

Teacher reflection in Indonesia: Lessons learnt from a lesson study program*

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Abstract: Although reflection is seen as a means to improve teacher professionalism, its practice in Indonesia has a scant regard until the lesson study program was implemented around the year 2005. In Indonesian context, lesson study is a process by which teachers and teacher educators work together to critically improve the quality of classroom practice through a planning, observation and reflection cycle based on the principles of collegiality and mutual-learning to develop a learning community (Suratno & Cock, 2009). This paper describes the nature of Indonesian teacher reflection based on the authors' experience in implementing lesson study program at Indonesia University of Education with partnering subject teacher groups in two districts in West Java province. Data gathered from program documents, field study and videos of reflection phase of lesson study was analyzed by using the interpretative and discourse analysis approach. In this paper, the authors outline the context of lesson study implementation and its strategy to promote teacher reflection and identify the structure and types—descriptive, dialogic, critical reflection—of teacher reflection. In addition, the paper also discusses issues and lessons learned of teacher reflection from the program, and future directions of the development of teacher reflection in Indonesia.

Key words: lesson study; teacher reflection; substantive aspects

1. Introduction

Literatures state that, reflection is considerably beneficial practice to support teacher professional development and teachers' efforts to improve student learning (Fendler, 2003; Hoffman, Artiles & Lopez, 2003). Teacher reflection, therefore, can be used as a meaningful way of approaching learning about teaching in order to understand the knowledge base of teaching from practice setting (Loughran, 2002). Through reflection, teacher can consider, develop and articulate many aspects of practice in better way as part of their knowledge base and able to link theory and practice. Furthermore, teacher reflection is seen to sustain teacher professional health and competence (Day, 1999).

Although reflection is viewed as a means to improve teacher professionalism in Indonesia, its systematic practice has a scant regard until the lesson study program—originated from Japan, was implemented around 2000s. In Indonesian context, lesson study is a process by which educators (i.e., teacher and teacher educator) work together to critically improve the quality of classroom practice through a planning, observation and reflection

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cycle (Suratno & Cock, 2009). Lesson study, therefore, is an approach to improve teacher professional learning in which involves teacher reflection.

Lesson study researches in Indonesia (e.g., Liliawati & Hikmat, 2007; Daryanti, 2007; Maria & Supriyanti, 2007) show that, there are many studies on how to develop an engaging lessons, but research agenda to explore the nature of teacher reflection and the degree of current reflective practice through lesson study is rarely conducted. This concern derives from the tendency that, teachers perceive lesson study, particularly reflection phases, as a difficult session and less fruitful to improve their practice. According to Loughran (2002), reflective practice must be effective in order to avoid those problems.

This paper has 3 foci: (1) to outline lesson study implementation in Indonesia, its underlying principles and processes; (2) to identify cultural and practical constraints emerged in teacher reflection through lesson study implementation. In addition, it discusses the analysis of structure and content of teacher reflection by using interpretative and discourse analysis to lesson study documents, field observation and videos. These efforts will reveal the current development of teacher reflection and provide bases for further improvement of its practice; and (3) to identify lessons learnt from current situation and to propose a framework for teacher reflection of lesson study in Indonesia.

An element in teacher reflection is the notion of a problem (a puzzling, curious and perplexing situation) (Loughran, 2002). Furthermore, Loughran (2002) stated important aspect of understanding the nature of reflection and the value of reflective practice, such as “what that problem is”, “the way it is framed” and “what reframed is” (p. 33). Therefore, the analysis of structure and content of teacher reflection will help reveal the context, the nature of the problem and the way to make a valuable reflective practice.

Through interpretation to current practices, the paper describes the structure of teacher reflection in terms of activity, participant roles, discussion setting, guiding questions and flow of talk. On the other hand, content of teacher reflection is discussed in terms of emerging theme, types of content and level of teacher reflection. In particular, analysis of types of content of reflection is adapted mainly from criteria for the recognition of evidence for different types of reflection that differentiates it into the following: (1) descriptive story; (2) descriptive reflection; (3) dialogic reflection; and (4) critical reflection (Hatton & Smith, 1995).

2. Lesson study in Indonesia: A brief

Lesson study was originally developed in Japan at the beginning of the 20th century and it was derived from the Japanese word “jugyokenkyuu”, which can also be translated as “researching lesson”—indicating the level of scrutiny applied to individual lessons (Lesson Study Team UPI, 2006). Therefore, the development of lesson study in Indonesia is closely related to a cooperation program between Government of Indonesia and JICA (Japan International Cooperation Agency). The aim of the program is to improve the quality of mathematics and science education, in which the program appoints 3 FOMASE (faculties of mathematics and science education) at 3 universities (i.e., IUE (Indonesia University of Education) or known largely as Universitas Pendidikan Indonesia at Bandung, Universitas Negeri Yogyakarta and Universitas Negeri Malang). This paper focuses on FOMASE IUE experiences (Hendayana, et al., 2007; Suratno & Cock, 2009).

In general, lesson study at FOMASE IUE program derives from the following important projects: IMSTEP (Indonesian Mathematics and Science Teacher Education Project) (1998-2003), Follow-up IMSTEP (2003-2005) and the SISTTEMS (Strengthening In-Service Teacher Training of Mathematics and Science Education program)

(2005-2008) (Suryadi, 2005; Hendayana, et al., 2007). In short, IMSTEP program implemented “piloting activities” to introduce a new way of professional development that engaged teacher and teacher educator in a collaborative ways. Initially, the nature of lesson study was actually introduced at that time, yet it was not realized as lesson study until the Follow-up IMSTEP implemented a “piloting” of lesson study between universities and several partnering schools. Furthermore, SISTTEMS project was executed for a large scale of lesson study implementation between universities and partnering districts.

Basically, lesson study program is developed by the principles of school-university partnership (Suratno & Cock, 2009). According to Eisuke Saito, a JICA expert (Hendayana, et al., 2007; Suryadi, 2005), the implementation of lesson study was based on the triangular scheme approach (see Figure 1). The improvement of mathematics and science education is achieved when there is collaboration between the teacher education institution as a pre-service provider, piloting schools and the subject teacher groups (e.g., mathematics or science teacher group) as an on- and in- service teacher education provider. The expected outcome is that, teacher education institution (pre-service box) produce quality student teachers after having received input from school based experience. At the same time, teacher education institutions provide consultancy to the piloting teachers (on-service box) to intervene in the quality of mathematics and science instruction in school. Subject teacher associations (in-service box) serve as a forum for professional development and the dissemination of the instructional innovations. In this context, the participating teachers, together with teacher educators, are able to improve teacher professionalism within their community.

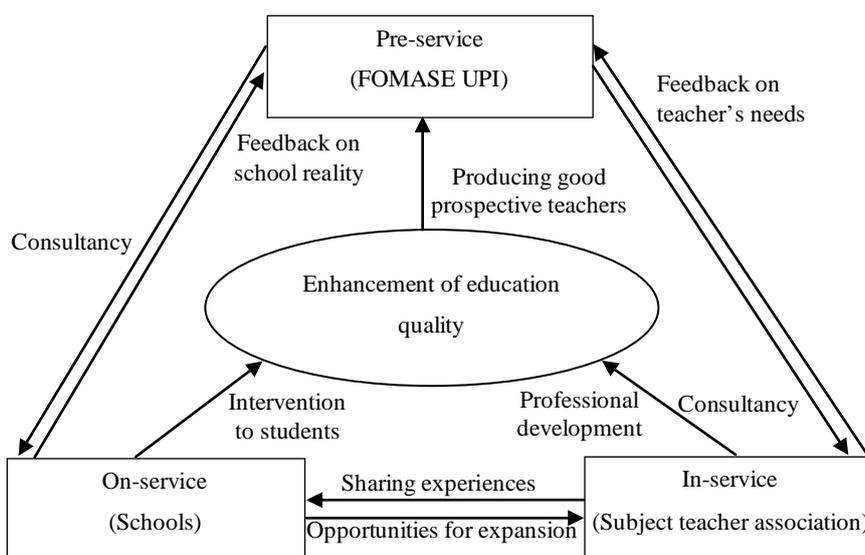


Figure 1 Follow-up IMSTEP approach

Sources: Hendayana, et al., 2007.

The main idea of the triangular scheme is the lesson study activity. At the time (2005), the term “lesson study” had gained popularity and familiarity among the faculty and school staff. This period could be viewed as the piloting phase of lesson study. The pilot program focused on the technical development of the lesson study approach. In the SISTTEMS phase, there is a greater understanding of the overall impact of the approach and greater understanding of how it works to improve learning outcomes for the students (Hendayana, et al., 2007).

In the Indonesian context, lesson study is defined as a model of professional development for educators by studying teaching and learning activities collaboratively and continually, based on the principles of collegiality

and mutual-learning to develop a learning community among educators (Hendayana, et al., 2007). Accordingly, lesson study involves teachers and teacher educators, as well as other educational agents (e.g., superintendants and government agencies staff) in a “plan-do-see” cycle, that is, collaborative planning, implementation and observation and reflection of teaching and learning processes (see Figure 2). The gist of these lesson study activities is the development and analysis of teaching and learning based on 3 macro-indicators: collegiality, mutual-learning and continuous improvement in a learning community, and 3 micro indicators: local materials, hands-on activity and connection to students’ daily life.

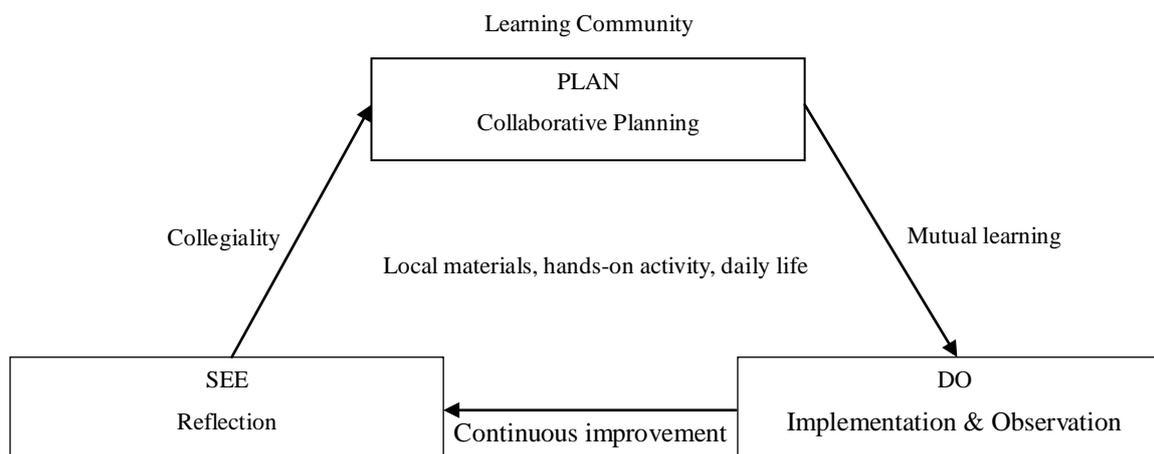


Figure 2 The lesson study cycle

Figure 2 describes the overall activities of the lesson study approach (Suryadi, 2005; Hendayana, et al., 2007; Suratno & Cock, 2009). In the “plan” stage, teachers and teacher educators along with superintendants and local education office officials conducted several workshops aiming: (1) to identify teaching and learning strategies used and to then identify how they could be improved; (2) to design and to develop teaching models (lesson plans, student worksheets, teaching materials, assessment strategies and classroom arrangement); and (3) to try out developed teaching materials. During the “do” stage, also called as “open lesson”, one teacher, or called as “model teacher”, conducted a planned lesson by applying the developed teaching model in the classroom, while teacher educators, other teachers and prospective teachers observed the lesson. The focus of the observation was student activities, such as interaction of student-student, student-teacher as well the interaction between the students and the teaching materials. Finally, in the “see” stage, the teacher and observers met for post-class discussion to reflect upon the lesson. Observers gave comments and suggestion regarding possible improvement for future lessons, hence, the cyclic nature of the approach.

Implementation of lesson study dispatches almost all faculty staff, about 80 lecturers, of FOMASE UPI. The faculty has already finished SISTTEMS project that involved 94 junior high schools and 556 mathematics and science teachers in Sumedang, the target rural regency near Bandung. However, the faculty is conducting similar project in 3 districts in Java island in cooperation with Sampoerna Foundation: Karawang, Pasuruan and Surabaya. This project, starting at 2008-2011, involves 2 partnering universities: Universitas Negeri Surabaya and Universitas Negeri Malang, and 500 teachers from 30 schools of junior high in each area. In the mean time, government provides appropriate support for lesson study dissemination across the nation in which FOMASE UPI plays a key role for lesson study development in western Indonesia.

Recently, the success of lesson study implementation has gained momentum along with the government’s

commitment to increase teacher competence and professional careers (Hendayana, et al., 2007). However, it seems that lesson study have become a working framework—albeit with the potential to develop and become an effective strategy, or to go in the other direction completely. The authors' observation reveals that, there is tendency that teachers perceive lesson study as a new way that fits with their professional learning need but they find a bored session to attend. This is evident particularly in reflection session. The next section discusses the nature of teacher reflection in lesson study program at FOMASE IUE.

3. Teacher reflection in lesson study program: FOMASE IUE experience

Basically, the writers believe that, teacher reflection is a discourse phenomenon. Ovens (Hoffman, Artiles & Lopez, 2003) identified 3 discourse communities in teacher reflection: (1) phenomenological discourse community; (2) critical discourse community; and (3) situated learning discourse community. The first two focuses on individual reflection to quest for emancipation. On the other hand, the last one considers reflection in collaborative and collegial ways situated in school culture.

In the context of teacher professional development in Indonesia, teacher reflection activity has been developed particularly through classroom action research. However, it would argue that, this approach is not considered as a systematic way and perceives as too individual. Therefore, the growing concerns on the importance of teacher reflection emerge since lesson study was introduced. Through “see” phase of lesson study, teacher and educator have opportunity to reflect upon lessons. Its systematic approach based on the principles of collaboration and collegiality is viewed as key factors to improve teacher reflection practices. Although lesson study is considered as a successful method to establish the culture of teacher reflection, the changing nature of its development has two main constraints particularly in the initial stage of lesson study implementation.

Firstly, translating the lesson study into the Indonesian context faces some cultural barriers as indicated by Firman (2007). These are such things as the concerned teachers had about colleagues intruding into their classroom, issues around being observed by others and people making judgements about the quality of their work. These constraints seem obvious particularly in teacher reflection. One of the main thrusts of the implementation strategy to deal with the cultural issues was to ensure that the main effort faculty took to tackle this constraint was to make every stakeholder understand the what, how and why of the lesson study and to convince teacher that observation and reflection focused only on student learning. In this case, judging negatively to teacher is avoided.

Secondly, it relates to teachers' ability to reflect upon teaching and learning processes. Teachers' inability makes teacher reflection bored and meaningless practices. The teachers have difficulty in discovering lessons learnt from their reflections. The followings are identified constraints to reflection abilities:

(1) Theoretical-driven: Teachers tend to put forward their reflection based on a certain theoretical framework instead of observed facts: Generally, it derives from tendency to criticize teachers;

(2) Surface interpretation. Teachers have difficulty in understanding the relation between observed facts and it leads them to make superficial analysis;

(3) Misinterpretation: Teachers are also difficult to interpret observed facts. For instance, teachers find difficulties in determining students' behaviours whether they study or not;

(4) Missing link: They are not able to make a connection among planning, prediction and anticipation with situation happened in teaching and learning process. This causes the level of coherent analysis for reflection is weak;

(5) Quality of content: Previous problems affect to the content of reflection in terms of some aspects, such as

argumentation, framing and reframing problem, exploring alternative solution and critical level of reflection.

Considering those barriers and constraints, therefore, teacher reflection should be based on the following principles: (1) emphasizing on scrutinizing on how student learning; and (2) designing a conducive discussion for reflection. These approaches are expected to reduce teachers' resistance to reflection practice and even more improve teachers' ability and sensitivity on how students learning as feedback for their teaching improvement. Furthermore, these underlying principles underpin the development of teacher reflection guideline in which consists of the following aspects: (1) Developing teacher reflection mechanism; (2) Developing guiding questions for classroom observation and reflection; (3) Emphasizing on factual observation analysis; (4) Emphasizing on lessons learned and alternative solutions analysis from observed teaching and learning situation and problems.

Current teachers' reflection development shows an evolutionary effort to make a meaningful and useful reflection to improve practice. This can be seen in terms of the structure and quality content of teacher reflection.

3.1 The structure of teacher reflection

Basically, the structure of teacher reflection consists of two main activities: (1) briefing (pre-class discussion); and (2) debriefing (post-class discussion). In addition, the structure of teacher reflection can be identified in terms of: (1) the role of participants; (2) discussion setting; (3) guiding questions; and (4) flow of discussion.

In general, there are 4 identified roles of participants, namely: (1) model teacher—teacher who delivers a lesson; (2) moderator; (3) observer; and (4) resource person, such as FOMASE IEU lecturers. During briefing session, model teacher explains his/her lesson plan, particularly the objective and activity of the lesson, and classroom setting. Meanwhile, other participants confirm things that need to be clarified so that they can imagine what will work in classroom. On the other hand, during debriefing, model teacher explains his/her experience of delivering the lesson and clarify changes he/she made as it is planned. Observers then suggest their findings and the moderator leads the flow of discussion. Therefore, compare to others, the moderator plays an important role, such as: (1) organizing the turn of discussion; (2) applying discussion rules particularly when a commentator tends to make negative judgment to the model teacher; (3) maintaining the flow of discussion; and (4) stimulating how to have lessons learnt and alternative solution.

Usually, discussion settings place model teacher, moderator and UPI lecture in front of observers. However, there are several settings of discussion, such as: (1) conventional—a meeting-like, setting; (2) “U” shape; (3) circle shape; and (4) video analysis setting. Conventional setting usually emerges in the early phase of lesson study implementation and it is seen effective for a large number of participants. In the further development, “U” shape—as well as circle shape, emerges in several small groups of teacher reflection sessions. In this case, these settings are seen can develop a “friendly” psychological-emotional relations of participant that make it flow. On the other hand, although it is seen more meaningful ways, video analysis setting is rarely emerged due to school facilities limitation. Through video analysis, participants can understand the context of observed lesson to discuss. Overall, conventional and “U” shape settings are the most used so far.

Basically, through reflection session, teachers can explore and study many aspects of teaching and learning processes. In order to make a structured observation and reflection, guiding questions were developed to help teachers in analyzing observed lesson. Besides, these questions can be used for structuring the flow of discussion. Table 1 shows the evolving nature of guiding questions from the earlier phase of lesson study implementation. The changes reveal that initially there is no question related to teacher, but it is so afterward when the expected culture of reflection is understood by teacher (i.e., a polite and positive climate of discussion).

Table 1 Modes of guiding questions

Mode 1	Mode 2	Mode 3
When is student starting to learn? When does student feel bored? What lesson is learned from the teaching and learning process?	How is the interaction between student? How is the interaction between students and teaching material? How is the interaction between students and teacher?	Do students learn and how is the proces? Is there any student who does not study and why does not he/she study? What is teacher's effort to handle students who do not study? Does it work successfully?

Observation to teacher reflection sessions shows that, there are at least two types of discussion flow: (1) structured; and (2) unstructured. In an unstructured discussion, which usually emerges in early phase, teachers can convey anything they have in their mind. Teachers, particularly the moderator, meet difficult session. Therefore, the structured flow starts to emerge. In this case, the structured flow of discussion can be classified into two main types: (1) based on guiding questions; and (2) based on preferred themes (i.e., teaching materials, teaching strategies, etc.). Overall, at the end of the flow, lessons learnt and alternative solutions are discussed.

3.2 Content of teacher reflection

Content of teacher reflection relates to theme, type and level of reflection. From transcripts analysis, there are some identified themes: (1) teachers' teaching; (2) students' learning; (3) teaching materials; and (4) teaching strategies. Overall, the unity of themes concerns to analyze how a teacher facilitates collaborative learning for students to reach (to jump) their ZPD (zone of proximal development) as suggested by Vygotsky (as cited in Suryadi, 2008).

The results of discourse analysis identify types of content of reflection: (1) descriptive writing/story; (2) descriptive reflection; (3) dialogic reflection; and (4) critical reflection (Hatton & Smith 1995). Example of each type is shown in Table 2. Initially, in the earlier phase, direct comments to a teacher's teaching (judgments) is common. So far, descriptive modes are the most emerging type.

Table 2 Types of content of reflection

Types of content of reflection	Examples
Judgement	"In practicum, the most important thing is work instructions. It seems that the teacher does not do her job even it is her job to give explanation for students in order to be able to do their task."
Descriptive story	"Congratulation to model teacher. I see that all students study actively. In group D, Widia is active and wants to work together with Ahmad only. She rare works with other students instead of Eva who sits in front of her. In group A, I see Kharis Erik works alone. In group C, Anwari has ability but Elly is silent and works alone and if she makes mistake, she will look at Anwari. A change understanding happened from Anwari to Asri when the teacher is explaining fraction."
Descriptive reflection	"Usually, in student worksheet, it is explained detail procedure of what should be measured. I agree with model teacher who gives freedom to student to determine the measurement of element that they want to observe. For that reason, we see different results and then we know the level result of the experiment that they did. It will stimulate students' way of thinking process."
Dialogic reflection	"I salute to model teacher who has prepared well this practicum as a result students learn actively. However, I think that substance prepared in the lab is rarely found by them. I think it is better if we provide alternative substance easily gotten by them such as vinegar or alcohol with grape fermentation water. I think we will see different experiment results. It will stimulate students to think why it is so. More over, by providing alternative substance, it will be real for students."
Critical reflection	"Thanks to model teacher who gave me precious lesson especially with things that relate to teaching material. I can see that it helps students learn. From the previous lesson, I think teaching material become necessary to be developed and it is not difficult. We saw that the teaching material is simple and the materials are able to be attained around school. Certainly, It will trigger my creativity and I think school will support that."

Based on the analysis of the type of reflection content, there are some identified levels of reflection. These were determined according to the following aspects: (1) negative judgment to teacher; (2) argumentation; (3)

alternative solution; and (4) relation to previous experience and wider context (see Table 3).

Table 3 Levels of teacher reflection

Levels	Description
Level 0	Statement still evaluates teacher based on no fact (refer to certain theory)
Level 1	Statement still shows superficial observation result without reason
Level 2	Statement has shown observation result followed by reason
Level 3	Statement has reflected observation analysis with its solution
Level 4	Statement analyzes one and another phenomenon that are happened which have the same type in order to make a generalization

4. Lessons learned: Proposed framework for teacher reflection

One outcome resulting from current lesson study implementation is the growing concerns of teacher to reflective practice. In this case, the “see” phase of lesson study is promising to promote teacher reflection. The evolutionary nature of structure and content of teacher reflection proofed the efforts that FOMASE IUE made to make teachers understand the nature and value of teacher reflection, i.e., in this case, by development of teacher reflection guideline of lesson study, FOMASE IUE tried to convince the need for teacher reflection.

Although there is positive improvement in terms of structure and content of reflection, further development to reach its improved level need to be realized. This concern derives that, there is issue to be dealt which could inhibit lesson study implementation and teacher reflection practices. This tendency can be seen such as in the following expression stated by some teachers that “Lesson study and reflection is good but bored, what are meaningful and useful things we achieve from this activity?”. This issue needs to be tackled by any efforts starting from the understanding of the nature, a substantive aspect of teacher reflection.

In order to sustain teacher reflection, it is not merely a need, but it should be fruitfully articulated in a meaningful ways. Therefore, teachers should understand the context, the nature of the problem, and the anticipated value of such reflection in all impact on what is reflected on and for what purpose (Loughran, 2002).

Teacher reflection activity in lesson study program does not only apply in “see” phase, but also in “plan” and “do” phases as well. This notion defines teacher reflection as the unity of activity of teacher from lesson planning to reflection session (the context). Overall, teacher will think and reflect on how to develop pedagogical-didactical situation (i.e., teaching and learning situation), the nature of the problem, that fits student learning demands for which promote student learning. From this notion, the authors propose that there are 3 types of teacher reflection (or thinking), what is reflected on, during lesson study implementation: (1) prospective analysis (“plan”); (2) situational analysis (“do”); and (3) retrospective analysis (“see”) (see Table 4). These constitute the substantive aspect of teacher reflection.

Table 4 Proposed frameworks for teacher reflection practices of lesson study

Prospective analysis	Situational analysis	Retrospective analysis
Analysing LTD (Learning Trajectory Design) Analyze possible learning demands and obstacles Identify possible student responses (prediction) and teacher intervention (anticipation). Develop LTD	Analysing ALT (Actual Learning Trajectory) Does prediction and anticipation appear? How is the process? Is there any new response beyond the prediction and how does teacher interfere? Does it work? Do students experience learning obstacles? How to help them?	Analysing LTD vs ALT Analyse student responses (student learning) and how teacher intervenes. Analyse learning obstacle and how to overcome it in vise versa? Frame and reframe the analysed problem for alternative LTD

Accordingly, the substance of lesson planning is prospective analysis, that is, analysis of prediction and anticipation to student learning demands. Prospective analysis will produce what is called a DLT (learning trajectory design). Prospective analysis, therefore, should be discussed during briefing session in order that the observers understand the planned context of teaching and learning processes. On the other hand, situational analysis is applied during lesson implementation in which observers are able to compare between LTD and ALT to understand the nature of pedagogical (teacher-student interaction) and didactical (student-subject matter) situation. During this open lesson session, model teacher thinks, acts and reflects directly to the situation, whereas observers think and reflect as if they are teaching in that situation. Finally, "retrospective analysis" is applied during reflection session in which emphasizes on the nature of inter-relation between teachers' teaching and students' learning (teachers' perspective vs. students' perspective), analyzed the designed and actual learning trajectory and possible alternative of LTD for future lessons.

The framework views teacher reflection as a holistic process. Through this framework, it is expected that teachers attain a fruitful understanding, articulation, ability to frame and reframe problem from effective reflective practice. Furthermore, it believed that, framework can promote the exploration of teacher tacit knowledge to explicit knowledge that enriches the knowledge base of teaching, artefacts or even the wisdom in practice (i.e., purpose and value of teacher reflection).

5. Concluding remarks

As Stigler and Heibert (1999) stated that, teaching is culture, and so does lesson study. It is believed that at the heart of lesson study is teacher reflection. The need for reflection is that, teacher can develop their understanding about the way they do their work, i.e., to establish their culture of teaching. Therefore, it demands an effective teacher reflection.

It believed that an effective reflection is based on a sound understanding of the nature and value of teacher reflection. The proposed framework which is considered can promote reflection effectiveness, because it is a holistic way in nature. By using that framework, teachers can make meaning from the situation to understand the practice setting from a variety of viewpoints. In addition, it can impact teachers' attitude to reflection, such as openmindedness, responsibility and wholeheartedness (Loughran, 2002). This belief undepins current effort in so doing as it is being introduced to participating teachers. It is expected that the framework can be a guiding principle to sustain and develop further teacher reflection practice and lesson study in Indonesia.

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