

The Relationship between the Effectiveness Professional Development Programme of Teaching and Learning and Competency of Instructional Supervision of Technical and Vocational Senior Teachers of Secondary Schools in Kuala Lumpur and Selangor

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ABSTRACT

This study aims to identify the relationship between the effectiveness of professional development programme in teaching and learning and the level of competency of instructional supervision of Technical and Vocational Senior Teachers (TVSTs) in secondary schools in Kuala Lumpur and Selangor. Questionnaires for TVSTs were distributed to 200 TVSTs for collecting the quantitative data to be analysed. The findings showed that there exists a positive significant relationship between the level of effectiveness of professional development programme in teaching and learning ($r = .51$, $p \geq .05$) and the TVSTs' competency level in instructional supervision. The findings also suggested that the instructional supervision training in technical and vocational teaching should be held for TVST. Finally, all the problems faced by TVSTs and their suggestions need to be taken into considerations by responsible parties in order to find solutions to the real factors based on instructional supervision competency in the secondary schools in Kuala Lumpur.

Keywords: Competency of instructional supervision, professional development programme, technical and vocational senior teachers, secondary schools, teaching and learning.

INTRODUCTION

Instructional supervision is necessary to ensure efficiency and effectiveness of teaching and learning in the classroom by teachers. Instructional supervision requires concentration and a long time as it involves all teachers. Thus, the task of supervising teachers can no longer be fully implemented by school principals because they are heavily burdened with administrative duties at the school. So much so that even some of the administrative tasks have been distributed to senior assistant teachers, senior teachers, and experienced teachers. Technical and vocational subjects provide basic knowledge and skills in the field of employment later. This has been linked to the desire to produce world-class human capital and skills to enable the nation achieve high-income status under the 10th Malaysia Plan. Hence, to achieve the goal of providing basic knowledge and skills in the areas of employment, technical and vocational teachers should be assisted, guided, and monitored to improve their effectiveness and efficiency in teaching and learning. The role of the Technical and Vocational Senior Teachers (TVSTs) is to supervise the teaching of technical and vocational subjects in schools because the TVSTs are middle managers who deal directly with the principals and teachers. Thus, TVST should have competence of instructional supervision of professional knowledge of teaching and learning of technical and vocational skills, interpersonal and technical skills to influence the behaviour of teachers towards improving the teaching and learning environment. According to the National Education Blueprint 2013-2025, the Ministry of Education (MoE) sees that increasing teacher effectiveness in teaching and learning is imperative. Therefore, the success of continuous monitoring of teachers' instruction and student learning should be implemented by highly

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competent instructional supervisors. The role of the TVSTs as instructional supervisors is to improve the teaching quality of technical and vocational subjects and further improve the students' achievement in technical and vocational subjects. To perform instructional supervision, the TVSTs need to acquire knowledge and skills in instructional supervision to make them become qualified instructional supervisors. According to Azali (2003), instructional supervisors act as guardians of educational quality and as facilitators for improving the professionalism of teachers.

Problem Statement

Past studies have shown that school principals are performing less instructional supervision because of their preoccupations with their administrative duties (Hoadley et al., 2009; Shulman et al., 2008, Wanzare, 2012). Thus, the task of instructional supervision has been entrusted to senior assistant teachers (Bity Salwana et al., 2010; *Surat Pekeliling Ikhtisas Bil. 3/1987*, KPM, 1987). However, the senior assistant teachers further delegate the task of instructional supervision to experienced teachers, especially to senior subject teachers (Bity Salwana et al., 2010; *Fail Meja Guru Kanan Mata Pelajaran*, KPM, 2008; Hoadley et al., 2009; Palandra, 2010; Wanzare, 2012). In the end, the task of instructional supervision in secondary schools is delegated to all TVSTs, without exclusion. Based on this scenario, problems start to surface when the TVSTs lack the knowledge and skills in instructional supervision. The issue was raised in the unstructured interviews held with 8 TVSTs of secondary schools in Kuala Lumpur and 5 TVSTs of secondary schools in Selangor. The problem intensifies and becomes critical when the TVSTs are not given the chance to attend any specific programmes or professional development training on instructional supervision. Thus far, only one course, namely Effective Supervision Course has been offered by Institute Aminudin Baki (IAB) (KPM, 2012). However, this course has been also targeted at principals, headmasters, and senior assistant teachers (KPM, 2012). Based on the annual report on TVST Professional Development, no professional development training specifically for the management of supervision of the TVSTs has been implemented since the past five years (KPM, 2011).

Objective of the Study

The objective of this study is to determine the relationship between the effectiveness of the professional development in teaching and learning with the competency level of instructional supervision of the TVSTs in secondary schools. Therefore the following specific objectives have been framed to be achieved in this study.

- (a) To identify the competency level of instructional supervision of the TVSTs in secondary schools in Kuala Lumpur and Selangor.
- (b) To identify the effectiveness of the professional development of teaching and learning of the TVSTs in secondary schools in Kuala Lumpur and Selangor.
- (c) To determine the relationship between the effectiveness of the professional development of teaching and learning and the competency level of instructional supervision of the TVSTs in secondary schools in Kuala Lumpur and Selangor.

Limitation of Study

The study investigated the TVSTs' competence in instructional supervision of teachers in secondary schools in Kuala Lumpur and Selangor. However, the competence in instructional supervision was limited only to the elements of instructional supervision in terms of professional knowledge in teaching and learning, interpersonal skills, and technical skills. In this study, competence in the professional knowledge was concerned with competence in teaching and learning, while competence in interpersonal skills was concerned with competence in communication and behaviour, and competence in technical skills was concerned with competence in the aspects of the implementation of formal supervision as measured by the Clinical Supervision Model. The effectiveness of the professional development programme in teaching and learning attended by the TVSTs was evaluated based on the Four Level Evaluation Model (Kirkpatrick, 1998) and the Professional Development Evaluation Model (Guskey, 2002). The focus of evaluation was on the reaction of participants, their oral presentation, the course content, the physical facilities and the benefits from attending the course. The study of the competency level of instructional supervision was based on the TVST's perceptions because it involved many respondents at the same time. Furthermore, previous researchers have also measured the competency level in instructional supervision using participants' perceptions.

LITERATURE REVIEW

Glickman et al. (2010) have introduced the Prerequisite Model of Supervisor Needs of teaching knowledge, interpersonal skills and technical skills based on the implementation of clinical supervision in the Supervision

Developmental Approach. Glickman et al. also pointed out that effective supervision requires competence and quality of knowledge, interpersonal skills and technical skills. According to Glickman et al., knowledge is the basis of actions taken by the supervisor and is the first aspect that needs to be mastered by the supervisor. Knowledge should be in line with the interpersonal skills to communicate with teachers, while technical skills are needed for planning, evaluation, monitoring and improvement of instructional supervisory assessments. This knowledge is transmitted through communication between supervisors and teachers using interpersonal skills and translated into technical skills.

The Four Level Evaluation model (Kirkpatrick, 1998, 2006, 2007) and the Critical Level of Professional Development Evaluation model (Guskey, 2000, 2002) were used in this study to provide information about the effectiveness of the professional development programme attended by the TVSTs. The evaluation of participants' reaction is focused on the instructor, course content, physical facilities and the benefits of the course (Guskey, 2000, 2002; Kirkpatrick, 2006, 2007)

Previous studies by Barnes et al. (2010); Chan (2004); Shariffah Sebran Jamila (2012) have shown the correlation between the effectiveness of the professional development programme and the competency of instructional supervision. The findings by Barnes et al. showed that effective professional development programme improves the knowledge and behaviour of instructional leaders. Further, Chan conducted a study on the effectiveness of the IAB training programme on professional development for school principals. Chan has used a questionnaire to measure the effectiveness IAB Training Courses. The first item construct was an assessment of the satisfaction of the participants or participants' reactions. The results showed a weak but significant correlation between the reactions of participants with increased learning by the school principals.

Shariffah Sebran Jamila (2012) conducted a study on 329 principals and 886 novice headmasters in training professionals. Shariffah found a significant positive correlation between the skills of novice principals and that of the novice headmasters. SEM analysis of the relationship of the level of professional training skills have demonstrated a significant positive correlation between ($\beta = .35$, the critical ratio = 4,133, $p = .00 < .05$) between the skills of novice principals and the skills of novice headmasters. The study focused on the instructional and management skills of novice principal and headmasters.

However, previous studies by Barnes et al. (2010), Chan (2004), and Shariffah Sebran Jamila (2012) emphasized only on the relationship between the effectiveness of the professional development programme of school leaders with the competencies of school principals as instructional leaders. Thus, in their studies of instructional leadership competency, Barnes et al. and Shariffah gave less emphasis on competency of instructional supervision in particular. As there has been no specific programme of professional development in instructional supervision of the TVSTs, as subject teachers, they have the opportunity to attend any programmes on professional development in the teaching and learning of technical and vocational subjects. Thus, the findings from previous studies such as that of Garet et al. (2001) showed the existence of a significant positive correlation between the professional development and the competence of subject teachers.

Garet et al. (2001) conducted a study on 1,027 teachers of mathematics and science with regard to the effectiveness of Eisenhower Professional Development Programme in the United States. Their results showed a positive relationship between enhancing knowledge and skills ($\beta = .42$, $p = .03 < .05$) and professional development. The views and findings by Garet et al. about the relationship between knowledge and skills and professional development remained as a reference by current researchers such as Borko (2004), Porter et al. (2003) Shariffah Sebran Jamila (2012), and Zehetmeier (2010). Therefore, basing on the findings of previous studies, it is tempting to assume that there exists a significant correlation between the effectiveness of the programme of professional development in teaching and learning attended by the TVSTs and competency in instructional supervision. However, this assumption is not strong; yet again studies on the relationship between the effectiveness of the professional development of the teaching and learning that attended by TVST and instructional supervision competency need to be done. This review will emphasize the correlation between the effectiveness of the professional development of the teaching and learning in technical and vocational subjects attended by the TVSTs and the competency of instructional supervision in technical and vocational education. More important, a specific programme of professional development on instructional supervision has yet to be offered to the TVSTs.

METHODOLOGY

Data were analysed using the Statistical Package for the Social Sciences, SPSS version 21.0. Descriptive statistics and inferential statistics were used to describe the data. The level of competence of instructional supervision was measured using the mean score interpretation interval. Following Noraini (2010), stratified random sampling was used to randomly select samples from each stratum based on their percentage in the

population. Therefore, each stratum was represented in the sample in their proportion to the population. Thus, 55 TVSTs in Kuala Lumpur and 145 TVSTs in Selangor were selected accordingly.

A questionnaire containing 57 items pertaining to instructional supervision competence and 19 items pertaining to programme effectiveness of professional development in teaching and learning was used as the measuring instrument. The TVSTs questionnaires were sent by mail to 145 TVSTs in secondary schools in Selangor to the address of the school principal respondent.

A reminding letter was enclosed together with questionnaire, explaining the characteristics of the TVSTs who are eligible to be included as samples of study and to ensure the validity and reliability characteristics of the study samples. Meanwhile, 55 questionnaires were personally distributed by the researcher to TVSTs in secondary schools in Kuala Lumpur.

However, only 177 TVSTs were involved in this research. Out of the 177 teachers, 48 (27.1%) TVSTs were from secondary schools in Kuala Lumpur while 129 (72.9%) TVSTs were from secondary schools in Selangor. The reliability index of Cronbach Alpha for the TVST Questionnaire was $\alpha = 0.97$ and Professional Development Effectiveness Questionnaire for Teaching and Learning was $\alpha = 0.95$. According to Pallant (2010), an alpha value of more than 0.7 is acceptable, but an alpha value exceeding 0.8 is better. The results showed that the overall mean score for the effectiveness of the professional development programme in teaching and learning was 3.96, with a standard deviation of 0.37.

RESULTS AND FINDINGS

The results of the study showed that competency in instructional supervision scored the highest overall mean of 4.03, with a standard deviation of 0.50. Meanwhile, the effectiveness of the programme for professional development in teaching and learning also scored a high overall mean of 3.96, with a standard deviation of 0.37.

From the analysis of the Pearson Correlation Coefficient, the effectiveness of the programme for professional development of teaching and learning was found to have a significant positive correlation with competency in instructional supervision ($r = .51$, $n = 177$, $p \geq .05$). However, the strength of the relationship was moderate. This means increase in the effectiveness of the professional development programme of teaching and learning will moderately increase the competence levels of instructional supervision. The relationship between the efficiency of the programme on professional development in teaching and learning and the competence level of instructional supervision is shown in Table 1.

TABLE 1

Relationship between the Effectiveness Professional Development Programme for Teaching and Learning and the Competency in Instructional Supervision

	Professional development programme for teaching and learning
Pearson correlation for competency in instructional supervision	0.514**
Significance level (2-tailed)	0.000
Sample size <i>n</i>	177

Note. ** Correlation is significant at the 0.01 level (2-tailed)

DISCUSSIONS, CONCLUSIONS AND IMPLICATIONS

The results indicated that competency of instructional supervision scored a high overall mean on professional knowledge teaching and learning of technical and vocational skills, interpersonal skills, and technical skills. The result also showed that effectiveness of the programme on professional development in teaching and learning scored a high overall mean. Furthermore, the study found that there is a significant positive correlation between the effectiveness of the programme on professional development for teaching and learning and the competence level of instructional supervision.

From the results obtained, this study confirms that the competence level of instructional supervision, in the aspects of knowledge in teaching and learning, interpersonal skills, and technical skills can be concluded as in the range of average to the highest level. It is satisfying to find that the instructional supervisors are highly

knowledgeable in the teaching and learning of technical and vocational subjects, that they are effective in interpersonal skills, and that they have high technical skills.

The findings of this study also found support from research highlights such as Johari's Window Model (Luft & Ingham, 1955), from Shamsudin and Kamarul Azmi (2011), and the Model of Assist and Evaluate Education Personnel (Tracy & Mac Naughton, 1993), and Prerequisite Model of Supervisor Needs (Glickman et al., 2010), which all suggested that instructional supervisors must be knowledgeable in their field, in interpersonal skills and in technical skills, to gain respect of the teachers they supervise. In addition, it can increase trust and confidence that the TVSTs can effectively implement instructional supervision, as well as enhance the trust and the confidence of the teachers being assisted, supervised, and evaluated for their teaching and learning.

However, a detailed analysis of the competence level of instructional supervision shows that the mean score for technical skills was ranked the highest (mean = 4.18, *SD* = 0.44), while the mean score for interpersonal skills was ranked second (mean = 16.4, *SD* = 0.46), and the mean score for professional knowledge in teaching and learning was ranked third and last (mean = 3.86, *SD* = 0.49). The findings from the mean scores of professional knowledge in teaching and learning was ranked third and last confirmed earlier reports about the TVSTs lacking professional knowledge of teaching and learning in technical and vocational subjects.

This study also confirmed the significant positive correlation between the effectiveness of the professional development programme of teaching and learning and competency in instructional supervision. This means that the more effective the professional development programme of teaching and learning attended by the TVSTs, the higher will be their competence level in instructional supervision. Thus, the study recommends that a course in instructional supervision specifically tailored to the TVSTs should be held to enable the TVSTs serving as instructional supervisors can achieve the credibility and confidence in executing their duty as instructional supervisors of technical and vocational subjects, in addition to improving teacher confidence in technical and vocational abilities and the skills of TVST's in instructional supervision. Therefore, it is time that an instructional supervision course is made the main compulsory programme for all TVSTs.

Thus, the Ministry of Education, especially the Teacher Education Division and Technical, the Vocational Education Division, Institute Aminuddin Baki, the Inspectorate and Quality Assurance, the State Education Department of Kuala Lumpur, the State Education Department of Selangor, and the District Education Offices should collaborate to prepare a module for a course in instructional supervision for technical and vocational subjects. The module should be specifically targeted to the TVSTs because most of the contents of technical and vocational subjects involve practical and hands-on training. For example, subjects under the Junior Vocational Education program in Form One, Form Two and Form Three in secondary schools emphasize the 70% practical and 30% theory in teaching and learning.

Furthermore, the Transformation of Vocational Education introduced by the Ministry of Education in 2012 has introduced the Junior Vocational Education (JVE) as a new programme for Form One, Form Two, and Form Three in some selected secondary schools. The JVE programme is different from other technical and vocational subjects currently available. Teachers have to train students more towards vocational skills and the students are not required to sit for national examination Assessment for Form Three (PT3). However, the JVE students will have to sit for the Malaysian Skills Certificate (SKM) examination at Level One and Level Two prepared by the Department of Skills Development (DSD) under the Ministry of Human Resources.

This is a new challenge to the TVSTs to supervise teachers involved in the teaching of JVE subjects under technical and vocational education in secondary schools. Thus, the course on instructional supervision of technical and vocational subjects specifically tailored to the TVSTs is important to be implemented for them to acquire the knowledge and skills to fulfil the requirements of the new technical and vocational education policy in Malaysia. The instructional supervision course should guide the TVSTs on teaching the vocational skills required to achieve and maintain effective instructional supervision. Thus, the Technical and Vocational Education Division, the Teacher Education Division, and the Curriculum Development Division in the Ministry of Education, responsible for the implementation of the JVE in secondary schools must provide special courses in vocational instructional supervision under the JVE programme to the TVSTs.

Adding importance to the issue is that with the launching of the 11th Malaysia Plan (2016-2020), the implementation of Malaysia's National Blue Ocean Strategy (NBOS) has emphasized the collaboration between the Ministry of Education and other ministries and private agencies. Thus, the implementation the NBOS in Technical and Vocational Education requires the Ministry of Education to collaborate with other ministries such as the Ministry of Human Resource (MHR), especially in the implementation of the JVE programme in the selected secondary schools. Thus, the Department of Skill Development (DSD) must conduct courses to the

TVSTs to provide them the knowledge on managing and on the appraisal and assessment of JVE subjects in accordance with the requirements of the Malaysian Skills Certificate.

One of the incentives and strategies of NBOS is the collaboration between the Ministry of Education (MoE) and Ministry of Human Resource (MoHR) in providing professional development courses for the TVSTs. This collaboration will improve the effectiveness of the TVSTs in their instructional supervision and provide cost-effective high-impact value to the TVSTs' competence in instructional supervision. This is also in line with the aim of the 11th Malaysia Plan to place the nation in the position of a high-income country by 2020. Students in the technical and vocational field can be considered as the human capital that need to be created to achieve the goal of acquiring knowledge, earning high income, and developed to compete in the world market. Thus, technical and vocational teachers must be supervised and guided by highly competent TVSTs to improve their effectiveness in the teaching and learning of technical and vocational subjects to further improve students' achievement in the technical and vocational fields.

The Inspectorate and Quality Assurance Division of the Ministry of Education should also provide training and guidance to the TVSTs on the proper way of assessing the teachers using the Instrument Supervision of Teaching and Learning. This would ensure fairness in scoring the performance of the technical and vocational teachers under their supervision. Higher Order Thinking Skills (HOTS) or *KBAT* is one of the 11 major shifts in the implementation of the Ministry's Education Blueprint 2013-2025. It aims to provide equitable access to quality education internationally. National examinations and School-Based Assessment (SBA) have been reorganized to gradually increase the percentage of questions that assess higher-order thinking skills in 2016. Thus, the Inspectorate and Quality Assurance Division of the Ministry of Education should provide guidance and training to TVSTs about *KBAT*, especially in technical and vocational education to enable the TVSTs to guide and assist in the assessment of subject teachers in technical and vocational education. This would enable them to keep pace with the needs of the technical and vocational students to achieve high skills.

REFERENCES

- Azali Mahbar (2003). *Penyelidikan pengajaran*. Dalam Zaidatul Akmaliah Lope Pihie dan Foo Say Fooi, *Pengurusan dan kepimpinan pendidikan* (ms. 123-148). Serdang, Malaysia: Penerbit Universiti Putra Malaysia.
- Barnes, C.A., Camburn, E., Sanders, B. R. & Sebastian, J. (2010). Developing instructional leaders: Using mixed methods to explore the black box of planned change in principals' professional practice. *Educational Administration Quarterly*, 46(2): 241-279.
- Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher*, 33(8):3-15.
- Bity Salwana Alias, Ahmad Basri Md Yusoff, Ramlee Mustapha & Mohammed Sani Ibrahim (2010). Analisis kompetensi pengetua berdasarkan kualiti peribadi, pengetahuan, kemahiran dan amalan dalam bidang pengurusan sekolah menengah Malaysia. *Jurnal Pendidikan Malaysia*, 35(2): 31-41.
- Garet, Michael S., Porter, Andrew C., Laura, Desimone, Birman, Beatrice F., & Kwang Suk Yoon (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 38: 915-945.
- Glickman, C. D., Gordon, S. P., & Ross-Gordon J. M. (2010). *Supervision and instructional leadership: A developmental approach*. (8th ed.). Boston: Allyn and Bacon.
- Guskey, T. R. (2002). Does it make a difference? Evaluating professional development. *Educational Leadership*, 59(6): 45-51.
- Guskey, T. R. (2000). *Evaluating professional development*. California: Corwin Press, Inc.
- Hoadley, U., Christie, P., & Ward, C. L. (2009). Managing to learn: Instructional leadership in South African secondary schools. *School Leadership and Management*, 29(4):373-389.
- Kementerian Pelajaran Malaysia (2012). *Program latihan 2012*. Jabatan Penerbitan dan Dokumentasi, Institut Aminuddin Baki: HS Massyi Printing Sdn Bhd.
- Kementerian Pelajaran Malaysia (2011). *Pelan strategik transformasi pendidikan vokasional*. Putrajaya: Bahagian Pendidikan Teknik dan Vokasional.
- Kementerian Pendidikan Malaysia (2013). *Pelan pembangunan pendidikan Malaysia 2013 – 2025 (pendidikan prasekolah hingga lepas menengah)*. Putrajaya: Unit Pelaksanaan dan Prestasi Pendidikan.
- Kementerian Pendidikan Malaysia (2011). *Laporan tahunan program perkembangan profesional GKMPPTV*: Kuala Lumpur: Jabatan Pendidikan Negeri Selangor.
- Kementerian Pendidikan Malaysia (2011). *Laporan tahunan program perkembangan profesional GKMPPTV*: Kuala Lumpur: Jabatan Pendidikan Negeri Wilayah Persekutuan Kuala Lumpur.
- Kementerian Pendidikan Malaysia (2012). *Konsep kemahiran berfikir aras tinggi (KBAT)*. Diperoleh daripada web.moe.gov.my/..kbat/konsep_kemahiran_berfikir.

- Kementerian Pendidikan Malaysia (1987). Surat Pekeliling Ikhtisas Bil. 3/1987 bertarikh 11 November 1987. *Penyeliaan dan pembelajaran di dalam kelas oleh pengetua dan guru besar sekolah.*
- Kementerian Pendidikan Malaysia (1986). Surat Pekeliling Ikhtisas Bil. 4/1986 bertarikh 13 Mac 1986. *Panitia mata pelajaran.*
- Kementerian Pendidikan Malaysia (1990). Surat Pekeliling Ikhtisas Bil. 8/1990 bertarikh 15 Disember 1990. *Sukatan pelajaran dan peruntukan masa untuk mata-mata pelajaran program kurikulum bersepadu sekolah menengah (KBSM) bagi sekolah menengah atas mulai tahun 1992.*
- Kirkpatrick, D. L. (1998). *Evaluating training programs.* (2nd ed.). San Francisco: Berrett-Koehler Publishers, Inc.
- Kirkpatrick, D. L., & Kirkpatrick, J. D. (2006). *Evaluating training programs: The four levels.* (3rd ed.). San Francisco: Berrett-Koehler Publishers, Inc.
- Kirkpatrick, D. L., & Kirkpatrick, J. D. (2007). *Implementing the four levels.* San Francisco: Berrett-Koehler Publishers, Inc.
- NBOS-Kementerian Pelajaran Malaysia (2013). Diperoleh daripada www.moe.gov.my/v/pemberitahuan-view?id=3301.
- Noraini Idris (2010). *Penyelidikan dalam pendidikan.* Kuala Lumpur: McGraw
- Palandra, M. (2010). The role of instructional supervision in district-wide reform. *International Journal Leadership in Education*, 13(2):221-234.
- Pallant, J. (2010). *SPSS Survival manual. A step by step guide to data analysis.* (4th ed.). Australia: Open University Press.
- Porter, A. C. et al. (2003). Providing effective profesional development: Lessons from the Eisenhower program. *Science Educator*, 12(1):23-40.
- Rancangan Malaysia Ke-11, 2016-2020. Bab 5: Meningkatkan pembangunan modal insan untuk negara maju. Diperoleh daripada [rmk11.epu.gov.my/ book/ bm/ Rancangan- Malaysia.../ Buku%20RMKe-11.pdf](http://rmk11.epu.gov.my/book/bm/Rancangan-Malaysia.../Buku%20RMKe-11.pdf).
- Rancangan Malaysia Ke-10, 2011-2015. Bab 5: Membangun dan mengekalkan modal insan bertaraf dunia. Diperoleh daripada [www.moe.gov.my/ userfiles/ file/ RMK10bab5%2014_610.pdf](http://www.moe.gov.my/userfiles/file/RMK10bab5%2014_610.pdf).
- Shamsudin Mohamad & Kamarul Azmi Jasmi (2011). *Penyeliaan guru dalam pengajaran dan pembelajaran.* Johor: UTM.
- Shariffah Sebran Jamila Syed Imam (2012). *Latihan profesional dan hubungannya dengan tret personaliti, kemahiran mengurus dan memimpin dalam kalangan pengetua dan guru besar novis di Malaysia.* Tesis Ijazah Doktor Falsafah (tidak diterbitkan): UKM Bangi.
- Shulman, V., Sullivan, S., & Glanz, J. (2008). The New York City school reform: Consequences for supervision of instruction. *International*
- Tracy, S. J., & Macnaughton, R. (1993). *Assisting and assessing educational personel: The impact of clinical supervision.* Boston: Allyn and Bacon.
- Wanzare, Zachariah (2012). Instructional supervision in public secondary schools in Kenya. *Educational Management Administration and Leadership*. 40(2): 188-216.
- Zehetmeier, S. (2009). *Sustainability of professional development.* Pembentangan Kertas Kerja di Proceedings of CERME, Lyon, France. 28 Januari hingga 1 Februari 2009.