

CHAPTER 4

4.0 Results

4.1 Summary statistics of respondents

The sample consisted of 42% women and 58% men. Most of the respondents are in 31-39 years old (56%). 22% of them are less than 30 years old, 20% are between 40-49 years old and only 1% are above 50 years old.

All the respondents have tertiary level qualification (74% Bachelor Degree, 16% Diploma and 10% Master). 77% of them are Manager, 21% are Senior Manager, 1% are Executive (Vice President) and 1% are Top Management (CEO/ COO) respectively.

The respondents are from various organization types which are manufacturing (20%), transport/ storage (17%), banking/ finance/ insurance (17%), IT/ communications (11%), retail/ wholesale trade (10%), building and construction (10%) and others (15%). They are working in various functions which are accounting (25%), marketing (21%), management information services (16%), operation (15%), engineering (6%), human resource management (5%), administration (4%) and credit/ finance (4%).

Please refer to Table 4.1 (a) to (f) for details.

Table 4.1 (a) Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	85	42.5	42.5	42.5
	Male	115	57.5	57.5	100.0
	Total	200	100.0	100.0	

Table 4.1 (b) Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 30	44	22.0	22.0	22.0
	31- 39	112	56.0	56.0	78.0
	40-49	40	20.0	20.0	98.0
	50+	4	2.0	2.0	100.0
	Total	200	100.0	100.0	

Table 4.1 (c) Education level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diplomas	33	16.5	16.5	16.5
	Bachelors	147	73.5	73.5	90.0
	Masters	20	10.0	10.0	100.0
	Total	200	100.0	100.0	

Table 4.1 (d) Organization level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Top (CEO/ COO)	2	1.0	1.0	1.0
	Executive (VP/ Director)	2	1.0	1.0	2.0
	Senior Manager	43	21.5	21.5	23.5
	Manager	153	76.5	76.5	100.0
	Total	200	100.0	100.0	

Table 4.1 (e) Organization types

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Retail/ Wholesale Trade	21	10.5	10.5	10.5
	Building/ Construction	21	10.5	10.5	21.0
	Banking/ Finance/ Insurance	33	16.5	16.5	37.5
	IT/ Communication	21	10.5	10.5	48.0
	Transport/ Storage	34	17.0	17.0	65.0
	Manufacturing	40	20.0	20.0	85.0
	Other	30	15.0	15.0	100.0
	Total	200	100.0	100.0	

Table 4.1 (f) Organization functions

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Accounting	50	25.0	25.0	25.0
Administration	9	4.5	4.5	29.5
Credit/ Finance	8	4.0	4.0	33.5
Engineering	12	6.0	6.0	39.5
Human Resource Management	9	4.5	4.5	44.0
Management Information Services	32	16.0	16.0	60.0
Marketing	42	21.0	21.0	81.0
Operation	30	15.0	15.0	96.0
Quality Control	8	4.0	4.0	100.0
Total	200	100.0	100.0	

4.2 Normality Test

The assumption of normality is a prerequisite for many inferential statistic techniques (Coaked and Steed, 2007).

Table 4.2 shows that the skewness and kurtosis values for all variables are within the range (-2 to 2). Therefore the data distribution for this sample is considered normal (Chua, 2008).

Table 4.2 Result of the normality test for variables

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std.	Statistic	Std.
								Error		Error
AV	200	5.00	24.00	3161.00	15.8050	4.63296	-.394	.172	-.970	.342
FAG	200	6.00	19.00	2637.00	13.1850	3.04749	-.648	.172	-.428	.342
IS	200	5.00	19.00	2489.00	12.4450	3.47814	-.210	.172	-.854	.342
PIS	200	10.00	18.00	2883.00	14.4150	1.64814	-.433	.172	-.597	.342
HPE	200	3.00	15.00	2020.00	10.1000	2.50025	-.432	.172	-.586	.342
PARM	200	7.00	15.00	2226.00	11.1300	1.46761	.119	.172	.024	.342
C	200	5.00	20.00	2540.00	12.7000	3.64368	-.463	.172	-.870	.342
PO	200	4.00	20.00	2634.00	13.1700	3.49171	-.672	.172	-.487	.342
SI	200	20.00	77.00	1.00E4	50.1300	12.76156	-.429	.172	-.837	.342
RS	200	6.00	27.00	3545.00	17.7250	4.94892	-.379	.172	-.493	.342

4.3 Reliability Test

There are six transformational leadership factors which are articulates vision (AV), fosters acceptance of goals (FAG), provides intellectual stimulation (IS), provides individual support (PIS), sets high performance expectations (HPE) and provides appropriate role model (PARM). Meanwhile the climate for organizational innovate scales include support for innovation (SI) and resource supply for innovation (RS). Lastly the organization culture consists of two scales which are competitiveness (C) and performance orientation (PO).

Before running the statistic testing, the scores for total 6 negative questions (2 negative questions in transformational leadership part and 4 negative questions

in climate for organizational innovation) were reversed. The scale reliability test was run for all measurement items. Please refer to Table 4.3 for the reliability test result.

According to Nunnaly (1978) the acceptable reliability coefficient must be at least 0.7. All dimensions have reliability coefficient (Cronbach's alpha) from 0.746 to 0.982 except dimension "provides individual support" of 0.583. It was considered acceptable given the relatively small number of items in each subscale.

Table 4.3 Result of the reliability test for variables

Dimension	Number of items	Cronbach's alpha
Articulates vision	5	0.940
Fosters acceptance of goals	4	0.903
Provides intellectual stimulation	4	0.949
Provides individual support	4	0.583
Sets high performance expectations	3	0.875
Provides appropriate role model	3	0.746
Competitiveness	4	0.936
Performance orientation	4	0.950
Support for innovation	16	0.982
Resource supply for innovation	6	0.972

4.4 Mean, standard deviations, and intercorrelations for variables

Table 4.4 report means, standard deviations, and correlation among the study variables. Correlations among the six transformational leadership factors ranged from 0.264 to 0.774 at significant value $p < 0.01$, providing support for the discriminant validity of the leadership dimensions reported in previous study (Poddsakoff et al., 1990).

The support for innovation and resource supply for innovation were used as indicator to climate for organizational innovation. The correlation between these two scales is 0.558 ($p < 0.01$). Meanwhile the business culture in private sector consists of two factors which are competitiveness and performance orientation. The correlation is at 0.741 ($p < 0.01$).

This study attempts to study the effects of each leadership factor separately where these six transformational leadership factors are represented by their corresponding items. These six factors were allowed to freely correlate with each other.

The correlation between support for innovation and transformational leadership factor was ranged from $r = 0.259$ (provides appropriate role model) to $r = 0.739$ (sets high performance expectations) at $p < 0.01$. The correlation between resource supply for innovation and transformational leadership factor was ranged

from $r = 0.189$ (provides appropriate role model) to $r = 0.506$ (provides individual support) at $p < 0.01$.

The correlation between competitiveness culture and transformational leadership factor was ranged from $r = 0.229$ (provides appropriate role model) to $r = 0.681$ (sets high performance expectation) at $p < 0.01$. The correlation between performance orientation culture and transformational leadership factor was ranged from $r = 0.200$ (provides appropriate role model) to $r = 0.730$ (fosters acceptance of goals) at $p < 0.01$.

Table 4.4 Mean, standard deviations, and intercorrelations among transformational leadership factors, organizational culture, climate for organizational Innovation

	M	SD	AV	FAG	IS	PIS	HPE	PARM	C	PO	SI
AV	15.8050	4.6330									
FAG	13.1850	3.0475	.725**								
IS	12.4450	3.4781	.639**	.645**							
PIS	14.4150	1.6481	.685**	.703**	.615**						
HPE	10.1000	2.5003	.747**	.728**	.687**	.774**					
PARM	11.1300	1.4676	.379**	.264**	.285**	.412**	.285**				
C	12.7000	3.6437	.586**	.675**	.600**	.607**	.681**	.229**			
PO	13.1700	3.4917	.695**	.730**	.628**	.648**	.713**	.200**	.741**		
SI	50.1300	12.7616	.709**	.619**	.600**	.697**	.739**	.259**	.571**	.617**	
RS	17.7250	4.9489	.388**	.448**	.398**	.506**	.456**	.189**	.510**	.478**	.558**

Note: N= 200

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

4.5 Testing the hypotheses

Few analysis techniques in SPSS were used to test the following hypotheses:

Hypothesis 1: All the six transformational leadership factors will be positively related to climate for organizational innovation

The result in Table 4.5 indicates that the six transformational leadership factors correlated positively with climate for organizational innovation at the significant level of $p < 0.01$.

The correlation between climate for organizational innovation and transformational leadership factor articulates vision ($r = 0.684$, $p < 0.01$), fosters acceptance of goals ($r = 0.630$, $p < 0.01$), provides intellectual stimulation ($r = 0.600$, $p < 0.01$), provides individual support ($r = 0.710$, $p < 0.01$), sets high performance expectations ($r = 0.728$, $p < 0.01$) and provides appropriate role model ($r = 0.264$, $p < 0.01$).

Based on the above results, H1 is supported.

Table 4.5 Result of bivariate correlation analysis transformational leadership factors and climate for organizational innovation

	AV	FAG	IS	PIS	HPE	PARM
AV						
FAG	.725**					
IS	.639**	.645**				
PIS	.685**	.703**	.615**			
HPE	.747**	.728**	.687**	.774**		
PARM	.379**	.264**	.285**	.412**	.285**	
OI	.684**	.630**	.600**	.710**	.728**	.264**

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

Note: N= 200

OI= organizational innovation (SI and RS)

Meanwhile Table 4.6 indicates that the R square value as 0.615 which suggesting that the model explains 62% of the variance in climate for organizational innovation. The model also reaches statistical significance in the ANOVA analysis (significance= 0.000, $p < 0.0005$) as per Table 4.7.

Table 4.6 Model Summary for transformational leadership factors and climate for organizational innovation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.784 ^a	.615	.603	10.12302	.615	51.285	6	193	.000

a. Predictors: (Constant), PARM, FAG, IS, PIS, AV, HPE

b. Dependent Variable: OI

Table 4.7 ANOVA for transformational leadership factors and climate for organizational innovation

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	31533.020	6	5255.503	51.285	.000 ^a
	Residual	19777.775	193	102.476		
	Total	51310.795	199			

a. Predictors: (Constant), PARM, FAG, IS, PIS, AV, HPE

b. Dependent Variable: OI

Hypotheses 2: All the six transformational leadership factors will be positively related to a competitive, performance oriented organizational culture

The result in Table 4.8 indicates that the six transformational leadership factors correlated positively with climate for organizational innovation at the significant level of $p < 0.01$.

The correlation between competitive, performance oriented organizational culture and transformational leadership factor articulates vision ($r = 0.685$, $p < 0.01$), fosters acceptance of goals ($r = 0.752$, $p < 0.01$), provides intellectual stimulation ($r = 0.658$, $p < 0.01$), provides individual support ($r = 0.672$, $p < 0.01$), sets high performance expectations ($r = 0.746$, $p < 0.01$) and provides appropriate role model ($r = 0.230$, $p < 0.01$).

Based on the above results, H2 is supported.

Table 4.8 Result of bivariate correlation analysis transformational leadership factors and competitive, performance organizational culture

	AV	FAG	IS	PIS	HPE	PARM
AV						
FAG	0.725					
IS	0.639	0.645				
PIS	0.685	0.703	0.615			
HPE	0.747	0.728	0.687	0.774		
PARM	0.379	0.264	0.285	0.412	0.285	
OC	0.685	0.752	0.658	0.672	0.746	0.23

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

Note: N= 200

OC= organizational culture (C and PO)

In addition, Table 4.9 indicates that the R square value of 0.671 which suggesting that the model explains 67% of the variance in competitive, performance oriented organizational culture. The model also reaches statistical significance in the ANOVA analysis (significance= 0.000, $p < 0.0005$) as per Table 4.10.

Table 4.9 Model Summary for transformational leadership factors and competitive, performance oriented organizational culture

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.819 ^a	.671	.660	3.87986	.671	65.493	6	193	.000

a. Predictors: (Constant), PARM, FAG, IS, PIS, AV, HPE

b. Dependent Variable: OC

Table 4.10 ANOVA for transformational leadership and competitive, performance oriented organizational culture

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5915.329	6	985.888	65.493	.000 ^a
	Residual	2905.291	193	15.053		
	Total	8820.620	199			

a. Predictors: (Constant), PARM, FAG, IS, PIS, AV, HPE

b. Dependent Variable: OC

Hypothesis 3: A competitive, performance oriented organizational culture will be positively related to climate for organizational innovation

The result in Table 4.11 indicates that a competitive, performance oriented organizational culture correlated positively with climate for organizational innovation $r=0.669$ at the significant level of $p < 0.01$.

Based on the above results, H3 is supported.

Table 4.11 Result of bivariate correlation analysis competitive, performance oriented organizational culture and climate for organizational innovation

	OC
OC	
OI	.669**

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

Note: N=200

Meanwhile Table 4.12 indicates that the R square value as 0.447 which suggesting that the model explains 45% of the variance in climate for organizational innovation. The model reaches statistical significance in the ANOVA analysis (significance= 0.000, $p < 0.0005$) as per Table 4.13.

Table 4.12 Model Summary for a competitive, performance oriented organizational culture and climate for organizational innovation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.669 ^a	.447	.445	11.96724	.447	160.279	1	198	.000

a. Predictors: (Constant), OC

b. Dependent Variable: OI

Table 4.13 ANOVA for a competitive, performance oriented organizational culture and climate for organizational innovation

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22954.281	1	22954.281	160.279	.000 ^a
	Residual	28356.514	198	143.215		
	Total	51310.795	199			

a. Predictors: (Constant), OC

b. Dependent Variable: OI

Hypothesis 4: A competitive, performance oriented organizational culture mediates the relationship between transformational leadership and climate for organizational innovation

According to Baron and Kenny (1986), a variable is considered as mediator if it carries the influence of a given independent variable (IV) to a given dependent variable (DV). They have proposed four steps approach in which regression

analyses are conducted and significance of the coefficients is examined at each step. The approach as:

Step 1 : Conduct a simple regression analysis which IV predicting DV (the result must be significant)

Step 2 : Conduct a simple regression analysis which IV predicting M (the result must be significant)

Step 3 : Conduct a simple regression analysis with M predicting DV (the result must be significant)

Only if the results are significant from step 1 to 3, step 4 can be performed.

In Step 4, some form of mediation is supported if the effect of M remains significant after controlling IV. If IV is still significant (eg both IV and M significantly predict DV), the finding supports partial mediation. In the case of IV is no longer significant when M is controlled, the finding indicates full mediation.

The result of analysis is shown in Table 4.10. The analysis shows that competitive, performance oriented organizational culture is a partial mediator for the relationship between transformational leadership and climate for organizational innovation.

Therefore H4 is supported.

Table 4.14 Result for testing mediating effect

Regression	Beta	Significant
Transformational leadership predicts climate for organizational innovation	0.756	0.000
Transformational leadership predicts climate for competitive, performance oriented organizational culture	0.794	0.000
Competitive, performance oriented organizational culture predicts climate for organizational innovation	0.669	0.000
Conduct multiple regression analysis with transformational leadership and competitive, performance oriented organizational culture predicts climate for organizational innovation:		
- When transformational leadership is controlled	0.610	0.000
- When competitive, performance oriented organizational culture is controlled	0.185	0.015

Independent variable (IV): Transformational leadership

Dependent variable (DV): Climate for organizational innovation

Mediator (M): Competitive, performance oriented organizational culture