THE QUALITY IMPROVEMENT OF THE LEARNING PROCESS OF MATHEMATICS USING INDONESIAN CULTURES IN LESSON STUDY AT THE INDONESIAN ELEMENTARY SCHOOL IN THE INDONESIAN EMBASSY BANGKOK THAILAND

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Abstract: Generally, the implementation of learning at Indonesian Elementary School in abroad is influenced by the costumes and culture of the local country. This is one of the causes that Indonesian people who study in abroad less know their authentic cultures well enough. Except an inadequate knowledge about the cultures which is given by their family of each children. In another side, at their age is the golden age for receiving the foundation of science. Therefore, if they do not introduce about their authentic cultures in early age so that they will encounter crisis knowledge about Indonesian cultures. Consequently, the efforts to revitalization Indonesian cultures at Indonesian Elementary School in abroad demanding to conducted the cooperation program of study/research. One of them is through a lesson study program in abroad. In this PLSLN (Lesson Study Program in Abroad), it is conducted a lesson study in mathematics learning. This is to minimize the material abstractness of mathematics as well as introducing Indonesian culture. Thus, the purpose of this program is to improve the quality of mathematics learning process using Indonesian culture at the Indonesian elementary school in the Indonesian embassy Thailand.

Lesson study is designed in two cycles, which each of them is composed of several activities. Lesson study composed of three activities: a) Plan, teachers compile the lesson plan in groups, b) Do is the realization of learning where one of the teachers will act as a model and observed by other teachers, c) See is a reflection to improve the next learning process. A number of new knowledge can obtain the result of reflection or decisions for the improvement and enhancement of learning, especially at the Indonesian Elementary school in abroad.

The result of lesson study shows that the students in learning mathematics are joyful and after analysis shows that there is an increase in student learning activities from cycle to cycle. Lesson Study, they are conditioned to learn to sincerely and responsibly. An understanding of the material is also more meaningful. It can be concluded that the Lesson Study can improve students' learning activities in learning and it can be a means of learning application PAIKEM.

1. INTRODUCTION

Education as mandated in the Law No. 20 of 2003 on National Education System is expected to consummate the development of personal qualities of students as the future generation. It is believed to be a dominant factor in the growth of Indonesia along the time.
Nothing the Law, therefore the world of education to be one of the determining factors to create the best generation in the future.

The education process is able to determine the progress of the nation Indonesia is not only implemented in the country, but also abroad. On the implementation of education abroad, generally, is heavily influenced by local customs and cultures of the country. It is one of the reasons why Indonesian children who a study abroad are less familiar with the culture of Indonesia. On the other hand, the golden age of children is the foundation in receiving of knowledge. Therefore, if Indonesian culture is not introduced early, the children will experience a crisis of Indonesian culture knowledge. That is why the cultural revitalization efforts in the Indonesia elementary school abroad is urgently required collaboration/ study/research program. One of them is through lesson study program abroad. The purpose of this program is to improve the quality of learning mathematics process by using Indonesian culture at the Sekolah Indonesia Bangkok in the Indonesia Embassy, Thailand.

The quality of learning process will be able to develop high-level thinking skills for the learners. In addition, it is supported by Indonesian culture. Therefore, high-level thinking skills include the ability to think analytically, synthesis and problem solving should be implanted for students without leaving behind Indonesian culture. Those skills are closely related to numeracy. The learning process done by the teachers in the subjects of mathematics, it has been possibly developed high-level thinking skills. However, not all teachers are equipped with the indigenous cultures of Indonesia.

Improving the quality of the learning process is needed in order to develop students' thinking ability, especially in mathematics. Mathematics course is known as abstract. To make mathematics more concrete, it is necessary to use the media. One of them is based on Indonesian culture media, for example, puppets used in the teaching of mathematics. Students will be able to distinguish between local culture and Indonesian culture. Lesson Study is selected based on the experience gained from the Indonesian Education University (UPI), Yogyakarta State University (UNY) and the State University of Malang (UM). Experience of the three LPTK institutions in implementing Lesson Study shows that there are some improvements of students learning ability in higher cognitive level, increasing the professionalism of lecturers and the accountability of lecture duties performance by professors (openness, responsibility, work planned and evaluated).

This lesson study program is designed into two cycles, which each cycle composed of several activities. Lesson study is composed of three activities, namely the plan or planning where clusters of teachers organize learning plan together, do is the implementation of learning where one of the teachers will act as a model and observed by another teachers, See is a reflection of the improvement of the further learning process. The results of reflection can obtain new knowledge or decision to repair and improve learning, especially in Indonesia elementary school abroad.
2. METHODS AND REALIZATION OF PROGRAM

Time and Place

Lesson Study Implementation of Foreign Affairs was held on 3-4 of March 2016 to at the Sekolah Indonesia Bangkok in the Indonesian Embassy Bangkok, Thailand.

Agenda and Description of the Activities

Agenda of the activities are illustrated in the table below:

<table>
<thead>
<tr>
<th>No</th>
<th>Target</th>
<th>Description of activities</th>
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<tbody>
<tr>
<td>1</td>
<td>Plan, Do: cycles I and II</td>
<td>Plan: it is conducted on 3-4 of March 2016. In this activity conducted the team’s collaboration that plans the learning process, which includes a learning device. The team decides a teacher cycle model I (Dyah Worowirastri E.) and cycle II (Erna Yayuk), the team is strengthen the focus of the learning that has been agreed. The team held discussions to obtain feedback from the learning device, the team set up facilities and infrastructure that will be used in the implementation of learning.</td>
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<tr>
<td>2</td>
<td>See</td>
<td>See: In this activity, the teams do “see” on the learning that has been done with the discussion. Starting from the model teacher conveys a message and impression about teaching practices that have been carried out. The observer is commenting on things that are good or less with evidence and measures solution. The team found a good practice that has been conducted as a model of best practice teacher.</td>
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Implementation Mechanism

The mechanism of Lesson Study Implementation of Foreign Affairs will be prefixed with the workshop on lesson study materials and practice, the process of learning mathematics implementation in the elementary school, the implementation of Indonesian cultures in the process learning mathematics in the class I and II of elementary school, followed by the cycle activities of lesson study. The details of the implementation methods of school-based Lesson Study Program are as follows.

1. Implementing of Need Assessment to see the ability of fresh teachers in practicing the lesson study, the implementation process of learning mathematics in elementary school, the implementation of Indonesian cultures in the mathematics learning process at the first class in the elementary school and assign Lesson Study cycle activity includes material that will be implemented by Lesson Study, execution of time, and model of teachers.

2. Conducting a workshop with the main subject of Lesson Study and the implementation, the process of learning mathematics implementation in the elementary school, the implementation of Indonesian cultures in the process of learning mathematics in the first elementary school classes.

3. The coexistence in implementing of Lesson Study as much as two cycles. Each cycle consists of three activities that are plan, do, and see. Stages in the lesson study activities are described as follows.
3.1 **Plan:** in the stage of plan, the first teacher classroom incorporate in the team of Lesson Study, collaborate to develop a learning plan that will be used in the Lesson Study, starts with sharing experiences on the implementation of mathematics learning in the previous academic year. Further determine time of execution, model of teachers conducted a learning plan that is designed with the team Lesson Study.

3.2 **Do:** on the second stages, there are two main activities that are: (1) the implementation of the process of learning mathematics at the Sekolah Indonesian Bangkok in the Indonesian Embassy in Thailand by using Indonesian cultures. This is accomplished by one of the teachers who agreed to practice the lesson plans that were drafted together and (2) activities of observation made by members of lesson study team.

3.3 **See:** "See" activity is conducted in the discussions form that is followed by all the participations of Lesson Study, lead by the Lesson Study team from University of Muhammadiyah Malang (UMM), the activities start with the lectures impressions who have been practicing learning, comments or giving general impression or particular impression on the learning process accomplishments, and proceed with the responses and comments of the observers, supported by evidence obtained from observation. The next *Plan* process will depend on the sharpness of the analysis of the participants based on observations of teaching practices that have been implemented.

### 3. RESULTS AND DISCUSSION

**A. Lesson Study**

This activity lasted for 2 days, starting on Thursday, 3 March 2016 to Friday, 4 March 2016. This event was attended by 13 people, consisting of 6 SIB Embassy in Bangkok teachers and 1 SIB Principal and 7 lecturers, PGSD department FKIP UMM.

As any usual first step, Lesson Study Abroad program has the support of the Cultural Attaché Bangkok and Principal SIB. Mrs. Tanti and Mrs. Endang assisted the LSLN team as the teachers of the grade I and II at the SIB Bangkok. Both teachers were very helpful, in both preparation and implementation of *open lesson* and reflection.

1. **Activities**

a. **Lesson Study cycle I (Thursday, 3 March 2016)**

**Planning (Plan)**

In the preparation phase, Dyah Worowirastri E. who is a model teacher in the first cycle arranged learning equipments, including the syllabus, lesson plan (RPP), the outline of mathematics teaching material "Operation Addition and Subtraction Numbers to 20", the Game method and the media "Wayang card "required for the implementation of the (do) cycle I. This RPP was 2 hours openly presented prior to the implementation of the *open class* for feedback, criticism and suggestions of all lecturers who attended the *plan* activity, SIB Principal, and SIB teachers. In the discussion of this RPP, model teacher received inputs and some notes for improvement. Such an act was made for openly preparation and discussion for the second cycle of learning plan (Learning Strategies), played by Erna Yayuk. In preparing and discussing it
openly, attention was also focused on student learning process and application of PAIKEM teaching and learning.

Before the implementation of the *Open Lesson*, every teacher who acts as observer got a different role. They were asked to work in pairs, with the task: (1) taking a photo that describes the learning process. Couple who got this job, must choose 10 photos, which depict the best moment (either positive or negative) as a reflection; (2) recording a video, and choose a clip with 5 minutes maximum duration that describes the learning process; (3) observing and analyzing the results of the students' work.

**Implementation of Open Lesson (Do) Cycle I**

On Thursday, 3 March 2016, at 09.30 was being held Open lesson for grade I. Observers were divided into 3 groups, and assigned appropriate roles, which are taking photographs, recording video recordings, and analyzing the thinking process of students (child labor).

Teacher (Dyah worowirastri E.) divides students into small groups; each group consists of 3-4 students. Each group was advised to choose their own names. Special for grade I they made to be in one group. For the opening session teacher shows kids a card with the image of the puppet characters that are Arjuna and Krishna from Pandavas. From that observation activity, the teacher asked the students about the nature of each character. Students are interested and some people are trying to present their views. Then the teacher told the story continued with the characteristic of each character. Then of apperception, the teacher invited students to learn arithmetic operations using the wayang card. Teacher motivated the group that can answer quickly, accurately and correctly will get a reward. The children were pleased and very enthusiastic. Teachers then started reciting the question and students were asked to discuss it with friends in a group. This activity lasts approximately for 20 minute. At the end of this mathematics phase, the teacher finally decided who was the winning group and each member received a gift. In this learning process a group who sitting at the back was unhappy to learn in this class because they did not win and did not get the prize. Teachers were still trying to motivate and encourage the learning stage 2 using the game.

The next activity was learning with games. Teachers prepared math game that was already connected to TV screen. Before the activities begin, the teacher provided instruction on how the running the game. Each group paid close attention. They took turns doing the vote. Each group did the problem as much as they can appropriate with the allocation of time that were determined. This activity lasts approximately for 20 minutes. In this activity, students seemed excited and some of them pray to be able to win this game.
Lesson Study phase II (Friday, 4 March 2016)

Planning (Plan)

At the planning stage Cycle II, Erna Yayuk as a model teacher in grade I and II did some plans, such as preparing a draft regulation, LKPD of addition and subtraction of numbers to 500 points, making the media "Hamtaro Basket", and set up the song "Hantaroku" to encourage students. Then proceed with the plan together with Bangkok SIB teacher, some PGSD lecturers Team (PPDS) and SIB principal.

Erna Yayuk delivered Mathematics Lesson Plan for grade I and II with materials about "Operation Calculate the sum and the reduction of the number to 500 points". At the beginning of the session, they discussed the micro study of mathematics in school. Elaborated on the problems, namely: (1) Many students are able to present well to the level of rote teaching materials are received, but in fact they do not understand it; (2) Most of the students are not able to link between what they learn with how is used/exploited; (3) Students have difficulty in understanding academic concepts because they are usually taught by using something abstract and lecture method. Based on the description appears an idea how to learn math for fun, that is the "Hamtaro Basket Media ".

In this plan stage, a meeting was held before Do implementation in classes, as detailed steps are as follows:

1. Lecturer (teacher model) presented the purpose and significance of lesson study for increasing pedagogic lecturer professionalism in front of the team, teacher and SIB principal.
2. Lecturer presented the implementation of lesson plan scenario.
3. Lecturers presented a description of the material and the competence to be achieved, the learning model and scenario selected as a grand design in the front of the team.
4. Teams, teachers, principals provide feedback and suggestions related to the activities which will be implemented. Observation sheet was developed based on the important pedagogic aspects based on competence to be achieved, developed by the cycle which will be performed.
5. Lecturer and team together make improvements, making a technical agreement on a process of learning so that all the activities documented and become eligible as a complementary source of learning materials in the reflection.

Implementation of Open Lesson (Do) Cycle II

Teaching and learning in grade I and II was done on 4 March 2016 from 10-12 PM. The meeting began with teacher greets students. Children seemed enthusiastic and cheerful. Teachers then do asperse of addition and subtraction number to 500 points through observation “hamtaro pictures” media installed in front of the class. From the asperses activity, it can be found that many students who answered in terms of its funny, beautiful fur color. Then the teacher with many answers that she received trying to lead students to do counting on how many “hamtaro” that is available. In the end the students understand that the purpose of this learning that they can perform addition and subtraction number to 500 points. To the further enliven the atmosphere of
learning and to improve student interest in the matter of addition and subtraction number 500 points, which will be discussed; the teacher asked the students sang "Hamtaroku".

Then the teacher divided the students into groups. Each group consists of 4-5 people. Teacher distributed work sheet (LK) to each group. The discussion atmosphere was very intimate, full responsibility, but there was one group that looks less cooperates. This is because of there was a most dominant group of students and some student who play with themselves. The teacher gave 30 minutes discussion time. The model teacher was walking around and facilitating one group to another. Then at 11.00, it is time to begin the group discussion. Teachers provide an opportunity for each group to present their answer. The result is that some groups cannot find the answer or the result but they able to do the process.

After completion of group discussions, teachers went on with the game "Hamtaro Basket". This activity is carried out as a competition. The steps of the game are:

1. Teachers appointed two groups to play (alternately for other groups). Teachers read the rule that the first person duty is to bring a basket and run to take “hamtaro” that have been scattered all around the classroom. The second person brings a basket that already contains “hamtaro” to a third person. Third person counts the number of “hamtaro” and gives the information to the fourth person. Moreover, the fourth person writes it in math sentence and answers the question.
2. After each member of the group task is formed, the teacher read the questions and each group listen to the questions. Each group enthusiastically set the strategy.
3. At the end of the activity, the teachers give a score for each group and announce the winner.

b. Reflection (see) Cycle I and II

The aim of the study is the practice of giving out the opportunity for teachers to improve the quality of learning in their schools. The teachers are facilitated. Lesson study model applied in this activity because of it dominant practical aspect, rather than it theoretical aspects. Teachers need practical things that can be applied in the classroom.

The result of reflection as follows:

1. Most students learn actively and full enthusiasm, although still there are some students who do not dare to express his ideas. This is evidenced by all the students’ spirit of working on arithmetic operations of addition and subtraction with numbers and gets it done on time.
2. Model teacher in cycle I and II have been successful in motivating students to do the questions given with yells and also in the form of a game or “hamtaro basket” game and maximize student communication.
3. At the end of the second cycle, the learning process was not maximal because the students were given no special reward (a sticker) not like the cycle I. However, based on feedback
given by teachers, the teacher should not give any reward in the form of goods but give praise is enough such as "star of way" instead.

4. DISCUSSION

The implementation of Lesson Study activity at the Sekolah Indonesia Bangkok in the Indonesian Embassy generally said to have been run optimally. Indicators that the model of teachers are able to develop the learning by using an effective strategy that are using a scaffolding strategy of learning, students actively in learning, and teachers are giving a feedback in learning process. As Paul Eggen and Don Kauchak (2004:333) stated that:

“The Following principles can guide teachers in their efforts: Describe the strategy and explain why it is useful, Explicitly teach the strategy by modeling its use, Model metacognition by describing your thinking as you work through the strategy, provide feedback as student practice”

Learning addition and subtraction material of arithmetic operation are performed by using Student Activity Sheet (LKS). It is proof that using LKS is so helpful toward the student's work. The steps contained in the LKS are a form of assistance to students. It has been explained in the LKS about the things that students have to be done. Nevertheless, it does not give students an absolute guide. It only elaborates the steps broadly. Students still are given an option to express ideas and creativities. Therefore, with the help of LKS, students can gain a kind of knowledge by their own way with their groups actively. As Eggen and Kauchak (2004:305) stated that students are given some references to support their teamwork. Advance organizer of knowledge and understanding of the students are empowered through provision of learning media in every activity of the experiment so that the situation be more meaningful learning, and can be well impressed with the students' understanding. (Trianto, 2007:73)

When the learning processes in the cycle I, and II, it seems that the atmosphere of intimacy in the classroom can be established. It is prove that teachers are able to interact with students; students with students can cooperate with each other. It is as same as Gordon (in Paul Eggen and Don Kauchak, 2004:447) stated that in the learning process, teachers should be able to use clear communication. This is important in cognitive interventions, and teachers should be able to develop the communication with all students. When students believe that teachers are good listeners rather than judging what they say, then their confidence increases and they are able to speak more openly.

In the I, and II class at the Sekolah Indonesia Bangkok showed that comparison of the number of men and women students over male-dominated. In terms of ability to handle mathematical tasks in sight that men students are smarter than women students. As McKwon & Weinstein (2002) stated that there many people include teachers, they have faith on men have great talent in mathematics more than women do, and women believed that they were not as good as men in terms of calculation.

In the end of learning activity, the award to the group presentations, question and answer session that occurs can make the students happy. Applause that is given by other students makes
students who do the presentation feeling happy. The reward turned out to motivate students in study. It is supported by Hudoyo (2001: 279-280) that the reward is so needed to increase the attitude, satisfaction, and proud to students toward mathematics. And as previous statement, Suherman (2001:161) also has the same idea that teachers need to give students reinforcement such as compliment to increase the appearance and attention. Reinforcement can be a compliment and fun activities.

5. CONCLUSION AND RECOMMENDATION

Conclusion

Generally, the Lesson Study activities at the Sekolah Indonesia Bangkok in the Thailand are going well and smooth. Lectures (model of teachers) are able to implement of learning with the real teaching experience in the Elementary school. Lectures and teachers Sekolah Indonesia Bangkok are able to understand the importance of developing the quality and the competence as a professional teacher. Lectures and teachers can collaborate in understanding the basic concept and urgency in developing the mathematics learning which fun in the school is. Stabilize teachers and lectures sills Sekolah Indonesia Bangkok in implementing learning experiences environment work (school).

Recommendation

It is suggested that this activity does not stop just here only. With the Block Grant funding from the faculty, we hope this cooperation can continue in service activities to teachers Sekolah Indonesia Bangkok, which have less information with the development of education in Indonesia. Moreover, the curriculum used yet to implement the national curriculum, which is now in use in the State Indonesia itself. While In the SIB Bangkok still is using the KTSP (SBC) curriculum.

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