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School Improvement Specialist Coach Plus (SISC+) Programme: Impact on Teachers' Pedagogical Skills and Students' Performance in Mathematics Classroom

Elenchothy Davrajoo*[1] and Malathi Letchumanan*[2]

[1]*SISC+ Kuala Selangor District Education Office 45000 Kuala Selangor, Selangor*
[2]*Institute for Mathematical Research, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia*

*Corresponding author: *elenchothy.dav@moe.gov.my*
malathi@upm.edu.my

Teacher training under the SISC + program in Malaysia's education system since 2014 has been questioned by teachers. Therefore, this study has identified the impact of teacher coaching initiatives under the District Transformation Program (DTP) on teacher pedagogical skills and student performance. This study used qualitative design using classroom observation records of 79 mathematics teachers from 13 secondary schools in the district of Kuala Selangor from 2014 to 2017. This data has been analysed in terms of descriptive comparing of teachers' pedagogy skills before and after the training period. The findings show that teachers' pedagogical skills standards have been enhanced especially in the pursuit of reflection and reflection writing. Analysis on year-end examination record also showed that student performance for 77.2% coached teachers' classes have shown a minimum change.
Keywords: mathematics, coaching, pedagogical skills, students' performance

I. Introduction

The School Improvement Specialists Coaches Plus (SISC+) Programme has been introduced in Malaysia since 2013 and implemented across the country in 2014. The main purpose of the implementation is to increase the quality of teaching and improve students' performance in critical subjects such as Bahasa Melayu, English and Mathematics. In order to achieve this goal, the Malaysia Education Blueprint 2013-2015, was designed by introducing the District Transformation Programme (DTP) the linkage of the education chain from top to bottom. DTP's emphasis is on enhancing the role of specialists or coaches in an effort to improve teaching and learning in education across the country to promote educational excellence through the School Improvement Programme. Hence district education office have been empowered to tailor the support provided to schools. Resources have been directed to where they are most needed. This includes employing coaches to support teachers in under performing schools which fall in category of Band 5, Band 6, and Band 7 (MOE (2013)) as one of the ways to ensure that all students have access to quality education.

Considering a quality of teaching and 21st century learning, these specialist coaches need to create the awareness on the role of a teacher in the 21st century education by providing teachers with the support, and space to learn how to use and cultivate appropriate pedagogical skills among them. Some international studies show that teacher's quality is the most significant school-based factor that determines student outcomes. Research in Tennessee, USA in the mid-1990s showed that high performing teachers can improve students' achievement by up to 50 percentile points compared to low performing teachers in the teaching of two eight

year-old students (37-90) with moderate performance over a three-year period. Similar studies conducted in Dallas and Boston, USA, and in England also showed focused instruction can raise student outcomes as much as 20% (MOE (2013)).

A. Literature review

Research found that traditional forms of professional development and training methods were ineffective for teachers. Many teachers expressed dissatisfaction with traditional forms of professional development that consisted of drive-by Darling-Hammond and Richardson (2009) workshops. Often the traditional forms of professional development ignored the needs of the adult learner. Actually adult learners required the same need as student learners needed. The researchers found many teachers never tried implementing the newly learned skill, strategy, or program without support and accountability from school administrators (Kise (2006); Knight (2007); Knight (2008); Sparks and Hirsh (1997); Speck and Knipe (2001); Zepeda, 2013). Leng (2014) found that secondary school mathematics teachers in Putrajaya, Malaysia were unprepared with lessons on the immediate visits of district officers. The teacher coaching under SISC+ programme in Malaysian education system is an effort to provide professional development and sustain the quality of teaching to ensure every teacher in schools well prepared to teach in classrooms.

A fundamental assumption underlying the theory of action for coaching and many other development models is that by helping teachers to improve the quality of their instructional practice will lead to improvements in student achievement (Cohen and Hill (2000); Kennedy (2016); Scher and O'Reilly (2009); Weiss and Miller (2006)).

Coaching

Coaching is defined as providing individualized, continuous, and extended support from a more knowledgeable person. Knight (2007) found coaching has developed as an example of established quality professional development. Salavert (2015) describes coaching as an "apprentice-based approach to support professional and personal development towards achieving set goals".

Teacher coaching has been one form of professional development aimed at improving teacher pedagogy and teacher effectiveness for nearly 40 years. Peer coaching is a professional development strategy that improves teacher's performance. Joyce and Showers (1982), first proposed peer coaching as in classroom professional development that reinforces the transfer of new skills from professional development to practice. Joyce and Showers (1982) completed a series of studies to test the hypothesis that weekly seminars would help the teachers being trained to implement what they learnt. The weekly seminars were coaching sessions conducted by other teachers. The study showed that teachers who had regular sessions with another teacher where they planned together had higher rates of transferring the new learning than participants who worked alone to implement new practices (Showers, 1984). Sutton et al. (2011) adds that a coach "works collaboratively with a teacher".

The term collaboratively show coaching is differing from mentoring, although the two terms are sometimes used interchangeably. The model of content-focused coaching provides a collaborative means for specialists and teachers to plan, teach, and reflect upon classroom lessons (West and Staub, 2003). Meanwhile a mentorship implies more of a hierarchical relationship in which the mentor serves as a role model, whereas coaching suggests a partnership-type relationship in which the coach encourages growth through his/her expertise (Salavert, 2015). Coaching impacts professional development in multiple ways through embedding, extending, deprivatising and connecting professional development to teacher's needs (Taylor, 2008). Currently, coaching is used as professional development in largescale initiatives for various reasons including the

development of individual teachers' ability to meet student needs.

Research showed that quality professional development activities had a significant impact on student learning and achievement (Darling-Hammond (2000); Guskey (2002)). According to Freire and Freire (2004) collaborative coaching by inviting ongoing cycles of reflection and action conversations promote growth for teachers. The coaches will guide the teachers to implement best-practice instruction and meet the learning needs of all students. Moreover, in a coaching relationship, teachers and coaches engage in a sustained professional dialogue aimed to improve teaching by developing instructional skills (Lofthouse et al., 2010).

Instructional Coaching

In teaching profession instructional coaching (IC) has increased in popularity as a model of professional development because teachers' preservice education is often weak and creates a need for strong in-service programs (Taylor, 2008).

Professional Development for teachers is an important factor in improving student achievement by changing the nature of teaching and learning in the classroom (Wenglinsky, 2000). Hence there is a need for strong peer coaching as professional development instead of brief and incoherent activities (Boatright and Gallucci, 2008). The main aim of instructional coaching is focuses on improving classroom instruction by focusing on four pedagogical elements: classroom management, content, instruction, or ongoing assessment (Knight, 2007). It is one of sustained, collaborative, school-based approach and effective professional development (Boatright and Gallucci, 2008). Study found instructional coaching positively improves (a) teachers' attitudes, (b) skill transfer, (c) feelings of efficacy, and (d) student achievement. Instructional coaches possess instructional expertise that they bring to bear in their work with teachers. They might be a peer, senior teacher, district leader, or external consultant (Cornett and Knight, 2009). According to Knight (2007) instructional coaching as a partnership defined by equality, choice, empowerment and respect, authentic dialogue, reflection, praxis, and reciprocity. The dialogue between coach and teacher is negotiated, evolving, and partnership specific, based in equity and shared expertise.

SISC+ as an Instructional Coach

In Malaysia the SISC+ programme were introduced as on-site professional developers to coach teachers and work along with School Improvement Partner Plus (SIP+) who coaches school leaders to reduce the gap between rural and urban schools. The main focus of SISC+ is to provide the instructional strategies to the teachers and improve students' performance in low performing schools in all districts across the country (MOE, 2013). These coaches acts as catalysts to increase teachers' professional knowledge or transfer pedagogical skills on lesson planning, classroom management, content, instruction, or ongoing assessment focused in transforming the lessons, through thoughtful dialogues resulting quality professional development. The selected teachers participated in three (minimum) individual coaching sessions or coaching cycles across the school year (i.e., approximately 6-7 contact hours).

Figure 1 shows a sample of planned timeline for one SISC+ from Kuala Selangor throughout the year.

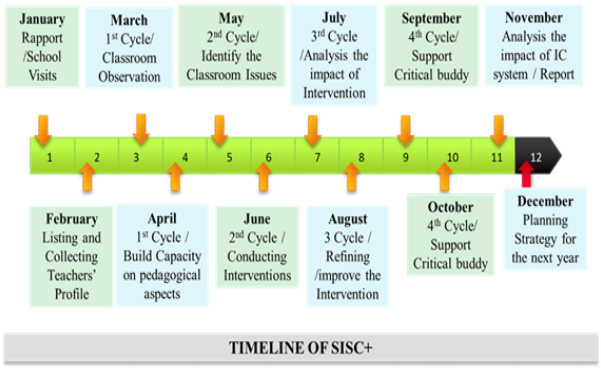

Figure 1: Timeline of SISC+

With DTP funding, one instructional coach has been hired as an expert external consultant with minimum five years teaching experience. These specialists provide individualized, adaptive, and situation specific professional learning focused on content, pedagogy, and student's learning.

However, mathematics coaching is a newly investigated research area and many issues still need to be addressed as schools and school districts implement coaching programmes. Thus there was very little research being carried out to explore on the effectiveness of SISC+ programme in Malaysia especially in mathematics classroom. This study will contribute to the knowledge for discipline of mathematics education. Research showed that students' performance is more heavily influenced by the teacher's quality in terms of content knowledge and pedagogy knowledge than by students' priors academic record or school a student attends (Ishola and R., 2017). An effective classroom teaching enhances students' performance in mathematics (Ogunboyede, 2011).

The job of a SISC+ includes recruiting teachers to be coached, identifying appropriate interventions for teachers to learn, modelling and observing to gather data in the classroom and engaging in dialogue about classroom and data assessment. In order to do these, the instructional coach must build good relationships with teachers and encourage teacher's reflection about their classroom practices. Therefore, it is necessary for SISC+ to have good communication skills; be empathetic, supportive and good listeners; and be expert educators with a toolbox full of successful practices. First and foremost, the role of the instructional coach is to be focus on instruction and student achievement, and then the context must be built to allow that focus to remain as the priority. It is important that instructional coaches have a deep knowledge of effective strategies in all skills of teaching including classroom management, content knowledge, instructional practices and assessment for learning. In addition, SISC+ need to be resourceful in finding additional tools and strategies when faced with new experiences, specifically when it comes to individual students' needs. Knight (2007) reported that the instructional coaches need to have the skills and attributes that make an excellent teacher, they must also have communication and organization skills, be flexible and able to adapt and have an ambitious "whatever it takes" attitude. Effective coaches are "affirmative, humble, and deeply respectful teachers, but they are unwilling to rest unless they achieve significant improvements in teaching and learning in their schools." According to Knight (2007) trust is a key factor in coach teacher relationships. Teachers must feel assured that their conversations with their coach will not reflect poorly on their evaluations by administrators. The confidentiality between teacher and instructional coach must be honoured and respected by coaches, by teachers and administrators.

A qualitative research was conducted by education Ministry of Malaysia MOE (2013) on 125 lessons in 41 schools across Malaysia in 2011 found that the majority of teaching practices in Malaysia were unsatisfactory. The findings showed only 12% of teaching were delivered at a high standard, utilising best practice pedagogies, while another 38% met satisfactory standards. In contrast, 50% of the lessons observed showed that instruction was delivered unsatisfactorily. It was found further that there were different perceptions of what constitutes good quality teaching and learning between schools and Federal Inspectorate and Quality Assurance (Jemaah Nazir dan Jaminan Kualiti (JNJK)). For example, JNJK states that only 13% of schools have Good or Excellent teaching and learning practices as compared to 63% of schools that rated themselves and their teaching and learning practices. These findings show that more effort is needed to improve the teachers' pedagogical skills (classroom management, content, instruction, and assessment for learning into their teaching) in Malaysia to ensure they can deliver the new knowledge and skills desired.

The Ministry realises that the teachers need assistance of instructional coaching to meet the expected new competencies (MOE, 2013).

Problem Statement

The main pedagogical issue reported of teachers' professional development is the contradiction in conveying the needed education according to students' standard through proper planning, delivery and assessment. A survey on the impact of the SISC+ on secondary school mathematics teachers' in Kuala Selangor District in the first term of the 2014 academic year found that the teachers lacking of all pedagogical skills except lesson delivery. Majority of teachers focused mainly on the aspect of lesson delivery that based on the classroom communication, students' engagement, class management, teaching materials and content knowledge (Davrajoo (2014, 2015)). Findings showed that the teachers failed to reach the standard 4 in planning the lesson, do assessments in classroom based activities, making review on end of the class and writing proper reflection as guided by Teacher's Coaching Tool (TCT). They rely more on resources like exercise books or worksheet based learning which is less relevant to student's learning capacity. Even the mathematics text book is no longer used as primary source. Therefore, this paper has investigated the impact of SISC+ programme on teachers' pedagogical skills and students' performance in mathematics classroom.

II. Methodology

Case study research design was selected because this study investigates in detail the impact of implemented programme. Researcher wants to determine whether an instructional coaching has positive effect on teachers' pedagogical skills and students' performance in mathematics. A case study focuses on a person, a site, a project. It often uses a combination of quantitative and qualitative data. Case studies can be particularly useful to understand on how different elements fit together and how different elements (implementation, context and other factors) have produced the observed impacts or a program effects. This examines the causal links between the program and observed effects (Creswell and Creswell, 2017).

This case study research will provide an in-depth analysis of the impact of SISC+ programme from year 2014 to 2017. Teacher fidelity to the Five Standards instructional model is measured with the TCT, using a repeated measures design across three cycles of coaching. The record of observational protocol documents such as TCT, Teacher Development Plan (TDP) and students' progress report were used to answer the following questions:

1. What is the standard of teachers' pedagogical skills after the coaching period?

2. Are there any changes in students' performance in based on overall mathematics result after the coaching period?

A. Participants

The participants of this study consist of 79 mathematics teachers from 13 secondary schools in Kuala Selangor district. A purposive sampling approach was used to gather available data from mathematics teachers. In purposive sampling, subjects are chosen as representative of a specific population selected individuals will help the researcher understand the problem (Creswell and Creswell, 2017). The number of teachers under the SISC+ program various from year to year according to DTP changes.

In year 2014 the SISC+ were assigned to limit the instructional coaching up to 20 teachers. Then for the next two years the number of mathematics teachers for coaching under DTP 2.0 has been increased up to 25- 30 teachers. Subsequently starting July 2017, the role of SISC + under DTP 3.0 has changed from

subject specialist to pedagogical expert without limiting the number of teachers for coaching. Thus, there are 79 mathematics teachers (20 in 2014, 25 in 2015, 28 in 2016 and 6 in 2017) were involved in the program until 2017. However, new teachers are excluded from this study.

B. Instrument

This study has used the data of 79 teachers that recorded during instructional coaching session. The data were obtained through teacher profile form, classroom observation and field note discussion that transferred to TCT and Teacher Development Plan (TDP). TCT is a classroom observation rubric consists of 12 pedagogical subscales covering the five standard guide of pedagogical skills (planning, delivery, assessment, review and reflection). Each pedagogical skill given continuum 0 to 3. Continuum 3 indicates the highest standard, followed by continuum 2 for a moderate standard, continuum 1 is for low standard, and continuum 0 for the absence or "Not Observed" the continuum describes absence of implementation. Meanwhile, TDP is the tool for the teachers to polished up their pedagogical skills progressively by planning the next standard pedagogical targets that can be reached in follow up session with SISC+.

After the classroom observation SISC+ will have post conference to discuss the teacher's pedagogical standard based on TCT. During the discussion, the strengths and weaknesses or issues of teachers' pedagogical skills were identified. Teachers need to come out with interventions for identified weaknesses. For this purpose, the TDP form will be used. The teacher will plan self-development to reach determined pedagogical level for second cycle. Therefore, the teacher needs to change his/her teaching style according the determined goals for the next training session. This upgrade or improvement will be evaluated in next class observation as explained in Figure 2.

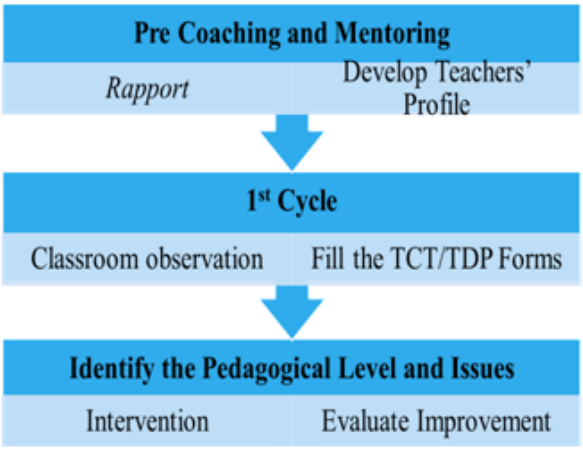

Figure 2: The instructional coaching process

C. Data collection

The data was collected from 18th February 2014 to 30th June 2017 during the classroom observation of SISC+ programme. The teachers participated in minimum three individual coaching sessions across the school year (i.e., approximately 10 contact hour). The coaching process relies on the TCT to operationalise the interaction between the coach and teacher.

Demographic details data were collected from teachers' profile forms that distributed during the first meeting of SISC+ and teacher which known as pre-coaching and mentoring session. This session is to build rapport and establish shared expectations (refer Figure 1). Each coaching cycle has three-stage process: (i) 30 minutes for pre-conference, (ii) 40-80 minutes for classroom observation, and (iii) 30 minutes for post-conference. The pre-conference focuses on review of collaboratively planned lesson based on TDP. The dialogue between coach and teacher invites reflection on the interventions or improvement of the standard of pedagogical skills use in the context of classroom instruction. During the 45-80 minutes' classroom/lesson observation, data for implemented lesson were recorded in TCT. The SISC+ captures evidence for TCT ratings and evidence for five incorporating pedagogical skills: (i) lesson planning, (lesson objective, writing daily lesson plan and activity based les-

son/ interactional patterns), (ii) lesson delivery (communication, students' engagement, class management, teaching materials and content knowledge), (iii) lesson assessment (oral and written questioning practices), (iv) lesson review and (v) lesson reflection. During the post-conference, the coach will use the lesson observation data from TCT to evaluate the overall standard of teacher pedagogical skill. Based on the discussion and the TCT notes the teacher will plan interventions for next cycle by filling the TDP form. Again the dialogue between teacher and SISC+ to develop the agreed pedagogical skills for next session called the instructional coaching.

D. Data analysis

The data of this study was analysed in terms of descriptive analysis using frequency, percentage and mean standard to explain teachers' profile as well as the teachers' improvement on pedagogical skills and the students' performance. The data analysis process is done based on the research question of the study.

Researcher gathered the selected teachers' pedagogical skills standard that determined during classroom observation before and after the instructional coaching by SISC+. The record for first cycle (Pre-TCT) and third cycle (Post-TCT) are analysed and compared. Then the data of the students' performance obtained from school exam analysis system database (Sistem Analisis Peperiksaan Sekolah- SAPS). The year- end examination record analysed to determine the improvement of the observed class result. The data was analysed and categorised with code 1-5 whereby 1 - no change (students did not meet the indicator), 2 - no change (students did meet the indicator), 3 - slight change (students met the indicator), 4 - some changes (students met the indicator), and 5 - (students with satisfactory changes).

III. Results

A. Demographic details of the participants

Table 1 illustrates the demographic profile details (gender, age and working experiences) about the participants. A total of 63 participants are female whilst only 16 are males. The participants fall in three age groups. Majority of the teachers (n = 39) fall in age group 30-39 and followed by 30.38% of the teachers (n = 24), were below 30 years old group and 13.92% of teachers (n = 11) were in 40 - 49 years old group and 6.33% of the teachers were in 50 years plus old group (n = 5). Finally, the participants working experienced were analysed. Teaching experience for this study was divided into four categories within the study, less than 5 years, 5-14 years, 15-24 years and above 25 years. Majority of them (n = 38) had taught from 15to 24 years in the profession. 22 teachers noted that they had 5 to 14 years of experience. 14 teachers had less than 5 years experiences in teaching. Five others in the study reported more than 25 years service in education field. This information indicates that the majority of participants are adult learners who are experienced teachers.

B. The teachers' pedagogical skills

Table 2 and Table 3 presents the frequency and method for each pedagogical skill standard and the average standard for the first coaching cycle and third coaching cycle. The overall mean of the first cycle coaching is 0.91, (approximating standard 1) indicating a low standard of pedagogical skills among the participants in the before the session of instructional coaching. The participants obtained highest standard for lesson delivery (mean = 1.63), followed by lesson assessment (mean = 1.19), lesson planning (mean = 1.16), lesson review (mean = 0.38), and lesson reflection (mean = 0.19). This result indicates that the participants need coaching for the skills of lesson reflection, lesson review and lesson planning.

Table 1: Demographic details and background of IC participants

Demographic details		Frequency	Percentage (%)
Gender	Female	63	79.75
	Male	16	20.25
Age	= 30 years	24	30.38
	30-39 years	39	49.36
	40-49 years	11	13.92
	= 50 years	5	6.33
Years of Teaching Experiences	= 5 years	14	17.72
	5-14 years	22	27.85
	15-24 years	38	48.10
	= 25 years	5	6.33

A total of 82.28% of teachers (n = 65) did not write the reflection part teaching to record the level of students' achievement during the lesson. The skill of writing reflection after lessons is very important for teachers to prepare or plan for next lesson. In detail, during the first cycle, it was found that 13 participants did not practice reflection writing. The rest do not write strength, as well as further action for the next class.

While the overall mean for the third cycle coaching is 1.73, (approximating standard 2) which demonstrates the moderate pedagogical skills. Once again the participants obtained the highest standard for skill of lesson delivery (mean = 2.24), followed by lesson planning (mean = 2.14), lesson review (mean = 1.57), lesson assessment (mean = 1.43) and lesson reflection (mean = 1.25). For the skill of lesson review, only 18 participants had emphasised the importance of the learnt lesson in real life situations or show relevance to other lessons. The findings show that participants had ignored the part making summary of the lesson at the end of the teaching session by reviewing at least 3-5 essential learnt points and link the lessons to real life situations. When questioned about the abandonment of the closing elements during post conferences, the participants informed that they were actually missing focus when there was an observer in the classroom.

Another clear issue in this study is the skill of teachers in planning lessons and conducting classroom assessments. Most of participants (n = 52) failed to perform differential learning in via oral assessment and written assessments (n = 47). Teachers are more likely to give written exercises than to use verbal questioning techniques to assess the mastery of the lesson.

In further the teacher's pedagogical skills improvement in term of standard during first cycle coaching and third cycle coaching was analysed. Figure 3 illustrates the comparison of teachers' pedagogical skills of teachers in first and third cycle of coaching.

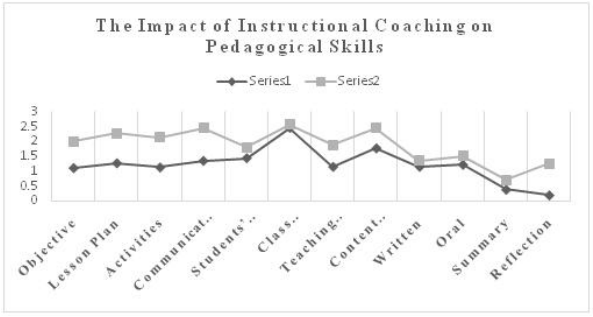

Figure 3: The comparison of teacher pedagogical skills in the 1st cycle and 3rd cycle

In details, the participants showed highest improvement in communication skills (+1.12) and writing lesson reflection (+1.06). Based on the graph it can be concluded that the teachers' standard of pedagogical skills had been improved.

1. The students' performance

Most of the classes that chosen for this study are low performing classes. Students' performance was analysed based on the overall class results for year-end mathematical papers. To assess the students' performance, the Yearly

Table 2: The collected data of TCT 1

Pedagogical Skills	Pedagogical Skills Subscales	Level 0	1	2	3	Mean 1	Mean 2
Planning	Objective	11	52	12	4	1.11	1.16
	Lesson Plan	3	59	10	7	1.27	
	Activities	-	70	8	1	1.13	
Delivery	Communication	2	57	10	10	1.35	1.63
	Students' Participation	-	44	35	-	1.44	
	Class Management	-	6	31	42	2.46	
	Teaching Materials	2	66	8	3	1.15	
	Content Knowledge	-	19	59	1	1.77	
Assessment	Written	8	65	13	-	1.15	1.19
	Oral	1	60	18	-	1.22	
Review	Summary	50	28	1	-	0.38	0.38
Reflection	Reflection	65	13	1	-	0.19	0.19

Table 3: The collected data of TCT 3

Pedagogical Skills	Pedagogical Skills Subscales	Level 0	1	2	3	Mean 1	Mean 2
Planning	Objective	-	15	48	16	2.01	2.14
	Lesson Plan	2	5	41	31	2.28	
	Activities	-	10	48	21	2.14	
Delivery	Communication	-	12	18	49	2.47	2.24
	Students' Participation	-	35	24	20	1.81	
	Class Management	-	-	33	46	2.58	
	Teaching Materials	-	25	38	16	1.89	
	Content Knowledge	-	1	40	38	2.47	
Assessment	Written	11	36	13	19	1.35	1.43
	Oral	23	29	21	6	1.51	
Review	Summary	12	28	21	18	0.70	1.57
Reflection	Reflection	13	43	13	10	1.25	1.25

Progress Report (YPR) that obtained from the SAPS was utilised.

For each class the key performance indicators have been determined by the teacher dur-

ing the first cycle of the coaching. The data of YPR for all 79 classrooms was analysed and categorised with code 1-5. The code 1 indicate no change (students did not meet the YPR indicator), 2 - no change (students did meet the YPR indicator), 3 - for slight change (students met the YPR indicator), 4 - some changes (students met the YPR indicator), and 5 – significant change (students met more YPR indicator). The frequency for each code is displayed in Table 4.

Table 4: Frequency of codes for YPR performance

Code	Description	Frequency	Percentage
1	No change - students did't meet the YPR indicators	8	10.13
2	No change - students did meet the YPR indicators	10	12.66
3	Slight change - students met the YPR indicators	23	29.11
4	Some change - students met the YPR indicators	19	24.05
5	Significant change- students met more YPR indicators	19	24.05
Total		79	100

Result shows 77.21% of classrooms (n = 61) had shown changes with minimum slight change where the students met the YPR indicators. There were no changes for 18 classes (22.8%), including eight classes that did not meet YPR indicators.

IV. Discussion

This study offers feedback on district transformation programs in Kuala Selangor District, Malaysia under the SISC + program since 2014. This is an effective professional development program for teachers in low-performing schools by developing pedagogical skills through training cycles. The coaching cycle is a loop of academic feedback that focuses on improving student performance. It is believed that teachers who are supported to develop pedagogical skills as well as determine appropriate interventions will enhance the active involvement of the students in learning activities. Previous studies in the field of pedagogical skills coaching are quite lacking and most of the researches are focused on teachers' self-efficacy, believes, perceptions and general coaching. Therefore, this study found insufficient back up to discuss the pedagogical skills development among mathematics teachers.

The results of this study show that the SISC + program has contributed to the improvement of teacher pedagogical skills as well as student performance. This finding is in line with researchers such as (Cohen and Hill (2000); Kennedy (2016); Scher and O'Reilly (2009)) who argue that student achievement will not increase without changes in teacher's classroom practice. However, the mathematics teachers' pedagogical skills standards are still moderate and need to be upgraded to higher standards so that more students can show significant changes in learning.

Major problem is most of the classes were still dominated by teachers with teaching for whole class (without consider the differentiated learning), and behaviourist practices. In general, only 10 mathematics teachers had positive impact with standard 3 for all 12 pedagogical skills according to TCT. The others (n=69) tend to implement teacher centred lessons, with lot of explanation and giving more written assessment instead of giving differentiated assessment among students. They claimed the students need to be explained to make learning happen.

Meanwhile another common problem is the teacher's inability in writing measurable objectives, reflection notes, encouraging active participation of pupils, using appropriate learning materials and conducting different written and verbal assessments were found to be the main problems. These pedagogical skills are having important role to play in academic achievement

of students in mathematics. Authors such as (Odumosu M. O. and A. (2018); Ogunboyede (2011)) also argued effective classroom teaching enhances students' performance in mathematics. It is imperative therefore, that teachers of mathematics must have better pedagogical skills. Writing reflection after the class is essential to do the further teaching planning. Therefore, the teachers should write minimum three strengths with needed follow up for those students did not reach the objectives. Unfortunately, the teachers claimed that writing the reflection notes as require by TCT is impossible to implement.

Study found that SISC+ has the ability to stimulate changes in the instructional practices of teachers if they have a clear understanding of their role and responsibilities, knowledge of instructional practices, mastery of teaching techniques, and an understanding of the adult learner. This finding in line with (Kraft et al. (2018); Polly D. and R. (2013)). They found large positive effects of coaching on teachers' instructional practice. They found a pooled effect size of 0.58 standard deviations across all 32 studies that included a measure of instructional practice as an outcome.

In addition, researchers (Boatright and Gallucci (2008); Campbell and Malkus (2009)) also found that the instructional program had a statistically significant impact on one measure of instructional practice positively correlates with student achievement gains and changes in teacher perceptions and practices. However, they suggest that the amount of time a coach actually spends working with teachers in the classrooms must be taken into consideration to bring intentioned result. A coach helps teachers increase their content knowledge, build on their strengths, and improve instructional practices (Polly D. and R., 2013).

Though the teachers tend to avoid this in–site based professional development instead of invite the coaches for school improvement (Davrajoo (2016, 2018)). This finding reinforce the idea that innovation failure can occur due to several factors, such as negative attitudes to change, a confusion of roles, a lack of understanding of goals, concerns over the additional workload and concerns over the implications and effects of innovation (Hassan, 2014). The targeted group usually will feel confused and alienated if the change is implemented without training, resources and adequate preparation. In future hope the teachers get used with this SISC+ system to polish their pedagogical skills.

V. Conclusion

This study examines the impact of School Improvement Specialist Coach (SISC+) on their roles in coaching mathematics teachers in Malaysian secondary schools. Overall, the findings of this study show that coaching, as part of a professional development programme, is perceived by the coaches to have impact on teachers' pedagogical skills and students' performance in mathematics. The findings have expanded our understanding on the implementation of SISC+ program. While this study puts forth the perspectives SISC+ programme and contributes to the body of knowledge about the coaching of mathematics teachers, there are still many questions which worth for further exploration. It is recommended that future research examines the views of the teachers who are being coached so that their views can be compared with the SISC+ views. It is hoped that the findings of this study will add to the body of knowledge besides providing useful insights for school improvement.

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