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# The Lesson Study Seminar and Practice 2014: Reflection on the Lesson Study Practice in Brunei Darussalam

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Universiti Brunei Darussalam

## REFLECTION ON THE LESSON STUDY PRACTICE IN BRUNEI DARUSSALAM

**THE LESSON STUDY SEMINAR AND PRACTICE 2014**

**REFLECTION ON THE LESSON STUDY PRACTICE  
IN  
BRUNEI DARUSSALAM**

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## **The Impact of the Different Stages of Lesson Study on Teachers' Learning: The Brunei Context**

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### **Abstract**

This paper outlines on a study that investigated the impact of Lesson Study on Bruneian primary mathematics teachers' development in improving their instructional practices. Identification of 'critical events' that can influence the extent of teachers' learning which can promote the development of their instructional practices within the 3 stages of Lesson Study was the main purpose of the study. This paper shares the findings of a teachers' questionnaire of 28 primary mathematics teachers who have participated in the National Lesson Study Project in 2010. The questionnaire consisted of 17 items focusing on statements on teachers' perceptions in the three stages of Lesson Study and teachers were asked to designate their agreement on a 4-point scale which were (1) strongly agree, (2) agree, (3) disagree and (4) strongly disagree. Findings indicated that teachers' learning did took place in the 3 stages of lesson study however the extent and the nature of their learning were different in each stage. Although the differences were not much but it is important to see which aspects of teachers' learning were 'dominant' in each of the 3 stages.

**Keywords:** Teachers' learning, Teachers' Professional Development Program, Three stages of Lesson Study.



## Introduction

The New Education System (SPN21) provided the much needed changes and improvement towards the standard of education in Brunei Darussalam. Over the past decades, the Brunei education system underwent some major and minor changes. The old education system was viewed as insufficient and inadequate in instilling the Brunei students with essential 21<sup>st</sup> century skills, knowledge, attitudes and values (Suhaili & Khalid, 2011). One of the goals of SPN21 is to equip Bruneian students with essential 21<sup>st</sup> century skills in order to meet the social and economic challenges, and compete intellectually and academically with other students internationally (Ministry of Education, 2009).

According to Diah (2011), the introduction of lesson study as a teachers' professional development framework in Brunei Darussalam was to address concerns of poor performances in mathematics and sciences. It was an initiative taken by the Department of Schools, Ministry of Education Brunei Darussalam, in order to improve pupils' mathematical achievement through the development of mathematics teachers' pedagogical content knowledge by adopting international best practices in teaching and learning (Diah, 2011). Lesson study is one of the 8 initiatives stated in the Ministry of Education Strategic Plan 2012-2017 that have been implemented on an ongoing basis to promote the continued growth and success of SPN21 (Ministry of Education, 2012)

This paper reports on a study which examined the impact of Lesson Study on Bruneian primary mathematics teachers' development in improving their instructional practices. The purpose of this study was to identify 'critical events' in each stage that can influence the extent of teachers' learning in the 3 stages of the lesson study (planning stage, the implementation of research lesson stage and the reflective stage) which can lead to the improvement of the teachers' instructions. This paper shares the findings of a teachers' questionnaire of 28 primary mathematics teachers who have participated in the National Lesson Study Project in 2010. The questionnaire consisted of 17 items focusing on statements on teachers' perceptions in the three stages of Lesson Study and teachers were asked to designate their agreement on a 4-point scale which were (1) strongly agree, (2) agree, (3) disagree and (4) strongly disagree.

## Methods and Samples

In this study, and for the purpose of identifying 'critical events' in each stage of the lesson study that has the potential to influence the quality and degree of teachers' learning, the researcher had adapted and modified teachers' questionnaire from 3 previous researches on Lesson Study and Learning Study: the research done by White and Southwell (2003) on *Teachers' Perceptions of the Impact of the Lesson Study Project upon their Knowledge and their Learning*, a research done by Ling (2008) entitled *The Learning Study- A Framework for Enhancing School-University Collaboration that Focuses Upon Individual Lessons*, and a research done by Fernandez (2005) entitled *Exploring 'Lesson Study' in Teacher Preparation*.



The researcher had selected a purposive sample of teachers from 14 government schools which were involved in the Lesson Study project in 2010; a collaboration between Universiti Brunei Darussalam and the Department of Schools at the Ministry of Education Brunei Darussalam. Altogether there were 8 primary schools from Brunei Muara district, 2 schools from Belait, Tutong and Temburong district respectively. The 14 schools were divided into 3 groups. Group 1 consisted of 3 primary schools from Brunei Muara district and only 1 school from Tutong district. There were 2 primary schools from Brunei Muara district and 1 primary school from Tutong, Belait and Temburong district respectively. Finally Group 3 consisted of 3 schools from Brunei Muara district and only 1 school from Temburong and Belait district.

The teachers' questionnaires were distributed to all 28 lesson study practitioners after the lesson study project has ended. And for each statement in the questionnaire, teachers were asked to designate their agreement on a 4-point scale; which were (1) strongly agree, (2) agree, (3) disagree and (4) strongly disagree. The demographic information of the 28 teachers or Lesson Study practitioners is presented in Table 1 below.

Table 1  
*Lesson Study Practitioners Demographics*

Lesson Study Practitioners Demographics		Group 1 (N=8)	Group 2 (N=10)	Group 3 (N=10)
Description				
Gender	Male	0	1	4
	Female	8	9	6
Age	18-25	1	3	1
	26-35	2	7	8
	36-45	5	0	1
	46 and above	0	0	0
Highest Qualification	Certificate or Diploma	4	5	6
	Bachelor Degree	4	5	4
	Masters' Degree	0	0	0
Years as a Mathematics Teacher	0-5 years	1	7	4
	6-10 years	4	2	5
	11-15 years	3	1	1
	16 years and above	0	0	0

## Results

A descriptive statistical data of teachers' perception on each stage of lesson study was used to analyse and measure the impact of lesson study in the 3 different stages; planning stage, implementation of research lesson stage and reflective stage. On the teachers' questionnaire, the teachers were asked to provide a rating for each item. The ratings were (1) Strongly Agree, (2) Agree, (3) Disagree and (4) Strongly Disagree. Table 2a, 2b and 2c illustrate the teachers' mean scores of every item in each stages of lesson study.



Table 2a

*Descriptive Statistical Data of Teachers' Perception in the Planning Stage of Lesson Study*

Items	N	Min	Max	Sum	Mean (M)	Standard Deviation (SD)
1. I was satisfied with the final lesson plan that we came out with	28	1	3	50	1.79	.686
2. Planning together broadened my knowledge of the mathematics content/subject matter	28	1	2	39	1.39	.497
3. Planning and preparing to teach the topic we have chosen caused me to engage in mathematical reasoning and problem solving	28	1	3	42	1.50	.577
4. Planning together helped me to be aware of the new mathematics curriculum.	28	1	2	42	1.50	.509
5. Planning together helped me understand more on students' way of thinking and learning mathematics concepts.	28	1	2	44	1.57	.504
6. Planning in a group broadened my knowledge of mathematics teaching ideas and pedagogy	28	1	2	41	1.46	.508
7. The collaborative lesson planning is beneficial for me in order for me to be a better mathematics teacher	28	1	2	39	1.39	.497
Average					1.51	0.54

Table 2b

*Descriptive Statistical Data of Teachers' Perception in the Implementation of Research Lesson stage of Lesson Study*

Items	N	Min	Max	Sum	Mean (M)	Standard Deviation (SD)
8. I was satisfied with my teaching of the research lesson.	28	1	3	59	2.11	.497
9. I felt uncomfortable and nervous when my peers and other teachers were observing my lesson.	28	1	4	57	2.04	.793
10. Observing and analyzing others' lessons helped me think more deeply about mine.	28	1	3	42	1.50	.577
11. Observing and analyzing each others' lessons helped me learn to assess lessons.	28	1	2	41	1.46	.508



12. Teaching and observing the research lessons made me more aware of the importance of asking probing questions that make students think mathematically.	28	1	2	41	1.46	.508
13. Teaching and observing the research lesson make me more critical in choosing the right teaching activities that help students to understand and think mathematically.	28	1	2	40	1.43	.504
Average					1.67	0.56

Table 2c

*Descriptive Statistical Data of Teachers' Perception in the Reflective stage of Lesson Study*

Items	N	Min	Max	Sum	Mean (M)	Standard Deviation (SD)
14. Concern for others' feelings influenced my feedback and comments	28	1	4	52	1.86	.756
15. I was happy and satisfied with the comments and feedbacks from my peers	28	1	3	52	1.86	.591
16. I was happy and satisfied with the comments and feedbacks from the specialists.	28	1	3	48	1.71	.600
17. Feedback and comments from group members and other teachers were helpful.	28	1	4	45	1.61	.685
18. The reflective comments made me more aware of my general weaknesses and strengths of my mathematics teaching.	28	1	3	43	1.54	.576
19. The comments and feedback can help me to be a better mathematics teacher.	28	1	3	42	1.50	.577
Average					1.68	0.63

From the table above, it can be observed that the mean of 17 out of 19 items are between 1 and 2 which indicated that most teachers' perceptions on those items are between Strongly Agree to Agree. However the mean score for items numbered 8 and 9 are more than 2, which indicated that teachers mostly responded Agree and Disagree (a mixture of positive and negative responses). It can be assumed that the high mean score of both items were due to the fact that teachers were not used to being observed by so many people before the lesson study project in 2010. From the analysis of the table above, the researcher can now identify 'critical events' in each stage that can influence the extent of teachers' learning in the 3 stages of the lesson study which can lead to the improvement of the teachers' instructions.



In the planning stage, which are represented by items numbered 1 to 7, most of the teachers agreed that planning together during the planning stage of the lesson study broadened their knowledge of mathematics content/subject matter (statement represented by item 2) and the collaborative lesson planning was beneficial for them to be a better mathematics teacher (statement represented by item 7) as both items have the lowest mean score ( $M=1.39$ ,  $SD=0.497$ ). It is also important to note that the teachers strongly agreed that planning collaboratively did broaden and extend their knowledge of mathematics teaching ideas and pedagogy. This is evident with the teachers' responses on item 6; Planning in a group broadened my knowledge of mathematics teaching ideas and pedagogy ( $M=1.46$ ,  $SD=0.508$ ).

From the analysis of the table above, in the implementation of research lesson stage (represented by items numbered 8 to 13), it can be observed that most teachers strongly agreed or agreed that they became more critical of choosing the right activities and more aware of the importance of asking probing questions. This statement (represented by item 13) has the lowest mean score ( $M=1.43$ ,  $SD=0.504$ ). It is also worth noting that teachers also believed that the process of teaching and observing of research lessons have made them more aware of the importance of asking probing questions that make students think mathematically ( $M=1.46$ ,  $SD=0.508$ ). They also believed through observing and analyzing each others' lessons helped them to learn how to assess lessons ( $M=1.46$ ,  $SD=0.508$ ).

Finally in the reflective stage, it was agreed upon that the comments and feedback that they have received in the reflective stage could help them to be a better mathematics teacher ( $M=1.50$ ,  $SD=0.577$ ). Another aspect of teachers' learning that was found to be equally important was that the reflective comments made during the post research lesson briefing (reflective stage) help them to be more aware of their general weaknesses and strengths of their own mathematics teaching ( $M=1.54$ ,  $SD=0.576$ ).

The researcher can now identify which stage of lesson study (planning stage, implementation of research lesson stage, reflective stage) has the greatest influence in the teachers' own learning. Entries in Table 2 shows that the planning stage of lesson study which is represented by items 1 to 7 has the lowest total mean score ( $M=1.51$ ,  $SD=0.54$ ), indicated that most of the teachers responded very positively towards the items in the planning stage. This was followed by items in the implementation of research lesson stage ( $M=1.67$ ,  $SD=0.56$ ) and finally items in the reflective stage ( $M=1.68$ ,  $SD=0.63$ ). Therefore it can be concluded that the planning stage of lesson study has the greatest impact on the Bruneian primary mathematics teachers' learning that has the potential to contribute towards the improvement of their instructional practices.

## Conclusion

In conclusion, teachers in this study agreed that they have broadened their knowledge of mathematics content and subject matter through planning collaborative with their group members in the planning stage of lesson study. The process of collaborative lesson planning



was so beneficial for them and they believed that it is an important aspect or process within the lesson study framework that could help them to be better mathematics teachers.

In the implementation stage of research lesson (teaching and observing of research lessons), the teachers stated that through the process of observing and teaching the research lesson themselves, they became more critical in choosing the right activities and help them to be aware of the importance of asking probing questions that would encourage students to think mathematically in mathematics lessons. They also agreed that through the process of observing and analyzing each others' research lessons, they have helped them to learn how to assess lessons.

Finally, the unique features of the reflective stages of Lesson Study helped teachers to assess their general weaknesses and strengths of their own teaching. These comments and feedbacks on students' learning and on their teaching in general were the key ingredient for teachers to realise their weaknesses and strengths in teaching the lessons.

It is also important to note that in all the 3 stages of lesson study, even though teachers' learning did take place in every stages, the extent and the nature of their learning were different in each stage. Although the differences were not much but it is important to distinguish which aspects of teachers' learning were 'dominant' in each of the 3 stages. This is because, the understanding of the nature and the extent of teachers' learning is crucial in understanding the descriptive knowledge of the mechanism involved in each stage of lesson study, that may have major influences towards teachers' learning hence the improvement of their instructions. It is also important for the planning of future research on lesson study and the implementation of the lesson study project.

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## **Lesson Study in Action at Three Primary Schools in Brunei**

On September 30, Tuesday, 2014, three primary schools, Sekolah Rendah Siama, Sekolah Rendah Kiarong and Sekoha Rendah Jerudong hosted the Lesson Study practice, which was attended by Professor Matoba, Professor Shibata and Professor Kuno respectively. Each expert observed the Lesson Study practice and discussed the features of the best practice of Lesson Study at each school. The following is a report of the Lesson Study practice at each school, along with some photos.

### **Sekolah Rendah Siama, Cluster 2**

Assistant headmistress, Dyg Noriah binti Hj Sarudin and Head of Lesson Study Programme, Siti Noraini binti Hj Sarbini reported their practice. The implementer from Sekolah Rendah Sungai Siama was Mr Mark Yapp. He taught Mathematics in year 4 and 5 classes. During the implementation (and the educational visit from Professor Matoba), the class involved was Year 4B. The number of pupils involved was 16. The topic taught was 'Perimeter'.

During the introduction of the lesson, pupils worked in pairs, and were given a piece of string to be measured. By using the strings given, pupils were asked to create any shape they knew. The pupils were to measure the length of the sides of the shape and total them up.

In Lesson Study practice, pupils were divided into groups and each group was given a different object. They were asked to find the 'perimeter' of the given object. Pupils then presented their findings and explained how they found the perimeter of the object. The pupils needed improvement in presenting their ideas and findings in front of the class. The teacher gave the pupils some questions for their independent practice. During the assessment, not all pupils were able to answer the questions given.

Considerations for next lesson: 1) The teacher needs to be more prepared so that he/she can effectively assist in the development of the students' communication and problem solving skills, and 2) The 'banshou' needs to be filled throughout the lesson.

### **Some of the pictures taken during the implementation**



Some of the observers and representatives from JSS with Professor Matoba



**Our school head mentor with observers from other schools**



**During the observation**

**Students' Activity**



**Students' Presentation**



**Reported by Dyg Noriah binti Hj Sarudin and Siti Noraini binti Hj Sarbini**



## **Sekolah Rendah DRHMJ, Kiarong, Cluster 1**

Cikgu Maswati Binti Mustapha (Implementer) practiced her Lesson Study with Year 4B of 25 students, and her Lesson Study topic was 'Perimeter'. She reported:

Before the lesson, I felt very nervous because I knew I was going to be observed by experienced teachers and an expert in Lesson Study, Professor Shibata. At the beginning of the lesson, all went well and smoothly. The pupils responded well although they also showed discomfort in being observed by others. However, they were active and eager while answering my questions in the classroom. They were able to name the quadrilateral shape and recognize its properties very well.

During the second part of my lesson, my visualizer did not function. Then, I had to use the whiteboard to show the shape of a rectangle. When I showed the picture of a 'snake and ladder' board, I invited a student to show the working of how to find the total length of the shape, instead of asking them to answer orally.

During the group activity, pupils showed that they had understood the instructions given by the teacher. They managed to complete the group activity on time. Overall, the lesson went smoothly and the teacher was able to complete the lesson on time.

Most of the pupils were well behaved and gave good response. There was good interaction right from the beginning of the lesson. However, the students were shyer compared to their usual selves, perhaps because they were observed by many outsiders. I thought the concept of perimeter was understood by the pupils, because they were able to answer the worksheet given, correctly.

The group activity was successfully done because all the groups were able to create a rectangle and square shape using the given colored shapes and find its total length/sides. All the groups managed to get correct answers. This showed that they understood the concept of perimeter. One group showed different ways of creating a rectangle and square using the colored squares. I was also happy to see that some of my pupils were able to discover by themselves another way of finding the total length of a rectangle  $[ 2 (L+B) ]$  when they were doing their independent practice.

In my opinion, all the activities went well. Pupils were able to understand the concept of perimeter: during the independent practice, almost all pupils were able to do the exercise and get the answers correct.

### **Considerations for the next Lesson:**

- ✓ Provide paper for every pupil so that all have the opportunity to participate in answering the questions.
- ✓ Ask stimulating/challenging questions to elicit a variety of ideas.



- ✓ The Learning Intention and Success Criteria and some SBAfL tools could be included in the teaching.



Pupils listened attentively



Group activity



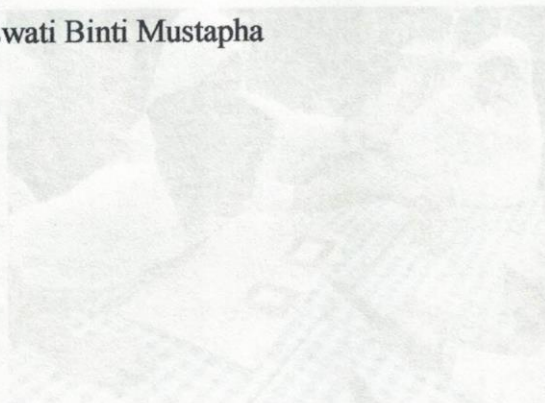
Group Presentation





Group photo with Associate Professor Shibata

Reported by Cikgu Maswati Binti Mustapha



Group activity



Group Presentation



## Sekolah Rendah Jerudong, Cluster 2

Cikgu Almeda Binti Abdul Latiff (Implementer) practiced her Lesson Study with Year 4B of 16 pupils, in a Mathematics class. The topic was Perimeter. The following is the teacher's report of this Lesson Study experience.

Before the lesson, I felt very nervous because of two reasons: I was going to be observed by experienced teachers and an expert in Lesson Study, Professor Kuno, and I had never had an experience before, of implementing Lesson Study in my area of teaching.

During the introduction of the lesson, the pupils really showed interest when I asked them to guess what was the shape hidden, by showing only half of it from a cut-out paper. It was a pleasant surprise that one pupil was able to give the correct answer (shape of a square).

During the second part of the lesson, all the groups were able to do the instructed activity (decorate a birthday card using a string around the card), quite well. A few groups were chosen to present their work in front of the class. I could see that the selected pupils were not very confident in presenting as they had to speak in English. I had to use some questioning techniques so that they could answer, and were able to talk confidently.

Another group activity was done after that (finding the perimeter of three rubber bands arranged on the geoboard). Each group had a different arrangement of rubber band. The selected group had to present their answer in front of the class. The two groups had different ways of finding the perimeter. One group used two fingers on the geoboard to count the perimeter and the other group just counted it one point to another on the geoboard. As predicted, I had to use questioning techniques to enable them to present it in English in front of the class.

Finally, the pupils did their individual activity on a worksheet given. Three questions were given to find the perimeter of the given figures. I had to monitor each pupil to ensure that they understood what they were supposed to do. If they were stuck, I had to remind them how they had found the perimeter of figures in the activities done earlier.

From the beginning of the lesson until the end, I had to do the Bansho Layout on the whiteboard. I had to write every step of the lesson that I had done. The Bansho Layout has six headings: Problems, Tasks, Pupil's ideas, Independent exercise, What have been learnt and Summary.

Overall, the lesson went smoothly and I was able to complete the lesson on time. Most of the pupils were well behaved, gave good response and were able to do well in group activities. But they were quite shy and not very confident in answering my questions, maybe because they were being observed by many outsiders. I thought that the concept of perimeter was understood by the pupils.



### Considerations for the next Lesson:

- Ask stimulating/challenging questions to elicit a variety of ideas from the pupils.
- Introduction of the topic should be done at the beginning of the lesson, not at the end of the lesson.
- The number of group activities should be limited to one, as it is time consuming for pupils to present their work in front of the class.
- Ideally, each group of pupils should have a teacher assigned to them, to monitor what they have done during the lesson, so that the Lesson Study can be done effectively.”

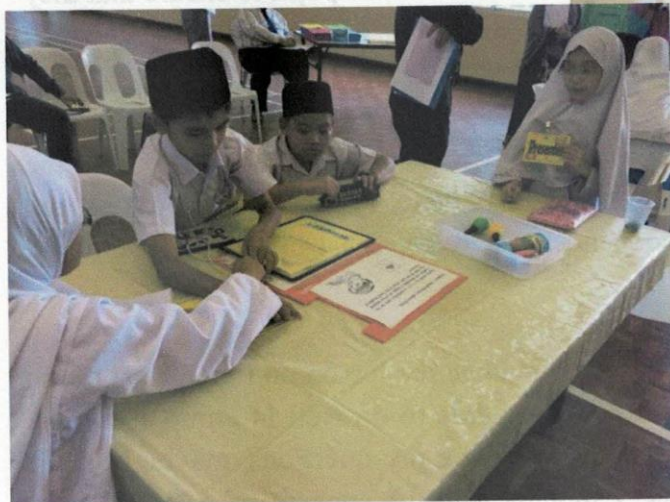
### Four Groups doing activities



Red Group



Green group



Yellow group



Blue group



Group photo with Professor Kuno and the Lesson Study Group teachers and pupils

Reported by Cikgu Almeda Binti Abdul Latiff