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### ESTIMATING THE DETERMINANTS OF HAPPINESS AMONG PRIMARY SCHOOL TEACHERS IN MALAYSIA

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### ABSTRACT

Teachers play an important role in nurturing human resources. Old wisdom regards teachers as the “engineer of the human soul”. Teacher happiness is very important since a happy teacher is productive, allowing him/her to play his/her role effectively. We need to understand the determinants of teacher happiness to formulate better policies for teachers. The objectives of the study are to examine the level of happiness of primary school teachers in Malaysia and its determinants. Ordered logit models are estimated using data from a random sample of 1,510 primary school teachers in Perlis, Kedah, and Penang. The descriptive statistics analysis reveals that, on average, the teachers are happy with their life but with a substantial variance. Aspiration is found to be an important determinant of happiness. Other determinants of happiness include religiosity (strength in religion, all religions teach morality in schools), the interaction between aspiration and religiosity, targeted life goals, achievement of life goals, and school environment. To increase the happiness of primary school teachers, the government needs to focus on the teachers’ aspiration, their life goals, religiosity, and the school environment. Thus, tangible and non-tangible rewards are needed to improve teacher happiness.

**Keywords:** Determinants of happiness; primary school teachers; ordered logit model.

## INTRODUCTION

Primary school education is the most critical stage for pupils to get their primary education, building their personality, socially desirable behaviours, soft skills, human interrelationships, and cultivating patriotism and nation-building. In this context, teachers play an essential role. Indeed, old wisdom regards teachers as the “engineer of the human soul”. Our country needs good teachers to stimulate students’ critical and creative thinking. Teachers have been labelled as “agents of change” (Tan & Majid, 2011). Teacher happiness is very important since a happy teacher is productive, allowing him/her to play his/her role effectively. Abdul Rahman (2001) pointed out that teachers’ willingness to contribute is contingent on their happiness.

However, many primary school teachers in Malaysia seem to raise dissatisfaction despite the various policies and efforts of the Malaysian government to improve their welfare and happiness, such as the Degree Program that gives non-graduate primary school teachers an opportunity to get their first degree (Degree Program, 2012). Teachers are also overloaded with administrative work and are often asked to carry out this job during office hours and holidays. An over-protective new generation of parents of their children further deteriorates the situation, as in the case of a mother who slapped a primary school teacher (New, 2018). Teachers are reported to face more mental pressure nowadays (Rajaendram, 2019).

In short, a good education system is rooted in its policies and planning that promote the welfare of teachers (Chu & Lee, 2012). Thus, we need to understand the determinants of teacher happiness to formulate better policies for primary school teachers.

Happiness originated from the ancient Greek word “Eudaimonia”. Aristotle (384 – 322 BCE) defined happiness as the highest good for humanity (Ross, 1980). Happiness is a subjective concept, which could refer to the quality of being happy, positive emotions, good fortune, and pleasure, including joy, pride, contentment, and gratitude. Happiness is also described as the positive experience of emotions related to life satisfaction, appreciation of life, and moment of pleasure. Happiness is considered the most important thing in a human’s life (Ng, 1997). Scholars argue that happiness is not just having a good time or lots of things; more importantly, it involves a lasting sense of well-being and having a rewarding, meaningful, and pleasurable life (Kahneman, Diener, & Schwarz, 1999). Thus, one could define happiness as a state of being happy in life, family, social life, environment, and jobs.

The theory of income and happiness suggest that the potential determinants of happiness are income-related factors (especially for a cross-sectional study) and aspiration-related factors. Easterlin’s theory of income and happiness suggests that income is an important determinant of one’s happiness from a cross-sectional perspective (Easterlin, 2001). In the meantime, aspiration significantly modifies one’s ability to generate happiness from his/her income. Thus, income and aspiration are important determinants of primary school teachers’ happiness. Using multilevel analysis, Tadic, Bakker, and Oerlemans (2013) found that teachers’ job demands negatively influence happiness except for highly motivated teachers. Their finding was obtained using a unique data set that enabled the estimation of within-person variations. However, their study used a sample of secondary school teachers, unlike the present study, which considers Malaysian primary school teachers as the sample.

Teacher happiness and classroom behaviour are also closely associated. While the reasons for students’ misbehaviour in the classroom are subject to debate, the phenomenon is complex and multifaceted (Alberto & Tronman, 2006). Hyman (1994) stated that the classroom management ability of teachers is crucial in influencing classroom behaviour. Teachers with poor classroom management ability will exacerbate disruptive classroom behaviour, leading to unenjoyable classroom behaviour for students and teachers. In addition, unhappy teachers are often associated with students’ behavioural difficulties, the extent of contact with parents, the climate of the school,

and the interaction with other teachers and administrators. Thus, a school environment could determine teacher happiness.

In Malaysia, some studies on teacher happiness have been carried out. The most relevant to the present study is Abdullah, Ali, Ling, and Ping's (2016). They used a sample of 835 teachers from 167 government schools randomly selected from the three states of Penang, Kedah, and Perlis. They found that most dimensions of workplace happiness had a positive and significant relationship with the dimensions of innovative teacher behaviour. The dimensions of happiness consisted of the contribution of teachers, school climate, trust with teachers, and involvement of teachers. In a different study, Abdullah, Ling and Ping (2016) investigated the characteristic of the workplace from the Malaysian teachers' perspective. Ten public schools were chosen, and 180 teachers were randomly selected. They found that factors related to the work environment, such as physical safety, being valued, autonomy, engagement at work, rewarding relationships, the challenge of work, and work-life balance generated happiness in schools. In both studies, factors of religiosity and aspiration were not included.

In short, theories and previous studies have suggested that the determinants of teacher happiness are income and non-income. Income, aspiration, and school environment are the suggested determinants. Religiosity is yet to be examined. Thus, the present study aims to fill the gap and examine the determinants of happiness of primary school teachers in Malaysia, i.e., income, aspiration, school environment, and religiosity.

## DATA AND METHODOLOGY

### *Data*

The study's target population was primary school teachers in public schools in Perlis, Kedah, and Penang. These states were selected to represent teachers in Malaysia. Penang represents the developed states in Malaysia, whereas Perlis and Kedah represent the less developed states. Most primary school teachers receive centralized training (either from the Teachers' Training College, Institut Perguruan Malaysia, or public universities) and have various entry qualifications (Master in Education, Bachelor in Education, and Diploma in Education or Certificate in Education). Primary school teachers also went through the same education system, enrol in a similar scheme of services (graduate and non-graduate), and are of various socio-demographic characteristics. They teach the same curriculum and co-curriculum across various states in Malaysia. Thus, the three states, namely Perlis, Kedah, and Penang, should represent primary school teachers in Malaysia, ensuring that the results are not substantially different across states. Due to the vast population and geographical areas, the multi-stage stratified sampling method was used for efficiency.

The targeted population was divided by states and local authorities (areas). The local authority (area) was the sampling unit at this stage. However, we included all local authorities in Penang and Perlis only. In Kedah, we randomly chose one of the non-city areas. In the second stage, the selected authorities were divided by school size by using the classification provided by the Malaysia Ministry of Education: small, medium, and big). Then, we further divided them by the type of schools (National, Chinese national type, and Indian national type). In this stage, the sampling unit was the school. Three schools were randomly chosen from each of the three types of schools. Then, all teachers in the selected school were approached and given a questionnaire to complete. The data were collected from 87 primary schools with a sample size of 1,510.

### *Method*

The ordered logit model is used due to the ordinal scale used to measure happiness (Long, 1997). Assume that a latent variable represents an individual's underlying happiness tendency; the latent variable is associated with variables such as individual characteristics, aspiration, and others ( $x$ ). Let  $y^*$  represents this latent variable and assume that  $y^*$  is a linear function of  $x_i$ , then,

$$y_i^* = x_i \beta + \varepsilon_i \quad (1)$$

where,

$y^*$  = the unobserved underlying happiness (latent)

$x$  = the independent variables

$\varepsilon$  = the error terms

The model assumes that the observed self-reported happiness category ( $y$ ) is related to  $y^*$  (which is unobservable) and the boundary parameters ( $\mu_j$ ). The observed self-reported happiness category, i.e., the dependent variable ( $y$ ), takes the ordered category ( $J$ ) of 1 (being extremely unhappy), 2, 3, 4, 5, 6 and 7 (being extremely happy). The dependent variable was measured by a seven-point rating scale where the high values represent high happiness and vice-versa. We have an ordered logit model if the error term is logistically distributed. The model will be estimated with the robust variance estimates (Huber/White/sandwich estimator of variance). Two models are estimated. First, Model 1 (without interactive effect) consists of variables of income, aspirations, religiosity, life achievement, employment status, school environment, professional development, ethnicity, gender, age, marital status, family size, number of young dependents, health status, category of employment, the level of education, and teaching experiences. Second, Model 2 that consists of all variables of Model 1 and the interactive variables between aspiration and religiosity. Appendix 1 provides the definition and measurement (including the scale used) of the variables.

## RESULT AND DISCUSSION

### *Descriptive Statistical Analysis*

Table 1 presents teacher happiness. The mean of teacher happiness is around 5.3 (on a rating scale of 1 to 7) with a standard deviation of around 1.1 (i.e., the variation is around 20% of the mean). On average, the teachers are happy with a substantial variation around the mean. Table 1 also presents the percentage and frequency distribution of overall happiness. The overall life happiness is skewed to the right (long tail on the left). More than 90% of the participants scored four and above, implying that many indicate having a happy life. Only 5% of them are not happy with their life. Overall, the result answers the first objective that the level of happiness among primary school teachers in Malaysia is found to be high.

Table 1

*Overall life satisfaction and happiness*

	Mean	Std. Dev	Min	Max
How happy would you say you are?	5.270	1.076	1	7

  

Response	Frequency	Percent
1 Very unhappy	8	0.5
2	19	1.3
3	44	2.9
4	225	14.9
5	553	36.6
6	475	31.5
7 Very happy	164	10.9

Table 2 presents the demographic characteristics of the participants. The average age of the teachers is about 41 years, which is consistent with the working age of Malaysian primary school teachers between 24 and 60 years old. Since the teachers graduated with Diploma in Education or Bachelor of Education at 23 or 24 years old and started working at 25 years old, the teachers have

about 16 years of teaching experience. The size of the family is about five. Table 2 reveals that the mean income of the participants is about RM4,700. The other sample characteristics are shown in Table 3. In short, the sample characteristics of the participants reflect the population characteristics of the study in terms of mean age and salary of around RM4,700. The descriptive statistics of other variables are presented in Appendix 2.

Table 2  
*Selected sample characteristics*

	Minimum	Maximum	Mean	Standard Deviation
Age	19	60	40.96	8.62
Size of the family	1	13	4.82	1.70
Total of young dependents	0	9	2.06	1.45
Total of old dependents	0	12	1.35	1.13
Monthly income	1080	8199	4680.67	1050.60
Total teaching experience	0.10	39	15.52	8.62
Teaching experience in this school	0.10	39	8.65	6.91

### ***Estimation of ordered logit models***

The ordered logit model is used to assess the impact of the independent variables on happiness. The independent variables are income, aspiration, and religiosity. The summarized results of the estimated ordered logit for Model 1 (without interactive effects) and Model 2 are presented in Table 3. The estimated models are found to have a good fit (54.41% correctly predicted; Pseudo R-squared more than 0.2), low multicollinearity (VIF below 7.9), and no evidence of general specification errors).

Table 3  
*Result of ordered logit models*

Variables	Model 1 (without interactive effect)		Model 2 (with interactive effect)	
	Coef.	P-value	Coef.	P-value
Income	0.0004	0.499	0.001	0.382
Income2	-3.9E-08	0.573	-5.3E-08	0.430
aspiration	0.340	0.055*	0.293	0.096*
rel_1 (Strength in believed religion)	0.198	0.188	0.716	0.095*
rel_2 (accept and respect other religion)	0.170	0.083*	0.079	0.827
rel_3 (All religion moral and teach in school)	-0.110	0.251	0.855	0.073*
<u>Interactive effects:</u>				
aspiration#c.rel_1	-	-	-0.259	0.185
aspiration#c.rel_2	-	-	0.046	0.786
aspiration#c.rel_3	-	-	-0.476	0.037**
D2 (achie. targeted life goal)	0.528	0.001**	0.552	0.001***
D3 (achie. life goal gen. happiness)	0.674	0.000***	0.657	0.000***
Temporary Employment (comp: permanent)	0.774	0.455	0.835	0.406
sc_environment1 (feedback for school decisions)	0.560	0.000***	0.563	0.000***
sc_environment2 (students provided with assistant)	0.381	0.001***	0.389	0.001***
PD1_average (short run course/training)	0.279	0.319	0.232	0.407
PD2_average (long run course/training)	-0.319	0.295	-0.314	0.301
PD4_average (support)	-0.162	0.657	-0.194	0.599

PD5_ average (assess)	0.007	0.938	0.004	0.962
PD6_ average (barriers)	0.074	0.362	0.058	0.482
Chinese (comp: Malay)	0.165	0.571	0.010	0.734
Indian (comp: Malay)	0.276	0.387	0.246	0.442
Sarawak Bumi (comp: Malay)	-0.723	0.197	-0.701	0.196
Others (comp: Malay)	2.182	0.000***	2.075	0.000***
Female (comp: Male)	-0.280	0.225	-0.277	0.229
Age	-0.067	0.567	-0.068	0.555
Age2	0.001	0.594	0.001	0.600
Married (comp:single)	-0.755	0.035**	-0.772	0.031**
Widow/widower(comp:single)	-0.635	0.438	-0.778	0.341
Others(comp:single)	-2.675	0.003**	-2.585	0.003**
Family	-0.121	0.019**	-0.110	0.033**
Young Dependents	0.199	0.003***	0.185	0.007***
Healthy (comp: (very healthy)	-0.323	0.141	-0.352	0.107
Neither healthy nor unhealthy (very healthy)	-0.584	0.077*	-0.621	0.062*
Unhealthy (very healthy)	-0.095	0.961	-0.158	0.937
Very unhealthy (very healthy)	-1.302	0.010**	-1.326	0.008**
Employment Category	0.039	0.314	0.044	0.258
Education	-0.008	0.948	-0.044	0.733
Exp_all (total teaching experience)	-0.005	0.859	-0.001	0.979
<b>Goodness of fit test</b>				
a. Pseudo R2		0.202		0.207
b. Classification Table (Hit- Miss Table)		54.41%		54.41%
c. VIF (Range)		1.03-7.80		1.03-7.80
d. General specification Test (Linktest, P-value)		0.825		0.957
e. Restriction Test		0.905		0.286

Note: \*\*\*, \*\*, and \* represent 1%, 5% and 10% significant level respectively. See Appendix 1 for the definition and measurement of variables.

Table 3 shows that the income variable is statistically insignificant in determining teacher happiness in Model 1 and Model 2, contradicting the theory and previous studies. According to theory, income should have a significant impact on cross-sectional data. Previous studies found that income is a significant factor in poverty but does not determine happiness if the basic (physiological) needs are met (Myers & Diener, 1995). It is found that the average starting salary (pay) of teachers is much higher than that of other professions (with the same qualification). In addition, some teachers earn extra income from tuition, which is not reported as income in the present study. Thus, the income in the present study is likely to be underestimated. Teachers might have a high salary beyond the basic needs. Therefore, income becomes insignificant after controlling for the other variables, such as aspiration.

However, the aspiration variable is significant at the 10 percent level for Model 1 and Model 2. The positive impact of aspiration on teacher happiness shows that teachers with higher aspirations are happier. This positive finding contradicts Easterlin's theory of aspiration, which argues that aspiration could influence happiness negatively and previous studies, such as Stutzer's (2004). However, the aspiration interacts with religiosity (rel\_3: all religion moral and teach in school) negatively and significantly. Thus, in the present study, the positive effect of aspiration is found with significant and negative interaction effects with other variable. This is not surprising since aspiration is part of human achievement, as shown by Maslow's hierarchy of achievement (Adiele & Abraham 2013). This shows that primary school teachers need aspiration improvements to be

happy. It is the aspiration that the teachers need and not income in the case of primary school teachers in Malaysia. In addition, aspiration is found to have insignificant interaction with other variables except for religion.

The factor analysis of religiosity shows three dimensions: strength in religion, acceptance and respect for other religions, and all religions teach equality and morality. The interactive effect between religion and aspiration is found to be significant, either by t-test or description test. Hence, the analysis focuses on Model 2. In Model 2, the strength in religion and equality in religion are significant at the 10 percent level. Teachers who scored highly on these two dimensions of religiosity are more likely to be happy. In addition, the interaction between aspiration and equality in religion produces a positive and significant impact on happiness. This finding is consistent with religious teaching and happiness. Religion is important to human life; humans derive happiness from religious practices and following the teachings. For example, the five precepts of Buddhism provide happiness to the people who practice them. One of the reasons that religion has a negative interactive effect on aspiration is that religion requires a low aspiration to derive happiness (Thanissaro & DeGraff, 2006). According to Thanissaro and DeGraff (2006), low aspiration purifies one's heart, and with a purified heart, one could derive more happiness from religiosity.

Another important finding relates to the school environment. A school environment, which seeks teacher feedback for school decisions or to help students, has a positive and significant impact on teacher happiness, supporting Kurt Lewin's field theory that defines the relationship between a person and environment. A primary school environment, which supports students through the provision of material needs, such as school uniforms, workbooks, tuition fees, and stationery, and psychological needs, such as good advice and motivation, is likely to make teachers happy. With such support, teaching and learning activities in and outside the classroom will become lively and smooth. Similarly, seeking teachers' feedback for school decisions as a form of participation makes them happy.

The finding also suggests that primary teachers who have achieved a targeted life goal and achievement life goal are happy. This finding is consistent with the life satisfaction theory of happiness. For example, one of the targeted life goals of primary school teachers is to get a promotion. Graduate teachers who start working in the category DG41 will automatically be promoted to DG44 after eight years of service and later to DG48 after serving additional eight years after the last promotion.

In terms of ethnicity, other ethnic groups (e.g., non-Chinese, non-Indian, non-Sarawak Bumiputra) are happier than Malays. The difference is significant at 1%. In terms of marital status, compared to those who are single, divorcees are less happy. These two results are inconsistent with the theory and previous studies, which could be due to the low number of observations (less than 10).

## CONCLUSION

The ordered logit model is used to estimate the determinants of happiness of primary school teachers in Malaysia. The determinants examined are aspiration and desire, religiosity, and income. The empirical findings indicate that aspiration positively and significantly determines teacher happiness. Teachers with high aspirations are likely to be happier. However, this finding contradicts Easterlin's theory of aspiration, which argues that aspiration negatively influences one's happiness. However, there is negative interaction effect of aspiration through religiosity to happiness. Thus, high religiosity can reduce the positive effect of aspiration. This is not surprising as aspiration is part of human achievements, as shown by Maslow's hierarchy of achievement (Adiele & Abraham 2013). This shows that primary school teachers need aspiration improvement to be happy. They need aspiration and not income. However, the effect of aspiration to happiness is constrained by religiosity.

Two dimensions of religiosity, i.e., the strength of religion and equality in religious teaching in primary schools, have a positive and significant impact on teacher happiness. This finding is consistent with religious teaching and happiness. However, the result indicates that income is statistically insignificant in determining teacher happiness while school environment and targeted life goals and achievement of life goals generate happiness.

The government is making concerted efforts to develop the teaching profession as a prestigious profession to raise the education quality and standard of education in the country. The Malaysian Education Blueprint (2013) focuses on the teaching profession, career path, professional development strategy, and human capital development. The significant impacts of religion, school environment, and life goals suggest that the existing efforts and initiatives could be further improved by incorporating religion. Regarding the school environment, the focus should be on providing teachers with opportunities to participate in school management. Moreover, teachers could be happy by increasing their aspirations. Thus, tangible rewards are needed to improve teacher happiness. The KPI (Key Performance Indicators) of teachers should include tangible rewards. The Malaysian government can consider providing a “double” yearly salary increment for teachers who perform well/excellent in KPI.

Since teachers contribute to education quality, the professionalism and prestige of the teaching profession in Malaysia should be given due attention. The dimensions of religiosity and school environment should be incorporated into the existing government policies for teacher happiness. Despite the continuous effort and various policies to promote the teaching profession and teacher professionalism by the government (Jamil, 2014), many questions still exist as to the best way to retain and motivate high-performing teachers in the classroom. For example, the current excellent teacher program as a career path (providing a high salary) for outstanding teachers. In this context, happiness is crucial and should be incorporated into the teaching profession.

Future research could replicate the framework of this study in other settings, such as private schools or higher education institutions. Importantly, studies on these aspects from other perspectives would perhaps yield interesting outcomes and understanding regarding happiness and job performance across different education settings such as private schools or higher education institutions. Due to resources limitation, the population has targeted only the northern states of Peninsular Malaysia, future studies are suggested to enlarge the sample to include other states to validate the findings of this study. Another potential limitation is that the findings need to be triangulated by adopting a qualitative study approach such as in-depth interviews which could discover the underlying factors that influence teachers’ happiness and their performance.

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## APPENDIX 1

## Definition and measurement of variables

Variable	Definition	Measurement
Happiness	One-item overall happiness: “All things considered, how satisfied are you with your life as a whole nowadays?”	7-point rating scale 1 “being very unhappy” to 7 “being very happy”
Income	Monthly income	RM per month
Income2	Squared of income	
Aspiration	i. Maintaining order in the nation ii. Give people more say in important gov decisions iii. Fighting rising prices iv. protecting freedom of speech	Choice ranking – the most and the second (see note 1)
rel_1	Religiosity: strength in believed religion (see note 2)	Factor scores
rel_2	Religiosity: accept and respect other religion (see note 2)	Factor scores
rel_3	Religiosity: all religion moral and teach in school (see note 2)	Factor scores
D2	I believe that I have achieved my targeted life goals	7-point rating scale: 1 being “strongly disagree” and 7 being “strongly agree”
D3	The achievement in my targeted life goals generate happiness to me	
Temporary Employment	Dummy for employment status (comparison group: permanent)	=1 if temporary
sc_environment1	School environment: feedback for school decisions (see note 3)	Factor scores
sc_environment2	School environment: students provided with assistant (see note 3)	Factor scores
PD1_average (short run course/training)	Personal Development 1 (see note 4a)	Average values
PD2_average (long run course/tranning)	Personal Development 2 (see note 4b)	Average values
PD4_average (support)	Personal Development 3 (see note 4c)	Average values
PD5_average (assess)	Personal Development 5 (see note 4d)	Average values
PD6_average (barriers)	Personal Development 6 (see note 4e)	Average values
Chinese	Dummy for ethnicity (comparison group: Malay)	=1 if Chinese
Indian	Dummy for ethnicity (comparison group: Malay)	=1 if India
Sarawak/Sabah Bumi	Dummy for ethnicity (comparison group: Malay)	=1 if Sarawak bumi
Others	Dummy for ethnicity (comparison group: Malay)	=1 if Others
Female	Dummy for gender (comparison group: male)	=1 if female
Age	Age in years	years
Age2	Squared of Age	
Married	Dummy for marital status (comparison group: single)	=1 if married
Widow/widower	Dummy for marital status (comparison group: single)	=1 if widow/widower
Others	Dummy for marital status (comparison group: single)	=1 if others
Family	Size of family	persons
Young Dependents	Number of young dependents (age below 18 years)	persons
Healthy	Dummy for health status (comp. group: very healthy)	=1 if healthy

Neither healthy nor unhealthy	Dummy for health status (comp. group: very healthy)	=1 if neither healthy nor unhealthy
Unhealthy	Dummy for health status (comp. group: very healthy)	=1 if unhealthy
Very unhealthy	Dummy for health status (comp. group: very healthy)	=1 if very unhealthy
Employment Category	Dummy for employment status (comp group: non-permanent)	=1 if permanent status
Education	The highest qualification	1=SPM 2=STPM/Diploma or equivalent 3= First Degree 4= Master Degree 5= Ph.D
Exp_all	Total teaching experience	years

**Note:**

- Aspiration (Following Tranter and Western, 2009) =1 low aspiration if choose the choice of (i) and (iii); =3 high aspiration if choose the choice of (ii) and (iv); =2 moderate aspiration if choose the choice of other than the above
- Religiosity  
Factor analysis

	Component		
	1	2	3
Religion always right	.857		
Religion practice	.824		
God is very important	.809		
Frequently pray	.798		
Activities at worship place	.721		
Only acceptable my religion	.703		
Practicing religion happy	.671	.536	
Practice religion comfort	.669	.540	
Accepted different religion		.826	
Respect religions		.825	
All religions be teach in public school			.817
Different religions			.731
Kaiser-Meyer-Olkin Measure of Sampling Adequacy			0.869
Approx. Chi-Square			10744.715
Bartlett's test of Sphericity			0.000
Eigenvalue	5.643	1.895	1.113
Variance Extracted (%)	43.407	14.578	8.559

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. KMO = 0.869; Bartlett's test of Sphericity (p-value)=0.0000. Factor 1 is labelled as "strength in believed religion"; Factor 2 is labelled as "accept and respect other religion"; Factor 2 is labelled as "all religion moral and teach in school"

- School environment: feedback for school decisions School environment: students provided with assistant  
Factor analysis

	Component	
	1	2
Students well-being	.841	
Teachers get along well	.816	
Good leadership	.779	
Mutual support	.741	.416
Students have say	.628	
Shared responsibility	.607	.589
School provides assistance	.595	
School provide students		.864
School provides parents		.856

School provides staff	.403	.748
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.913
Approx. Chi-Square		9036.111
Bartlett's test of Sphericity		.000
Eigenvalue	5.694	1.140
Variance Extracted (%)	56.941	11.403

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. KMO = 0.913; Bartlett's test of Sphericity (p-value)=0.0000. Factor 1 is labelled as "feedback for school decisions"  
Factor 2 is labelled as "students provided with assistant"

4. Personal Development

a. PD1: a simple average of the following items:

During the last 12 months, did you participate in any of these activities?	
Courses/workshop (eg. On subject matter or methods and/or other education-related topics).	Yes=1; No=0
Education conferences or seminars	Yes=1; No=0
Observation visit to the other schools	Yes=1; No=0
Observation visits to business premises, public organizations, non-government organizations	Yes=1; No=0

b. PD2: a simple average of the following items:

During the last 12 months, did you participate in any of these activities?	
Degree program	Yes=1; No=0
Participation in a network of teachers formed specifically for the professional development	Yes=1; No=0
Individual or collaborative research on a topic of interest to your professionally	Yes=1; No=0
Mentoring and/or peer observation and coaching, as part of a formal school arrangement.	Yes=1; No=0

c. PD4: a simple average of the following items:

For more professional development in which you participated in the last 12 months, did you receive any of the following support?	
I received scheduled time off for activities that took place during regular working hours	Yes=1; No=0
I received a salary supplement for activities outside working hours.	Yes=1; No=0
I received non-monetary support for activities outside working hours	Yes=1; No=0

d. PD5: a simple average of the following items:

Considering the professional development activities you took part in during the last 12 months, to what extent have they included the following	
A group of colleagues from my school or subject group	4-point
Opportunities for active learning methods (not only listening to a lecture)	4-point
Collaborative learning activities or research with other teacher	4-point
An extended time-period (several occasions spread out over several weeks or month)	4-point

4-point: 0=not in any activities; 1=yes, in some activities; 2=yes, in most activities; 3=yes, all activities.

e. PD6: a simple average of the following items:

How strongly do you agree or disagree that the following present barriers to your participation in professional development?	
I do not have the prerequisites (e.g. qualifications, experience, seniority)	4-point
Professional development is too expensive/unaffordable	4-point
There is a lack of employer support	4-point
Professional development is conflicts with my work schedule	4-point
I do not have time because of my family responsibilities	4-point
There is no relevant professional development offered	4-point
There are no incentives for participating in such activities	4-point
The professional development offered is of poor quality	4-point
Professional developments is not really accessible to me	4-point

4-point: 1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree

**APPENDIX 2**

## Descriptive statistics of other variables

Variable	Frequency	Percentage
Temporary Employment	1489	98.74
Permanent	19	1.26
Malay	647	42.93
Chinese	592	39.28
Indian	262	17.39
Sarawak Bumi	3	0.2
Others	3	0.2
Singla	240	15.94
Married	1219	80.94
Widow/widower	42	2.79
Others	5	0.33
Employment Category: Non-graduate	338	22.61
Graduate	1,157	77.39
Male	276	18.29
Female	1233	81.71
Very healthy	232	15.5
Healthy	1024	68.4
Neither healthy nor unhealthy	214	14.3
Unhealthy	24	1.6
Very unhealthy	3	0.2
	mean	Std Dev.
aspiration	2.042	0.506
rel_1 (Strength in believed religion)	0.000	1.000
rel_2 (accept and respect other religion)	0.000	1.000
rel_3 (All religion moral and teach in school)	0.000	1.000
D2 (achiev. targeted life goal)	5.022	1.095
D3 (achiev. life goal gen. happiness)	5.373	1.052
sc_environment1 (feedback for school decisions)	0.000	1.000
sc_environment2 (students provided with assistant)	0.000	1.000
PD1_average (short run course/training)	0.525	0.293
PD2_average (long run course/tranning)	0.406	0.301
PD4_average (support)	0.355	0.267
PD5_average (assess)	1.358	0.622
PD6_average (barriers)	0.000	1.000