

Measurement Model of Teaching Competency of Secondary School Teachers in Malaysia

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Abstract—Competent teachers are the most important capital in boosting the nation's education system in line with other developed countries in the world. This quantitative study aims to develop a model for measuring the teaching competency of a secondary school teacher in Malaysia. This measurement model has contained three functions namely (i) teaching and learning strategies, (ii) teacher and student communication, and (iii) teachers' professionalism value. The results of confirmatory factor analysis from the collected data through 352 respondents that were analyzed by SEM AMOS found that 17 of the 20 suggested behaviors are acceptable. This finding was verified the proposed function within the teaching competence variables. Finally, a successful teachers' teaching competency measurement model has been developed and can be used to any responsible parties to encourage and in-crease competency among teachers.

Keywords—Teaching Competency; Communication; Teachers' Professionalism

1 Introduction

The Ministry of Education puts a clear direction in the Malaysia Educational Blue Print (2013-2025) in order for the national education system moving along with developed countries. In addition to education transformation, principals, supporting infrastructure, and community involvement, teachers are the most important asset in the effort to propel our nation's education system to a higher level [1].

Thus, competent teachers are the most important capital in boosting nation's education system along with the other developed countries in the world. However, in education system in Malaysia, relatively there has not been a standard of teachers' teaching competency like the other developed countries such as United State of America, United Kingdom, Japan, Australia dan Netherland [2]–[6].

But, the initiative of *the Bahagian Pendidikan Guru* (BPG) has successfully developed a *Standard Guru Malaysia* (SGM) document which can be used as a basis to

improve the quality of service of the teaching profession to achieve the predetermined quality. It can also be used as the basis of standard teaching competence of teachers.

To address the challenges of the 21st century education of academic qualifications, basic training and existing experience are still inadequate. Recognizing this fact the government introduced a *Pelan Pembangunan Profesionalisme Berterusan* (PPPB) aimed at developing professional competence towards strengthening the desired attributes so that teachers and school leaders can effectively and effectively deliver their roles and responsibilities [7].

The PPPB model is based on three-dimensional competencies, five attributes and six roles and responsibilities of teachers and school leaders. PPPB has placed two phases namely the initial phase and phase of capacity building as well as continuous expertise throughout the service period. The initial phase involves teachers who are first appointed in the service until they have confirmed the position of the goal to be developed the competence of teachers in the real situation. The capacity building phase begins after the teacher is confirmed to the post service. This phase aims to develop competencies to achieve expertise in teaching and learning and education leadership [7].

2 Literature Review

As mentioned before, no more standard of teachers' teaching competency in education system in Malaysia. However, many local researchers conducted their study about teachers' teaching competency in term of one of the role and task of teachers is to facilitate student learning, while students expect teachers to effectively teach their achievement[8]–[10].

Overall, local researchers found that the level of teachers' teaching competency was at moderate level and high level in teaching methods and teaching aids but still weak in aspects of pedagogical competence, relevant knowledge and skills [2], [11]–[13].

In the context of teaching skills competence, the findings of this decade researcher show that the overall perception of the students is that teachers need to the mastering of learning evaluation skills followed by the diversity of teaching strategies and the use of information technology skills in order to enhance student achievement [14].

In addition, teachers need to master in using information technology and digital technology in their teaching and learning. Studies by local researchers demonstrate the competence of using information technology and digital technology to attract students, motivate students and improve understanding of students [15]–[18].

In the context of the competence of the use of information and communication technology in teaching and learning, the findings show that there is a significant relationship between teacher attitude towards the use of TMK in teaching [19].

Based on the literature review, it can be concluded that there is a diversity of dimensions or aspects in the teaching competence of teachers. Among them are aspects of pedagogy, knowledge and skills as well as teaching aids. This diversity shows that

in Malaysia there is no standard set of teacher teaching competencies that teachers can guide in Malaysia[2].

Based on literature review and issues in teachers' competency, this study proposes three constructs of teacher's teaching competency as illustrated in the conceptual framework as in Figure 1. Teachers' teaching competency is a variable followed by three construct namely teaching and learning strategy, teacher and student communication and teachers' profesionalisme value.

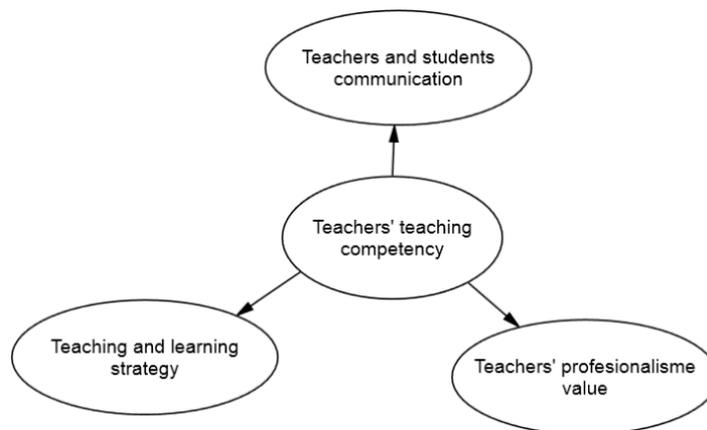


Fig. 1. The conceptual framework

3 Measurement

This quantitative study was applied cross sectional survey aims to develop a model for measuring the teaching competency of secondary school teacher in Malaysia. The participants consist of 352 teachers which represented the secondary school in Malaysia. Data was collected by using questionnaire which using five-scale responses, starting from the lowest scale, “never” to the highest scale which is “very frequent”. Data were analyzed using Structural Equation Modelling (SEM). To validate the proposed factor for each dimension, Confirmatory Factor Analysis (CFA) is performed. The proposed factor is acceptable if the factor loading value is 0.708 [20]. However, according to Hair (2012) the external load value ≥ 0.4 is acceptable if the AVE value reaches the recommended value of > 0.5 . For composite reliability the value > 0.708 is acceptable (Hair et al, 2012). Next, the fitness of model were tested using several fit indices such as Khi Square (CMIN), CFI, RMSEA, PNFI and PCFI. The hypothesis model was considered fitting to the collected data when the significant value of Khi Square exceeding 0.05. Hypothesized model is also considered fit when the CFI exceeding 0.90, but values between 0.80 and 0.89 is still in the acceptable margin. The RMSEA value also considered accepted if smaller than 0:08, but still acceptable if less than 0.1 (Byrne, 1998). The model also considered fit when PCFI and PNFI value exceeds 0.5 (Meyers et al. Al, 2006). The hypothesis model is considered to corre-

spond to the study data when the value of χ^2 is not significant ie above 0.05 [21], [22].

4 Finding

Table 1 shows the values of FL, C.R, AVE and \sqrt{AVE} obtained for teachers’ teaching competency variables. FL, CR, AVE and \sqrt{AVE} values for NPG (FL = 0.380 - 0.818, CR = 0.83, AVE = 0.51, \sqrt{AVE} = 0.66), KPdP (FL = 0.655 - 0.769, CR = 0.86, AVE = 0.53, \sqrt{AVE} = 0.73) and KGM (FL = 0.282 - 0.814, CR = 0.6394, AVE = 0.35, \sqrt{AVE} = 0.59). But after item NPG7 is deleted the value of FL, C.R, AVE and \sqrt{AVE} (FL = 0.511 - 0.818, C.R = 0.83, AVE = 0.50, \sqrt{AVE} = 0.71) are increasing. Similarly with KGM, after items KGM4 and KGM 5 are deleted FL, C.R, AVE and \sqrt{AVE} values for KGM to be (FL = 0.454 - 0.790, C.R = 0.74, AVE = 0.52, \sqrt{AVE} = 0.72) also are increasing.

Table 1. FL, C.R, AVE AND \sqrt{AVE} values for teachers’ teaching competency

Constructs	Items	FL	C.R	AVE	\sqrt{AVE}
Teacher's professionalism value (NPG)	NPG1	0.516			
	NPG2	0.544			
	NPG3	0.718			
	NPG4	0.818	0.83	0.50	0.71
	NPG5	0.734			
	NPG6	0.696			
	NPG7	0.380	Deleted due on low factor loading		
	NPG8	0.511			
Teaching and learning skills (KPdP)	KPP1	0.686			
	KPP2	0.691			
	KPP3	0.745			
	KPP4	0.742	0.86	0.53	0.73
	KPP5	0.693			
	KPP6	0.702			
	KPP7	0.631			
Teachers and students communication (KGM)	KGM3	0.454			
	KGM1	0.794	0.722	0.52	0.72
	KGM2	0.770			
	KGM4	0.264	Deleted due on low factor loading		
	KGM5	0.357	Deleted due on low factor loading		

Based on table 1, CFA results show that overall factor loading (FL) values are acceptable except for items NPG7 (FL= 0.380), KGM4 (FL=0.264) and KGM5 (FL=0.357) which have low FL values. To confirm it, FL, C.R, AVE and \sqrt{AVE} values are noted.

Next table 2 shows the values of FL, C.R, AVE and \sqrt{AVE} for each construct in teacher's teaching competency. All constructs were rated FL, C.R, AVE and \sqrt{AVE} values (FL = 0.807 to 0.921, C.R = 0.91, AVE = 0.77, \sqrt{AVE} = 0.88). This finding

confirms that all the suggested constructs in the teacher's teaching competence are accepted.

Table 2. FL, C.R, AVE and $\sqrt{\text{AVE}}$ for each constructs in Teachers' Teaching Competency

Constructs		Variable	FL	C.R	AVE	$\sqrt{\text{AVE}}$
NPG	<---	KPG	0.807			
KPdP	<---	KPG	0.921	0.91	0.77	0.88
KGM	<---	KPG	0.903			

Next, based on table 3, the overall function and behavior accepted in teacher's teaching competency (function = 3, behavior = 17). While the behavior is rejected for teachers' teaching competency (behavior = 3).

Table 3. Summary CFA analysis for Teachers' Teaching Competency

Variable	Constructs	Accepted Behaviour	Rejected Behaviour
Teachers' Teaching Competency	NPG	7	1
	KGM	3	2
	KPdP	7	0
	Total	17	3

Fig. 2 show the final measurement model of teachers' teaching competency among teachers in Malaysia. The hypothesis model was considered fitting to the collected data when all fit indices are acceptable (CFI=.917, RMSEA=.076, PNFI=.775 and PCF=.745).

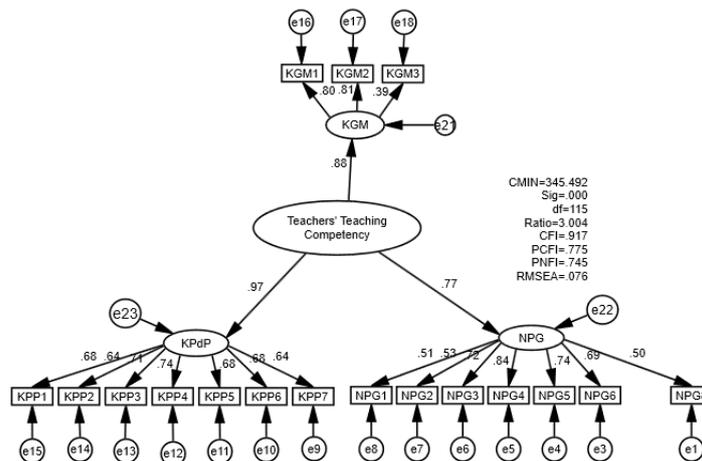


Fig. 2. The final measurement model of teachers' teaching competency

Finally, a successful teachers' teaching competency measurement model as shown as figure 2 has been developed and can be used by any responsible parties to encourage and increase competency among teachers.

5 Discussion

The main purpose of this study is to develop a model for measuring the teaching competency of secondary school teacher in Malaysia. CFA result was successful developed measurement model teachers' teaching competency of secondary school teacher in Malaysia. The result shows that three functions namely (i) teaching and learning strategies, (ii) teacher and student communication, and (iii) teachers' professionalism value and 17 behaviors of teachers' teaching competency were validated. Apart from being able to confirm the competence of teacher teaching proposed in SGM, these study findings also act as a value added to the constructs of teacher teaching competencies previously identified by the researchers.

The findings show that the three behavior of teachers' teaching competency were deleted. Hence, teachers needs to improve their knowledge and technology skills especially in the context communication and teaching strategies. In this case it is recommended that the authorities increase the training to the teachers in improving their teaching competency. In conclusion, it is time to set a standard of teachers' teaching competency in Malaysia along with other developed countries in the world.

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