

## **CHAPTER FOUR**

### **RESULTS AND DATA ANALYSIS**

This chapter presents the findings of the analyses stated in Chapter 3. Firstly, after assuring that the data carries no missing information and is free from outliers, the descriptive statistics comprising the respondents' demographic information are reported. Secondly, the means, standard deviations, correlations and reliabilities for the measures proposed for this study are presented. Thirdly, before conducting the confirmatory factor analyses (CFA), the loadings from the exploratory factor analysis (EFA), coefficients on inter item correlation (ITC) and corrected item total correlation (CITC) are discussed. In the process of refining the measurement model in CFA, the researcher removed some items with a lower factor loading and deleted some constructs that could not support the construct validity among other constructs in the model. Finally, the structural model linking the significant paths is identified. A model respecification is done with theoretical support and baseline model, as proposed by the researcher is compared with nested and competing models. Last but not least, the output from chi-square distribution accounts for the association of respondents' demographic factors and their turnover intention.

#### **4.1 Descriptive Statistics**

Out of the 85 five-star hotels identified from the membership directory of the Malaysian Association of Hotels (MAH), 40 hotels from 13 states in Malaysia agreed to allow their employees to take part in this study. Since the majority of the hotels expressed their concerns that they do not want external parties to make any unwarranted inferences from responses given by their employees, the researcher does

not provide the exact names of hotels which participated in this study. As such, all responses are kept private and confidential, and are used for academic purposes only.

A total of 768 sets of questionnaire were distributed but only 514 sets were returned. These matched questionnaires were completed by 514 subordinates and 183 supervisors, yielding a response rate of 67% and 73% respectively. On average, the supervisors evaluated OCB on three subordinates each, who work in the same department.

Before running any analysis, the researcher checked on missing data by conducting descriptive analysis. Severe missing data was detected on 36 respondents where more than 10% of the questions were either not answered or misleading due to multiple answers given. These 36 respondents were eliminated.

To fulfil the normality assumption before working on the multivariate analysis, the researcher detected outliers through the Mahalanobis distance analysis. A total of 34 observations were found to have fallen beyond the percentile of 120<sup>th</sup> and have therefore been removed. Subsequently, only 444 respondents were retained for analysis. The characteristics of the respondents who participated in this study are presented in Table 4.1.

Out of these 444 subordinates, 207 are male and 237 are female. The majority of these subordinates are Malay (45.9%), followed by Chinese (30%), Indian (11.7%) and the rest (12.4%) identified themselves as “others”. This group of subordinates who identified themselves as “others” could be Kadazan, Iban, Bajau and such, more so if they originate from Sabah and Sarawak.

A total of 61% of these subordinates are single and 39% declared themselves as “married”. The majority of them (67.1%) are still young, in the range of below 25 to 30

years of age, and most of them have completed their education at secondary and diploma levels (81.6%).

Table 4.1 Characteristics of Respondents (N = 444)

		Frequency	Percentage
<b>Gender</b>	Male	207	46.6
	Female	237	53.4
<b>Race</b>	Malay	204	45.9
	Chinese	133	30.0
	Indian	52	11.7
	Others	55	12.4
<b>Marital Status</b>	Single	271	61.0
	Married	173	39.0
<b>Age</b>	Below 25 years old	140	31.5
	25 – 30 years old	158	35.6
	31 – 35 years old	77	17.3
	36 – 40 years old	32	7.2
	41 – 45 years old	19	4.3
	46 – 50 years old	10	2.3
	51 – 55 years old	4	0.9
	Above 55 years old	4	0.9
<b>Academic Qualification</b>	Primary level	12	2.7
	Secondary level	189	42.6
	Diploma	173	39.0
	Bachelor degree	66	14.9
	Master degree	2	0.5
	Doctorate degree	0	0.0
	Others	2	0.5
<b>Department you work in</b>	Front office	138	31.1
	Housekeeping and Maintenance	90	20.3
	Food and Beverages	119	26.8
	Banqueting/Conference	24	5.4
	Others	73	16.4
<b>Number of years working</b>	2 – 3 years	131	29.5
	4 – 5 years	180	40.5
	6 – 7 years	65	14.6
	8 – 9 years	36	8.1
	10 – 11 years	20	4.5
	12 – 13 years	7	1.6
	More than 13 years	5	1.1

Table 4.1, continued

		Frequency	Percentage
<b>Monthly income</b>	Less than RM1,000	102	23.0
	RM1,001 – RM2,000	222	50.0
	RM2,001 – RM3,000	99	22.3
	RM3,001 – RM4,000	18	4.1
	RM4,001 – RM5,000	3	0.7
	More than RM5,000	0	0.0
<b>Location of hotel</b>	Kedah	33	7.4
	Penang	29	6.5
	Kuala Lumpur	185	41.7
	Selangor	29	6.5
	Putrajaya	14	3.2
	Negeri Sembilan	12	2.7
	Malacca	13	2.9
	Johore	42	9.5
	Kelantan	15	3.4
	Terengganu	12	2.7
	Pahang	14	3.2
	Sarawak	10	2.3
	Sabah	36	8.1

It is interesting to find that two respondents identified themselves as Master degree holders. This may be attributed to the nature of the hotel operation whereby one needs to be trained and be rotated on all the jobs in the various departments (front office, housekeeping, food and beverage, banqueting and conference, etc) before being promoted to a managerial post. None of the subordinates hold a doctorate degree but two respondents reported themselves as having attained “other” academic qualification, apart from those stated in the questionnaire. These two respondents might have attained certification for informal education or training through workshops or seminars.

The list on various job titles held by these subordinates is compiled in Appendix G. Some (41.2%), however, did not reveal their posts. Most of the subordinates (31.1%), who were selected on a random basis, work in the front office division holding the posts of receptionist, guest relation officer, reservation agents, and such.

This is followed by those working in the food and beverages division (26.8%), taking charge as a waiter, chef, server, captain; the housekeeping and maintenance division (20.3%), playing the role of housekeeping attendant, gardener, room valet, etc; and the banqueting/ conference division (5.4%). The rests (16.4%) reported themselves as working in “others” department. This may include the security division, sales and marketing division and any other division which is not specified in the survey.

With regards to the employment tenure, majority of them (70%) have worked in the hotels between two to five years and only 7.1% have worked for more than ten years. Lastly, 23% of the respondents earn less than RM1,000 monthly and the remaining (50%) earn between RM1,001 to RM2,000 monthly. Based on these statistics, one may conclude that in Malaysia, frontline employees who have worked between two to five years earn at least RM2,000 per month. And for those who have worked more than thirteen years, there is a possibility that he or she might be earning more than RM4,000.

Lastly, since data was collected from all the states in Malaysia except for Perak and Perlis, in which there is no registered five-star hotels and Labuan where none of the hotels agreed to participate, these subordinates work dispersedly in the following states: Kedah (7.4%), Penang (6.5%), Kuala Lumpur (41.7%), Selangor (6.5%), Putrajaya (3.2%), Negeri Sembilan (2.7%), Malacca (2.9%), Johore (9.5%), Kelantan (3.4%), Terengganu (2.7%), Pahang (3.2%), Sarawak (2.3%) and Sabah (8.1%). Kuala Lumpur recorded the highest number of respondents (41.7%). This is somehow expected because being the capital of the country, Kuala Lumpur has the highest number of registered five-star hotels (Table 1.1). Out of these 22 hotels in Kuala Lumpur, 15 hotels participated in this study, resulting in the highest response rate of 68%.

## 4.2 Exploratory Factor Analysis, Inter-item Correlation and Item-total

### Correlation

Due to the limitations associated with Cronbach alpha where it tends to fluctuate with the sample size and inflate when a scale consisting of a large number of items (Gerbing & Anderson, 1988), the researcher further explored the relatedness among the items through the analysis of inter-item correlation (ITC) and item-total correlation (CITC). Additionally, loadings of all items were examined through the exploratory factor analysis (EFA). As suggested by Hair et al. (2006), the cut-off values for ITC and CITC should exceed 0.30 and 0.50 respectively.

For exploratory factor analysis, although a loading of 0.50 is preferred for all items in this study, the cut-off value of 0.30 can be accepted as significant depending on the model complexity (Kim and Muller, 1978; Hair et al., 2006).

Appendix H listed the factor loadings for all the measures in this study. Taking 0.30 as the cut-off point, nine items are found to have loaded poorly on their respective factors. These items are PE1, PB4, DM4, PJ6, IJ6, L7, OCBI1, OCBI4 and OCBO7. Before eliminating these nine items and to justify for such elimination, the researcher took a further step to check on the coefficients of ITC and CITC for all the measures.

As expected, all items except for the nine items which loaded poorly in EFA, achieved the minimum requirement of 0.30 for ITC and 0.50 for CITC (Appendix I). Specifically, apart from the poor loading of 0.11 in EFA, the first item of performance evaluation (PE1) reported ITC of less than 0.30 and CITC of only 0.207. The elimination of this first item would increase the Cronbach alpha from 0.643 to 0.744. Secondly, two constructs of performance-based pay (PB1 and PB4) have low ITC and non-satisfactory CITC but the Cronbach alpha for this construct exceeds 0.70. In view

of this, the researcher decided to eliminate only one of the items because according to Hair et al. (2006), a good structural model should contain constructs which consist of at least three items. Thus, PB1 which has a loading of more than 0.30 should be retained. For the last construct of participation in decision making, DM4 appears to have loaded very poorly on its factor (0.177) and similarly, this item reports ITC in the range of 0.10 which is not acceptable and its CITC of 0.114 is far below the required cut-off value. The elimination of such item would increase its Cronbach alpha significantly from 0.564 to 0.668. Items on internal mobility seem to have loaded well on its factor with all items achieving a cut-off value of more than 0.30. However, ITC and CITC for this construct are far below the expected values. No decision was made to discard this construct at this stage but these values suggested that the “internal mobility” construct is lacking convergent and discriminant validity.

For the three constructs measuring perceived organizational justice at the workplace, the last items of both procedural and interaction justice (PJ6 and IJ6) appeared to be poor in terms of their loadings, ITC and CITC. The removal of these two items would lead to increases in Cronbach alpha, from 0.735 to 0.834 for the procedural justice and 0.564 to 0.705 for the interactional justice. The last item of LMX construct, L7 loads poorly on its factor, but both L2 and L7 have ITC lower than 0.30 and CITC less than 0.50. The removal of L2 would increase the reliability of this construct significantly. As for the constructs of OCB, two items, OCBI1 and OCBI7 loaded poorly on the factor and the removal of such items are supported by low values found in ITC and CITC, which fail to meet the required cut-off points.

Lastly, the fourth construct of OCBO, which has a loading of 0.205, ITC in the range of 0.20 and CITC of 0.341, could be removed. Finally, it is worth noting that the construct of high involvement HR practices, which is made up of selective staffing,

extensive training, performance evaluation, performance-based pay, participation in decision making and internal mobility, has an acceptable Cronbach alpha of 0.678. However, two constructs, namely selective staffing and internal mobility provide rather low ITC (less than 0.30) and unacceptable CITC. As it may be too early to eliminate the whole of these two constructs at this stage, the researcher considered these coefficients as an indicator of preliminary evidence on poor loadings. In other words, the respondents in this study somehow disagreed over the incorporation of selective staffing and internal mobility as part of the bundles for high involvement HR practices.

A confirmatory factor analysis (CFA) was conducted to examine the construct validity on the proposed model which includes all of the 75 items (before elimination of the nine items) and the fit obtained is unacceptable ( $\chi^2 = 5714.01$ ,  $\chi^2/df = 2.157$ , p-value = 0.000, TFI = 0.782, CFI = 0.792 and RMSEA = 0.051), as shown in Appendix J. Consistent with the loadings given in EFA, standardized loadings found in CFA for the nine items are lower than 0.50 and these items hold particularly high values in modification indices, another justification for the items to be eliminated. The construct of internal mobility and decision making are also insignificant where the standardized regression weights are less than the expected value, 0.50. Therefore, based on the poor loadings in EFA and the supporting evidence of non-satisfactory values from ITC and CITC, and poor loadings in CFA as well as high modification indices, the researcher decided to remove these nine items, namely PE1, PB4, DM4, PJ6, IJ6, L7, OCBI1, OCBI4 and OCBO7.

Upon eliminating these nine items, the model fit improved significantly ( $\chi^2 = 3700.37$ ,  $\chi^2/df = 1.825$ , p-value = 0.000, TFI = 0.863, CFI = 0.871 and RMSEA = 0.043), as shown in Appendix K. Although CFI and TFI failed to exceed 0.90 (Hu and Bentler, 1999),  $\chi^2$  decreases drastically after the removals and  $\chi^2/df$  of less than 2 as



well as RMSEA of less than 0.50 provide good evidence of model fit (Byrne, 2001). Consistently, Cronbach alpha for the constructs improved tremendously after the researcher removed these items.

### **4.3 Means, Standard Deviations, Correlations and Reliabilities**

Table 4.2 reported the means, standard deviations, correlations and reliabilities for the measures after eliminating the items suggested by exploratory factor analysis, ITC and CITC. Of all the measures, the performance evaluation has the highest mean (5.39) and the turnover intention has the lowest mean (3.55). The correlation coefficients which described the significance and strength of relationship among the constructs are well-reflected in the same table. Interestingly, Table 4.2 showed a higher mean for OCBO (5.05) than OCBI (4.92). This implies that, the respondents who participated in this study exhibited OCB that are directed to benefit organization as a whole more than to benefit specific individuals. To ensure there is an internal consistency among the items shown in the summated scale, the reliabilities for all the constructs are measured through Cronbach alpha (Nunnally, 1978). To be considered as reliable, these measures should hold an alpha coefficient in the range of 0.60, beyond 0.70 (Nunnally, 1978; Churchill, 1991; Litwin, 1995) or exceeding 0.50 (George & Mallery, 2003). All measures in this study have high reliabilities above 0.60 except for internal mobility ( $\alpha = 0.531$ ) and leader-member exchange ( $\alpha = 0.554$ ).

Table 4.2 Means, standard deviations, correlations and reliabilities

	Mean	Std. Deviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Selective staffing	5.24	1.04	(0.78)															
Extensive training	5.16	0.88	.142*	(0.74)														
Performance evaluation	5.39	0.98	.260**	.232**	(0.74)													
Performance-based pay	5.04	1.00	.251**	.452**	.404**	(0.64)												
Decision making	4.98	0.95	.193**	.441**	.339**	.556**	(0.67)											
Internal Mobility	4.28	0.93	.143**	.038	.104*	.040	.099*	(0.53)										
High involvement	4.99	0.57	.600**	.607**	.598**	.698**	.688**	.406**	(0.68)									
HR philosophy	4.80	0.90	.207**	-.028	.068	.046	.167**	.063	.159**	(0.84)								
Procedural justice	4.79	0.94	.202**	-.010	.033	.041	.157**	.252**	.209**	.445**	(0.83)							
Distributive justice	5.25	0.84	.168**	-.030	.080	.058	.115*	.075	.152**	.485**	.306**	(0.85)						
Interactional justice	4.30	1.22	-.035	-.135**	.121*	-.061	.023	-.045	-.049	-.103*	-.068	-.349**	(0.71)					
Leader-member exchange	4.74	0.66	.310**	.008	.186**	.162**	.292**	.325**	.374**	.391**	.456**	.306**	-.022	(0.54)				
Trust in supervisor	5.07	0.99	.201**	-.016	.023	.032	.171**	.202**	.192**	.680**	.548**	.372**	-.049	.430**	(0.87)			
OCB-Individual	4.92	0.88	.265**	.015	.120*	.105*	.120*	.158**	.237**	.352**	.399**	.339**	-.131**	.384**	.371**	(0.73)		
OCB-Organization	5.05	0.89	.210**	-.027	.088	.071	.186**	.196**	.229**	.702**	.605**	.483**	-.058	.517**	.768**	.466**	(0.86)	
Turnover intention	3.55	1.51	-.100*	-.025	.051	-.021	-.052	-.145**	-.092	-.101*	-.207**	-.110*	.086	-.217**	-.218**	-.104*	-.232**	(0.86)

\*\* Correlation is significant at the 0.01 level (2-tailed)

\*Correlation is significant at the 0.05 level (2 tailed)

Cronbach alpha is presented in the parentheses.

#### 4.4 Confirmatory Factor Analysis: Measurement Model

The removal of nine items resulted in a measurement model of mediocre fit ( $\chi^2=3700.37$ ,  $\chi^2/df = 1.825$ , p-value = 0.000, TFI = 0.863, CFI = 0.871 and RMSEA = 0.043), as seen in Appendix K. This model may be further improved by examining the standardized residuals and the modification indices. The standardized residuals (normalized) are provided by the AMOS programme and represented the differences between the observed correlation/covariance. Generally, residuals with values larger than 2.58 in absolute terms are considered statistically significant at the 0.05 level (Hair et al., 2006). Modification index (MI) is calculated for each non estimated relationship and can be relied upon in deciding which parameters should be retained or discarded from the model. Typically, a small modification indices of approximately 0.40 provided insignificant improvement in model fit relative to the loss of degree of freedom from estimating the additional parameter (Anderson, 1987; Koufteros, 1999). Although this rules of thumb should be adhered to while refining the measurement model, these are guides for usage, not rules that can guarantee a correct model because model complexity should be a factor that one should never overlook.

Similarly, Hair et al. (2006) cautioned scholars against relying on the magical values of 0.90 for key indices such as GFI, AGFI, TLI, CFI or NFI, for achieving model fit. The ultimate objective of structural equation modeling (SEM) is not to get a good fit but to test a theory. Therefore, while achieving a 0.90 cut-off value may signify a degree of fitness for the proposed model, such fit indices should be better utilized to assist a researcher in differentiating between acceptable and unacceptable specified models (Hair et al., 2006). In other words, one should not distinguish good models from bad ones through the interpretation of 'magic 0.90' values on fit indices. It is certainly not practical to conclude a single set of cut-off point for all types of SEM models, at the

expense of weighting the number of constructs in the model, items representing each construct, a degree of complexity, the nature of model (recursive or non-recursive) and such.

Based on Appendix K, the researcher revisited two constructs with poor loadings which needs to be addressed. Apparently, internal mobility and selective staffing failed to load satisfactorily on high involvement HR practices. This is evident in the analyses of ITC and CITC, and poor loadings in CFA model, 0.122 and 0.35 respectively. The researcher attempted to retain the constructs by removing each of the items at a time from these constructs but loadings remain poor. Thus, a decision was made to remove these two constructs for subsequent analysis.

As expected, the model fit increased tremendously after the researcher excluded selective staffing and internal mobility from the framework ( $\chi^2 = 2868.07$ ,  $\chi^2/df = 1.855$ ,  $p\text{-value} = 0.000$ ,  $TFI = 0.881$ ,  $CFI = 0.889$  and  $RMSEA = 0.044$ ) (Appendix L). It can be concluded that this batch of frontline employees placed a high importance on these four HR practices: extensive training, performance evaluation, performance-based pay and participation in decision making.

In Appendix L, the modification indices showed that e44 is highly correlated with e45, reflecting a high correlation between items OCBO1 and OCBO2. The supervisors' rating on OCBO1 i.e. "This hotel staff's attendance at work is above the norm," cross loaded on OCBO2 i.e. "This hotel staff gives advance notice when he or she is unable to come to work." This implies that those who have an outstanding record of attendance often notify their supervisor in advance when they cannot turn up for work. Undoubtedly, by drawing a path correlating these two error variances, a better model fit can be achieved. However, the researcher did not hypothesize such cross loadings because such a move indirectly reflects a lack of construct validity for this

measure. Thus, instead of adding correlation path between the error variances, the researcher chose to eliminate OCBO1. Similar problems were encountered for IJ1, which despite of its poor loading, it correlates highly with IJ2; DJ5 which cross loads on OCBO5, OCBO6 and OCBO7; and L2 with a very poor loading of less than 0.50 coupled with high residual errors and a high MI. Subsequently, these four items, OCBO1, DJ5, L2 and IJ1 were removed from the proposed model.

With this final elimination, the measurement model for this study retained 54 items with acceptable model fit indices as reported in Appendix M ( $\chi^2=2252.46$ ,  $\chi^2/df = 1.696$ , p-value = 0.000, TFI = 0.908, CFI = 0.915 and RMSEA = 0.040). The loadings for all the 54 items with standardized estimates exceeding 0.50 and critical ratio (C.R.) exceeding 1.96 are listed in Appendix M, signifying the level of significance. Since the key indices of TLI and CFI achieved the cut-off of more than 0.90,  $\chi^2/df$  is less than 2, RMSEA is less than 0.05, and no more respecification of model is necessary.

#### **4.5 Convergent Validity, Construct Reliability and Discriminant Validity**

As measurement model fit (CFA) has been accomplished and before proceeding to structural model, it is necessary to ascertain the construct validity of the model. CFA must not only provide acceptable fit but also must show evidence of construct validity (Hair et al., 2006). The underlying theory proposed by the researcher through measurement model is supported only if the construct validity is well-proven.

Firstly, the convergent validity was assessed for all item measures. The analysis of the convergent validity examines if the indicators of a specific construct converge or share a high proportion of variance in common. Scholars have suggested several ways

to evaluate the convergent validity. The most common way is by determining the size of factor loadings. When standardized loading estimates are 0.50 or higher, signifying high factor loadings, this indicates that they converge on some common point. Secondly, the convergent validity can also be examined through *t*-values, represented by critical ratio produced in AMOS output. A critical ratio exceeding 1.96(+/-) indicates statistical significance (Segar, 1997; Byrne, 2001) and it concluded that there exists a relationship between the observed indicators to their respective latent factors (Bollen, 1989; Koufteros, 1999). Table 4.3 showed that all of the items have a standardized loading estimate of exceeding 0.50 and a critical ratio exceeding the threshold values of 1.96 (+/-). In other words, all items converged adequately on the respective latent constructs.

The convergent validity can also be further verified through the calculation of variance extracted (VE) and construct reliability (CR). VE is defined as “the average percentage of variation explained among the items” (Hair et al., 2006:773). This average percentage of VE among a set of construct items is a summary indicator of convergence. Generally, a VE of 0.50 or higher indicates adequate convergence. CR which measures the reliability of the items serves better as an indicator of convergent validity because Cronbach alpha appears to be less stable, and it is contingent upon sample size. Typically, factors which have high construct reliability should have CR exceeding 0.70, even though 0.60 is acceptable (Hair et al., 2006). Table 4.4 showed the VE and CR for the measures. All of the measures achieved the threshold value of 0.50 for VE except for extensive training, performance-based pay, participation in decision making, HR philosophy and OCBI. The majority of the measures reported a high construct reliability, exceeding 0.60, except for these two constructs, namely performance-based pay (0.53) and participation in decision making (0.57). Although

these constructs failed to meet the required values for VE and CR, the researcher retained them due to the satisfactory factor loadings (>0.50).

Table 4.3 Parameter estimates, critical ratios and significance value (n = 54)

			Estimate	S.E.	C.R.	P	Standardized estimate
ET	<---	HRP	1				0.661
PE	<---	HRP	0.711	0.106	6.689	***	0.527
PP	<---	HRP	0.998	0.135	7.378	***	0.909
DM	<---	HRP	1.256	0.144	8.721	***	0.935
ET2	<---	ET	1.06	0.072	14.778	***	0.875
ET1	<---	ET	1				0.745
ET4	<---	ET	0.575	0.06	9.645	***	0.495
ET3	<---	ET	0.583	0.06	9.674	***	0.496
PE4	<---	PE	1				0.678
PE3	<---	PE	1.185	0.104	11.362	***	0.807
PE2	<---	PE	0.835	0.078	10.743	***	0.64
PB1	<---	PP	1				0.517
PB3	<---	PP	1.184	0.139	8.497	***	0.604
PB2	<---	PP	1.33	0.143	9.316	***	0.756
DM1	<---	DM	1				0.686
DM3	<---	DM	0.789	0.078	10.057	***	0.591
DM2	<---	DM	0.935	0.091	10.266	***	0.606
PH4	<---	PH	1				0.588
PH1	<---	PH	1.206	0.115	10.464	***	0.616
PH3	<---	PH	1.234	0.108	11.391	***	0.694
PH2	<---	PH	1.349	0.112	12.009	***	0.752
PH5	<---	PH	1.342	0.113	11.893	***	0.741
PH6	<---	PH	1.297	0.11	11.758	***	0.728
PJ4	<---	PJ	1				0.822
PJ3	<---	PJ	0.853	0.049	17.29	***	0.767
PJ2	<---	PJ	0.802	0.066	12.231	***	0.575
PJ1	<---	PJ	0.84	0.058	14.448	***	0.662
PJ5	<---	PJ	0.91	0.054	16.861	***	0.751
DJ4	<---	DJ	1				0.649
DJ3	<---	DJ	1.24	0.087	14.216	***	0.865
DJ2	<---	DJ	1.238	0.098	12.606	***	0.717
DJ1	<---	DJ	1.171	0.09	13.032	***	0.749
IJ5	<---	IJ	1				0.701
IJ4	<---	IJ	1.228	0.075	16.265	***	0.876
IJ3	<---	IJ	1.141	0.072	15.874	***	0.841
IJ2	<---	IJ	1.006	0.076	13.234	***	0.685
L6	<---	LMX	0.987	0.085	11.619	***	0.682
L1	<---	LMX	0.651	0.076	8.551	***	0.474
L5	<---	LMX	0.934	0.081	11.534	***	0.675
L4	<---	LMX	1				0.666
L3	<---	LMX	0.931	0.084	11.13	***	0.645
TR1	<---	TR	1				0.767
TR4	<---	TR	1.027	0.059	17.507	***	0.796
TR2	<---	TR	1.007	0.055	18.302	***	0.826
TR3	<---	TR	0.949	0.054	17.451	***	0.793

Table 4.3, continued

			Estimate	S.E.	C.R.	P	Standardized estimate
TI1	<---	TI	1				0.797
TI2	<---	TI	1.125	0.064	17.702	***	0.862
TI3	<---	TI	1.009	0.059	17.029	***	0.798
OCBI5	<---	OCBI	1.192	0.096	12.442	***	0.771
OCBI6	<---	OCBI	1.215	0.095	12.8	***	0.821
OCBI4	<---	OCBI	0.758	0.088	8.595	***	0.478
OCBI2	<---	OCBI	1				0.631
OCBI3	<---	OCBI	0.78	0.077	10.072	***	0.577
OCBO5	<---	OCBO	1.082	0.065	16.599	***	0.776
OCBO6	<---	OCBO	1.011	0.062	16.382	***	0.766
OCBO7	<---	OCBO	1.102	0.062	17.683	***	0.821
OCBO2	<---	OCBO	1				0.746
OCBO3	<---	OCBO	1.189	0.071	16.638	***	0.777

Lastly, in order to examine the discriminant validity, the researcher adopted the method suggested by Fornell and Larcker (1981). Discriminant validity addresses the question as to what extent a construct is truly distinct from other constructs. A construct is said to have a high discriminant validity when it measures a unique phenomena which other constructs do not. A test on the discriminant validity was conducted by comparing variance-extracted (VE) percentages for any two constructs with the square of the correlation estimate between these two constructs. Evidence on the discriminant validity is confirmed when VE estimates are greater than the squared correlation estimates ( $r^2$ ), implying these two constructs are truly distinct from each other. Referring to Table 4.5, all measures reported a high discriminant validity, whereby VE percentages are greater than squared correlation estimates ( $r^2$ ), except for HR philosophy, LMX and OCBO. Since the cross loadings on the affected items are not severe, the researcher retained these items and proceeded with the structural equation modeling. Should a need arise for refining the model, the researcher might consider improving it in the structural model, but not at this stage when the model fit is acceptable.



Table 4.4 Variance extracted and construct reliability

Constructs	Items	Variance extracted (VE)	Construct reliability (CR)
High involvement HR practices	ET PE PP DM	0.60	0.88
Extensive training	ET2 ET1 ET4 ET3	<b>0.45</b>	0.70
Performance evaluation	PE4 PE3 PE2	0.51	0.68
Performance-based pay	PB1 PB3 PB2	<b>0.40</b>	<b>0.53</b>
Participation of decision making	DM1 DM3 DM2	- <b>0.40</b>	<b>0.57</b>
HR philosophy	PH4 PH1 PH3 PH2 PH5 PH6	<b>0.48</b>	0.79
Procedural justice	PJ4 PJ3 PJ2 PJ1 PJ5	0.52	0.78
Distributive justice	DJ4 DJ3 DJ2 DJ1	0.56	0.81
Interactional justice	IJ5 IJ4 IJ3 IJ2	0.61	0.62
Leader-member exchange	L6 L1 L5 L4 L3	<b>0.40</b>	0.72
Trust in supervisor	TR1 TR4 TR2 TR3	0.63	0.84

Table 4.4, continued

<b>Constructs</b>	<b>Items</b>	<b>Variance extracted (VE)</b>	<b>Construct reliability (CR)</b>
Turnover intention	T11 T12 T13	0.67	0.68
OCB directed at individuals	OCBI4 OCBI2 OCBI3 OCBI5 OCBI6	<b>0.45</b>	0.70
OCB directed at organization	OCBO2 OCBO3 OCBO5 OCBO6 OCBO7	0.60	0.85

## 4.6 Structural Equation Modeling (SEM)

### 4.6.1 Baseline Model: Examining Model Fit and Hypothesized Relationships

To examine the series of dependence relationships simultaneously, as hypothesized in the proposed model (Figure 2.1), the structural equation modeling is pursued. A structural model analyses the causal relationships among latent variables, whereas the measurement model in the earlier sections assesses the dimensionality between observed indicators and latent constructs. The researcher attempted to examine the model fit of the proposed structural model after respecification was done on the CFA measurement model. Figure 4.1 depicted the results of the baseline model, examining the hypothesized relationships formulated in Chapter 2 and 3. Significantly, all observed indicators in this baseline model load significantly on the respective latent constructs (p-value < 0.000, standardized loading estimates > 0.05 and critical ratio > +/- 1.96), shown in Appendix N. However, the model fit cannot be considered good because some fit indices do not meet the required threshold value ( $\chi^2 = 2570.11$ ,  $\chi^2/df = 1.909$ ,  $d/f = 1346$ , p-value = 0.000, TFI = 0.880, CFI = 0.887 and RMSEA = 0.045).

Although  $\chi^2/df$  and RMSEA achieved the desired value of less than 2 and 5 respectively, TFI and CFI failed to exceed 0.9

Table 4.5 Discriminant validity

			VE		r	r <sup>2</sup>
PH	<-->	LMX	PH = 0.48	LMX = 0.40	0.50	0.25
PH	<-->	TI		TI = 0.67	-0.12	0.01
PH	<-->	OCBI		OCBI = 0.45	0.33	0.11
PH	<-->	OCBO		OCBO = 0.60	0.81	<b>0.66</b>
PH	<-->	TR		TR = 0.63	0.81	<b>0.65</b>
PH	<-->	IJ		IJ = 0.61	-0.16	0.03
PH	<-->	DJ		DJ = 0.56	0.55	0.30
PH	<-->	PJ		PJ = 0.52	0.54	0.29
PH	<-->	HRP		HRP = 0.60	0.13	0.02
PJ	<-->	HRP	PJ = 0.52	HRP = 0.60	0.11	0.01
DJ	<-->	PJ	DJ = 0.56	PJ = 0.52	0.32	0.10
DJ	<-->	HRP		HRP = 0.60	0.07	0.00
DJ	<-->	LMX		LMX = 0.40	0.38	0.14
IJ	<-->	DJ	IJ = 0.61	DJ = 0.56	-0.46	0.21
IJ	<-->	PJ		PJ = 0.52	-0.11	0.01
IJ	<-->	HRP		HRP = 0.60	-0.05	0.00
LMX	<-->	PJ	LMX = 0.40	PJ = 0.52	0.67	<b>0.44</b>
LMX	<-->	HRP		HRP = 0.60	0.22	0.05
TR	<-->	LMX	TR = 0.63	LMX = 0.40	0.51	0.26
TR	<-->	IJ		IJ = 0.61	-0.10	0.01
TR	<-->	DJ		DJ = 0.56	0.40	0.16
TR	<-->	PJ		PJ = 0.52	0.65	0.42
TR	<-->	HRP		HRP = 0.60	0.12	0.01
TI	<-->	LMX	TI = 0.67	LMX = 0.40	-0.22	0.05
TI	<-->	OCBI		OCBI = 0.45	-0.11	0.01
TI	<-->	OCBO		OCBO = 0.60	-0.24	0.06
TI	<-->	TR		TR = 0.63	-0.25	0.06
TI	<-->	IJ		IJ = 0.61	0.11	0.01
TI	<-->	DJ		DJ = 0.56	-0.11	0.01
TI	<-->	PJ		PJ = 0.52	-0.26	0.07
TI	<-->	HRP		HRP = 0.60	-0.04	0.00
OCBI	<-->	OCBO	OCBI = 0.45	OCBO = 0.60	0.41	0.17
OCBI	<-->	TR		TR = 0.63	0.35	0.12
OCBI	<-->	IJ		IJ = 0.61	-0.07	0.01
OCBI	<-->	DJ		DJ = 0.56	0.23	0.05
OCBI	<-->	PJ		PJ = 0.52	0.43	0.18
OCBI	<-->	HRP		HRP = 0.60	0.13	0.02
OCBI	<-->	LMX		LMX = 0.40	0.40	0.16
OCBO	<-->	LMX	OCBO = 0.60	LMX = 0.40	0.59	0.34
OCBO	<-->	TR		TR = 0.63	0.92	<b>0.84</b>
OCBO	<-->	IJ		IJ = 0.61	-0.06	0.00
OCBO	<-->	DJ		DJ = 0.56	0.44	0.20
OCBO	<-->	PJ		PJ = 0.52	0.71	0.50
OCBO	<-->	HRP		HRP = 0.60	0.14	0.02

Figure 4.1 showed the output of hypothesized relationships as proposed in the research framework. Although this baseline model does not achieve a good model fit, but a majority of the path coefficients of the hypothesized relationships are significant. Hypothesis 1 is supported where HR philosophy is significantly related to bundles of high involvement HR practices ( $r = 0.166$ ,  $p < 0.01$ ). Besides being the force driving the formulation of high involvement HR practices, HR philosophy is significantly related to OCBO ( $r = 0.255$ ,  $p < 0.001$ ), supporting hypothesis 2b but not hypothesis 2a because no significant relationship is found between the HR philosophy and OCBI. High involvement HR practices in this study do not significantly influence employees' exhibition of both OCBI and OCBO, thus hypothesis 3a and 3b cannot be accepted.

Hypothesis 4 is partially supported because not all elements of organizational justice are significantly related to OCBI and OCBO. Specifically, only procedural justice has a significant influence on OCBI ( $r = 0.274$ ,  $p < 0.01$ ) and OCBO ( $r = 0.138$ ,  $p < 0.05$ ). Both distributive and interactional justice do not contribute significantly to OCB. However, all procedural ( $r = 0.604$ ,  $p < 0.001$ ), distributive ( $r = 0.303$ ,  $p < 0.001$ ) and interactional justice ( $r = 0.124$ ,  $p < 0.05$ ) are significantly related to the subordinates' trust in supervisor.

Hypothesis 5a and 5b are fully supported where LMX significantly leads to OCBI ( $r = 0.175$ ,  $p < 0.01$ ) and OCBO ( $r = 0.101$ ,  $p < 0.01$ ). Neither of the OCB were related to high involvement HR practices, thus LMX could not be concluded as the potential mediator, rejecting hypothesis 6a and 6b. The researcher tested mediating effect through the method suggested by Baron & Kenny (1986). Since high involvement HR practices are not related to OCB i.e. the first equation requiring independent variable to be related to dependant variable could not be fulfilled, thus disallowing the mediating effect to take place. Nevertheless, these HR practices are

found to be related to leader member exchanges ( $r = 0.242, p < 0.001$ ), a significant contribution to the theory in this research area.

Hypothesis 7 is partially supported because trust in his supervisor contributes significantly to OCBO ( $r = 0.654, p < 0.001$ ) but not OCBI. Similarly, to examine the mediating effect of trust in the supervisor as proposed by hypothesis 8, the first equation was tested and the relationship between procedural justice and OCBI as well as OCBO are found to be significant with correlation coefficients reported at  $r = 0.280$  ( $p < 0.001$ ) and  $r = 0.348$  ( $p < 0.001$ ) respectively. The distributive justice has no significant relationship with trust in the supervisor; and interactional justice is significantly related to OCBI only ( $r = 0.100, p < 0.05$ ). The second equation was fulfilled when trust in the supervisor records a high path estimates with OCBI ( $r = 0.214, p < 0.05$ ) and OCBO ( $r = 0.765, p < 0.001$ ). In the third equation, when trust in the supervisor is introduced into the model as a factor mediating the relationship between organizational justice and OCB, the relationship between procedural justice and OCBI as well as OCBO remained significant but coefficients were reduced to a certain extent,  $r = 0.274$  ( $p < 0.01$ ) and  $r = 0.138$  ( $p < 0.05$ ), respectively. At the same time, the relationship between interactional justice and OCBO becomes insignificant with the inclusion of trust in the model. Trust in the supervisor does not, however, mediate any relationship between distributive justice and OCB. Thus, hypothesis 8 could only be partially supported. Finally, in examining hypothesis 9, OCBI does not contribute to the employees' turnover intention but OCBO is negatively related to the employees' intention to quit ( $r = -0.229, p < 0.001$ ).



Although this baseline model fit could be respecified and improved by referring to modification indices (Appendix N), the researcher did not see the need to further refine the model by dropping any items or linking any error variance as suggested because SEM should not be used to get a good fit but to test a theory (Hair et al., 2006). And none of the changes in expected parameter change (EPC) permits such refinement. Koufteros (1999) contended that only EPC of greater than 0.30 justifies further investigation for lack of unidimensionality.

#### **4.6.2 Nested Model: Reexamining Model Fit and Hypothesized Relationships**

Although the baseline model does not produce a satisfactory model fit, one should always weigh the fulfillment of fit indices in the light of model complexity and sample size. As noted by Hair et al. (2006), while it may have been a norm and common practice for all scholars to accomplish the magic 0.90 as indicator for model fit, simpler models and smaller samples should be subjected to a more strict evaluation than more complex models with larger samples. In other words, it is extremely illogical to expect model with high complexity which holds more than 50 variables tested with more than 500 respondents to achieve the same model fit as a model which holds only 12 indicators tested with 100 respondents. Thus, it may be unfair for one to conclude the above baseline model as good or bad based on the fit indices and path coefficients reported for each relationship.

However, it is much easier to determine if this model is better or worse than others. This warrants the researcher to compare the baseline model with a nested model which may be hidden within the research framework. A model is nested within another model if it contains the same number of variables and can be formed from the other

model by adding or deleting paths (Hair et al., 2006). Nested model can be relied upon in determining whether the proposed model (baseline model) is better than another model.

The modification indices in Appendix O suggested adding a path between procedural justice and leader-member exchange as these two constructs are highly correlated and expected parameter changes (EPC) is as high as 0.50. Thus, the researcher decided to add a path linking procedural justice and leader-member exchange as suggested and reexamined the fit of this nested model. The model fit of this nested model (Appendix O) appears to be more satisfactory compared to the baseline model ( $\chi^2 = 2409.12$ ,  $\chi^2/df = 1.791$ ,  $d/f = 1345$ ,  $p\text{-value} = 0.000$ ,  $TFI = 0.895$ ,  $CFI = 0.902$  and  $RMSEA = 0.042$ ). Generally, competing models are compared based on chi square ( $\chi^2$ ) difference statistic ( $\Delta\chi^2$ ). This is done by subtracting the  $\chi^2$  value of baseline model (A) from  $\chi^2$  value of nested model. The difference in the degrees of freedom (d/f) should also be determined between the two models. In summary, the following equations should be computed in comparing baseline model (A) and nested model (B):

$$\begin{aligned}\Delta\chi^2_{\Delta df} &= \chi^2_{df(B)} - \chi^2_{df(A)} \\ \Delta df &= df(B) - df(A)\end{aligned}$$

Significantly, in this study, the chi-square difference statistic between baseline and nested models is as high as 160.99 with  $\Delta df = 1$ . It can then be concluded that with an additional path linking procedural justice and leader-member exchange, the model fit increases. A significant reduction can be seen in  $\chi^2$ , higher fit indices are reported for TLI and CFI, and lower values are recorded for both  $\chi^2/df$  and RMSEA. Upon

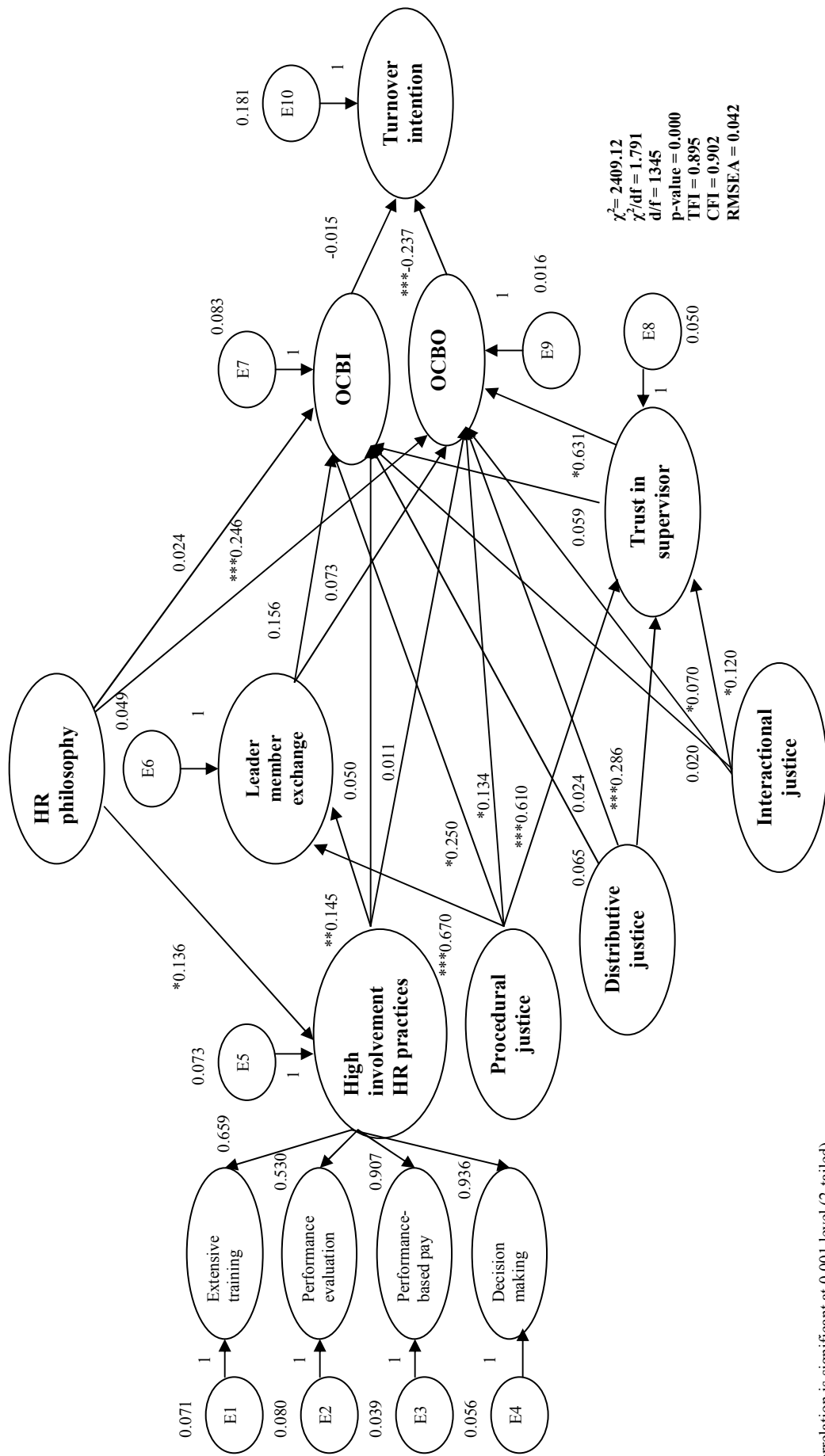


achieving these threshold values, the researcher proceeds with verifying the individual parameter estimates that represent each specific hypothesis. A good model fit alone is meaningless if it does not support the proposed structural theory.

Figure 4.2 depicted the results of nested model with the associated path estimates. The additional path which links procedural justice and leader-member exchange is highly related ( $r = 0.670$ ,  $p < 0.001$ ). Hypothesis 1 is fully supported with the significant relationship reported between HR philosophy and high involvement HR practices ( $r = 0.136$ ,  $p < 0.05$ ). Hypothesis 2 is partially supported with HR philosophy significantly relating to only OCBO ( $r = 0.246$ ,  $p < 0.001$ ) but not OCBI. Similar to baseline model, these HR practices do not have any influence on employees' OCB, thus hypothesis 3 cannot be accepted.

Procedural justice contributes to OCBI ( $r = 0.250$ ,  $p < 0.05$ ) and OCBO ( $r = 0.134$ ,  $p = 0.05$ ); interactional justice leads to OCBI ( $r = 0.070$ ,  $p < 0.05$ ) but distributive justice has no effects on either OCBI or OCBO. Such mixed findings lead to hypothesis 4 being partially supported. While in the baseline model, LMX is found to be significantly related to both dimensions of OCB. After adding the path between procedural justice and LMX, the relationship between LMX and OCB becomes insignificant in nested model, thus both hypothesis 5a and 5b are rejected.

Hypothesis 6 is also rejected because LMX does not mediate the relationship between high involvement HR practices and OCB. Hypothesis 7 could only be partially supported with trust in the supervisor contributing only to OCBO ( $r = 0.631$ ,  $p < 0.05$ ). Trust in the supervisor, however, remains as the partial mediator affecting the relationship between procedural justice and both dimensions of OCB as well as the relationship between interactional justice and OCBO.



\*\*\*correlation is significant at 0.001 level (2-tailed)  
 \*\*correlation is significant at 0.01 level (2-tailed)  
 \*correlation is significant at 0.05 level (2-tailed)

Note: For clarity purposes, observed indicators and error terms are omitted.

Figure 4.2 Nested model

When trust in the supervisor is included in the nested model, the significance level and path estimates between procedural justice, OCBI and OCBO, reduce drastically. Although remained as significant, the relationship between interactional justice and OCBO is mediated by trust in the supervisor with a significance level reduced to a certain extent. Thus, hypothesis 8 can only be partially supported because no evidence on the linkage between distributive justice and OCB could be located. Finally, hypothesis 9 is partially supported where OCBO, not OCBI, contributed to employees' intention to quit ( $r = 0.237, p < 0.001$ ).

Clearly, nested model records a better fit compared to baseline model. Majority of path estimates remain significant in the nested model and modification indices do not justify any further respecification or refinement on the structural model. Thus, the researcher retains results of nested model as the final output for this study. Subsequent discussion which follows after this chapter will be based on the findings of the nested model. This decision is not driven by the researcher's intention to conclude that the nested model would be the best model because some other competing models indefinitely may be formed out of the proposed framework, and subjecting to a number of items retained or eliminated and such refining and re-refining process may never be ending. In the process of the refining model in CFA and structural model, the researcher in this study upholds and adheres well to the guidelines provided by Hair et al. (2006) which calls for a true test of a model, attempting to increase fit but not at the expense of compromising the testing of theory proposed in the study. Specifically, the model fit presented in this study, even though not claiming to be the best, should not be considered bad because:

- At least three items are retained for each of the construct in both measurement and structural models;

- No single item is used to represent a construct;
- Measurement model is conducted with all constructs of the entire model being analyzed concurrently;
- No separate analysis of CFA on individual constructs is done and measurement model is not run based on parcel of items;
- No linkage of error variances is opted for model respecification, thus a good indicator for reflecting adequate convergent and discriminant validity for all measures; and
- Considerably large sample is used ( $n = 444$ ).

As a conclusion, based on the findings of the nested model, hypothesis 10, which posits that, “high involvement HR practices and perceived organizational justice having mediated by leader-member exchange and subordinates’ trust in supervisor, significantly explain the variation in subordinates’ willingness in exhibiting OCBI and OCBO and their turnover intention”, is partially supported.

#### **4.7 Chapter Summary**

Overall, the findings in this chapter provide a mixed support for hypotheses formulated in this study. Significantly, after removing constructs and items with insignificant loadings, the measurement model is finalized with all key fit indices achieving the cut-off values.

All measures in CFA have a high standardized factor loadings exceeding 0.50 and critical ratio exceeding 1.96 (+/-), providing support for adequate convergent validity. Although two of the measures have a lower construct reliability, these CR are not far below the required value of 0.60. The discriminant validity is reasonably

affirmed with a majority of the measures producing VE percentages which is greater than the squared correlation estimates.

In the structural model, most of the path estimates are found to be significant despite the unsatisfactory fit indices reported in baseline model. Upon adding a path between procedural justice and leader-member exchange, the model fit increases, addressing the hypothesized relationships proposed in this study. While findings affirmed that HR philosophy drives the formulation of high involvement HR practices and these philosophies significantly lead to OCBI, high involvement HR practices do not have any influence on OCB. Nonetheless, such HR practices contribute to LMX, a new insight which warrants more future research.

Except for the distributive justice, both procedural and interactional justice report significant relationship with OCB. However, all three elements of justice lead to the trust in the supervisor. LMX does not mediate the relationship between high involvement HR practices and OCB; trust in the supervisor partially mediates the relationship between organizational justice and OCB. OCBO lowers employees' intention to quit, but not OCBI. Although not all hypotheses are supported, the findings in this chapter provide useful insights theoretically and practically. These theoretical and practical implications are discussed in Chapter 5. Limitations of this study are also included.