. First, the path HRM practices (HRMP) to job performance (JP). Second, the path work engagement (WE) to job performance (JP). The other paths are all significant.

H1: HRM practices are positively and significantly related to job performance.

The result reveals that HRM practices fail to contribute significantly toward job performance (p= 0.360, p > 0.05) with a path coefficient of β=0.10. This result suggests that HRM practices in Islamic university colleges do not influence the academic staff's job performance. Thus, hypothesis 1 is rejected.

H2: HRM practices are positively and significantly related to work engagement.

The second hypothesis is to test the influence of HRM practices on work engagement. The result shows a significant influence ($p<0.001$) with a path coefficient of $\beta=0.40$. Thus, Hypothesis 2 is supported. This result suggests that good HRM practices in Islamic university colleges are able to increase the work engagement of academic staff.

H3: HRM practices are positively and significantly related to personality.

Similarly, Hypothesis 3, which assumes the HRM practices are positively and significantly related to personality, is also accepted. The influence is significant ($p<0.05$) with the path coefficient of $\beta=0.19$. This result confirms that the HRM practices have an influence on the academic staff's personality.

H4: LMX is positively and significantly related to job performance.

The result of Hypothesis 4 reveals that LMX is significantly ($p<0.05$) related to academic staff job performance. Thus, hypothesis 4 is supported. However, the relationship is in the negative direction ($\beta= -0.25$). It means that high LMX will decrease the academic staff job performance. On the other hand, low LMX will increase the academic staff job performance.

H5: LMX is positively and significantly related to work engagement.

Hypothesis 5 examines the influence of LMX on the work engagement of academic staff in Islamic university colleges. The analysis results indicate that the LMX significantly influences work engagement with a path coefficient of $\beta= 0.25$ ($p<0.001$). Therefore, Hypothesis 5 is supported.

H6: LMX is positively and significantly related to personality.

A similar finding is documented for Hypothesis 6, which states that LMX is positively and significantly related to personality. The direct path from LMX to the personality of academic staff is positive and significant ($\beta = 0.34$, $p < 0.05$). Therefore, the Hypothesis 6 is also supported.

H7: Work engagement is positively and significantly related to job performance.

Hypothesis 7 predicts that the academic staff's work engagement will have an influence on their job performance. However, this hypothesis is not supported, as the direct path of work engagement to job performance is positive but statistically not significant ($\beta = 0.12$, $p > 0.05$). It means that work engagement does not influence job performance.

H8: Personality is positively and significantly related to job performance.

Hypothesis 8 indicates that the personality will positively and significantly relates to job performance. The result shows that the relationship between these two variables is significant ($p < 0.05$) with path coefficient $\beta = 0.37$. This result suggests that the personality of academic staff in Islamic university colleges has an influence on their job performance. Hence, the Hypothesis 8 was supported.

Table 4.21: Summary of Results of Hypothesis 1 to Hypothesis 8 (Direct Path Coefficient)

Hypotheses		Results
H1	HRM practices are positively and significantly related to job performance.	Not supported
H2	HRM practices are positively and significantly related to work engagement.	Supported
H3	HRM practices are positively and significantly related to personality.	Supported
H4	LMX is positively and significantly related to job performance.	Supported
H5	LMX is positively and significantly related to work engagement.	Supported
H6	LMX is positively and significantly related to personality.	Supported
H7	Work engagement is positively and significantly related to job performance.	Not supported
H8	Personality is positively and significantly related to job performance.	Supported

In summary, the analysis results provide support to six hypotheses for the direct path coefficient. In addition, among all variables, HRM practices have been found to have the most substantial influence on work engagement ($\beta=0.40$, $P<0.05$), followed by personality towards job performance ($\beta= 0.37$, $p<0.05$) and LMX to personality ($\beta =0.348$, $p<0.05$). This study also reveals that LMX has a negative relationship but significantly influences personality ($\beta= -0.25$, $p <0.05$). However, this does not happen to hypothesis 1 and hypothesis 7, which indicate that HRM practices fail to contribute significantly toward job performance ($\beta=0.10$, $p > 0.05$) and work engagement to job performance is positive but statistically not significant ($\beta=0.12$, $p > 0.05$).

4.5.3 Mediation Analysis

One of the criteria used for evaluating the structural model is the coefficient of determination (R^2) of endogenous latent variables (Hair et al., 2014; Hair et al., 2011,2012; Henseler et al., 2009). The *R*-squared value symbolises the proportion of variation in the endogenous latent variables that can be explained by one or more predictor variables (Elliott & Woodward, 2007; Hair et al., 2010; Hair et al., 2006).

The satisfactory level of R^2 value depends on the study context and area (Hair et al., 2010). Falk and Miller (1992) recommend an R^2 value of .10 as a minimum satisfactory level. According to Cohen (1988), the R^2 values of 0.10 to 0.29 show weak, 0.30 to 0.49 show moderate and 0.50 to 1.00 show strong R^2 values, respectively. Table 4.22 shows, the R^2 value for work engagement is 0.49, the R^2 value for personality is 0.43, and the R^2 value for job performance is 0.54.

Table 4.22: Coefficient of Determination for Mediation Relationships: R-Squared (*n*=260)

Latent Variables	**Variance Explained (R^2)**
Job performance	54%
Work Engagement	49%
Personality	43%

4.5.3.1 Analysing the Mediating Variable

H9: Work Engagement will mediate the relationship between HRM practices and job performance.

In this case, work engagement acts as a mediating variable, where HRM practices (HRMP) will influence work engagement (WE), and work engagement (WE) will impact job performance (JP). In previous Table 4.20, it was found that the path of HRM practices (HRMP) does not influence job performance (JP) (β=0.10, p>0.05), and the value of the path of work engagement (WE) does not influence job performance (JP) (β=0.12, p>0.05). Because the value of the work engagement (WE) path does not influence job performance, it does not meet the conditions for a run mediating effect. Therefore, H9 is not supported.

H10: Work Engagement will mediate the relationship between LMX and job performance.

Hypothesis 10 argues that Work engagement (WE) will act as a mediating variable, where the LMX will influence work engagement (WE), and then work engagement (WE) will influence job performance (JP). In the previous Table 4.20, it was found that the path of LMX influences job performance (JP) (β= -0.25, p<0.05). However, the value of the path of work engagement (WE) does not influence job performance (JP) (β=0.12, p>0.05). Because the value of the work engagement (WE) path does not influence job performance, it does not meet the conditions for a run mediating effect. Therefore, H10 is not supported.

H11: Personality will mediate the relationship between HRM practices and job performance

Hypothesis 11 argues that the personality (PS) acts as a mediating variable, where the HRM practices (HRMP) will influence personality (PS), and personality (PS) will influence job performance. Table 4.20 shows that the two path values of the HRM practices

(HRMP) on personality (PS) (β=0.19) and personality (PS) towards job performance (JP) (β=0.37) are significant at p <0.05. However, the path coefficient of HRM practices (HRMP) does not influence job performance (JP) (β=0.10; p>0.05). Therefore, the Hypothesis 11 was not supported.

H12: Personality will mediate the relationship between LMX and job performance.

Hypothesis 12 argues that Personality (PS) acts as a mediating variable, where the LMX will influence the personality (PS), and the personality (PS) will influence job performance (JP). Table 4.20 shows that all path values are positive and significant at p<0.05 for all three variables. Therefore, the initial conclusion that can be drawn is that the tested model supports Hypothesis 12.

Furthermore, to ensure mediation in the above relationship, the researcher has applied the method introduced by Baron and Kenny (1986). Three steps of testing were performed. First, regression was done on the value of the influence of LMX on personality (PS). The regression coefficient value obtained was β=0.34, which is significant at p<0.05. Second, the regression coefficient value (β= 0.37) between the mediating variable of personality (PS) and job performance (JP) was also significant. Third, the influence value of the regression coefficient between LMX and job performance (JP) has decreased from β=0.34 to β= -0.25 (significant at p<0.05) after the personality (PS) variable is included in the model. With this, it can be concluded that there has been partial mediation of personality (PS) in the relationship between the LMX and job performance (JP).

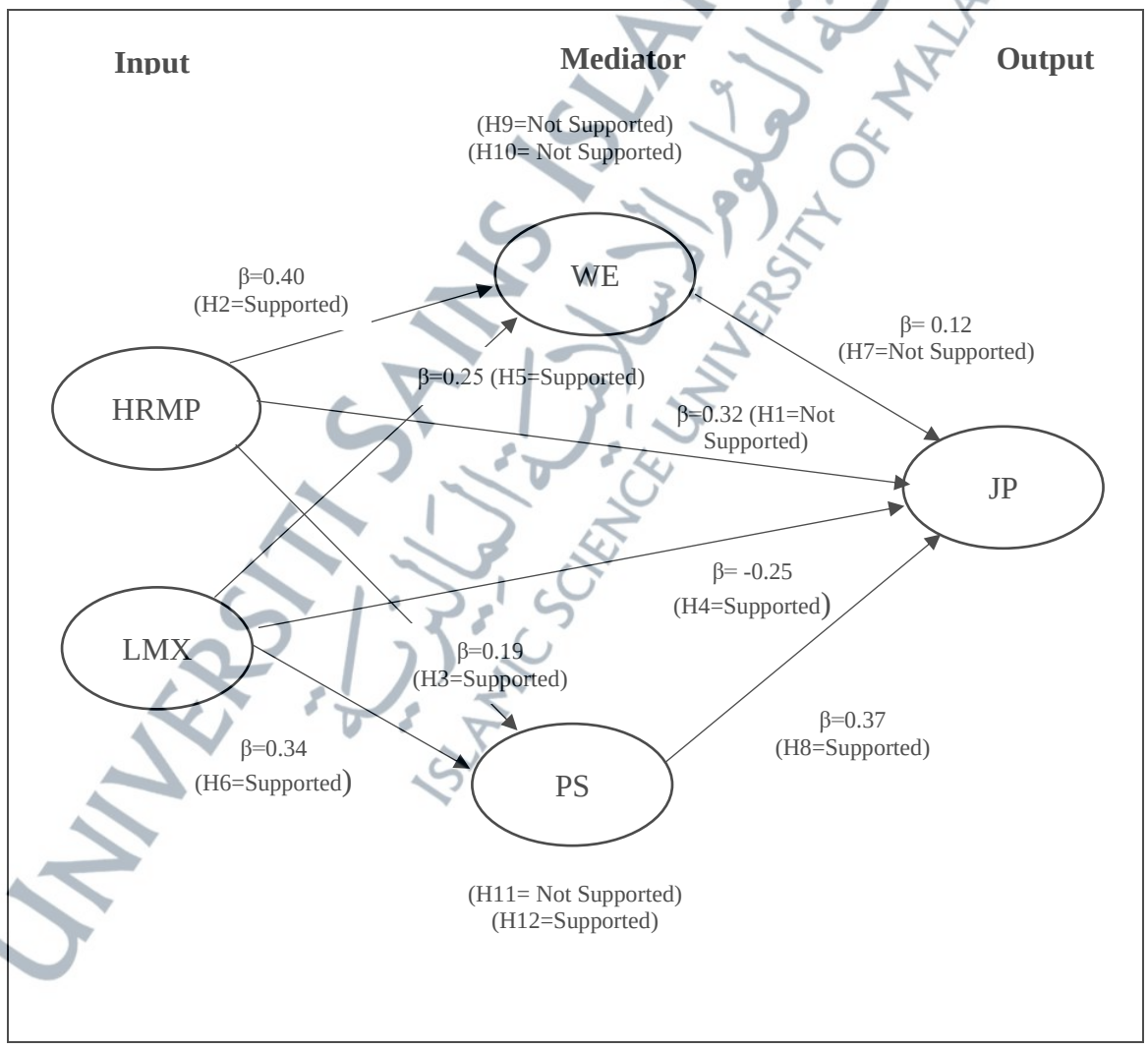
4.6 Summary of Results

Table 4.23 and Figure 4.9 show the summary of analysis results. The structural model analysis results indicate that seven hypotheses were supported and only five hypotheses were not supported.

Table 4.23: Summary of Analysis Results

Hypothesis Statement		Analysis Result	Findings
H1	HRM practices are positively and significantly related to job performance.	Not Supported	HRM practices are positively but not significantly related to job performance.
H2	HRM practices are positively and significantly related to work engagement.	Supported	HRM practices are positively and significantly related to work engagement.
H3	HRM practices are positively and significantly related to personality.	Supported	HRM practices are positively and significantly related to personality.
H4	LMX is positively and significantly related to job performance.	Supported	LMX is not positively but significantly related to job performance.
H5	LMX is positively and significantly related to work engagement.	Supported	LMX is positively and significantly related to work engagement.
H6	LMX is positively and significantly related to personality.	Supported	LMX is positively and significantly related to personality.
H7	Work engagement is positively and significantly related to job performance	Not Supported	Work engagement is positively but not significantly related to job performance
H8	Personality is positively and significantly related to job performance.	Supported	Personality is positively and significantly related to job performance.
H9	Work engagement will mediate the relationship between HRM practices and job performance.	Not Supported	The relationship between HRM practices and work engagement is significant, but the relationship between work engagement and job performance is not significant.

H10	Work engagement will mediate the relationship between LMX and job performance.	Not Supported	The relationship between LMX practices and work engagement is significant, but the relationship between work engagement and job performance is not significant.
H11	Personality will mediate the relationship between HRM practices and job performance	Not Supported	The relationship between HRM practices and personality is significant, but the relationship between HRM practices and job performance is not significant.
H12	Personality will mediate the relationship between LMX and job performance	Supported (Partial Mediation)	Personality partially mediates the relationship between LMX and job performance



Notes: JP= Job Performance; HRMP= HRM practices; LMX= LMX, WE= Work Engagement; PS= Personality.
Significant level= $p<0.05$

Figure 4.9: The Results of the Structural Model

4.7 Chapter Summary

This chapter presents the results of data analysis. The findings of this analysis confirm the validity of the constructs used in this study. The structural model analysis results indicate that the data support seven of the twelve hypotheses tested. The results further suggest that HRM practices have an important role as a predictor of work engagement and personality but are not a predictor of job performance. The data strongly support the proposed relationship between LMX, personality, and job performance. In addition, the data do not support the proposed relationship between work engagement and job performance, but the relationship between personality and job performance is statistically supported. The data does not support the proposed work engagement as a mediator in the relationship between HRM practices, LMX and job performance. The results also indicate that personality does not mediates the relationship between HRM practices and job performance, but it partially mediates the relationship between LMX and job performance. A detailed discussion of the findings of this chapter is provided in the next chapter (Chapter 5).