

# **The Development Of School-Based Professional Learning Models In Malaysian Context**

**Mahaliza Mansor, Norlia Mat Norwani, Masri Baharom, Jamal Nordin Yunus**

Sultan Idris Education University, Tanjung Malim 35600, Perak. Malaysia

Sultan Idris Education University, Tanjung Malim 35600, Perak. Malaysia

Teacher Training Institute, Sultan Abdul Halim Campus, 08000 Sg Petani, Kedah. Malaysia

Sultan Idris Education University, Tanjung Malim 35600, Perak. Malaysia mahaliza@fpe.upsi.edu.my, norlia

@fpe.upsi.edu.my, masri@ipsah.edu.my, jamal@fpe.upsi.edu.my

## **Abstract**

*The purpose of this paper is to investigate the school-based professional learning models in Malaysian education setting. This study is conducted at 60 secondary schools in Malaysia where the information is gathered from two phases of data collections by using multi-stage cluster sampling technique. The analysis has been done through three sets of data. The exploratory factor analysis and confirmatory factor analysis are used to obtain construct validity. Data from the survey is used to test and confirm dimensions expressed in the proposed model. The findings indicate that professional learning model has highly significant effect on the underlying dimensions tested. The source of data collected is Malaysia, hence, the results may not easily generalized to other areas or countries. However, the findings are valuable for school-based professional learning developers, teachers and teacher educator references. The implications of this study shows that the usage of various professional learning models has important impact toward teachers' development. By creating different types of professional learning models such as action research, professional portfolio, self-directed learning and training that aligned with teachers' needs will ignites and sustains teachers' excitement for learning, growing and changing their practices.*

## **1. 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. Teachers who stop learning after the pre-service training will fail to fulfill their roles effectively and become 'prisoners of their own experiences' [31;32]. Therefore, continuous professional learning is a must for every teachers.

Teachers' knowledge and skills can be enhanced through effective school-based professional learning. According to previous literature [11;5;41] effective professional learning has the following elements; continuous, school-based and job-embedded, includes multiple modalities of learning, 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.

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 [25]. By instilling this plan, it showed how serious the MOE in enhancing teachers knowledge and skills nationwide. Furthermore, school-based or site-based design hold the promise of

greater relevance because their content and procedures are determined by the individuals whom such efforts affect most directly which is school-level educator [11]. Whereby, according to previous literature [11], the decisions about professional learning goals, content, models and evaluation that are made at school level, is more likely to be contextually relevant.

The study carried by previous researcher [27] 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 and skills 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 models which fit the Malaysian context should be identified so that teachers` will not have to work as well as learn in isolation. Previously, in Malaysia teachers professional learning models were predominantly ad hoc where one-off workshops were conducted [26]. There was a lack of congruence between teachers` needs about professional learning and practices and inconsistency in terms of planning, purposes, activities and teacher involvement [1]. Hence, schools have been enforced by MOE to implement schoolbased professional learning to increase teacher involvement and continuously to improve their professionalism.

Many studies have focus on the characteristics and operation of school-based professional learning, but little is known about teachers` professional learning models and practices as well as to search the optimal mix in Malaysian context. This is because it is unlikely that any single model will prove effective for all individual under all conditions [11;8]. Therefore, the purpose of this paper is to investigate the school-based professional learning models in Malaysian setting. The research participants were from 60 secondary schools in Malaysia. The study particularly targeted at the trained teacher and explored their perception of the actual condition and characteristics of school based teachers` professional learning models.

## **2. Theoretical Framework**

This section reviews the literature to identify the relevant practices comprising school-based professional learning models. 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 [38;8]. Furthermore, according to previous study[8], 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. Studies conducted by previous researchers [10;12;4;30] regarding teachers` perspective showed that the usage of various professional learning models has important impact toward teachers` development.

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 [8;40] either through individual or collaborative learning. Creating various types of learning models, past researcher [18] discovered, ignites and sustains teachers` excitement for “learning, growing and changing their practices”. Furthermore, combination models in thoughtful ways can provide a highly effective means to professional growth and improvement at both the individual and organizational levels [11].

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. Five are from Model of Staff Development by Sparks and Loucks-Horsley [38] and two models are from the Professional Learning Model by Roberts and Pruitt [34]. The models are individually-guided learning, collaborative problem solving, teaching observation and assessment, training, action research, study groups and professional portfolios. The models are:-

## **2.1 Individually-Guided Learning (SD)**

Individually-Guided learning is learning designed by the teachers themselves and it is not necessarily occur in a 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. The model is based on the assumption that individuals can judge their own learning needs and are capable of self-direction and self-initiated learning. Another assumption are the individuals are more motivated to learn when they initiate and plan their own learning activities.

## **2.2 Collaborative problem solving (CPS)**

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. The process is that teachers not only increase their specific knowledge and skills but also enhance their ability to work collaboratively and share in decision making. The model is based on the assumption that teachers learn effectively when they have problem to solve, moreover the problems are related to the jobs as well as they can acquire knowledge and skills through their involvement in the process.

## **2.3 Teaching Observation and Assessment (TOA)**

Teaching can be monitored and analyzed objectively, this model relied primarily in pairs and is focused specifically on observations in each other`s 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. It helps to decrease the isolation of teaching by having colleagues work together on shared improvement goals. The model is based on the assumption that reflection and analysis from the observation and assessment are the core competencies of professional growth.

## **2.4 Training (TR)**

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. It provides teachers with a shared knowledge base. The model is based on the assumption that there are behaviors and techniques that are worth of replication as well as teachers can change their behaviors and learn to replicate good practice of others in their classroom that are not previously practice.

## **2.5 Action Research (AR)**

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. It can be conducted individually or collaboratively in the school settings. The model is based on the assumption that teachers` ability to formulate valid questions about their own practice and to pursue objective answers to those questions as well as change their practice.

### 2.6 Study groups (SG)

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. The model is based on the assumption that teachers who participate in collegial groups have a structured process, which can reduces isolation as well as increase encouragement and support in a community of learners.

### 2.7 Professional Portfolios (PP)

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 contents of the portfolio are 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 evaluated the decisions and actions taken. The model is based on the assumption that self-assessment and reflection are the most important functions of a portfolio in terms of an educator's professional growth. Either doing alone or collaboratively, serious consideration to the portfolio artifacts helps teachers in reflecting on their practice in relation to their beliefs. Reflecting may cause them to reconsider or change some practices as well as may lead to new understandings

According to the above literature, all these recently used professional learning models are included in our model. Moreover, these models can be used individually or collaboratively for teachers` professional learning.

## 3. Research Methodology

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

H1: Professional learning models in Malaysian context can be explained by the following seven models: individually-guided learning, collaborative problem solving, teaching observation and assessment, training, action research, study groups and professional portfolios.

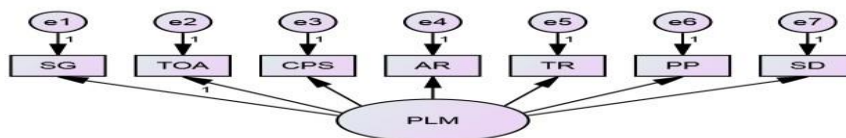


Figure 1: The proposed school-based professional learning models

### **3.1 Questionnaire Design**

The questionnaire is composed of seven professional learning models (PLM). The questionnaire items were answered using a four-point scale anchoring at 1, 2, 3, and 4 (strongly disagree, disagree, agree, strongly agree)[19]. According to the literature [3] 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 previous researchers [33;1;34;28]. Based on the literature review [38;10;41;34] 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.

## **4. Analysis and Result**

### **4.1 Sampling**

The data used in this research consists of 2 batch of questionnaires responses from participants in 60 regular secondary schools (*Sekolah Menengah Harian*) in Malaysia. There are two phase of data collections. First set of data was obtained from 19 regular secondary schools in Batang Padang district in Perak. This set of data were used in preliminary study as to perform exploratory factor analysis. 10 sets of questionnaires was distributed to each of these 19 regular secondary schools. A total of 190 survey forms were circulated, of which 170 surveys were return and 166 were valid for analysis [20].

While, the second batch of data was obtained from 41 regular secondary schools in Malaysia. A multistage cluster 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 146,513, it was expected that the sample would compromise 384 teachers [7] from 41 schools. A total of 900 survey forms were circulated. The 780 surveys were return and 720 were valid for analysis. The data from 348 samples have been used to perform measurement model analysis, while 372 samples have been used to perform confirmatory factor analysis.

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

The Cronbach Alpha coefficients were used to measure the internal consistency of these scales [29]. In this study, the constructs which had Cronbach Alpha coefficients greater than .70 have been retained for further analysis [14;13]. Furthermore, measures with item-to-total correlation larger than .30 are considered to have criterion validity [14]. The item-to-total correlation of each measures 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'. 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 previous study [37]. The panel consist of an assessment and measurement expert and two human resource development experts [20].

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 [17;9]. 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 language [22]. The samples were asked to evaluate about the clarity of each items by using the scale given [9]. A scale of 1 to 10 is used to determine the validity coefficient for each item. According to Tuckman and Waheed (1981) in previous literature [36] 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 [23]. 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 literature [14;39]:

- 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 theory and previous studies.

However, for PLM only five factors retained: individually-guided, observation and assessment, involvement in improvement process, training, action research, professional portfolios and study groups. While, two factors which are 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 $\alpha$
PLM	5	24	.55-.90		64.82	.89
Studydirected		4	.64-.71	8.76		.63
Training		6	.55-.74	12.86		.79
Professional Portfolio		5	.73-.76	12.15		.84
Action Research		4	.55-.76	13.16		.82
Study Group		5	.86-.90	17.88		.94

The confirmatory factor analysis was used test the stability of 5 factors, twenty four item SBPL using AMOS Version 18 [2]. We analyzed this hypothesized 5 factors as indicators of the variable individually. The parameters were estimated using maximum likelihood [19;23]. This approach incorporates both observed and latent variables [24]. Multiple indices provided a comprehensive evaluation of model fit [15]. 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 were 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 [6;35] it is less suitable to use in determining the fitness of the model [16]. Therefore, indices such as CFI and GFI were also being evaluated.  $\chi^2/df$  ratio value of less than 5 and value of .90 for CFI and GFI have been use as a lower cutoff value of the acceptable fit [29;35;42]. In addition, the RMSEA value of less than .06 indicate a good fit, while the value as high as .80 indicate a reasonable fit [29].

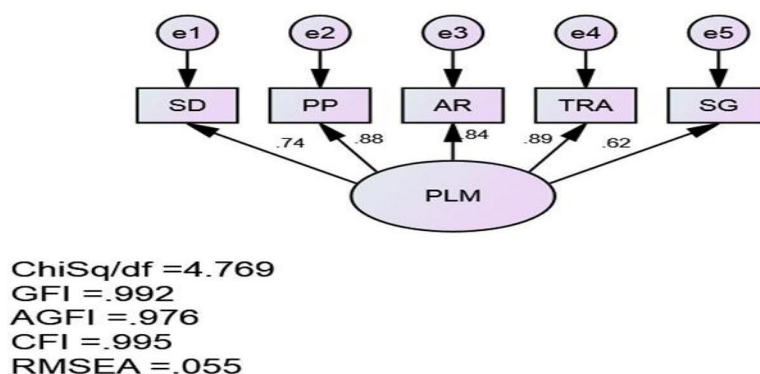
The individual model has been tested by using measurement model analysis. The summary of fit indices of these models are presented in Table 3. Then, the individual questionnaires items are composited into specific factor groups. Meanwhile, the results of the confirmatory factor analysis of final model are presented in Table 4 and Figure 2 below.

**Table 3: Summary of fit indices and internal consistency value for school-based professional learning models**

Model	$\chi^2/df$	CFI	GFI	AGFI	RMSEA	$\alpha$
Self-directed learning	4.464	.986	.993	.979	.05	.63
Action research	1.673	.997	.997	.992	.02	.74
Training	3.235	.990	.990	.980	.04	.74
Professional Portfolio	4.569	.988	.996	.982	.05	.84
Study Group	4.259	.990	.996	.981	.05	.92

**Table 4: Summary of fit indices and internal consistency value of final model**

Model	$\chi^2/df$	CFI	GFI	AGFI	RMSEA	$\alpha$
Five-factor PLM model	4.77	.99	.99	.98	.05	.89



**Figure 2: The school-based professional learning models.**

## 5. Discussion and Implication

The following discussion is based upon the results of Amos 18 analysis (Figure 2). It is noted that school-based professional learning models in Malaysian context consist of training, professional portfolio, action research self-directed learning and study groups. The model is fit with the data and significant at  $p < 0.01$ . Meanwhile,

the fit indices from three cluster indices shown at the acceptable fit level ( $\chi^2/df = 4.769$ , GFI = .992, AGFI = .976, CFI = .995, RMSEA = .055). This implies that the school-based professional learning has shifted the paradigm of teachers' learning in isolation as individual to collaborative learning as proved in this research. By creating different types of professional learning models such as training, professional portfolio, action research selfdirected learning and study groups that aligned with teachers' needs will ignites and sustains teachers' excitement for learning, growing and changing their practices. This model is jobembedded, ongoing, allows opportunities for individual and group reflection and incorporates collaboration as well as individual models based on their characteristics. Combination of the models in thoughtful ways by school administrators can provide a highly effective means to professional growth and improvement at both the individual and organizational level. Therefore, the search on finding the optimal mix-that assortment of professional learning models that work best in Malaysian setting also has been revealed. This findings also useful to those involve in school-based professional learning such as Ministry of Education, teacher educator as well as teachers as it is a part of higher education curricular and in enhancing their professional development.

Even though the empirical results of this study support the current model, at least four limitations should be carefully considered. First, since individual informants provide the empirical data, possible biases or preferences (e.g. learning styles, social preferences etc.) may exist due to different personal experiences or educational backgrounds. Secondly, participant involve only from secondary school teachers, therefore in future studies it should be extended to primary school teachers. Thirdly, include different type of models such mentoring as well as lesson study. Fourthly, 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 schools located in other areas or countries whose environments are similar to those in Malaysia.

## 6. References

- [1] Amin Senin. (2005). *Hubungan pengurusan pembangunan profesional sekolah dengan model pembangunan profesional serta pengaruhnya terhadap pengajaran guru di sekolahsekolah menengah negeri sabah*. Unpublished Ph.D Thesis. Kota Kinabalu: Universiti Malaysia Sabah.
- [2] Arbuckle, J., L. (2009) *Amos 18 user`s guide*. Chicago: SPSS Inc.
- [3] Babbie, E. (2007). *Practice of social research*. United States: Cengage Learning.
- [4] Blank, R. K., de las Alas & Smith, C. (2008). *Does teacher professional development have effect on teaching and learning? Analysis of evaluation findings from programs for mathematics and science teachers in 14 states*. Washington, D.C.: Council of Chief State School Officers. Retrieved from<[http://www.ccsso.org/projects/improving\\_evaluation\\_of\\_professional\\_development](http://www.ccsso.org/projects/improving_evaluation_of_professional_development)>
- [5] Bredeson, P. V. (2003). *Designs for learning*. Thousand Oaks: Corwin Press.
- [6] Byrne, B., M. (2010) *Structural equation modeling with AMOS: Basic concepts, applications and programming*. New York: Routledge.
- [7] Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education*. New York: Routledge.
- [8] Drago-Severson, E. (2004). *Helping Teachers Learn: Principal Leadership for Adult Growth and Development*. Thousand Oaks: Corwin Press.
- [9] Flowers, C. (2006). Confirmatory factor analysis of scores on the clinical experience rubric: A measure of dispositions for pre service teachers. *Educational and Psychological Measurement*, 66(3), 478-488.
- [10] Guskey, T.R.(1986). Staff development and the process of teacher change. *Educational Researcher*, 15(5) 5-12.
- [11] Guskey, T.R. (2000). *Evaluating professional development*. Thousand Oaks: Corwin Press.



- [12] Guskey, T.R.(2005). Take a second look at accountability. *Journal of Staff Development*, 26(1) 9-18.
- [13] Hancock, G., R. & Muller, R., O. (2010). *The reviewer's guide to quantitative methods in the social sciences*. New York: Routledge
- [14] Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham R., L. (2010). *Multivariate data analysis*. New Jersey: Pearson Prentice Hall.
- [15] Hu, L., & Bentler, P.M., (1999) Cutoff criteria for fit indices in covariance structural analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55.
- [16] Iacobucci, D. (2010). Structural equation modeling: Fit indices, sample size and advance topics. *Journal of Consumer Psychology*, 20(2010) 90-98.
- [17] Johnson, R., B., & Christensen, L. B. (2008). *Educational research: Quantitative, qualitative, and mixed approaches*. Thousand Oaks: Sage Publications.
- [18] Killion, J. (1999). *What Works in the Middle: Results-Based Staff Development*. Oxford: National Staff Development.
- [19] Mahaliza Mansor (2013). *Pembinaan model pemebelajaran profesional berasaskan sekolah di sekolah menengah harian di Malaysia*. Unpublished Ph.D Thesis. Tanjung Malim: Universiti Pendidikan Sultan Idris.
- [20] Mahaliza Mansor & Norlia Mat Norwani (2010). Pembangunan profesional berasaskan sekolah: Satu tinjauan awal. In *International Management Education Conference 2010 (iMEC 2010)*, Melaka: Universiti Pendidikan Sultan Idris.
- [21] Mahaliza Mansor, Norlia Mat Norwani & Jamal @ Nordin Yunus (2010). Kesahan dan kebolehppercayaan alat ukur pentadbir sebagai pemimpin pembangunan profesional berasaskan sekolah (PPPS). In *Seminar Sehari Penyelidikan 2010*, Tanjung Malim: Fakulti Pengurusan dan Ekonomi, Universiti Pendidikan Sultan Idris.
- [22] Mahaliza Mansor, Norlia Mat Norwani & Jamal @ Nordin Yunus (2011). Inventori pembelajaran profesional: Pembinaan inventori, analisis faktor, kebolehppercayaan dan kesahan. In *Seminar Majlis Dekan-Dekan Fakulti Pendidikan IPTA 2011*, Serdang: Fakulti Pendidikan, Universiti Putra Malaysia.
- [23] Mahaliza Mansor, Norlia Mat Norwani & Shahril @ Charil Marzuki (2011). Validity and reliability of the school-based professional development leader roles inventory. *Management Research Journal*, 1(1),73-83.
- [24] Mahaliza Mansor & Masri Baharom (2014). Accessing school-based professional learning model in Malaysian context (Part II). *International Journal of Innovation and Research*, Vol.2-10, 2014.
- [25] Ministry of Education. (2008a). *Garis panduan pengoperasian latihan dalam perkhidmatan*. Putrajaya: Kementerian Pelajaran Malaysia.
- [26] Ministry of Education (2008b). *Laporan Tahunan Jemaah Nazir dan Jaminan Kualiti 2008*. Putrajaya: KPM.
- [27] Muhammad Kamarul Kabilan & Abdul Rashid Mohamed (2009). Malaysian english teachers' satisfaction level of their professional development. In *Seminar Jawatankuasa Penyelarasan Pendidikan Guru 2009*, Ipoh: Universiti Pendidikan Sultan Idris.
- [28] Murphy, C. U., & Lick, D. W. (2005). *Whole-faculty study groups creating professional learning communities that target student learning*. Thousand Oaks: Corwin Press.
- [29] Nunnally, J.C. & Bernstein, I. H. (1994). *Psychometric theory*. New York: McGraw-Hill.
- [30] OECD (2010). *TALIS 2008 Technical Report*. Retrieved from <http://www.oecd.org/dataoecd/16/14/44978960.pdf>.
- [31] Omar Abdull Kareem (2010). Teacher capacity building in teaching and learning: The changing role of school leadership. In *International Management Education Conference 2010 (iMEC 2010)*, Melaka: Universiti Pendidikan Sultan Idris.

- [32] Omar Abdull Kareem & Khuan Wai Bing (2005). Perkembangan Profesional Guru Secara berterusan: Perspektif Pembangunan Sumber Manusia. *Jurnal Masalah Pendidikan* . Retrieved from <http://myais.fsktm.um.edu.my/4991/>
- [33] Persico, M. (2001). *Exploring the relationship between the perceived leadership style of secondary principals and the professional development practices of their teachers*. Unpublished PhD Thesis. Bethlehm: Lehigh University
- [34] Roberts, S. M., & Pruitt, E. Z. (2009). *Schools as professional learning communities: Collaborative activities and strategies for professional development*. Thousand Oaks: Corwin Press.
- [35] Schumacker, R., E. & Lomax, R., G. (2004). *A beginner`s guide to structural equation modeling*. New Jersey: Lawrence Erlbaum Associates Publishers.
- [36] Sidek Mohd Noah & Jamaludin Ahmad (2005). *Pembinaan modul: Bagaimana membina modul latihan dan modul akademik*. Serdang: Penerbit UPM.
- [37] Sireci, S. G., Yang, Y., Harter, J., & Ehrlich, E. J. (2006). Evaluating guidelines for test adaptations: A methodological analysis of translation quality. *Journal of Cross-Cultural Psychology*, 37(5), 557-567. doi:10.1177/0022022106290478
- [38] Sparks, D., & Loucks-Horsley, S. (1989). Five models of staff development for teachers. *Journal of Staff Development*, 10(4), 40-57.
- [39] Tabachnick, B. & Fidell, L. (2007). *Using multivariate statistic*. Boston: Allyn and Bacon.
- [40] Wei, R. C., Darling-Hammond, L., Andree, A., Richardson, N., & Orphanos, S. (2009). *Professional learning in the learning profession: A status report on teacher development in the United States and abroad*. Dallas, TX: National Staff Development Council.
- [41] Zepeda, S. J. (2008). *Professional development*. New York: Eye on Education.
- [42] Zainudin Awang (2012). *Structural equation modeling using amos graphic*. Shah Alam: Universiti Teknologi Mara.