Preparation and Supporting Factors for Lesson Study Activities

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Table of Contents

ACKNOWLEDGEMENT ..... **II**

TABLE OF CONTENTS ..... **III**

I. OBJECTIVE AND GENERAL OVERVIEW **1**

II. THE STRATEGY OF THE WORKSHOP **1**

III. THE CONTENT OF THE WORKSHOP **2**

A. WHAT IS LESSON STUDY? 2
B. HOW IS A STUDY LESSON DONE? 3
C. HOW TO PREPARE A LESSON STUDY? 6
D. WHAT ARE SUPPORTING CONDITIONS? 10

REFERENCES **18**

APPENDIX 1: THE EXAMPLE OF A FORMAT OF LESSON PLAN (MODEL 1) **19**

APPENDIX 2: THE EXAMPLE OF A FORMAT OF LESSON PLAN (TABLE MODEL) **20**

APPENDIX 3: OBSERVATION SHEET OF LEARNING ACTIVITIES THROUGH LS **21**

APPENDIX 4: WORKSHEET 1 ..... **22**

APPENDIX 5: WORKSHEET 2 ..... **23**

APPENDIX 6: WORKSHEET 3 ..... **24**

APPENDIX 7: WORKSHEET 4 ..... **25**

Preparation and Supporting Factors for Lesson Study Activities

I. Objective and General Overview

The main objective of this topic is to give knowledge and experience to the participants about the preparation for lesson study activities, and to invite participants to discuss the general and specific factors and conditions that support the successfulness of lesson study practices. At the end of this session, the participants should able to prepare a lesson study activities and understand the necessary implementation supoorts and challenges in lesson study. Therefore, when the participants want to conduct a lesson study, they will make better lesson plan, prepare all required teaching materials and observation tools, and document all lesson study activities well for reflection and improvement of the next instruction cycles.

The lesson study activities involve a group of teachers who collaboratively work on a broad goal and develop research lessons that are observed, analyzed and revised togather. The revised research lesson can be implemented again in the classroom in order to study and improve on it again. This is called a lesson study cycle. These activities contributes to the development of new ideas for teaching and learning activities and the improvement students' thinking.

In order to implement the lesson study activities, some relevant components are needed such as the preparation for supporting those activities. By understanding the preparation and supporting factors for lesson study activities, the participants are expected able to prepare the lesson study activities well.

II. The Strategy of the Workshop

During this sesson, the participants will be invited to review the steps of lesson study, to discuss the preparation for lesson study activities, and then to identify and to

discuss the factors and conditions related to the success of the lesson study activities. The participants are grouped into the same number as the number of steps in lesson study. Each group is asked to review one step in lesson study and watch some related videos and required to identify the related supporting factors for success in the step. After each group discussion, all groups discuss togather to summerize th whole factors for successfulness of the implementation of lesson study. As an integration part of this session is an activity for participants to prepare/write a lesson plan for one selected topic and its supporting materials in a group, then present it to the class for comments.

The required materials that will be used in this session include: all workshop modules, curriculum & syllaby, textbooks, a collection of video clips demonstrating the steps in lesson study (preparation , teaching and observation (collecting data), and reflection), and worksheets.

III. The Content of the Workshop

Because the main approach in this session is group discussion, the following description should be presented and discussed after the small group and the class discussion. The following explanation is not final description, but it is open for discussion. The participants may agree or disagree to some factors mentioned here because they should have their own opinion after group discussion.

A. What is Lesson Study?

In order to identify the supporting factors for lesson study, we need to understand what is and how is lesson study. The following is a brief review of lesson study taken from a few of referrences **(**see the referrences**).**

- Lesson study is a professional development process that a small group of teachers systematically examine their instructions in order to improve the effectiveness of the experiences that the teachers provide to their students.
- A Focus on the Examination of Lessons: The core activity in lesson study is for teachers to collaboratively work on a small number of "study lessons". These les-

sons are called "study" lessons because they are used to examine the teachers' practice.

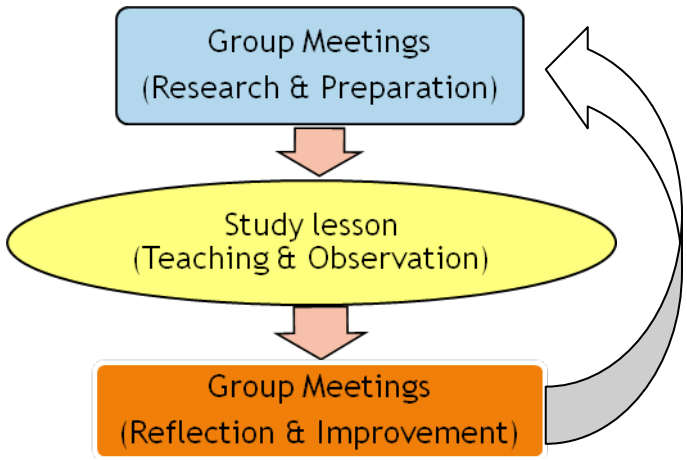
- Teacher collaboration and collegiality are central lesson study as a professional development model. In lesson study, teachers collaboratively plan, observe, and analyze actual classroom lessons, drawing out implications both for the design of specific lessons and for teaching and learning more broadly.

B. How is a Study Lesson Done?

The basic elements of lesson study consist of five basic phases:

1. Goal-setting: after the lesson study group is formed and norms as well as procedures are established, they identify professional development goals and formulate goals for student learning that will be expected during the study lesson and long-term development.
2. Research and planning: studying existing curricula, standards, and instructional materials and discussing the planning a research lesson designed to make the goals observable in the classroom.
3. Teaching and Observing: having one team member teach the research lesson based on the designed lesson plan while others observe and collect instructional data on students learning and development.
4. Post-lesson Discussion: team members and other observers share data gathered during the lesson observation to evaluate the student development process.
5. Revising: using evidence from the collected data to revise the lesson, the unit, and the teachers' overall approach to instruction. This follows by conclusions about instructional strategies and student learning that can drive future practices. If necessary, the revised lesson is taught by the same or other teacher in the same or another classroom for further study and improvement.

The above five phases of lesson study can be seen as three main activities, namely: (1) research and preparation, (2) teaching and observation, and (3) reflection and improvement. These three activities is illustrated in the following diagram.



Details about these lesson study activities are described below.

1. **Research and preparation:**

   A group of teachers from the same or different schools and knowledgeable others (college or university lecturers) jointly draw up a detailed plan for the study lesson.

➢ Lesson Study is a Goal-Driven Activity

Based on the national, school, or curricular educational goal and teachers' experiences in the classrooms, teachers select an overarching goal to guide their work on all the study lessons.

- The teachers collaboratively think, share, listen, consider, and examine their knowledge in the context of actual classroom lessons.
- The same level (primary or secondary) schools usually have the same educational goal for specific subject and same content area as described on the school curriculum or national standards.
- In order to set an overarching lesson study goal, the teachers need to identify and to discuss the gaps they see between the expected students' learning results and the their actual motivation, performances, and/or achievement in the school.
- Then they formulate goals for student development, imagining and articulating what they would like to see their students achieve.

- They need to think about the relationship between the study lesson's content-specific goals and the overarching lesson study goal.
- For each study lesson, the teachers also identify and select lesson-specific goals to focus on.
- The teachers will then select a goal as a target of lesson study to improve their instruction.
- Based on the selected goals the lesson study group plan lessons, anticipate student responses, prepare teaching materials, instructional tools, observation tools, and recording tools (photograph, video recorder, etc.) if necessary.

2. Implementation:

- A teacher teaches the study lesson in a real classroom in new ways as planned collaboratively on the lesson plan while other group members look on and collect the data from the instruction. All lesson study group members are responsible to the success of the lesson.
- The observation should focus on student thinking and performance and not on the classroom teacher. The observation should also cover the whole students' activities in the classroom during the entire lesson, not just a part number of students and a part of lesson. The observer should not interfere the students' learning, neither help them in any way.
- To facilitate data collection, the observers may use the prepared observation sheets or videotapes to record the students' activities.

3. Reflection and improvement:

- After the lesson, each observer reflects on the observed instructional data and organize the information for group sharing.
- The group comes together to discuss their observations of the lesson.
- They discuss the lesson and students activities during the lesson, they share their own perceptions and hear what others' perceived, including perceptions and perspectives of outside experts and educators who attended and observed the lesson.
- In the discussion time, the teacher who taught the research lesson reflect first and mention the strengths of the lesson, changes to the original plan

that have been made, surprises, and evidences that the instructional goals have been achieved. Next, the other group members (observers) report their data that relevant to the lesson objectives. This usually follows by showing the lesson video.

- They analyze student work to obtain more insight and understanding of student thinking and a deeper conceptual understanding of the mathematics involved.
- Conclusion is made as a result of the discussion whether the planned lesson has been implemented well and whether the lesson plan has been well prepared in order to achieve the lesson study goal. Then a revision can be made to the lesson plan for next improvement as in the first phase of lesson study.

4. Second implementation and reflection (optional but recommended):

The same teacher or another teacher teaches the study lesson in a second classroom while group members look on as in the second phase above followed by the group discussion as in the third phase.

C. How to Prepare a Lesson Study?

There are six components that should be considered in the preparation of lesson study activities. They are (1) analyzing the curriculum and syllabus to develop lesson study, (2) prospective analyses to develop the scheme for the students to achieve their competences in mathematics, (3) developing operational procedure for the implementation of lesson study, (4) establishing agenda for one semester of lesson study activities, (5) socializing the plan of lesson study activities and (6) realizing the idea of PLAN, DO and SEE in action of lesson study.

1. Analyzing the curriculum and syllabi to develop lesson study

In doing the LS activities, it is important to analyze the curriculum and content standards first. In this step, we analyze the prerequisite knowledge that students must have when we start to make a lesson plan. By collaborating with other teachers, it makes possible to share ideas in design the lesson plan, the strategies to develop and reach learning goals.

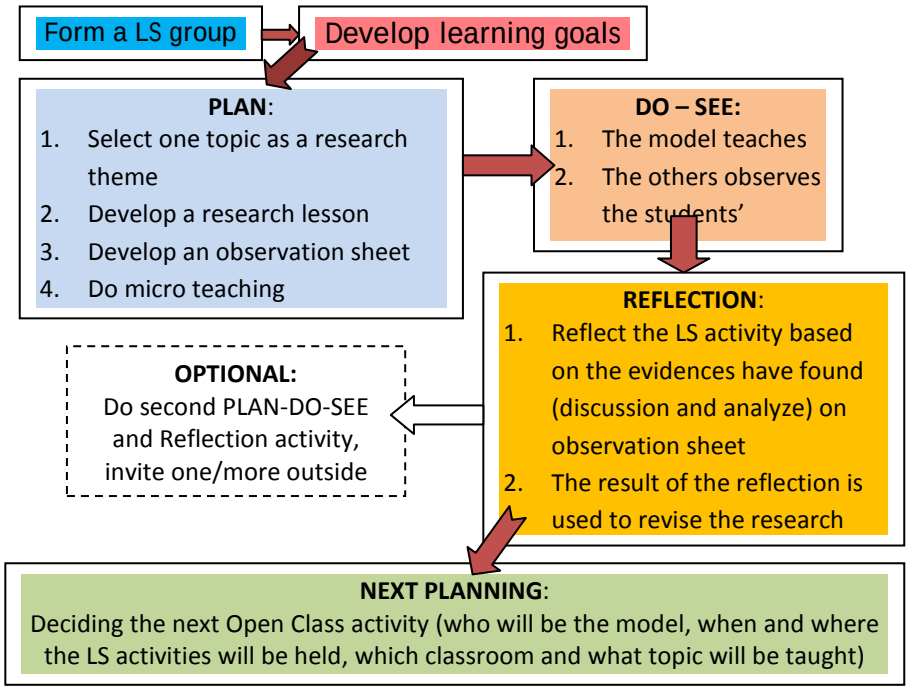
After analyzing the curriculum and content standards, the LS group members identify the intended topics in the course they want to teach. In this stage, the LS group decide to choose a research theme, research focus (research main goal), topic, standard competence, basic competence or the indicators of basic standard achievement.

2. Prospective analyses to develop the scheme for the students to achieve their competences in mathematics

In preparing the lesson theme, the teachers need to prepare teaching materials including scenario for teaching and learning activities. In doing the scenario, it is suggested to the teachers to prepare the teaching content description such that they can find in which parts the students get difficulties in understanding the learning activity. The teachers can attach the relevant concept map for helping themselves and the students to know the links among topics that have been learned, being learned and will be learned in the next meeting.

In preparing a lesson plan, the teachers are suggested to think about the anticipations of students' responses that might be happened. The LS group predicts some unusual responses or wrong answers from the students.

3. Developing Operational Procedure for the Implementation of Lesson Study



4. Establishing agenda for one semester of lesson study (LS) activities

a. Identifying the long-term goals and the expected characteristics of students' development

b. Establishing the schedule for LS meeting throughout the semester. Some experiences have shown that the meeting takes approximately 6 – 9 meetings for one semester.

c. Establishing the LS community: facilitator, secretary, treasurer, lecturers as fellow workers

Note:

We need to record the meetings because we will work over a period of time. The documentation is important for making future reference easy and help us chart progress over time. We can use video tape recorder, audio tape, camera or written notes.

5. Socializing the plan of lesson study activities

Gathering a meeting for socializing the plan of lesson study activities to the school principal, colleagues (e.g. lecturer), the representative of the ministry of education, school's committees and stake holders (if necessary). This will build understanding, support and confidence in schools and teachers.

6. Realizing the idea of PLAN, DO and SEE in action of lesson study

PLAN

1) Selecting a subject, concept, theme or topic in the course for one teaching learning activities (generally 2 x 40 minutes)

2) Developing the lesson plan which consists of learning scenario, worksheet and/or evaluation sheet from the chosen topic.

3) Deciding Open Class (OC) in one of LS members' schools: Where, when, which class will be chosen (See appendices … example in table).

4) Deciding a teacher to be a *model* , moderator and secretary for each Plan-Do-See activity.

5) Doing a micro teaching among the LS group for validity and revising the lesson plan before using it in front of the class (the model demonstrate the scenario of lesson plan while the others observe the activity, give opinions or revisions)

Note:

- Many teams begin new lessons cycles by reviewing student data and following up on problems in student learning that surfaced in prior lesson study work. The team is suggested to use the local/surrounding teaching materials or teaching resources.
- The lesson plan should be described in enough detail so that another teacher could use it. This does not mean that every single word is scripted but the lesson plan is more than a general overview, and should describe the sequence of lesson activities, the material will be used in the class, the teacher's questions, possible responses to students' questions and answers (See Appendices …).
- Possible responses to students' questions and answers can be thought during the micro teaching activity. Some teachers can act as the high level, average level or low level students in getting some unusual/wrong answers in order to answer teacher's questions.
- Based on these answers, the LS group provides the additional tasks (for high level students), teaching strategies to handle the wrong answers or other things

DO – SEE

1) Arranging the students group and chairs (including name/number tag for each student) before DO activity for saving the time. Therefore, when starting to implement DO activity, the model can directly goes into the teaching learning activity.
2) Implementing the lesson plan by the model and the others do observation (SEE). Remember that the observers are not allowed to get involved in helping the model or students. They attend the class only to observe and collect evidence of student learning, thinking, behavior and engagement during the lesson.

Note:

- Usually, observations in the conventional classroom observations focuses on what the teacher's activities. In the lesson study activities, observations are mainly focused on students and what they do in response to instruction.
- During the DO activity, observers should have a copy of lesson plan, worksheet, evaluation sheet and the map of students' position in the classroom. For the beginners, it is allowed to observe only one group.
- The LS group develop an observation sheet based on the emphasize of students learning processes, including many ideas for solving the problem, common misunderstandings the students had, how and when their understanding changed.
- From the observation sheet, the observers arrange commentaries that will be delivered for the reflection activity.

REFLECTION

1) Discussion to reflect and analyze DO activity. In this activity, moderator lead the discussion among the model, observers, the fellow worker and expert. The secretary write the opinion, revision and conclusion
2) Reviewing and revising the lesson plan and the approach based on these observations
3) Filing the conclusion of the whole LS activity for the following LS activity cycle or using by other colleagues to teach in their classes.
4) Deciding the next Open Class activity (who will be the model, when and where the LS activities will be held, which classroom and what topic will be taught)

D. What are Supporting Conditions?

Understanding about lesson study process, we can idenfity several factors and conditions that influence the success of lesson study implementation. These factors can be categorized into three groups, namely (1) internal/intrinsic factors, (2) external/extrinsic factors, and (3) systemic factors. The internal or intrinsic factors exist inside the teachers who participate in the lesson study group. The extrenal or extrinsic factors exists outside the teacher as a personal. Meanwhile, the systemic factors correspond to the existing educational and teachers' professional teachers systems.

The identified factors are highlighted bellow.

1. Internal/Intrinsic Factors:
    a. Teachers' knowledge:
        - Knowledge of subject matter

          Teachers in the lesson study group talk about math in a particular way, that includes how they think kids learn the content, what the mathematics behind a problem really is, what are the essential mathematical concepts behind a unit, etc. The teacher's knowledge on subject matter therefore will affect very strongly the lesson study activities during the research and planning and also the research lesson phases.
        - Knowledge of instruction

It is clear that teacher's knowledge of instruction will influence the teaching and learning process, even when the lesson study group prepares lesson plan.

- Knowledge of student thinking ("eyes to see students")

  During the observation of actual classroom where teaching and learning process is happening, the observers should focus on the students' learning. This observation skill requires the knowledge of student thinking in order to see the way how student learn mathematics.

b. Teachers' personal disposition

- Identity
- Attention to Student Thinking
- Beliefs about Students

  What teachers do in planning and practicing teaching and learning processes depends on their belief about students. Teachers must believe that all students are able to learn. The teacher's identity will be reflected on what teacher do during the lesson study group's discussion, the lesson, and post lesson discussion, because all these lesson study activities are interpersonal interaction forms. Teacher's identity influence the way he/she interact with others.

  Meanwhile, the teachers' attention to student thinking and belief about students affect the way and what they plan lesson and teach the lesson as well as their observation during the lesson. As consequences, these teachers' personal disposition will also affect the data they collected during their lesson as observation results depend on the observers' perceive.

- Sense of Efficacy

  It is clear that affectivity is an important thing that must be attempted in each activity, including lesson study. The sense of efficacy helps teachers in setting clear lesson study goals as to improve instruction and students' learning. The lesson study is an activity that takes times and money, and requires human resources as well as facilities. Therefore this effort should achieve the goals and improvement at least the same value as its "cost".

- Inquiry Stance on Practice

Experienced teachers may have taught for several years with routine activities, such as prepare lessons, teaching materials, and teach lesson in classrooms. The instruction and student's learning improvement requires hard work and creativity instead of routine activity.

c. Teachers' commitment and community:

- Motivation to improve

  Lesson study is a model for teachers' professional development to improve their practices that result in the students' learning improvement. Without motivation, an improvement is never happen. Teachers join to the lesson study group should have motivation to improve their instructions as part of long-term goals related to their institutions (schools) and national educational goals.

  Lesson study should be thought as an opportunity for teachers to "be researchers," "test their own knowledge of how their students learn" and "understand the subject content and why it's important".

- Sense of accountability to community of teachers

  In lesson study, teachers engaged in an open interchange of ideas and materials. They also share their experiences. During the lesson plan preparation and reflection, everyone should engage in the conversation, willing to hear other members' opinion and let them hear his/her opinion and observe his/her teaching practices. Without sense of accountability among lesson study group members, it is almost impossible to make collaboration among them and to reach the lesson study goals.

- Connection of daily practice to long-term goals

  As already known that lesson study focuses on teachers' practice improvement that finally will impact to the students' learning results and schools long-term goals. Therefore, without clear formulation of lesson study goals based on daily teachers' experiences and broad educational goals, the group activities will be just a short-term project that will not have impact to the students' development. Therefore when a lesson study group has been established, each member needs to reflect his/her own teaching practices and its problems in relation to students' learning performances.

d. Local culture:

   Teachers from different areas may have different personality and behavior, such as closeness or openness, shamefulness, regretfulness, the way to comment to others, and so on will affect they communicate, discuss, and interact with other members during lesson study meetings.

e. Communication skill

   It is clear that lesson study requires communication skills because lesson study is collaborative activity among teachers who have the same "mission" in improving their practices to develop students' learning.

f. Self critical reflection

   This is an important factor that exists inside the teachers required when they join to the lesson study group. The teacher's critical reflection helps him/her when talking about how he/she teach and think what students done in the classroom. This characteristic also helps teachers to always record and keep track of their ideas for revising lesson plan over time through lesson study cycle.

   Do you have any other idea?

2. External/Extrinsic Factors:

   Because lesson study is not an individual activity, but a collaborative activity, it depends not only on teacher's characteristics, but also on other factors come from outside teacher's personal disposition. These are highlighted as follows.

   a. Students characteristics

      As the lesson study focuses on the students' learning improvement, students take an important roles in the success of lesson study. Students at a research lesson classroom will see "outsiders", observers, during the lesson. This can affect their learning concentration when they feel surprised with the existence of the observers.

   b. Collaboration among teachers

      It is clear that lesson study cannot be done individually as lesson study is a group activity. Each member of lesson study group must take participation during all steps and phases in the lesson study cycle.

Collaboration and cooperation in lesson study can be make among teachers from the same school, or from different schools of the same district, among teachers teach the same subject or teach different subjects.

c. Connection to knowledgeable others, including colleagues educational experts and facilitators (coaches) who can help the lesson study group in analyzing and setting the lesson study goals, observing the research lesson, analyzing the observation data, revising the lesson plan.

The need of knowledgeable others is urgent when the members of lesson study group are new to lesson study. Even when they already experienced lesson study, they need experts such as mathematics educators, mathematics education researchers to help them make better lesson plan preparation and lesson improvement.

Knowledgeable others (outside examiner, invited advisor, or reactor to the lesson): college/university lecturers (content specialists, content educators, etc.), experienced teachers, and district supervisors have important role in the lesson study implementation and dissemination.

The following are some functions of other knowledgeable others for the lesson study group (Fernandez, 2001):

- provides a different perspective when reacting to the lesson study work of the group
- provides information about subject matter content, new ideas, or reforms
- shares the work of other lesson study groups, also
- sometimes they act as cheerleaders to encourage teachers to persist in the process.

Effective lesson study depends on observation and subsequent discussion skills. Post-lesson discussions should focus on student thinking and should be driven by data collected during the research lesson. In turn, the data collection itself should be intentional and is planned in advance with a particular focus. The resulting discussion should focus on students' solution strategies, information organization, and types of errors. Formulation a set of questions in advance will be useful to guide the post-lesson discussion, rather than

simply presenting data collected by each team member. Collaboration with content specialists will help teachers to get ideas about the particular aspects of student thinking to target for observation. They can also provide feedback on emerging ideas or lesson plans, participate in research lessons as data collectors, provide comments and suggestion on post-lesson discussion.

d. Learning resources:

As lesson study concerns with teaching and learning processes, this activity requires learning resources that will be used by the teacher who teach the research lesson. This includes:

- Lesson plans that reveal and promote student thinking
- Tools that support collegial learning during lesson study
  - ✓ Mathematical Tasks & Student Work
  - ✓ Curriculum Materials
  - ✓ Research Articles & Summaries
  - ✓ Lesson Videos
  - ✓ Reflection Forms & Questions

All these resources may be available readily, or need to be prepared by the lesson study group.

e. The availability of sponsorship providing funds for lesson study projects

Lesson study requires funding for success and sustain, though this is not the only support for continuity of lesson study projects. Teachers need to spend money for their transportation from their homes to schools and the place of lesson study. The lesson study group also needs money to buy instructional tools that cannot be prepared by themselves. During the lesson study meetings, sometimes they also provide foods and drink. This of course requires extra money to buy the foods and drinks.

f. Geographic factor: distances among schools, access to other schools.

Do you have any other idea?

3. Systemic Factors:

a. Curriculum:

- National standard
- Allows plenty of time for hands on exploration during classroom lesson

- Allows teachers to devote times to studying the most effective ways to present topics rather than to select the most important topics from a massive textbooks.
- National standard makes school level curriculum more managable when they can make choices
- Academic calendars

In lesson study activities, teachers need to analyze curriculum, educational goals, schools long-term goals (vision and mission), and school mathematics objectives. The clear and directive formulation of national standards of education and school level curricula help the members of lesson study group to identify and formulate the lesson study goal and reference to their own daily classroom practices.

b. Stability of Educational Policy:

The stability of educational policy make it is easier to make improvements in instruction through long term research lesson. It is will also encourage the teacher collaboration and cooperation in lesson study.

c. The systematic way to expand the lesson study focus from lesson study's surface features, such as development of lesson plans, to its underlying principles, such as increasing teachers' opportunities to learn from one another, from practice, and from the curriculum. Reforms often fail when their surface features are implemented in recipe-like fashion, without sufficient attention paid to the underlying rationale.
d. The commitment of central and local/district government in the development of teacher professionals through lesson study by providing lesson study block grant and establishing performance based promotion or reward for teachers.
e. The commitment of school headmaster in the improvement of instruction

Lesson study is a model for intensive, school-based professional development in which teachers collaborate to plan, observe, and refine a lesson. Teachers engage in lesson study as researchers and scholars of their own classrooms. The process has the potential to transform schools into places where teachers can investigate and verify what works for their students.

f. Teacher certification system requires teachers to improve their instruction

g. Teachers association network and collaboration: establishment of learning community such as MGMP (learning community among the same subject teachers) as media for teachers to share their experiences.
h. Enculturation of lesson study to make lesson study as daily practices among teachers, exchange experiences, publication. This requires support from educational authority such as school headmaster, district education supervisor, local government, and central government. For Indonesian case, the existence of LPMP and P4TK can be supporting institutions for lesson study dissemination and enculturation.

   Lesson study reports are an important part of the process because they facilitate and capture the teachers' reflections about the lesson and about broader issues of teaching and learning.

   Do you have any other idea?

Lets discuss now!

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Appendix 1: The Example of a Format of Lesson Plan (model 1)

LESSON PLAN

School : *Jogja Junior High School*

Subject : *Mathematics*

Class/Semester : *VII / 2*

Standard Competence : *To understand the concepts of quadrilateral and triangle and to determine their sizes*

Basic Competence:

- To identify the properties of a triangle based on its sides

- To identify the properties of a triangle based on its angles

Indicator(s):

- To explain types of triangles based on their sides.

- To explain types of triangles based on their angles.

Time allocation : 2 x 40 menit (… Meetings)

A. Learning goal(s)

B. Learning material (Learning substance)

C. Learning Method(s)

Learning Strategies : CTL (Contextual Teaching Learning), etc

Methods : Discussion, etc

D. Learning activities steps:

Meeting 1. .....

Meeting 1. .....

……. etc

E. References

F. Evaluation

Appendix 2: The Example of a Format of Lesson Plan (Table model)

LESSON PLAN

School : .....
Subject : .....
Class/Semester : .....
Standard Competence : .....
Basic Competence : .....
Indicator(s) : .....
Time allocation : ..... x 40 minutes (... Meetings)

A. Learning goal(s)

B. Learning material (Learning substance)

C. Learning Method(s)

D. Learning activities steps:

Meeting 1.

Structured of Teaching	*Scheme of Interaction*	*Students' Activities*	*Notes*
1.1. *Introduction*			
Aperception (The students are expected to prepare, physically and psychologically, their learning activities)	Whole Class	For example: The teacher distributes small paper containing one simple problem and let all individual students to solve it.	*Notes:* *Education is for all, so all students should have a chance to do math activities from the very early of the lesson activities.*
Motivation (Facilitating the students to enjoy mathematics activities)	Whole Class	Good and interesting facilitation by the teacher	*Good and interesting facilitation by the teacher may motivate the students to learn*
1.2. *Main activities*			
	Small Group		*Consider how to develop group discussion and students' worksheet.*
1.3. *Summary*			
	Whole Class		*The students should produce their own conclusions*

E. References

F. Evaluation

Appendix 3: Observation Sheet of Learning Activities through LS

Date: _____

A. Do all students really learn about this topic? (provide concrete facts and the reasons) Example: *Group 1 are seemed to have a good conversation during their discussion while in Group 2, only the student number 5 can do the worksheet and the others have not understand the topic yet and they are ashamed to ask him.*
B. Which student can not follow the learning activities? (based on the concrete facts that are observed and provide the student's name/number)
C. Why that student can not follow the learning activities? Do you know the causes why he/she can not follow the learning activities? How do you think to solve this problem?
D. What kind of valuable points can you get from this learning activities?
Notes: Other aspects that can be observed are ✓ the interaction among students in their group, ✓ the interaction among students with students from other groups, ✓ the interaction between students and the teacher, ✓ the interaction between students and their surrounding, ✓ the media/references, etc

Model Teacher : _____

Class : _____

School : _____

Observer : _____

Position :Teacher/Principal/Supervisor/Lecturer/_____

Appendix 4: Worksheet 1

Group Activity **Group #** : _____

Activity #1: *Identifying supporting factors involving in the lesson study preparation (planning a lesson study)*

Objective:

To identify the supporting factors for success of lesson study planning

Materials: *some examples of video showing a group teachers preparing a lesson study project*

Activities:

1. (**20 minutes**) *Review the steps of lesson study. Look at the detail on how to prepare a lesson study. Within your group, identify and discuss some factors that you think will support for success in planning a lesson study. Prepare your description or justification for the factors you identify.*
2. (**30 minutes**) *Watch the sample videos on planning lesson study. Identify and discuss some other factors that you didn't found during your reading review but they will support for success in planning a lesson study.*
3. (**30 minutes**) *Discuss your finding with other groups.*

Discussion Result:

List all suporting factors your group agree (give a brief description in one or two sentences of each factor):

1. .....

2. .....

3. .....

4. .....

5. .....

6. .....

Appendix 5: Worksheet 2

Group Activity **Group #** : _____

Activity #1: *Identifying supporting factors involving in the implementation of lesson study (teaching and observation)*

Objective:

To identify the supporting factors for success of lesson study implementation

Materials: *some examples of video showing a research lesson where one team member teach the research lesson while others observe and collect data*

Activities:

1. (**20 minutes**) *Review the steps of lesson study. Look at the detail on how the implementation of a lesson study. Within your group, identify and discuss some factors that you think will support for success in implementing a lesson study. Prepare your description or justification for the factors you identify.*
2. (**30 minutes**) *Watch the sample videos on implementing a lesson study. Identify and discuss some other factors that you didn't found during your reading review but they will support for success in implementing a lesson study.*
3. (**30 minutes**) *Discuss your finding with other groups.*

Discussion Result:

List all suporting factors your group agree (give a brief description in one or two sentences of each factor):

1. .....
2. .....
3. .....
4. .....
5. .....
6. .....

Appendix 6: Worksheet 3

Group Activity **Group #** : _____

Activity #1: *Identifying supporting factors involving in the reflection and improvement step of a lesson study*

Objective:

To identify the supporting factors for success of research lesson reflection and improvement

Materials: *some examples of video showing a group teachers meeting discussing a research lesson*

Activities:

1. (**20 minutes**) *Review the steps of lesson study. Look at the detail on how the reflection and improvement a research lesson is done during the post lesson meeting. Within your group, identify and discuss some factors that you think will support for success in reflecting and improving a research lesson. Prepare your description or justification for the factors you identify.*
2. (**30 minutes**) *Watch the sample videos on post lesson discussion. Identify and discuss some other factors that you didn't found during your reading review but they will support for success in reflecting and improving a research lesson.*
3. (**30 minutes**) *Discuss your finding with other groups.*

Discussion Result:

List all suporting factors your group agree (give a brief description in one or two sentences of each factor):

1. .....
2. .....
3. .....
4. .....
5. .....
6. .....

Appendix 7: Worksheet 4

Based on your discussion, complete the following forms to summerize the supporting factors for lesson study success
(***make additional copy of this form if not enough***)

No	The Phase/ Step in Lesson Study	Supporting Factors		
		Internal Factors	External Factor	Systemic Factors