

## Models for Professional Learning: An Imperative for Enhancing Teacher Leadership

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### Abstract

The purpose of this research is to investigate the models of professional learning practice in enhancing Selangor state high performing primary school teacher leadership. This study is conducted at six high performing primary schools in Selangor, Malaysia. The data are gathered from two phases of data collections. The sample of the study consists of 244 teachers who are chosen using random sampling technique. The analysis has been done through two sets of data. The exploratory factor analysis and confirmatory factor analysis are used to obtain construct validity. The Cronbach Alpha of professional learning items is .90, while for each factor developed ranged from .87 to .92. Meanwhile, the Cronbach Alpha of teacher leadership items is .84, while for each factor developed ranged from .76 to .88. The findings indicate that professional learning practice has significant effect on the teacher leadership, 22.4% of variance in teacher leadership was accounted for by professional learning models. The implications of this study show that the usage of various professional learning models has important impact toward teacher leadership. By creating different types of professional learning models such as individually-guided learning, study group, and training that aligned with teachers' needs will enhance teacher leadership.

### Introduction

Teaching is creative, complex and requires high skills. Hence, teachers must constantly deepen their knowledge and skills to remain effective throughout their careers. Teachers' knowledge and skills can be enhanced through the effective school-based professional learning. This is because teachers need to continually update their skills in line with changes to either the content knowledge or teaching and learning approaches (Abdull Kareem & Khuan, 2005). Teachers who stop learning after the pre-service training will fail to fulfill their roles effectively and become 'prisoners of their own experiences' (Abdull Kareem, 2010).

Therefore, the continuous professional learning is a must for every teacher (Ministry of Education (MOE), 2012).

Teachers' knowledge, skills (Katzenmeyer & Moller, 2009) and values (MOE, 2009) can be enhanced through effective school-based professional learning (Poekert, 2012; Phelps, 2008). According to Guskey (2000), Bredeson (2003) and Zepeda (2008) effective professional learning has the following elements; continuous, school-based and job-embedded, incorporates multiple data sources to plan, implement and evaluate professional practices as well as involves teachers and principals in identification and design of learning experiences to meet individual and collective needs. Thus, teachers will be more effective if professional learning activities have been planned and implemented in school effectively as well as in enhancing their leadership.

This aspect became more important when Ministry of Education (MOE) through its master plan '*Konsep Pengoperasian Latihan Peningkatan Profesionalisme Bidang Pengajaran dan Pembelajaran Bagi Pegawai Perkhidmatan Pendidikan*', has implemented school-based professional learning to all teachers. This plan emphasis on site-based professional learning and let manager manage concept which has been governed by respective school administrators (MOE, 2008; 2014). By instilling this plan, it showed how serious the MOE in enhancing teachers leadership; knowledge, skills and values (MOE, 2009) nationwide.

The study carried by Kabilan and Mohamad (2009) found that professional learning opportunities were limited especially at the schools level or in the context. According to them, school administrators should give serious attention to the teachers' commitment to improve their knowledge, skills and values throughout their careers. Furthermore, if various professional learning activities were held at the schools, it will give a better impact on teachers' practices. Thus, an effective school-based professional learning model which fit the Malaysian context should be identified so that teachers' will not have to work as well as learn in isolation in enhancing their leadership.

Previously, in Malaysia teachers professional learning models were predominantly *ad hoc* where one-off workshops were conducted. There was a lack of congruence between the school administrators' roles, teachers' needs about professional learning and practices and inconsistency in terms of planning, purpose, activities and teacher involvement (Senin, 2005). Hence, schools have been enforced by MOE to implement school-based professional learning to increase teacher involvement and continuously to improve their professionalism.

Many Western studies have focus on the characteristics and operation of school-based professional learning (Avalos, 2011) as well as teacher leadership (Poekert, 2012; Collinson, 2012; Fairman & Mackenzie, 2012; 2014), but little is known about relationships between the teachers' professional learning models in enhancing teacher leadership through quantitative research approach. Therefore, this study intends to investigate the relationships among the discussed variables. The research participants were from 6 high primary schools in Selangor, Malaysia. The study particularly targeted at the trained teacher and explored their perception of the actual practice of teacher professional learning models and the effect on teachers' leadership.

### **Theoretical Framework**

This section reviews the literature to identify the relevant practices comprising school-based professional learning models and teacher leadership.

### **2.1 Professional Learning**

Professional learning is defined as the processes design to enhance teachers` knowledge, skills and attitudes either individually or collaboratively for the purpose of improving students` learning (Sparks & Loucks-Horsley, 1989; Drago-Severson, 2004). Furthermore, according to Sparks and Loucks-Horsley (1989), professional learning is a planning and design of learning which embodies a set of assumptions about where knowledge about teaching practices come from and how the teacher acquire or extend their knowledge. Professional learning models must in different types of supports and challenges that aligned with teachers` need in order to engage effectively in the activities and grow from them (Drago-Severson, 2004; Lieberman & Pointer Mace, 2009) either through individual or collaborative learning. By creating various types of learning models, Killion (1999) discovered, ignites and sustains teachers` excitement for “learning, growing and changing their practices”. Therefore, this study highlighted seven currently practiced professional learning models that have different features and functions to view teachers` perception about school-based professional learning in Malaysia (MOE, 2014). Five are from Model of Staff Development by Sparks and Loucks-Horsley (Sparks & Loucks-Horsley, 1989) and two models are from the Professional Learning Model by Roberts and Pruitt (Roberts & Pruitt, 2009). The models are individually-guided learning, collaborative problem solving, teaching observation and assessment, training, action research, study groups and professional portfolios as discussed below.

#### **2.2.1 Individually-guided learning**

Individually-Guided learning is learning designed by the teachers themselves and it is not necessarily occurred in formal settings. Teachers determine their own learning goals and choose activities they believed can achieve these goals, such as reading and writing professional academic journals or academic material.

#### **2.2.2 Collaborative problem solving**

Collaborative problem solving focused on a combination of learning styles as the result of the teacher involvement in systematic school improvement processes. For examples, curriculum planning, research on effective teaching and group problem-solving strategies. These activities can also be achieved through discussion, observation, training as well as trial and error method.

#### **2.2.3 Teaching observation and assessment**

Teaching can be monitored and analyzed objectively; this model relied primarily in pairs and is focused specifically on observations in others` classroom. The aim is to provide teachers with feedback on their performance. Moreover, collegial observations will enhance reflection and performance. The activities involve such as peer coaching, clinical supervision and teacher evaluation.

#### **2.2.4 Training**

Training is workshop-type sessions in which the presenter is the expert who established the course content based on a set of clear learning objectives through various group activities. This activities involved lectures, demonstrations, role playing, simulations and micro teaching. Effective training involved the exploration of theory, demonstration of skills, stimulating practice, feedback on performance and coaching in the workplace.

#### **2.2.5 Action research**

Action research is an activity of how teachers conduct mini-experiments to improved students` achievements and the findings of the experiments are shared among friends. Teachers learned the basic techniques of research in the classroom, formulate research questions, collect and analyze data and use the findings to improve teaching practices.

### 2.2.6 Study groups

Study groups is a gathering of teachers who meet on a regular scheduled basis to discuss instructional issues that the group members have agreed to study. Learning outcomes of this group will be used as teaching strategies in the classroom. This activity will develop culture of collaboration among teachers, reflective discussion, sharing personal and teamwork practices that can improve teachers' commitment to the shared school vision and values.

### 2.2.7 Professional portfolios

Professional portfolio is a thoughtful document demonstrating a teacher's approach to teaching. It shows teacher's practice over time and reflection about it. The content of the portfolio is the goal or purposes targeted by teachers and it might consist of written documentation such as lesson plans. Portfolio is a powerful tool for reflection on practice which helped teachers to evaluate the decisions and actions taken.

According to the above literature, all these recently used professional learning models are included in our model.

## **2.2 Teachers Leadership**

In recent studies, teacher leadership was defined as it is centered on a vision of a teacher leader who is able to build influence and interaction, rather than power and authority (Poekert, 2012). According to Fairman and Mackenzie (2012), teacher leadership emerged within many different contexts, such as individual and collective efforts; informal and formal actions; narrowly-focused and broader school-wide improvement efforts; a school climate of isolation and mistrust or one of collegiality, shared vision and trust. Whereas, Hunzicker (2012) reported that basically, teacher leadership roles and responsibilities are closely related to student-focused concerns. However, their self-efficacy increase when the teacher actively pursued leadership skills and positively influence their self-conceptions of teacher leadership.

In lieu to that, teachers have given ways to innumerable research studies and definitions of teacher leadership concept over the last few decades (Wasley, 1991). Prominent studies in this field were Barth (1999) Lambert (2003) and Katzenmeyer & Moller (2009) who defined teacher leadership as performing actions which enable the participants of a community to develop potential to lead in a trusting environment. Meanwhile, teacher leadership also refers to the process of the teacher as individually or collectively influenced their colleagues, principal as well as the school communities in enhancing teaching and learning with the aims to increased student learning and achievement (York-Barr & Duke, 2004; Katzenmeyer & Moller, 2009). Teacher who recognise the value of teacher leadership create a school culture of collaboration and continuous learning that engages all teachers in a variety of learning and leadership experiences (Hunzicker, 2012).

Meanwhile, according to Danielson (2006), the leadership of the teacher is the activities carried out by individuals who have the knowledge and skills to influence other individuals inside and outside the organization. This in line with A. Ghani, Mohd Rashid, Marzuki, and Faisal (2011) and Fairman and Mackenzie (2014), that teacher leadership concept also refers to teachers who make a difference whether within or outside the organization through knowledge and skill and style that affects colleagues. Therefore, it is shown that teachers use the knowledge, skills and value to influence colleagues in adopting best practices in school. There were at least three major elements need to be considered in enhancing teacher leadership, which is knowledge, skill (Fairman & Mackenzie, 2012; Katzenmeyer & Moller, 2009; Phelps, 2008) and value (MOE, 2009), of the teacher, which are going to discussed further.

### 2.2.1 Knowledge

Green (2005) mentioned, knowledge is what the teachers know in order to promote the success of all students. Furthermore, with adequate knowledge; they can identify an appropriate and acceptable process for the schools' success. Knowledge in this study refers to teachers' understanding on teacher leadership concept, where the teachers tend to use their content knowledge on teachers' leadership and apply it in the school and community in order to strive for schools' excellence. Therefore, according to Tamuri, Mahmud, and Bari, (2005), teachers require extensive knowledge about students' physical, psychological, the theory of pedagogy and andragogy to facilitate knowledge to be passed on students more effectively.

Furthermore, leadership can also be developed through the sharing of knowledge, ideas and opinions with colleagues and refer the teacher leaders as a guide and reference for other teachers to improve their teaching quality. Research done by Syed Mustapa, and Miskon (2013) and Abdullah (2009), teachers who have knowledge or expertise in pedagogy or expert in inducing students' interest to learn by using a variety of teaching methods and strategies have shared their knowledge and expertise with other teachers in school improvement activities. By sharing this knowledge, teachers can lead other teachers in improving flaws, in addition to learn new learning theories as well as new teaching practices to engage students in the learning process.

Finally, leadership knowledge can be enhanced through practicing teachers' professional learning for continuous improvement (Fairman & Mackenzie, 2014). In this context, teachers will be able to voice their opinions to achieve the shared vision and mission of the school improvement. Meanwhile, novice teachers who are placed in schools, still lack knowledge about the school system and teacher leadership related skills (Muijs, Chapman, & Armstrong, 2013) can use this platform to enhance their knowledge. According to Lead (2013), teacher leadership also provide spaces for teachers to share knowledge across borders. This can be done through the involvement of teachers in teacher leadership programs at the ministry level, where teachers have been given opportunity to express their views in policy making. In conclusion, teachers should be provided with leadership skills since at early stage at teacher's training colleges so that they can face the challenges in the process of improving the teaching and learning (Moller & Katzenmeyer, 1996).

### 2.2.2 Skill

Skill is related to teacher leadership skill, which is closely related to teamwork skill. It is because teacher leadership is necessary to promote good teamwork. Teachers can lead by engaging, inspiring and motivating others to improve and become better through their actions. They are able to lead by effectively communicating with colleagues and informing them of their goals in ways that garner support for their vision for the school (Danielson, 2006; 2007). However, the teachers could only acquire leadership skills by practice. According to Katzenmeyer and Moller (2009) and Abdullah Sani, Abdul Rashid and Abdul Ghani (2007) teacher who has the leadership skills to influence other teachers or students can act as facilitators, mentors, counselors, curriculum specialists and able to lead the study group.

Every teacher should have leadership skills and attributes (Danielson, 2007). According to Danielson (2007), there are some skills and characteristics that can be adopt by individuals as teacher. Effective teacher must be open-minded and respect others' views. They also should show confidence, assertive, flexible and willing to try a different approach if their efforts failed, as well as willing to encounter a variety of risks such as time constraints in their daily job. Meanwhile, Grant, Gardner, Kajee, Moodley and Somaroo (2010), and Elsabe and SG,

(2011) emphasis that teacher leadership occurs in four setting which is in the classrooms, working with other teacher outside the classrooms, extra-curricular activities, school development and leadership among schools community. However, their study concluded that most of the leadership practices happen in the classroom, during teaching and learning improvement.

Therefore, teachers must learn to lead a group, listen, use the data and identify other needs will acquire a strong set of skills to be used in the role of teachers in the school daily routines (Katzenmeyer dan Moller, 2009).

Research done by Angelle, Nixon, Norton and Niles (2011), showed that teacher leadership skills imposed high impact on school development through shared responsibility among teachers. This can be achieved through collaborative relationship and school culture based on trust. To achieve collaborative relationship and trusted culture, study done by Jackson, Burrus, Basset and Roberts (2010) suggested teacher should learn in groups. According to, Roberts and Pruitt, (2009), group learning refers to the learning process that takes place among teachers to discuss on important issues in schools in identifying students' learning. This professional learning community and collaboration has led to changes in pedagogy through shared goals, relationships and trust and support continuous learning give a positive impact on student achievement and improve teacher effectiveness (Harris & Jones, 2010; Sharratt & Fullan, 2009; Rovere 2013) as well as a part of an effort to help other colleagues (A. Ghani, & Crow, 2013).

To improve the relationship and collaborative skills with the communities, Teacher Leadership Exploratory Consortium, (2011) suggest that teachers need to understand the family, culture, and society as they give a big impact to the educational process and student learning. Therefore, teacher needs to work with colleagues to establish a good continuous relationship with families, communities, and other stakeholders to improve the education system and student learning opportunities. Finally, teachers also can play a vital role as a reference leader to guide students to achieve the best performance but also lead and guide himself and his colleagues to the shared purposive goals without being autocratic (Yahaya, Mohamed, & Abdullah 2007; Idris & Hamzah, 2012). In conclusion, these studies clearly show that a teacher who has leadership skills can be the role model and leader referred to students, colleagues, parents and the community. Indirectly, it showed that leadership skills can be applied in each and every teacher as individual.

### 2.2.3 Value

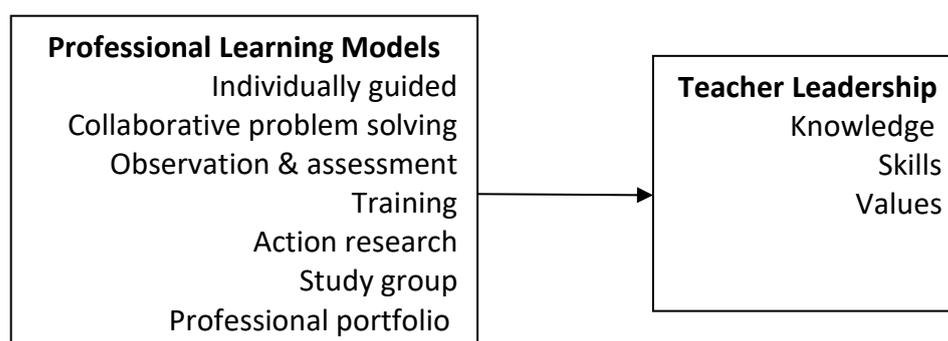
Value is defined as beliefs about what is the right and wrong way for people to behave. It is also known as moral principles (MOE, 2009). Based on this definition, the term value in this study is defined as a set of beliefs that teachers have towards the school and community. In addition, the values that the teachers carry by themselves could give a great impact in schools transformation process. Teachers have an important responsibility to nurture students who will constantly practice good values in their daily lives. Teachers also need to instill professionalism of the teaching practices in them, while being as a guidance and role model to the students. According to MOE (2009), the practice of the professionalism of teaching will be a platform for teachers to produce good characters to fulfill the function of the school as a place of national establishment to develop human capital, in line with the National Education Philosophy and Philosophy of Teacher Education aspirations. The practice of professionalism in teaching is an initiative to develop a teacher who has a towering personality and world views in becoming an excellent teacher (MOE, 2009).

Teachers also must have a high cognitive skills and a good personality. According to Mohd. Kassim (2008), teachers who have values and high self-esteem should be aware that the dignity of the teaching profession lies in their hands and teachers should highlight the positive values in them because the students often refer them as the role models. Teachers are agents of change in ensuring the effectiveness of the school. According to Stapa, Munawir, & Yusuf, (2012), as agents of change they have to develop individual potentials physically, intellectually, emotionally and socially. Therefore, if teachers have a low self-worth, they will not be motivated to carry out his or her responsibilities professionally.

In line with the philosophy of Malaysian Teacher Education, teachers must be honourable, have a progressive and scientific vision, ready to uphold the aspirations of the country, ensuring the development of individuals as well as preserve the united, democratic, and progressive community (Mok, 2010). In order to meet the current education challenges, teachers should have a strong values and self-esteem in them. According to Mat Som (2009), the main aspects to be addressed in promoting the teaching profession is a teacher's own personality. This is because the personal quality of the teacher is a source of knowledge and able to emulate the formation of good character (Abas, 2007). In other words, the teacher is acting as `value developer` (MacBeath, Pedder & Swaffield, 2007). Therefore, teachers need to show good personal values to the students, schools and communities. These good personal qualities can guide and educate students to develop their personal character. In conclusion, the core values that a teacher must have are honest, discipline, responsibility, timeliness and a commitment to work (MOE, 2009). Thus, according to the literature, teacher leadership can be classified into three dimensions as suggested by Katzenmeyer and Moller (2009), Phelps (2008), Fairman and Mackenzie (2012) and MOE (2009): knowledge and skills and values in practice, which are used in our model. Studies conducted by Poekert (2012), Collinson (2012) and Fairman and Mackenzie (2015) regarding teachers` perspective showed that there is relationship between professional learning and teacher leadership. This showed that how important the professional learning in enhancing teachers` leadership.

### Research Design

The research design is shown in Figure 1. The relevant hypotheses of the model and the questionnaire design are presented below.



Ho1 = Professional learning models do not influence teacher leadership

### 3.1 Questionnaire Design

The questionnaire is composed of two parts including: professional learning models, and teachers leadership. The questionnaire items were answered using a four-point scale anchoring at 1, 2, 3, and 4 (strongly disagree, disagree, agree, strongly agree). According to

Babbie (2007) this scale is suitable to measure teachers' attitudes as well as opinions. Detailed definitions of the dimensions are described below:

#### *3.1.1 Professional Learning Models.*

The instrument used has been adopted from Persico (2000) and Senin (2005) with the consent from the previous researcher through e-mail, Roberts and Pruitt (2009) and Murphy and Lick (2005). Based on the literature review (Sparks & Loucks-Horsley, 1989; Guskey, 2000; Zepeda, 2007; Roberts & Pruitt, 2009; MOE, 2014) seven most frequently used teachers' professional learning models are extracted and considered in this study, namely individually-guided, observation and assessment, involvement in improvement process, training, action research, professional portfolios and study groups.

#### *3.1.2 Teacher Leadership.*

The instrument used has been adopted from Niche-Research Grant Scheme (NRGS) 2014 Project 4: Teacher Leadership researchers for knowledge, skills value dimensions.

### **Analysis and Result**

#### **4.1 Sampling**

The data used in this research consists of 2 batches of questionnaires responses from participants in 6 high performing schools in Selangor Malaysia. There are two phases of data collections. First set of data was obtained from 2 high performing primary schools in Selangor. These sets of data were used in preliminary study as to perform exploratory factor analysis. 50 sets of questionnaires have been distributed to each of these primary schools. A total of 100 survey forms were circulated, of which 60 surveys were returned and valid for analysis.

While, the second batch of data was obtained from six high performing primary schools in Selangor, Malaysia. A systematic random sampling technique has been used in this phase of data collection. This set of data was used to perform the multivariate analysis. The number of the population is 521, according to Selangor State Education Department 2015, it was expected that the sample would comprise 217 teachers (Cohen, Manion & Morrison, 2007) from 6 schools. A total of 300 survey forms were circulated. The 244 surveys were returned and valid for analysis.

#### **4.2 Reliability and Validity Test**

The Cronbach Alpha coefficients were used to measure the internal consistency of these scales (Nunnally & Bernstein, 1994). In this study, the constructs which had Cronbach Alpha coefficients greater than .70 have been retained for further analysis (Hair, Black, Babin, Anderson & Tatham, 2010; Hancock, Muller & Stapleton, 2010). Furthermore, measures with item-to-total correlation larger than .30 are considered to have criterion validity (Hair et al, 2010). The item-to-total correlation of each measure was more than .30, we consider the criterion validity of each scale to be satisfactory.

The original questionnaire was translated into Malay language twice by experts using the back technique for professional learning models section. The items are reviewed by a panel of Sultan Idris Education University lecturers to ensure the translation of meaning and terminology met the theoretical background as the technique was recommended by Sireci, Yang, Harter and Ehrlich (2006). The panel consists of an assessment and measurement expert and two human resource development experts (Mansor, Mat Norwani & Yunus 2010). Meanwhile, for teacher leadership section, the items have been developed by Niche-Research Grant Scheme (NRGS) 2014 Project 4 researchers.

Then, the questionnaires have been administered to six trained teachers to identify if there were any confusion regarding the items and record it in the space provided for improvements or been dropped out (Johnson & Christensen, 2008; Flowers, 2006). The purpose was to improve the items and to ensure it was suitable for Malaysian context. Furthermore, it was important to get feedback on quality of the questionnaire as it was easy to understand and used the appropriate and suitable language. The samples were asked to evaluate about the clarity of each items by using the scale given (Flowers, 2006). A scale of 1 to 10 is used to determine the validity coefficient for each item. According to Tuckman and Waheed (1981) in Mohd Noah and Ahmad (2005) if the total of the score obtained from the experts is 70% or above, it means that the item has a high score for the content validity aspect. Otherwise the item will be dropped from the questionnaires. The results of content validity are presented in Table 1 below.

Table 1

*Content validity scores*

Panel	Panel 1	Panel 2	Panel 3	Panel 4	Panel 5	Panel 6	Cum. Score
(%)	92.72	91.51	88.48	82.42	82.42	80.00	86.84

Meanwhile, to ensure the instrument has reasonable construct validity, both exploratory and confirmatory factor analyses were used. The exploratory factor analysis (EFA) through orthogonal rotation with varimax method had been used. The EFA applied the following rules as suggested by Hair et al. (2010) and Tabachnick and Fidell (2007):

- i. Bartlett's Test of Sphericity had to be significant ( $p < .05$ );
- ii. Kaiser-Meyer-Olkin measure of sampling index  $\geq .5$ ;
- iii. Eigenvalue  $> 1$ ;
- iv. Items with the factor loading  $> .5$  were retained;
- v. Factors building were based on school-based professional learning as well as teacher leadership theories and previous studies.

The factors are knowledge, skill and value for teacher leadership. However, for professional learning only four factors retained: individually-guided, training, professional portfolios and study groups. Meanwhile, three factors which are action research, observation and assessment as well as involvement in improvement process have been excluded. The results of exploratory factor analysis are presented in Table 2.

Table 2

*Exploratory factor analysis and internal consistency values for the questionnaires*

Construct	Number of Factor	Number of item per construct	Factor loading	Percentage of variance	Cumulative percentage	Cronbach's $\alpha$
Professional Learning	4	22	.70-.88			
Training		5		38.88	72.43	
Professional Portfolios		6		14.59		.93
Individually-guided Study		5		10.78		
Group Teacher Leadership	3	15	.54-84	15.80	67.69	
Knowledge		7		46.11		.85
Value		4		12.85		
Skill		4		8.73		

The confirmatory factor analysis was used test the stability of 7 factors from the two main constructs, thirty seven items using AMOS Version 21. We analyzed this hypothesized two-construct model with all thirty seven items as indicators of the variable individually. The parameters were estimated using maximum likelihood. This approach incorporates both observed and latent variables. Multiple indices provided a comprehensive evaluation of model fit (Hu & Bentler, 1999). We examined chi-square per degree of freedom ratio ( $\chi^2/df$ ), Comparative Fit Index (CFI), Goodness of Fit Index (GFI) and Root Mean Square Error of Approximation (RMSEA). These indices have been used to evaluate the goodness-of-fit of the model that fit the data. However, given the known dependency of the chi-squared index depends on sample size (Bryne, 2010; Schumacker & Lomax, 2004) it is less suitable to use in determining the fitness of the model (Iacobucci, 2010). Therefore, indices such as CFI and GFI were also being evaluated.  $\chi^2/df$  ratio value of less than 3 and value of .90 for CFI and GFI have been use as a lower cutoff value of the acceptable fit (Nunnally & Bernstein, 1994; Schumacker & Lomax, 2004). In addition, the RMSEA value of less than .06 indicate a good fit, while the value as high as .80 indicate a reasonable fit (Hu & Bentler, 1999). The results of confirmatory factor analysis are presented in Table 3 below.

Table 3

*Summary of fit indices from confirmatory factor analysis and internal consistency value*

Model	$\chi^2/df$	CFI	GFI	RMSEA	$\alpha$
Unmodified hypothesized four-factor PLM model	2.07	.93	.88	.06	.90
Unmodified hypothesized three-factor TP model	1.98	.95	.92	.06	.94

### 4.3 Analysis of the model

The stepwise multiple regression approach is used to test the proposed model and hypothesis. This approach is the multivariate statistical technique for testing proposed theory (Hair et. al, 2010). These analyses are conducted by SPSS version 22. In the proposed model (Figure 1) professional learning models is considered independent variables as well as teacher leadership is considered dependent variable. This analysis has been used to examine the effect of professional learning models toward teacher leadership. The result of regression analysis indicated that the influence of professional learning models on teacher leadership is statistically significant as shown in Table 5 below. The research found that, the score of determination coefficient ( $R^2$ ) as .20. The finding indicated that professional learning models contribution to teacher leadership is .20 or 20.00% of overall teacher leadership are explained by professional learning models. The rest 80.00% of teacher leadership may be influence by other models or practices that were not explored in this research. However, individually-guided is the main predictor to the teacher leadership ( $\beta = .20$ ,  $t = 2.31$  and  $p < .05$ ). This model contributed 20.00%, while study group ( $\beta = .19$ ,  $t = 2.80$  and  $p < .05$ ) contributed only 3.90% to teacher leadership. Training is the third predictor ( $\beta = .19$ ,  $t = 2.22$  and  $p < .05$ ) and contributed 1.70% to Teacher leadership. Therefore, based on the results of the study, the null hypothesis is partially rejected.

Table 5

*Summary of regression analysis of PLM on TP*

Independent variables (x)	B	Beta ( $\beta$ )	$\Delta R^2$	t	Sig. t	(%)
Individually-guided	.22	.20	.16	2.31	.02	16.80
Study group	.19	.19	.03	2.80	.00	3.90
Training	.23	.19	.01	2.22	.02	1.70

P < .05

### Discussion and Implication

The following discussion is based upon the results of the analysis above. It is noted that professional learning model has positive influence on teacher leadership. The regression result proved that professional learning do influence teacher leadership with p-value less than .05. The result of current study supports the findings of prior studies concerning the influence of professional learning model on teacher leadership (Poekert, 2012; Collinson, 2012; Fairman & Mackenzie, 2012; 2015). Individually-guided, study groups and training models has been used in Selangor high performing school to enhance their teacher leadership. This finding is in contrast with research done by Mansor (2013) and Senin (2005) which action research models gave the highest influence to teachers' practice in Malaysian secondary school.

The findings also indicate that professional learning models positively influence teacher leadership. Teachers in high performing school still prefer to learn in isolation (individually-guided model) instead of learnt collaboratively. However, schools can create different types of professional learning activities such as self-directed learning, study group and training that aligned with teachers' needs will ignites and sustains teachers' excitement for learning, growing and changing their practices. Furthermore, the search on finding the optimal mix, the assortment of professional learning activities that work best in Selangor high performing primary school setting has been revealed. These findings also useful to those involve in designing school-based professional learning, teacher educator as well as teachers in

enhancing teacher leadership; knowledge, skill and value through professional learning activities in their context.

Even though the empirical results of this study support the current model, at least three limitations should be carefully considered. First, since individual informants provide the empirical data, possible biases or preferences (e.g. learning styles, social preferences, other professional learning models etc.) may exist due to different personal experiences, multi generation teachers` views or educational backgrounds. Secondly, participant involve only from six high performing school teachers in the state of Selangor, therefore in future studies it should be extended to all high performing primary school teachers in Malaysia. Thirdly, the data were collected in Malaysia; the characteristics of these schools surveyed may be quite different from those in other areas or countries. Hence, the present results should not be assumed to represent the general case. However, it may provide a fundamental reference for the professional learning developers and schools located in other areas or countries whose environments are similar to those in Malaysia.

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