

MONITORING AND EVALUATION OF LESSON STUDY ACTIVITIES

Author:

Endah Retnowati

MAKALAH UNTUK PELATIHAN LESSON STUDY

DI SEAMEO QITEP for Mathematics Education

P4TK, Yogyakarta, Indonesia

2009

MONITORING AND EVALUATION OF LESSON STUDY ACTIVITIES

Endah Retnowati

I. GENERAL OVERVIEW

Monitoring and evaluation for a school based activity is generally conducted to directly assess the implementation of the program and the performance of schools involved. Therefore, the main goal of the topic is to provide knowledge and experience to the participants about why conducting monitoring and evaluation is important, who and what are included in the monitoring and evaluation and how to conduct monitoring and evaluation specifically for lesson study activity in mathematics learning.

There may be two main goals on implementation of lesson study which are student thinking and learning process (Takahashi & Yoshida, 2004). Accordingly, monitoring and evaluation in lesson study is primarily to collect information on the instruction, learning activity and also the achievement. However, monitoring and evaluation of lesson study activity is focused not only on teachers' and students' activities in classroom but also to find out whether the lesson study cyclic running well in overall. Moreover, monitoring and evaluation is ultimately needed to assess the impact of the lesson study and then to plan actions for the proceeding lesson study activities.

Designing instruments for monitoring and evaluation of lesson study should be suited with information the team desires to have. The specific goal of the implementation by each lesson study group might be used to develop the object of monitoring and evaluation. Inside this book, several instruments for monitoring and evaluation that have been using by lesson study teams are provided for examples (taken from Syamsuri &

Ibrohim, 2008). This book eventually gives information to participants on what to do after data in the lesson study is collected and how to make the report of the result of monitoring and evaluation is more valuable.

II. STRATEGY OF THE WORKSHOP

The workshop should be allocated for a three hour classroom activity. For the first fifteen minutes, the participant will discuss on the basic concept of monitoring and evaluation to raise similar perception and specifically, the discussion should obtain some key aspects of monitoring and evaluation in mathematics learning and the lesson study program itself. This is followed by comprehensive discussions on designing observation sheet, practice observing classroom activity, understanding the basic rules of collecting data in lesson study, developing sheet to analyse findings up to understanding monitoring and evaluation for the a whole lesson study cyclic. The discussion will be facilitated with worksheets, videos, and documentations provided by the local lesson study team (see appendices).

III. THE CONTENT OF THE WORKSHOP

A. The Value of Monitoring and Evaluation

The terms of monitoring and evaluation may be distinguished by its products. Monitoring should result a portrait of a whole activity, but evaluation should produce a judgement whether an activity has indicated desired goals. Certainly, these terms are closely related since they may look at the same things at the same time. Hence, these terms are often used concurrently.

An activity of monitoring and evaluation in general are proposed not only at assessing how well the program have been managed and how successful the program has been, but also at indentifying any obstacles, finding solutions to problems and obtaining feedbacks from participants in order to revise or to develop further program.

As broadly conceived, the main goal of lesson study is to improve the quality of teaching practices. Accordingly, the main goal of monitoring and evaluation in lesson study is to look more deeply on how teaching process is conducted and how students learn the teaching material. Monitoring and evaluation in lesson study are profoundly advantageous for the team because these activities will inform on how successful the lesson study is and more importantly, provide facts on the impact of the lesson plan towards students' understanding in mathematics. Therefore, monitoring and evaluation in lesson study is impossibly underestimated.

B. Subject and Object of Monitoring and Evaluation

The person or the team who conduct monitoring and evaluation is often called the subject of monitoring and evaluation. Things or persons which are monitored or evaluated are the object of monitoring and evaluation. The team should have sufficient knowledge and capability to manage the lesson study program and to improve quality of mathematics learning. This team is responsible to develop monitoring and evaluation instruments as well as to prepare the report.

Basically, a lesson study activity includes three steps: plan, do and see (Syamsuri & Ibrohim, 2008). It should have been discussed in the previous topic that the first step includes studying lesson plan, selecting research lesson, anticipating student thought,

planning focuses of data collection. The second step, do, is when one team member teaches and the others collect data by taking notes of behaviour and any documentation. Whereas the third step, see, is to share collected data, interpret, analyse and revise planning based on the information obtained from data. Hence, monitoring and evaluation should cover these steps.

There might be two key aspects of monitoring and evaluation in lesson study in mathematics education: students' learning process and lesson study cycle. It could be found various aspects in mathematics learning, however Takahashi and Yoshida (2004) suggested that lesson study team should determine what kinds of data must be collected during observation in order to conduct meaningful discussion and to carry out effective sharing in the see activity. Commonly, focus of observation is a problematic aspect of students' learning that is going to solve. This is frequently called the research lesson.

Some possible focuses of monitoring and evaluation on mathematics learning process are students' interactions, students' worksheets, misconceptions, motivation, learning independency, group differentiation, teaching style and so on; while those on lesson study activity are classroom situation, school management, maintenance of each step in lesson study, collaboration among teachers and so on. These are objects of monitoring and evaluation. Choosing the most desired focus to study during the lesson would narrow discussion and provide more in depth understanding of the research lesson.

Since lesson study is actually a study proposed by every participants involved in, then each of them who should collect the data for monitoring and evaluation. In other word, the subject of monitoring and evaluation are every lesson study participants. However,

there should be someone who is appointed as the monitoring and evaluation facilitator, who is responsible for distributing instruments, compiling files and documents, also as a moderator when discussing lesson plan or analysing collected data. Otherwise, the result of monitoring and evaluation is unwell organised.

To sum up, objects of monitoring and evaluation in lesson study might be: (1) students' behaviour during learning defined in the research lesson, or (2) mathematical understanding according to the lesson goal and (3) supporting factors during plan, do and see activities. The subject of monitoring and evaluation should be every lesson study personnel and facilitated by a lesson study team leader.

C. Method of Monitoring and Evaluation

There are several methods of monitoring and evaluation, but the major used methods in lesson study are observation and documentation. A questionnaire may also be useful to obtain information on the lesson study activities. Notwithstanding the various methods, an open minded attitude and commitment of quality improvement ultimately contribute to meaningful research facts in the lesson study.

1. Observation

Gronlund (1976) provided three alternatives to facilitate behaviour observation, these includes anecdotal records, rating scales and checklists. These observation means are particularly used to evaluate aspects of personal and social development during learning as the supplement of typical paper-and-pencil testing of learning outcomes in the cognitive domain. An anecdotal record may be the simplest and the most convenient way to observe behaviour, for some instances, social attitudes, scientific attitudes, expressions, work habits as well as study skills. However, rating scales or checklist might be useful to

evaluate skills requiring step by step procedures, such as sketching curves, dividing angles, making shapes and so on. These observational methods are more subjective and require more effort and time to evaluate the results. Nevertheless, the use of these techniques could assist us to evaluate variety aspects of learning that might often not be provided by objective test.

Lesson study that have been done prefer to use anecdotal records because it is simple to prepare. As discussed previously, it is the lesson study personnel who determine the instruments of evaluation, since it must represent indicators of desired learning outcomes going to be observed. Usually, an observer or a group of observers is appointed to evaluate a student or a group of students at a time, therefore, the scope of the observation is narrowed and it is expected that the observer could put more attention and concentrate to obtain rich information in respect with the research lesson. Nevertheless, for those who has sufficient experience in observation might be able to observe more than a group of students but also among groups as well as how teachers manage the lesson in the classroom to have a systemic record in such a way the research lesson can be analysed from many standpoints.

One of the limitations of observation is perhaps to obtain a reliable picture of students' behaviour in learning. It is suggested that observers are appointed to the same students for several consecutive lessons in various learning methods. Further, there are some common rules while doing observation that are meant to gain natural situation in classroom. First of all, observers might be strangers to students, therefore, observers must not distract students' concentration while learning. Activities that may interrupt students' attention on the learning process are talking and moving observers, mobile-phone ring-tones, camera

blitz and other noisy. Hence, it is suggested that observers stand or sit silently at the side or the back of the classroom without shading any students or teacher sights on students as well as do not walk or speak-out in the classroom.

Furthermore, there are some suggestions to obtain rich information. Include to these is that novel observers are encouraged to practice filling in observation sheet before doing the observation, either by watching video and try to note important points or by doing observation with a very narrowed focus of study and of a particular student. It is also useful of observers know students' sitting position and students' name. For some lesson study, students are provided number typed on a paper and sticked on their back. This is simply to have meaningful discussions afterwards.

The other thing should consider is that lesson study is about how students are learning, not merely how teachers are teaching. However, activities done by students might be part of the teacher's efforts. Thus, it is likely also beneficial if observer could link students' learning with teacher's actions. Teacher's actions can be questions, encouragements, usage of media or time management.

Turning to the instrument of observation, followings are examples of observation sheet, in the form of anecdotal records. Generally, an observation sheet consists of site information, time details, observation points, observer names. Then, there are several indicators of things to observe primarily. In addition to this, of course, observers can make more detail notes with respect to the defined focus.

Example 1:

OBSERVATION SHEET

MATHEMATICS LEARNING ACTIVITY IN A LESSON STUDY

A. When do students start concentrating for studying?
(must be based on the real facts observed in the classroom and mention the name of the student)

B. When do students stop concentrating in studying?
(must be based on the real facts observed in the classroom and mention the name of the student)

C. What do you learn mostly from the observation?

School/Grade :
Subject Matter :
Teacher :

Date :
Observer :
Supervisor :

Example 1 shows an observation sheet that might be narrowed on students' concentration. Even though it only has two questions to observe, observer should consider how to fill the sheet in with as much information as possible. It may not valuable information, for instance, if observer simply notes that students start concentrating when teacher start talking or students stop concentrating when teacher makes conclusion. The observation should more detail in such a way giving an insight what and how things exactly make students start or stop concentrating as well as which students do those things.

One could say that observation sheet in Example 1 is a little bit hard to complete. Example 2 following has five questions which are more focused on students' interactions. This may be easier to fill in since the observation questions are clearer than before. However, the more questions to answer during observation the more complex observation to do. The first aspect, which is interaction among students may not happen before interaction between students and teacher, and also with learning resources. Interactions naturally occur dynamically although it can be predicted when interactions should emerge.

Example 3 is other version of observation sheet with different focus. This sheet assists observer to see more detail whether students really learn in the classroom, who they are and why they do or they do not. Nevertheless, professional may not need particular sheet to observe students. The most important is observer can make a detail note with clear description on specific phenomenon within students' learning activity. Observation sheet is eventually used to answer the research lesson question which is an aspect of learning.

Example 2:

OBSERVATION SHEET
STUDENT'S ACTIVITY IN MATHEMATICS LEARNING

Topic :
Grade/School :
Teacher model :
Expert :

Aspect	Description	Learning step
Among students' interactions		
Students – teacher interactions		
Students – media/learning resources interactions		
Students – surroundings interactions		
When students pause /not actively studying		
Valuable experience for observer		

Example 3:

Date :

**MATHEMATICS LEARNING OBSERVATION SHEET
A LESSON STUDY**

A. Were students really learning about the topic today? (Add real facts and explain)
B. Which students did not follow the lesson today? (must be based on real observed facts and mention the name of the student.
C. Why the students could not learn well? What do you think of the reason and what might be the solution?
D. What do you learn from the lesson observation today?

Teacher model/Grade/School :
Observer :
Occupation : Teacher/Principal/Supervisor/Lecturer/_____

If extra spaces needed, observation note can be written in the reverse

2. Documentation

During the study lesson, the team may need documentations to provide supplementary information concerning others. Documents may be needed lesson plans, worksheets, some pictures and videos. Since lesson study is conducted to study learning process occurs naturally, the person involved in lesson study should take a notebook or a diary along to keep any unusual information or to have reflection notes. This note should facilitate during reflection or evaluation. Also, since study a lesson is continuous, this note really helps to organise ideas and schedule.

Pictures and videos are commonly taken during lesson study. To have a meaningful pictures or videos, a high qualified cameras or a video transmitter recorder is needed. Nevertheless, observers may not have enough skills to make a good picture or video because most of them are teachers or academicians. Therefore, it is possible to hire someone with the required skills, but this one should know exactly the rule of doing documentation in classroom without disrupting students.

3. Questionnaire

This instrument is to assess whether the cyclic of the lesson study systematically running well or not, obstacles and solutions. This questionnaire is completed by lesson study teams after sharing about students' learning data. The questions may range from simply asking the participants about any obstacles found while doing lesson study or complex questions about satisfaction, usefulness, relatedness, and other regarding the lesson study program. There is, so far, unavailable format to copy for this instrument, and so it is the lesson study facilitator who should establish such instruments merely to obtain enough information on the lesson study in practice.

D. Analysing and Interpreting The Results

Data gained from the observation sheets and documentations should be analysed soon after do the lesson study, in the reflection session. Takahashi and Yoshida (2004) suggest that reflection should focus on the determined goal and this should be facilitated by one of the team who has sufficient knowledge in mathematics learning and understand the research lesson defined in the lesson study activity.

Reflection is usually started by the teacher to express her/his thought or feelings about the lesson just finished. Then, it is followed by sharing findings among observers. This sharing could simply by talking-out the observation results. An observer should have a reflection sheet to write the most findings by other observers. This note may ease the conclusion drawings as well as the summary writing.

Moreover, students' learning data should be directed to the goal of the learning, such as basic competencies in the curriculum. Discussion on analysing the data obtained should also be focused on the research goal at immediate or long term level determined previously. It is the facilitator responsibility to bring the discussion on the track and to lead a rewarding discussion. Further, this reflection should take the participant to a conclusion which is the answer of the research lesson or may be an advance planning of lesson.

Eventually, together the team analyse the questionnaire, discuss any obstacles and find out solutions. This discussion is more focus on the lesson study in general, such as how the school conduct the lesson study, how teacher create time to do lesson study and so on.

E. Following Up The Results

After analysing the results of monitoring and evaluation, the team uses this to plan the following lesson study, revise instruments, and to write a summary of a research seminar. Instruments in the monitoring and evaluation should be well documented to support this writing and to publish in journals or to present in seminar. The publication would greatly advantageous for other teachers or educationists on the development of lesson.

APPENDICES

WORKSHEETS

Activity 1. Developing Evaluation Indicators and Observation Sheet of Lesson Study

Activity 2. Understanding Observation Sheet of Lesson Study

Activity 3. Understanding Observation Manual of Lesson Study

Activity 4. Understanding reflection sheet

Activity 5. Understanding monitoring and evaluation the lesson study cyclic

CD-ROMS containing

- 1. Pictures of lesson study activity**
- 2. Video of a natural classroom activity**
- 3. Video of a lesson study in the observed classroom**
- 4. Video of a lesson study activity in the team meeting-room**

FOR INSTRUCTOR: LIST OF TEACHING AIDS

- 1. Laptop, projector and screen**
- 2. Microphone and sound system**
- 3. Video player and television**
- 4. Worksheet and script paper for each attendance**

Activity 1. Developing Evaluation Indicators and Observation Sheet of Lesson Study

Objective : Participants develop indicators in line with the learning goals and focus of the discussion

Method : Participants indentify what they want to look for specifically during the lesson observation by depicting points of evaluation in each step of student learning.

Task : State the research lesson, the lesson goals (either current goal or long term goal) and focus of the observation. Complete the following table and discuss what kind of data must be collected during observation in order to conduct meaningful discussions

Learning sequence	What student activities do we want to look for during the lesson observation:
Introduction	
Main Activity	
Conclusion	

Descriptions in the second column above can be simplified and named as indicators in the observation sheet.

Activity 2: Understanding Observation Sheet of Lesson Study

Objective : Participants understand what should be fill in the observation sheet

Method : Participants watch a video of mathematics learning and try the observation sheet with indicators developed in activity 1.

Task : Complete the following table based on the result on activity 1 and then watch carefully the video and make note in the table below.

Indicator	Description

Activity 3. Understanding Observation Manual of Lesson Study

Objective : Participants understand on what should do and should not do while observing or documenting students in classroom

Method : Participant discuss in a small group of four to six about the topic then watch videos or pictures showing observers, video takers or photographer in a classroom

Task : Watch carefully the pictures/videos and identify what should do and should not do while observing or documenting students in classroom.

SHOULD NOT DO WHILE OBSERVING
SHOULD DO WHILE OBSERVING

Activity 4. Understanding reflection sheet

Objective : Participants understand on how to gather information from other observer and value the most important facts

Method : Participant discuss in a small group of four to six about the findings

Task : Complete the following table.

Observed Group : _____

Indicator:	
My findings	
Others' findings	
Conclusion	
Indicator:	
My findings	
Others' findings	
Conclusion	
Indicator:	
My findings	
Others' findings	
Conclusion	

Add more rows if needed.

Activity 5: Understanding monitoring and evaluation the lesson study cyclic

Objective : Participants understand the questionnaire sheet for monitoring and evaluation the lesson study cyclic in overall

Method : Participants discuss to identify what aspects should be monitored and evaluated in a lesson study cyclic

Task : Complete the following table

Steps	Think the ideal condition in every step!
Plan	
Do	
See	

REFERENCES

- Gronlund, N. E. (1976). *Measurement and Evaluation in Teaching* (Third ed.). New York: Macmillan.
- Syamsuri, I., & Ibrohim. (2008). *Lesson Study (Studi Pembelajaran)*. Malang: FMIPA UM.
- Takahashi, A., & Yoshida, M. (2004). Ideas for Establishing Lesson-Study Communities. *Teaching Children Mathematics, May*, 436-443.