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Research paper

Pilot Study of Instrument to Measure Effect of School Climate, Teachers' Commitment, Teachers' Motivation and Teachers' Job Satisfaction Towards Teachers' Work Performance

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Abstract

The main focus of this article is to discuss the findings of the pilot study of the instrument about "The Effect of School Climate, Teachers' Commitment, Teachers' Motivation and Teachers' Job Satisfaction towards Teachers' Work Performance", which has been adapted by researchers. The pilot study sample was 137 teachers of secondary school involved in the survey. Factor analysis was conducted using the Statistical Package of Social Science (SPSS) version 21 and the reflective measurement model in the Structural Equation Modeling (PLS-SEM) was also conducted in this study. The validity and reliability of External Load (> 0.6), AVE (> 0.5), Composite Reliability and Cronbach's alpha are (> 0.7); and the Discrimination Validity based on the Fornell-Larcker Criterion (latent value exceeds the latency correlation) was fulfilled. The validity and reliability shown indicate that the instrument is suitable for the actual study.

Keywords: *School climate; Teachers' commitment; Teachers' motivation; Teachers' satisfaction; Teachers' work performance.*

1. Introduction

Teachers are an important aspect in an educational institution where they play a leading role as the presenter of this knowledge and then is very important as a measure for the development of a community. The quality teachers are the decisive of a quality educational system rather than just the education system [4].

2. Methodology

2.1. Research Design

This pilot study used quantitative research that is collected in the survey by distributing questionnaires to secondary school teachers in Betong Division, Sarawak. The purpose of the study is to confirm the influence of factors related to secondary school teachers to their work performance. Furthermore, this study is a descriptive study that explains the influence of exogenous variables on endogenous variables. In this study, exogenous variables are school climate, teachers' commitment, teachers' motivation and teachers' job satisfaction that influence the endogenous variables of teachers' work performance.

2.2. Population and Sample

Random sampling is easy to use by researchers to select respondents for the study. The number of teachers for pilot study was 137 in two secondary schools in Betong Division, Sarawak. A total of 140 questionnaires have been distributed randomly, but only 137 questionnaires have been collect back.

2.3. Instrument

In this study, the Organizational Climate Description Questionnaire - Rutgers Secondary (OCDQ-RS) is used to measure the high school climate. OCDQ-RS is an important aspect of the school. This questionnaire was developed [22] which has been translated into Malay [1]. In this study, this instrument was adapted based on [18] with 15 items. OCDQ-RS was built to measure the high school climate. Teachers' commitment is measured using Organizational Climate Questionnaire (OCQ), which has a 24 item scale produced. In this study, this questionnaire was adapted [24]. The Work Tasks Motivation Scale for Teachers (WTMST) has 15 items [7], which have been adopted to measure the motivation of teachers towards specific task assignments in subjects. WTMST has been developed on the basis of self-determination theory [4], which gives rise to "multidimensional motivational thinking that allows the assessment of motivational and motivational levels" [9]. The Work Tasks Motivation Scale for Teachers (WTMST) questionnaire used in this study was adapted [19]. The Minnesota Satisfaction Questionnaire (MSQ) questionnaire was used to measure the job satisfaction of teachers, which measures the overall job satisfaction that includes 20 items of teacher job satisfaction. The questionnaire was developed [24]. This study uses the Teachers' Job Performance Self-Rating Questionnaire (TJPSQ) instrument to measure teacher work performance. This instrument includes 21 items and has also been used to measure teacher work performance at La-Nkwantanang. Madina, Ghana [5].

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2.3. Pilot Study

Pilot studies are usually carried out to assess the scale of measurements in the research instrument before being used in actual studies. Pilot studies also refer to a pilot study administered to a small group chosen from the respondents using the same procedures, techniques and instruments as the actual study [11]. Pilot study was conducted before the actual study was conducted to test, specify, ensure and evaluate the reliability and validity of the questionnaire that will be used in the actual study is carried out. All scales used in this study are one-dimensional and therefore, factor validation analysis (Confirmatory Factor Analysis (CFA) is not performed as dimension validation is not required. Exploratory Factor Analysis (EFA) was not done using the IBM SPSS 21.0 software because with SmartPLS 3.0 software, the measurement model evaluation determines the validity and reliability of the instrument. The EFA should not be implemented if the scale is adapted from existing scale and unidimensional scale [10].
The Work Skills for Teachers (WTMST) and Teachers' Job Performance Self-Rating Questionnaire (TJPSQ) are both English and translated into Malay by and then translate by again four experts.

2.4. Method of Analysis Pilot Study Data

There are 137 questionnaires received in the pilot survey and were analyzed using SPSS Version 21 onwards to find out the value of Measurement Model using PLS-SEM using Smart PLS 3.2.7 software. Hence, 95 items in the pilot study of 5 constructs have been tested in pilot study based on the path of the study model. The findings of this pilot study used the reliability of composites and Cronbach's alpha to assess individual items of reliability, internal consistency and average variance extracted (AVE); as well as to assess the validity of convergent validity and discriminant validity.

3. Results and Discussion

3.1. Normality Tests

Skewness and kurtosis testing can determine normality [6, 23]. The absolute value for skewness and kurtosis is more than one [22]. However, there are other researches [14, 3] which explain that the value of skewness is more than 3 and the value of Kurtosis more than 10 will be problematic. The findings showed that the value of skewness is all below 3.0 and the kurtosis value is also less than 3.0. Hence, this questionnaire has good normality.

3.1.1. The Findings of Factor Analysis of Each Variable

The factor analysis is conducted by using the extraction of principal component with varimax rotation on 14 items that measure the school climate constructs, 24 items that measure the constructs of teachers' commitment, 15 items that measure teachers' motivation constructs, 20 items that measure the constructs of teacher job satisfaction and 21 items that measure the constructs of teacher work performance. Results in Table 1 show the Barlett's Test of Sphericity value is significant, $p = .000$ ($p < .05$). In addition, the measurements for sample resolution using Kaiser-Meyer-Olkin (KMO) are good for satisfying the prescribed value of 0.6. These five results (Barlett's Test are significant and KMO > 0.6) indicate that this data is appropriate to be continued with the next data reduction procedure.

Table 1: The Value of Kaiser-Meyer-Olkin and Significant Value Each Variable

Constructs	KMO	Bartlett's Test of Sphericity		
		Approx. Chi-Square	df	Sig.
School Climate	.923	1950.372	91	.000
Teachers' Commitment	.914	3239.606	276	.000
Teachers' Motivation	.851	1688.043	105	.000
Teachers' Job Satisfaction	.944	3274.288	190	.000
Teachers' Work Performance	.867	2350.172	210	.000

3.1.2. The Findings of Dimensions or Components and Total Variance Explained Of Each Variables

The findings of dimensions or Components and Total Variance Explained School Climate dimensions are based on Eigenvalue value greater than 1.0. The total number of variance to measure this school climate construct is 71.665%, the teachers' commitment construct is 69.655%, the teachers' motivation construct is 67.998%, the teachers' job satisfaction construct is 62.579% and the teachers' work performance is 69.757%. The results show that the number of components and items for each component is appropriate to measure the construct of the school climate as the total variance is at least 50% [14].

3.1.3. The Findings of Dimension or Component Distribution

The findings showed two dimensions or components measured by 14 items on school climate, three dimensions or components measured by 16 items of teacher commitment, three dimensions or components measured by 15 item teachers' motivation, two-dimensional or components measured by 18 items on teacher job satisfaction items and 22 items that measure the constructs of teacher work performance. According to [11], the items should indicate the loading factor exceeding 0.4 and the communality value exceeds 0.3. The findings also show that the loading factor for each item is greater than 0.4 and the value of communality of each item is also greater than 0.3. Therefore, all items are eligible and no more item will be removed.

3.1.4. The Findings of Cronbach's Alpha Analysis

The findings showed the value of Cronbach's Alpha coefficient for all items for school climate is 0.941, teachers' commitment is 0.934, teachers' motivation is 0.941, teachers' job satisfaction is 0.950 and teachers' work performance is 0.923. This finding shows that the results of the analysis all are more than 0.70 [16].

3.2. Reliability of Indicators, Internal Consistency, and Convergence Validity of Pilot Study

Table 2 shows the validity and reliability of indicators and constructs that have been analyzed with PLS algorithms for school climate, teachers' commitment, teachers' motivation, teachers' job satisfaction and teachers' work performance. The findings show that the reliability of indicators, internal consistency, construct validity and convergence validity are acceptable.
However, outer loadings (OL) to evaluate individual reliability items if less than 0.6 has to be removed to increase composite reliability or AVE values [12]. The KG23, KG24, KG21, KG22, KG14, MG9, MG15, MG5, PKG21, PKG16, PKG15, PKG6 had to be eliminated because values of outer loadings are less than 0.6 [11].
According to Table 2, factor loadings are more than 0.60 are acceptable or maintained [13] because of the value of AVE is more than 0.50, composite reliability more than 0.70 and Cronbach's Alpha more than 0.70 each has been fulfilled. Therefore, the reliability of composites and Cronbach's Alpha in the internal con-

sistency reliability [17], individual item reliability [12] and convergence validity were fulfilled in this pilot study.

Table 2: Summary of validity and reliability of 5 constructs

Construct	Items	Outer Loadings (OL) (>.6)	AVE (> .5)	CR (> .7)	Cronbach' Alpha (> .7)
School Climate	IS1	0.899	.535	.941	.957
	IS10	0.675			
	IS11	0.712			
	IS12	0.682			
	IS13	0.635			
	IS14	0.632			
	IS15	0.691			
	IS2	0.896			
	IS3	0.718			
	IS4	0.716			
	IS5	0.689			
	IS7	0.882			
	IS8	0.667			
	IS9	0.668			
Teachers' Commitment	KG1	0.747	0.640	0.971	0.932
	KG10	0.887			
	KG11	0.781			
	KG12	0.710			
	KG13	0.777			
	KG15	0.748			
	KG16	0.792			
	KG17	0.869			
	KG18	0.827			
	KG19	0.713			
	KG2	0.806			
	KG20	0.676			
	KG3	0.848			
	KG4	0.720			
	KG5	0.785			
	KG6	0.868			
	KG7	0.809			
	KG8	0.907			
	KG9	0.879			
Teachers' Commitment	KG1	0.747	0.640	0.971	0.932
	KG10	0.887			
	KG11	0.781			
	KG12	0.710			
	KG13	0.777			
	KG15	0.748			
	KG16	0.792			
	KG17	0.869			
	KG18	0.827			
	KG19	0.713			
	KG2	0.806			
	KG20	0.676			
	KG3	0.848			
	KG4	0.720			
	KG5	0.785			
	KG6	0.868			
	KG7	0.809			
	KG8	0.907			
	KG9	0.879			
Teachers' Job Satisfaction	KKG1	0.778	0.616	0.970	0.976
	KKG10	0.736			
	KKG11	0.758			
	KKG12	0.777			
	KKG13	0.730			
	KKG14	0.786			
	KKG15	0.858			
	KKG17	0.890			
	KKG18	0.843			
	KKG19	0.855			
	KKG20	0.693			
	KKG3	0.849			
	KKG4	0.790			
	KKG5	0.770			
	KKG6	0.757			
	KKG7	0.674			
	KKG8	0.660			
	KKG9	0.852			
Teachers' Work Performance	PKG1	0.716	0.530	0.950	0.944

	PKG10	0.704			
	PKG11	0.791			
	PKG13	0.813			
	PKG14	0.843			
	PKG17	0.678			
	PKG19	0.703			
	PKG2	0.668			
	PKG20	0.752			
	PKG3	0.669			
	PKG4	0.719			
	PKG5	0.626			
	PKG7	0.716			
	PKG8	0.653			
	PKG9	0.782			

3.3. Discriminant Validity with Fornell-Lacker's Criterion

The discriminant validity is determined by Fornell-Lacker's Criterion and the Heterotrait-Monotrait ratio of correlations (HTMT) ratio. Table 3 shows the study findings for Fornell-Lacker's Criterion. The findings showed the corresponding correlation value (top and bottom most value) is always greater than the values below and left side for each construct. This indicates the validity of the discriminant is received [8].

Table 3: Discriminant validity with Fornell-Larcker's criterion

	School Climate	Teachers' Job Satisfaction	Teachers' Commitment	Teachers' Motivation	Teachers' Work Performance
School Climate	**0.731**				
Teachers' Job Satisfaction	0.610	**0.785**			
Teachers' Commitment	0.263	0.241	**0.800**		
Teachers' Motivation	0.341	0.476	0.049	**0.757**	
Teachers' Work Performance	-0.219	-0.194	-0.149	0.220	**0.728**

3.4. Discriminant Validity with Heterotrait-Monotrait Ratio of Correlations (HTMT)

Table 4 shows the HTMT ratio for each construct. All values of the HTMT ratio show values below 0.850 [8] and thus show good discriminant validity. Thus, it confirms that the construct has the discriminant validity received.

Table 4: Discriminant validity with HTMT ratio

	School Climate	Teachers' Job Satisfaction	Teachers' Commitment	Teachers' Motivation	Teachers' Work Performance
School Climate					
Teachers' Job Satisfaction	0.671				
Teachers' Commitment	0.302	0.282			
Teachers' Motivation	0.516	0.551	0.148		
Teachers' Work Performance	0.129	0.112	0.135	0.209	

4. Conclusion

The findings of this pilot study suggested that 82 items that can measure 5 constructs are significant and appropriate to be implemented in actual studies that is the effect of school climate, teachers' commitment, teachers' motivation and teachers' job satisfaction towards teachers' work performance. The school climate consists of 14 items; Teachers' commitment consists of 19 items; Teachers' motivation consists of 12 items; Teachers' Job Satisfaction consists of 20 items; Teacher's Job Performance consists of 17 items. The validity and reliability of External Load (> 0.6), AVE (> 0.5), Composite Reliability and Cronbach's Alpha are (> 0.7) and the Discriminant Validity based on the Fornell-Larcker Criterion (latent value exceeds the latency correlation) was fulfilled. The validity and reliability shown indicate that the instrument is suitable for actual study.

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