

CHAPTER 4

4. RESULTS

4.1. Summary statistics of respondents

The sample consisted of 42 percent men and 58 percent women. Forty three percent of them (43 %) were from the Professional and Managerial Group, while fifty seven percent (57%) were from the Supporting Group. About seventy eight percent (78%) of the respondents possess the tertiary level qualifications (22% diploma, 23% degree, 17% master and 5% PhD). The remaining thirty three percent hold the academic qualification at the secondary level (SPM and STPM level). The details are as shown in Table 4. 1.

Table 4.1: Summary of respondents background

Demographic variable	Percentage of sample
Age	24
Below 30 years	
30-39 years	33
40-49 years	30
50 and above	14
Gender	
Female	58
Male	42
Education level	
SPM	26
STPM	7
Diploma	22
Degree	24
Master	17
PhD	5

Job position	
Professional Group	43
Supporting Group	57
Working experience in this agency	
Below 5 year	28
6-10 years	21
11-15 years	18
16-20 years	11
Above 20 years	23

Table 4.1 and Figure 4.1 indicate that most of the respondents have less than 5 years working experience and most of them were below 30 years old. For those who were 50 years old and above, all of them have more than 10 years working experience in this agency.

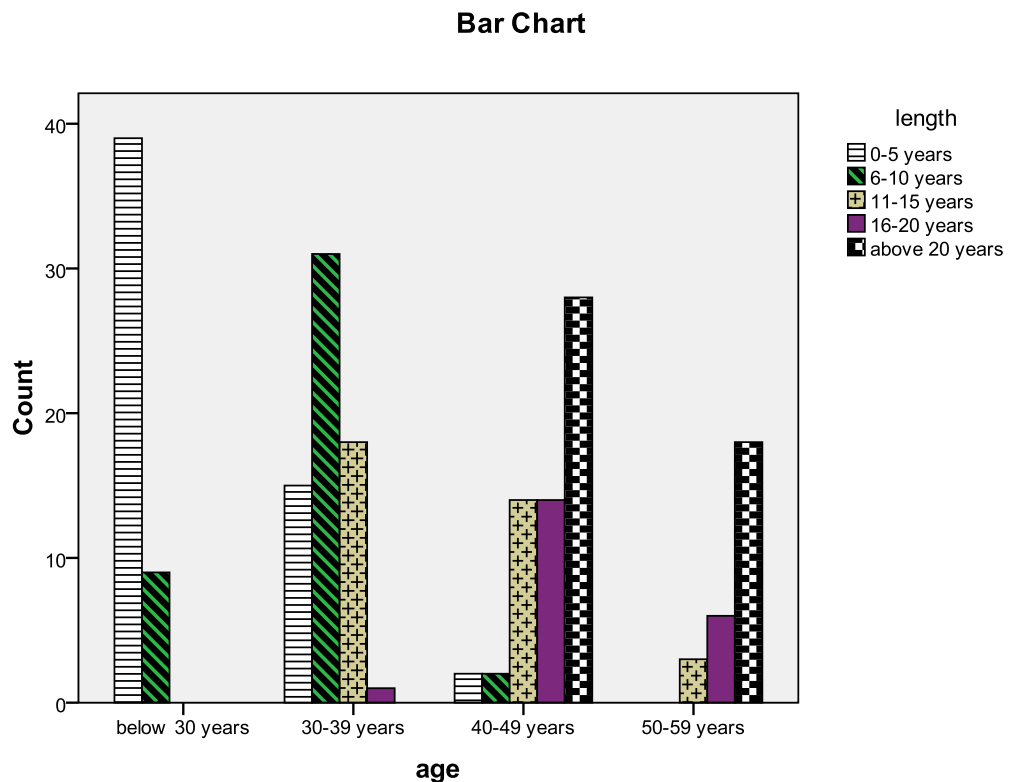


Figure 4.1: The distribution of respondents based on age and working experience.

4.2 Normality Test

The assumption of normality is a prerequisite for many inferential statistical techniques (Cooked and Steed, 2007). Table 4.2 shows that the skewness and kurtosis values for all the variables are within the range (-2 to 2), thus data distribution for the sample is considered normal (Chua, 2008).

Table 4.2: Assessing normality for the main variables

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Std. Error	Kurtosis	Std. Error
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
challenging work	198	4.00	12.00	8.7475	1.82672	-.130	.173	-.481	.344
Freedom	199	2.00	8.00	5.0603	1.31287	.010	.172	-.254	.343
group support	192	8.00	32.00	23.5208	3.99995	-.370	.175	.802	.349
innovative behaviour	194	8.00	24.00	15.7887	3.32391	.192	.175	-.083	.347
Impediment	189	19.00	43.00	28.8624	4.68839	.526	.177	.235	.352
knowledge transfer	197	11.00	28.00	20.7259	3.50597	-.089	.173	-.023	.345
supervisory support	184	19.00	44.00	32.4022	5.15033	-.219	.179	-.368	.356
organizational support	191	19.00	60.00	40.7749	6.99222	-.271	.176	.277	.350
Resources	192	11.00	24.00	17.2604	2.50338	.198	.175	.084	.349
Workload	198	6.00	20.00	12.2576	2.90445	.492	.173	-.208	.344

4.3 Reliability Test

For the purpose of this study, the reliability test was run for all measurements. The results of the test are shown in Table 4.3. Except for freedom, all other dimensions have a reliability coefficient

(Cronbach's α) from 0.70 to 0.89. Nunnally (1978) has indicated 0.7 to be an acceptable reliability coefficient.

Table 4.3: Results of the reliability test for main variables.

Dimension	No.of items	Cronbach's Alpha
Organizational encouragement	15	0.89
Supervisory encouragement	11	0.88
Work group supports	8	0.86
Sufficient resources	6	0.72
Challenging work	5	0.70*
Freedom	4	0.60**
Organizational impediments	12	0.73
Workload pressure	5	0.77
Innovative behaviour	6	0.81
Knowledge transfer	7	0.84

*2 items were removed = α increased from 0.4 to 0.7.

** 2 items were removed = α increased from 0.4 to 0.6.

The questions for challenging work that were removed:

- The tasks in my work call out the best in me.
- The organization has an urgent need for successful completion of the work I am now doing.

The questions for freedom that were removed:

- I feel considerable pressure to meet someone else's specifications in how I do my work.
- I do not have the freedom to decide what project(s) I am going to do.

4.4 Testing the Hypotheses

To answer the following hypotheses, a few procedures in SPSS have been used:

- H1: Stimulant scales have a positive relationship with innovative behaviour.
- H2: Obstacle scales have a negative relationship with innovative behaviour.
- H3: Knowledge transfer moderates the relationship between organizational climate and innovative behaviour.
- H4a: Age has a moderating effect on the relationship between organizational climate and innovative behaviour.
- H4b: Working experience has a moderating effect on the relationship between organizational climate and innovative behaviour.
- H4c: Level of education has a moderating effect on the relationship between organizational climate and innovative behaviour

To answer H1, bivariate correlation analysis was used. Table 4.4 shows the result of bivariate correlation analysis between innovative behaviour and stimulant scales. The results indicate that all the stimulant scales correlated positively with innovative behaviour at the significant level of $p < 0.01$. The output also shows that all dimensions are inter correlated except for the relationship between freedom and supervisory encouragement.

Table 4.4: The result of bivariate correlation analysis innovative behaviour and stimulant scales.

Variables	1	2	3	4	5	6
1. innovative behaviour						
2. challenging work	.479**					
3. freedom	.270**	.302**				
4. work group support	.423**	.319**	.151*			
5. supervisory encouragement	.341**	.138*	.118	.678**		
6. organizational encouragement	.480**	.301**	.204**	.711**	.666**	
7. sufficient resources	.394**	.177**	.131*	.579**	.533**	.573**

The output shows that there is a significant positive relationship exists between Innovative Behaviour (IB) and all stimulant scales. Stimulant scales include organizational encouragement ($r=0.48$, $p<0.01$), supervisory encouragement ($r= 0.34$, $p<0.01$), work group support ($r= 0.42$, $p<0.01$), challenging work ($r=48$, $p<0.01$), sufficient resources ($r=0.39$, $p<0.01$) and freedom ($r=0.27$, $p<0.01$). Based on the above results, thus the H1 is supported.

Meanwhile, Table 4.5 below depicted the R square value as 0.40, suggesting that the model explains 40 percent of the variance in innovative behaviour. The statistical significance in the ANOVA analysis

(Table 4.6) indicates that the model reaches statistical significance (Sig = 0.000, $p < 0.0005$) (Coakes and Steed, 2007).

Table 4.5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.628 ^a	.395	.372	2.61502

a. Predictors: (Constant), organizational support, freedom, challenging work, resources, supervisory support, group support.

Table 4.6 ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	691.868	6	115.311	16.863	.000 ^a
Residual	1059.940	155	6.838		
Total	1751.809	161			

a. Predictors: (Constant), organizational support, freedom, challenging work, resources, supervisory support, group support

b. Dependent Variable: innovative behaviour

Stepwise regression analysis was performed to examine which dimension contributes to the higher scores in innovative behaviour. As shown in Table 4.7, the result indicates that challenging work, sufficient resources and organizational encouragement explain 37 percent of variance in innovative behaviour (R Square = 0.37, $p < 0.01$). The results of the analysis are shown in the following table.

Table 4.7: The results of the stepwise regression, relationship between stimulant scales and innovative behaviour.

Model	R	R Square	Adjusted R Square	Sig.
1	.488 ^a	.238	.233	.000 ^a
2	.593 ^b	.352	.344	.000 ^b
3	.620 ^c	.385	.373	.000 ^c

a. Predictors: (Constant), challenging work

b. Predictors: (Constant), challenging work, sufficient resources

c. Predictors: (Constant), challenging work, sufficient resources, organizational encouragement

d. Dependent Variable: innovative behaviour

The H2 states that Obstacle scales have a negative relationship with innovative behaviour. To examine the relationship, again correlation analysis was carried out.

Obstacle scales includes organizational impediments and workload pressure. In this analysis, scores for both organizational impediments and workload pressure have not been reversed. Higher numbers indicate higher levels of Organizational Impediments and Workload Pressure. Table 4.8 shows that organizational impediments has a weak significant positive relationship with innovative behaviour ($r=0.136$, $p=0.033$). The result shows that workload pressure has no significant relationship with innovative behaviour ($r=0.175$, $p= 0.07$). This study reveals an interesting output about the relationship between workload pressure and the organizational impediments. It shows that

workload pressure and organizational impediments has a strong association where $r=0.64$ and $p=0.000$.

Table 4.8 : Correlations analysis between obstacle scales and innovative behaviour

Variables	1	2	3
innovative behaviour			
Organizational impediment	.136*		
Workload pressure	.105	.641**	

*. Correlation is significant at the 0.05 level (1-tailed).

**. Correlation is significant at the 0.01 level (1-tailed).

Note: Scores for both organizational impediments and workload pressure have not been reversed. Higher numbers indicate higher levels of Organizational Impediments and Workload Pressure

H2 is not supported based on the above results.

The third hypothesis stated that knowledge transfer mediates the relationship between organizational climate and innovative behaviour. Organizational climate in this study comprises eight dimensions including organizational encouragement, supervisory encouragement, work group support, challenging work, sufficient resources, freedom, less organizational impediments and less workload pressure. The scores for organizational impediments and workload pressure were reversed before computing because these two variables were negatively worded.

A variable may be considered a mediator if it carries the influence of a given independent variable (IV) to a given dependent variable (DV) (Baron and Kenny, 1986). Preacher and Leonardelli

(2010) said, mediation can be said to occur when (1) the IV significantly affects the mediator, (2) the IV significantly affects the DV in the absence of the mediator, (3) the mediator has a significant unique effect on the DV, and (4) the effect of the IV on the DV shrinks upon the addition of the mediator to the model.

Baron and Kenny (1986) proposed a four step approach in which several regression analyses are conducted and significance of the coefficients is examined at each step. (X is a predictor, M is a mediator and Y is a dependent variable)

- Step 1- Conduct a simple regression analysis with X predicting Y (this effect must be significant)
- Step 2- Conduct a simple regression analysis with X predicting M (this effect must be significant)
- Step 3- Conduct a simple regression analysis with M predicting Y (this effect must be significant)
- If there are significant relationships from Step 1 through 3, step 4 can be performed.

In the Step 4 model, some form of mediation is supported if the effect of M remains significant after controlling for X. If X is no longer significant when M is controlled, the finding supports full mediation. If X is still significant (i.e., both X and M significantly predict Y), the finding supports partial mediation. The results of the analysis are shown in Table 4.9.

From the analysis, knowledge transfer is a full mediator for the relationship between organizational climate and innovative behaviour. The relationship between organizational climate and innovative behaviour turn to insignificant when Knowledge Transfer in controlled. Therefore the H3 is supported.

Table 4.9: Result for testing mediating effect.

Regression	Beta	Significant
Organizational climate predict innovative behaviour	0.407	0.000
Organizational climate predict knowledge transfer	0.651	0.000
Knowledge transfer predicting innovative behaviour	0.268	0.000
Conduct a multiple regression analysis with organizational climate and knowledge transfer predicting innovative behaviour:		
- When Organizational climate is controlled	0.406	0.00
- When knowledge transfer is controlled	-0.11	0.914

Independent variable: Organizational climate
Dependent variable: Innovative Behaviour
Mediator= Knowledge Transfer

The next hypothesis (H4a) stated that age has a moderating effect on the relationship between organizational climate and innovative behaviour.

Baron and Kenny (1986) explained a moderator is a qualitative (e.g., sex, race, class) or quantitative (e.g., level of reward) variable that affects the direction and/or strength of the relation between an independent and a dependent variable. They said, the way to measure

and test the differential effects depends in part on the level of measurement of the independent variable and the moderator variable. Examples: Case 1, both moderator and independent variables are categorical variables; Case 2, the moderator is a categorical variable and the independent variable a continuous variable; in Case 3, the moderator is a continuous variable and the independent variable is a categorical variable; and in Case 4, both variables are continuous variables.

In this study, Case 2 is more applicable. The typical way to measure this type of moderator effect is to correlate a dependent variable with a depend variables separately for each category and then test the difference. However this method has deficiencies because correlations are influenced by changes in variances. Therefore regression analysis is more appropriate because regression coefficients are not affected by differences in the variances of the independent variable or differences in measurement error in the dependent variable. It is almost always preferable to measure the effect of the independent variable on the dependent variable not by correlation coefficients but by unstandardized (not betas) regression coefficients (Baron and Kenny, 1986). Table 4.10 shows the summary of the results regression analysis.

Table 4.10- Testing moderating effect of age in the relationship between organizational climate and innovative behaviour.

Age	Unstandardized	Standardized	Sig.
	Coefficients	Coefficients	
	Beta	Beta	
Less than 30 years	0.92	0.53	0.000
30-39 years	0.05	0.31	0.025
40-49 years	0.02	0.09	0.550
50-59 years	0.16	0.78	0.000

Table 4.10 shows that unstandardized regression coefficient shows different values across the level of age. The result indicates that the level of age does influence the strength of the relationship between organizational climate and innovative behaviour. Based on this fact, the H4a is accepted.

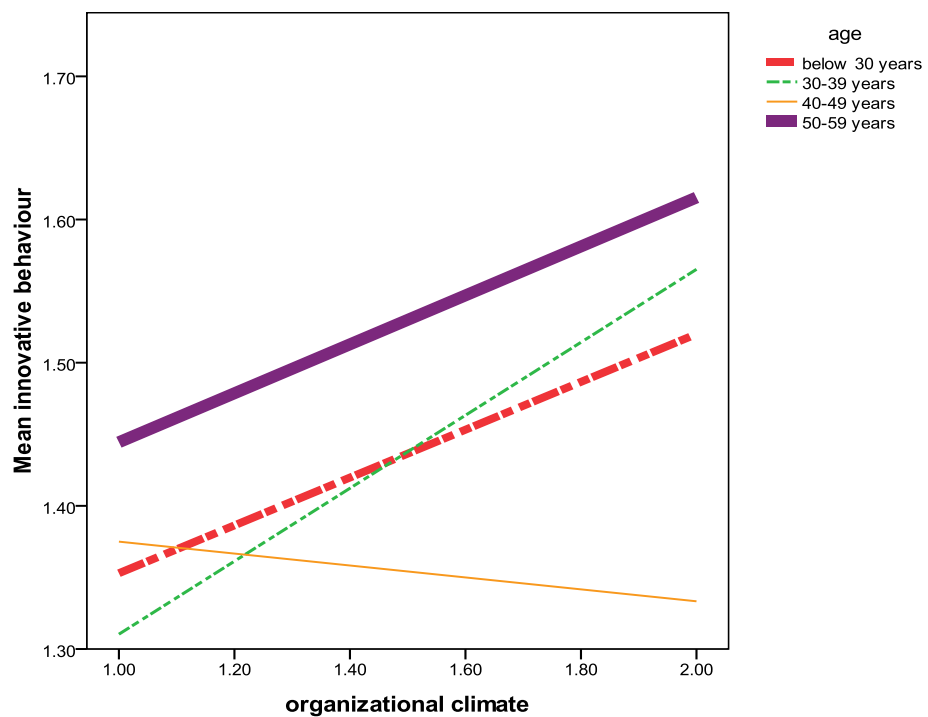


Figure 4.2: The moderating effect of age in the relationship between organizational climate and innovative behaviour.

Figure 4.2 shows the moderating effect of age in the relationship between Organizational Climate and Innovative Behaviour. All groups of employees show a positive reaction to the organizational climate except for the group of employees aged between 40 to 49 years old. They show more innovative behaviour when they see the organizational climate is less encouraging. Employees who are in the range of 30-39 years old are more responsive to the organizational climate compared to those who are below 30 years old. The later group of employees will show higher innovative behaviour if they see the organizational climate as more constructive.

The next hypothesis is H4b: Working experience has a moderating effect on the relationship between organizational climate and innovative behaviour. Table 4.11 shows the summary of the result:

Table 4.11: Testing moderating effect of working experience in the relationship between organizational climate and innovative behaviour.

Working experience	Unstandardized	Standardized	Sig.
	Coefficients	Coefficients	
	Beta	Beta	
Less than 5 years	0.07	0.48	0.001
6-10 years	0.05	0.27	0.118
11 – 15 years	0.07	0.48	0.025
16-20 years	0.05	0.32	0.196
More than 20 years	0.09	0.48	0.004

The results show that the unstandardized coefficients vary across the level of length working experience. Based on the above result, H4b is supported.

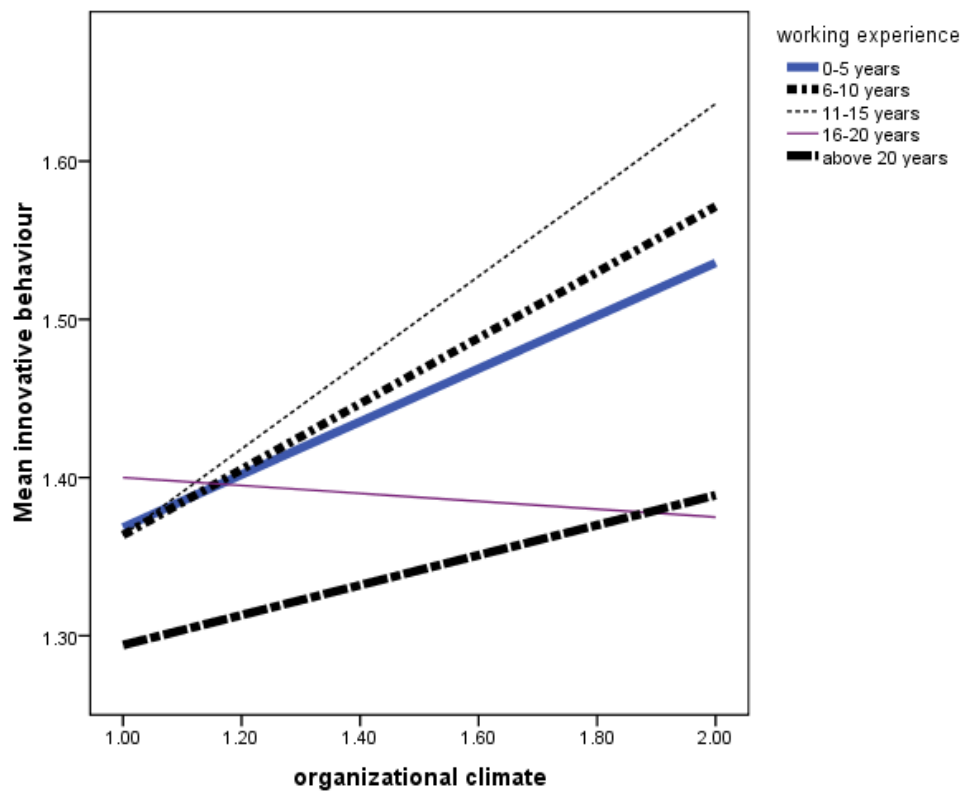


Figure 4.3: Moderating effect of working experience in the relationship between organizational climate and innovative behaviour.

The effect of working experience in the relationship between Organizational Climate and Innovative Behaviour can be seen in Figure 4.3. Comparatively, those who have more than 20 years working experience, their innovative behaviour are not sensitive to the organizational climate. In contrast, we can see that those who have 11-15 years working experience are more sensitive to the organizational climate. This group of employees tend to show higher innovative behaviour if they perceive the organizational climate is more

favourable. The same reaction is observed among employees who have working experience of less than 10 and 5 years. If they perceive organizational climate is encouraging, they will show better innovative behaviour.

It is also interesting to observe that for those with 16-20 years working experience, their behaviour contradict with the younger employees. The better they perceived the organizational climate the lower they show their innovative behaviour. Then we might say that for those who have more than 15 years working experience, their interest in innovative behaviour are declining while those who have less than 15 years working experience are more aggressive in showing innovative behaviour.

The next hypothesis stated that level of education has a moderating effect on the relationship between organizational climate and innovative behaviour. The same method was applied and the results are shown in the Table 4.12.

Table 4.12: Testing moderating effect of level of education in the relationship between organizational climate and innovative behaviour.

Level of education	Unstandardized	Standardized	Sig.
	Coefficients	Coefficients	
	Beta	Beta	
SPM	0.85	0.36	0.024
STPM	0.20	0.88	0.002
Diploma	0.09	0.46	0.006
Bachelor Degree	0.05	0.48	0.002
Master	0.06	0.47	0.013
PhD	0.08	0.65	0.080

The results also show that the unstandardized coefficients vary for each level. From the result thus, it can be concluded that level of education has a moderating effect on the relationship between organizational climate and innovative behaviour. Therefore, H4c is supported.

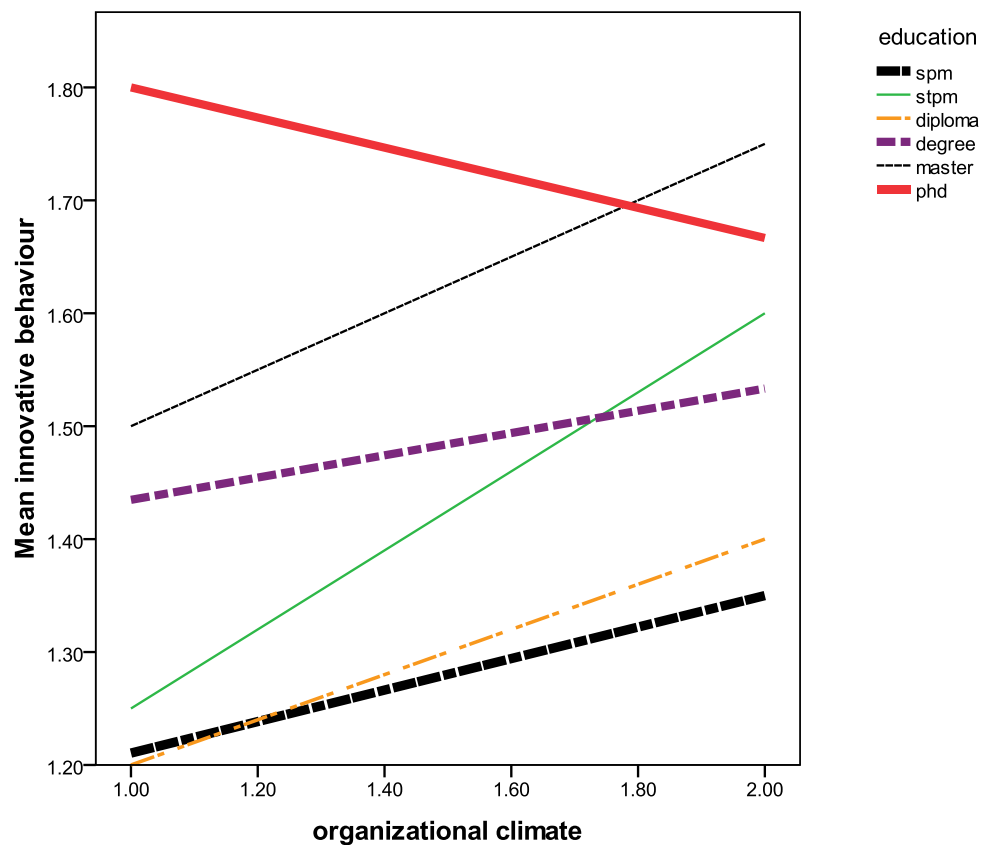


Figure 4.4: The moderating effect of level of education in the relationship between organizational Climate and Innovative Behaviour.

Figure 4.4 depicts the effect of level of education in the relationship between Organizational Climate and Innovative Behaviour. Those who have Master and PhD tend to show higher innovative behaviour compared to other group of employees.

Basically, all employees will show higher innovative behaviour if they perceive better organizational climate except for those who have PhD qualification. This group of employees tend to show more innovative behaviour if they feel the organizational is less encouraging. From the graph we can also observe that degree holders are less sensitive to the organizational climate compared to those who are master and STPM holders in showing innovative behaviour.