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Developing Teachers' Professionalism through School Initiative-Based Lesson Study

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Abstract: The implementation of Lesson Study (LS) varies considerably across countries and institutions and is still in a phase of adaptation and experimentation. This article explains the result and the process of a school-based initiative endeavor to implement LS at a suburban elementary in Padang, Indonesia. The study involved 13 teachers, the principal and 6 classes of students. The data were collected through observation and interview. They were classified on the basis of three noticeable emerging themes- teacher collaboration, scaffolding, and reflection. The data were analyzed qualitatively. The results of data analysis reveal a promising improvement in these aspects. Implementing school- support LS increased by weaving the concept into practice helped teachers develop their professionalism gradually. It was obvious that the teachers felt more at ease to work collaboratively when they designed the lesson. This also affected their design which showed more meaningful learning activities and challenging tasks. Then, the teachers improved the way they scaffolded the pupils. The content of reflection and the way the results of reflection were conveyed became better. The principal's support and the teachers' strong willingness to elevate their quality apparently took an important role. In spite of that, there were some challenges in carrying out collaboration, providing appropriate scaffolding, and doing reflection. Changing the teachers' common practice to LS apparently needs some adjustment and time.

Keywords: Lesson study, collaboration, scaffolding, reflection, school support.

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Introduction

Growing interest in Lesson Study (LS) is indicated by the adoption of this teacher professional development by educators from many countries. It has been implemented in countries like the United States, the Philippines, Greece, Singapore, and Indonesia (Doig & Groves, 2011; Duez, 2018; Kanelloupolou & Darra, 2018a; Lewis, 2002). Also, it has received much attention from researchers (Archer et al., 2013; Doig & Groves, 2018; White & Lim, 2008; Yang, 2009). A great number of studies have looked at various aspects of the implementation of LS. The results of the studies above, among others, show that collaboration reduced teachers' inclination to be defensive and increase their focus on learners (Armstrong, 2011), built constructive dialogue among teachers (Kanelloupolou & Darra, 2018b), and refines teachers' understanding (Doig & Groves, 2011). Halvorsen and Lund (2013) investigated the implementation of LS by a group of teachers. The teachers said that the process of LS improved their lesson and their approach in teaching history. The study highlights the importance of good relationships among teachers, good commitment by teachers, and the use of the reflection tool in LS.

In Indonesia Lesson Study (LS) has been introduced to schools and universities since the beginning of 2000 by JICA (Japan International Cooperation Agency) in collaboration with the Indonesian government through some projects (IMSTEP in 1998-2005, SISTTEMS in 2006-2008, and PELITA in 2009-2013). While other teachers' professional development programs such as short trainings, workshops, meetings of subject- based teacher associations are held based on specific-based needs such as introducing a new curriculum and teaching new approaches, LS is holistic in nature. LS integrates effective features of professional development (Dudley, 2013; Lewis & Perry, 2014) which can result in improved teacher and student learning (Lewis & Perry, 2017). The implementation of LS in some parts of Indonesia also has successful stories. For example, LS appeared to be effective in improving the teaching and learning of mathematics and sciences both in pre-service and in-service programs (Suyanta et al., 2014), increasing teachers'

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awareness to create effective and meaningful teaching (Aimah & Purwanto, 2018) and increasing the student-teachers' teaching skills (Rozimela, 2018).

However, its development and popularity has concentrated in provinces on Java (where the capital city lies). Perhaps, continuous support from individuals interested in this program and local governments of these provinces has made the program sustainable. In the province where this current study was conducted, LS had problem of sustainability. The implementation of LS was limited to the piloted schools and unfortunately ended and faded away when the projects finished. The sense of being mandatory probably has an effect on teachers' feeling of ownership. In relation to this, according to Sato (2014) even though LS has been widely implemented in Indonesia, its quality has not increased yet. Sato argued that this was due to insufficient school management by principals to sustain the programs.

It is argued that in order for LS to be sustainable, all school community members have to have shared interests and beliefs. A longitudinal study conducted by Akiba et al. (2016) in Florida showed that schools that continued practice LS were those found LS beneficial, not because of official mandate. This may indicate that the school communities shared values and vision and collective responsibility (Stoll et al., 2006). Thus, LS should be a bottom-up activity, and the initiative should be taken by teachers (Fujii, 2014). Given every school is unique for its context and culture; LS implementation should be initiated by schools.

This study seeks to describe a school-based initiative implementation of LS. Three questions guiding this study are: 1) What are the features of teacher collaboration, scaffolding and reflection? 2) What are the consequences of the practice of these aspects? and What are the reasons behind the practice?

Literature Review

Lesson Study aims to improve instruction and to advance student learning (Halvorsen & Lund, 2013). Lewis et al. (2006) state that the focus of lesson study are collaborative planning, teaching, observing, and debriefing of live lessons. Teachers work collaboratively in teams to plan work. Then, one of the team members teaches as the model, the others observe, and then they reflect together. According to Vermunt et al. (2019) LS has a number of distinctive important features which integrates many features of effective professional development programs. Three of them are collaboration, scaffolding, and reflection. The following literature review deals with these aspects- the focus of this current study.

Collaboration

Collaboration is an identifiable characteristic of LS. It can be defined as a joint effort to reach a goal (Jacobs & McCafferty, 2006). Roschelle and Teasley (as cited in Baker, 2015, p. 5) state collaboration is "a coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem". Collaborators have a shared goal of reaching a shared solution. They have equal status and mutual engagement. In the process of collaboration, shared representations are treated in terms of inter-discursive operations that are presented on interactively negotiated discursive objects (Sitri, as cited in Baker, 2015). Collaboration creates a power relationship which is "additive rather than subtractive" (Cummins, 1996, p. 15). Through collaborative interactions teachers will be confident to make decisions (Cajkler & Wood, 2016). As it focuses on student learning (Dudley, 2013; Lewis et al., 2006), LS enables to teachers to look at issues arise in the classroom activities (Dudley, 2015). Thus, it is important to include collaborative inquiry as a feature of a teacher professional development program.

In LS, teachers work together in order to increase student learning and achievement. Collaboration is realized at all stages including planning, observing, and analyzing teachers' reactions (Armstrong, 2011). Planning of collaboratively conceived research lessons to attend to learning problems, rather than teacher performance is what distinguishes LS from other forms of professional development (Cajkler et al., 2015). The results of a lesson cycle are evaluated and are used for the improvement of the next teaching and learning (Dudley, 2011; Sato, 2014). A study by Rahim et al. (2015) revealed that peer collaboration practiced in lesson study provided the teachers opportunities to discuss problems in student learning.

However, Armstrong (2011) points out that a tradition of autonomy in classrooms, pressure for individual accountability, and time are some challenges to collaboration. Cajkler and Wood (2016) argue that collaboration can be detrimental if it is driven by external agencies. They suggest a conceptualization of collaboration, Professional Capital. It is constituted of human, social and decisional capital. "Professional Capital is a collective process based on collaboration and shared responsibility with others" (p. 4). Jacobs and McCafferty (2006) suggest several interactional skills for effective collaboration such as sharing materials, participating equally, contributing ideas, listening actively, and asking for help.

Scaffolding

Scaffolding refers to temporary help given by the teacher to help learners to reach their potential (Hammond, 2001). It is underpinned by the sociocultural theory by Vigotsky (1978) that advocates the importance of competent adults' guidance in children's development.

Hammond and Gibbons (2001) and Gibbons (2002) state that scaffolding helps learners enhance their understanding and provides micro and macro foci. The macro scaffolding (strategies and the materials) is planned ahead, while the micro one is spontaneous in nature. van Lier (2004) elaborates six features of scaffolding which include continuity, contextual support, intersubjectivity, contingency, handover, and flow. Three key features contingency, fading of support, and transfer of responsibility suggested by van de Pol et al. (2010) should occur in the learning process.

In LS, scaffolding is given in the principle of equity. Teachers are responsible to select and use suitable strategies which can be effective for scaffolding learners with different academic backgrounds or abilities including revoicing, repetition, and elaboration (McNeil, 2011). When designing a lesson the teachers are required to anticipate learners' possible difficulties and predict which learners will need more help so that they can plan which scaffolding strategies to use (Fujii, 2013; Sato, 2014). In the process of teaching and learning, the teacher has to be able to detect which students need more help, echoing Schon's (1983) reflection-in-action. Peer scaffolding is also applied in LS. As LS uses collaborative learning; learners are encouraged to help each other. In group work the learners who need help are encouraged to ask for help from their peers who are able to do the task. The teachers should make sure that the learners who cannot do the task ask for help from those who can.

There have been a great number of studies about scaffolding and its effects on learners' learning and teachers' teaching improvement. For instance, students who received high scaffolding improved their reading ability (Attarzadeh, 2011; Sapadi & Rababah, 2012; Wachyuni, 2015). Hong and Nguyen (2019) found that the teachers believed that scaffolding highlighted the students' meaning making process. Gutierrez (2015) found that through collaborative work in groups, the teacher had opportunities to reflect upon their instructional practices. Samana (2013) found that teachers' scaffolding was more effective than peers' scaffolding because teachers can control their scaffolding better. This is consistent with an earlier study by Chi (as cited in Hong & Nguyen, 2019) who found that high-achieving students prefer collaborating with the teacher.

Reflection

Reflection is another important component of LS. The teacher's own reflection on classroom event is the most important basis for professional progress and development (Mathew et al., 2017; Ur, 1999). Reflection is the process of reconstructing or reorganizing experience to enhance the meaning of an experience (Rodgers, 2002). The foundation of reflective practice/teaching is originated from critical thinking (Cornford, 2002) because reflective teachers are engaged in a process of deliberating, analyzing, selecting, making choices about their teaching. In doing so, teachers "critically evaluate their practice in order to make meaningful change" (Farrell, 2007, p. 2). According to Dewey (1933) there are two important phases of reflection, perceiving and interpreting experiences. Dewey (1933, p. 96) adds that interpretations are subject to "the person's own preferences, desires, interests, or even his immediate state of passion". Through reflection teachers develop their ability to look at the past experience in order to plan the future actions (Cirocki, 2014; Pisapia, 2009). Teachers have capacity to do reflection because they are "active, thinking decision makers, who make instructional choices by drawing on complex practically- oriented, personalized, and context-sensitive networks of knowledge, thoughts, and beliefs" (Borg, 2003, p. 81).

In LS reflection is done by the teacher model and the observers. The teacher is given the first opportunity to convey what they think about their teaching. Then, the observers are invited to report the results of their observation. They are required to focus on learners' behavior (Hiebert, et al., 2007) and facts rather than opinions. The purpose is to provide an opportunity the teaching team (the teacher and the observers) to get a lesson learned. Research shows that peer observation of this kind of instructional collaboration provides a space to reflect and improve teaching (e. g. Jones & Gallen, 2016; Sivan & Chan, 2009) and establish formal communities to share best practices and solve problems (e. g. Fraga-Canadas, 2011; Kimble et al., 2008). Indeed, in LS peer reflection benefits the team teaching; the teacher and the observers learn from each other.

Some recent studies (e. g. Girocki et al., 2014; Farrell, 2007; Impedovo & Malik, 2016; Jadidi & Keshavarz, 2013; Mesa, 2018; Rozimela & Tiarina, 2018) show the benefits of reflective teaching for improving teachers' understandings and the quality of their teaching. A case study conducted by Farrell (2006) indicated that reflection on action was effective for helping a teacher to discover the relationship between her beliefs and her practices, promoting the open-mindedness. The result of the study carried out by Girocki et al. (2014) was that Sri Lankan ESL teachers consider reflective practice important and useful for their teaching career. Rozimela and Tiarina (2018) found that the student-teachers' teaching skills improved through the use of journals in the practice of reflective teaching.

Methodology

Research Goal

This case study was intended to measure the extent to which Lesson Study worked at an elementary school. In this case, the researcher looked at the result of the implementation of Lesson Study in a natural setting. The investigation focused on looking the practice of collaboration, scaffolding, and reflection and their consequences.

Participants

This study involved all teachers (thirteen) of an elementary school in Padang (the capital city of a province in Indonesia). They consisted of 6 class teachers, 2 religion teachers, 2 sport teachers, 1 English teacher, and 2 internship teachers. The principal also took part in the workshops and in the "Do" stage as an observer. Six classes of pupils also became the participants to whom this program was applied.

Table 1. The Teachers' Profile

No	Teachers' Initials	Subject Area	Teaching Experience
1	Ida	Indonesia Language Education	25 years
2	Rumi	Primary School Teacher Education	22 years
3	Desi	Primary School Teacher Education	15 years
4	Nana	Primary School Teacher Education	13 years
5	Upik	Primary School Teacher Education	10 years
6	Refni	Primary School Teacher Education	6 years
7	Riza	Civics Education	6 years
8	Fitri	Primary School Teacher Education	5 years
9	Havid	Religion Education	4 years
10	Ahmad	Sport Education	3 years
11	Lusi	English Education	2 years
12	Mimi	Primary School Teacher Education	0 year (internship)
13	Titin	Primary School Teacher Education	0 year (internship)

Setting

This study was conducted at a small private elementary school in Padang (the capital of West Sumatera), Indonesia. It is considered small because it only had 6 classes of pupils with 13 teachers. The school belongs to a foundation under the management of a state university where the researcher works. It is located on the university campus, making it easy for the research to visit the school frequently.

The school was rated a moderate quality by the local Department of Education and Culture. The principal was very committed to improve the school performance. He was very keen to lift up the quality of the teachers and the pupils' learning outcomes.

Data Collection

The data were collected through observations and interviews. The observation was organized in accordance with the three main stages- Plan, Do, and See. Observation was intended to find out how the teachers implemented the framework of lesson study, focusing on the practices of collaboration, scaffolding, and reflection. A focus-group interview in the middle (after the first cycle) and the other one at the end of the implementation of the first semester were conducted with the teachers. A content validity of observation checklist was checked against the indicators determined on the basis of the underlying principles of LS. Guided interview questions were constructed beforehand and were elaborated subject to the result of observation. In addition, an experienced colleague checked and gave comments on the observation checklist and the guided interview questions.

Data Analysis

All data were analyzed qualitatively. The results of observation were analyzed and classified based on three focused themes. Then, the results of interviews were grouped based on the main questions asked. The classification of the observation and the interview results were read and checked by aforementioned experienced the colleague. The data were compared, analyzed and contrasted to enhance its reliability. Triangulation was also done by confirming the results of the analysis with the principal of the school. The results of the data analysis of the three sets of data will be described in the following section.

Procedure of Implementation

The initial stage was a personal approach to the principal of the school. The researcher aimed to explain what LS is and to explain the benefits of LSLC, to convince him, and to get his full support. At the same time I sought to discover the school situation, especially students' learning and teachers' teaching practices through an observation. The target was reached as the principal welcomed the implementation of LSLC at the school continuously. He approved regular meetings held fortnightly on Saturdays.

The activities were designed in such a way that theoretical and practical aspects were introduced alternately. The teachers were divided into three groups: 1) those teaching grade 1, 2 and 3, 2) those teaching at grade 4, 5, and 6, and 3) the Sport, Religion, and English teachers. The internship teachers joined the class teacher groups. After each step there was always a meeting to carry out a reflection to make improvements. This study was conducted in two cycles. One cycle means one practice of lesson design (3 groups), practice by three model teachers and reflection, and one interview. The following table summarizes the activities.

Table 2. The Implementation Scenario

Meeting	Activities	Note
1	Introducing the concept of LSLC to all teachers and the principal.	
2	Introducing the concept of Chapter Design and Lesson Design Practice designing a lesson Presenting the designed lesson and feedback from peers and instructor (i. e. the researcher)	The teachers were divided into three groups The teachers were found to have difficulties in designing "sharing" and "jumping" tasks
3	Emphasizing the importance of collaborative planning Focusing on designing "sharing" and "jumping" tasks by giving examples and explanation Improving the sharing and the jumping tasks of their lesson design	
4	Focusing on observation (techniques and focus) by giving explanation and examples Simulating observation technique	The teachers only used notes and mobile phone as they did not have camera
5	Implementing the lesson (Do) by a teacher	Only three teachers and the principal were able to observe as the others were teaching in their classes.
6	Reflecting on the practice (See) Discussing the result of reflection	Each observer conveyed the results of their observation.
7	Presenting comprehensive review of the first (Plan, Do, See) cycle that was attended by all teachers and the principal.	
8	Designing the lesson of a new topic	
9	Repeating the previous activities in the second cycle	

Findings

The results of the data analysis obtained through observation and interview show a promising future for the implementation of LS. The teachers' ability to design the lesson, to execute the plan, observe, do reflection increased gradually from cycle 1 to cycle 2. They perceived LS positively and decided to maintain the good practices and improved their abilities. The results of observation and interviews were compared each other to show the findings of each emerging themes. The teachers' and the pupils' are identified under pseudonym. The summary of the data obtained through observation and interview are presented in the following table.

Table 3. Summary of Features, Reasons, and Consequences

Themes	Features	Reasons	Consequences
Collaboration	1. Idea sharing	Cycle 1 Not all teachers participated in the discussions.	- Very limited variation of learning activities. - The classroom activities were still teacher-centered.
		Cycle 2 All participated.	- More variation of learning activities. - The jumping tasks were better. - The pupils were more active. - One of the teachers still used a lecture method too much.

Table 3. Continued

Themes	Features	Reasons	Consequences	
Collaboration	2. Interaction and communication	Cycle 1 - Interaction was limited - Certain teachers of each group were dominant.	- The junior teachers were hesitant. - The pattern of interaction was only from individuals to group.	- There was some awkward interaction. - The researcher had to push them to participate.
		Cycle 2 - Interaction increased and patterns of interaction varied. - However, domination by certain teachers persisted.	- Increasing familiarity with collaboration made teachers feel at ease. - Interaction patterns varied and domination decreased.	- Interaction became more natural. - Yet, the seniors still dominated the discussions.
Scaffolding	1. Techniques	Cycle 1 There were only two techniques used (prompting and telling). - The teachers provided help based on a pupils' request. - The teachers tended to let to let pupils work alone in doing the tasks - The more able pupils were asked to help the less able ones.	- Many pupils had difficulties in doing the tasks. - Some made noise and some did not do the tasks. - Some students did not get attention.	- The teachers were not familiar with various techniques of scaffolding - They had difficulties in managing the pupils.
		Cycle 2 - Various techniques of scaffolding were used. - Help was given based on pupil's request and teacher's decision. - The teachers only monitored the pupils working. - The less able pupils were encouraged to ask for help from the more able ones.	- The students received reasonable assistance and attention. - Some still had difficulties in doing the tasks.	-The teachers used various techniques. - They monitored each group and offered necessary help. - Yet, the teachers neglected some pupils that were not able to the jumping tasks.
		Cycle 1 More attention was given to the active pupils Cycle 2 Efforts to give attention to individuals and groups were evident.	The teachers felt that they had to respond to the pupils who were active. The teachers tried to change this habit after the reflection.	Some pupils did not pay attention to the lesson, and did the tasks. Most of the students paid attention and did the tasks.
Reflection	1. Communication	Cycle 1 - Not all teachers spoke up. - The junior teachers were hesitant to state the results of their observations.	- There was a problem of junior and senior relationship. - They were not familiar with reflective practice.	Communication was rather awkward.
	2. Ideas	Cycle 2 - All teachers spoke up. - Yet, some of them were still reticent. The data from the observation expressed were limited. The data conveyed were more comprehensive.	- They seemed to be unable to identify the pupils' behavior to focus on. Most of them were less confident to share their data. They were more confident afterwards because they had better notes.	There were very limited shared ideas. There was very limited lesson learned. There was increased lesson learned.

Teacher Collaboration

For all teachers, working collaboratively for the purpose of designing and improving the lesson was a new practice. The teachers were suggested to take time to think and to have their own ideas before the group discussion commenced. The themes that emerged from the results of observation and interview dealt with familiarity with collaborative planning, interaction, and creativity.

At the beginning of the discussion, it took quite a while for the teachers to begin because none took initiative voluntarily. Even though all teachers participated, only one or two in each group actively contributed their ideas. Some of them seemed to be wary even though a few of them were excited. In each group it was found that there was a teacher who was dominant, while the others were rather passive. Because of that the researcher had to intervene in the group discussion in order to push all the teachers to participate actively. The quotations below show some reasons stated in the interviews.

Ida: I did not mean to dominate the group discussion. But as the discussion was often a vacuum and I had something to say, so I felt responsible to make the group work.

Mimi: I was not sure what I would say. I did not teach pupils of Year 5, so I did not know much about the theme. I had tried, but I was not sure.

Lusi: I was a little bit unsure about being the first to convey my ideas because I never designed a lesson with my colleagues before. And I was the most junior in the group. I believe my seniors had better ideas. .

The quotations above show the constraints faced by the teachers in the collaborative work. The first one is lack of content knowledge that made them unconfident. The second one is deference to the seniors; the junior teachers were reluctant to share their ideas. As a result of that ineffective collaborative plan, the three groups of teachers were not really successful in setting interesting and challenging activities and tasks. In fact, the lecture method was dominant and the difficulty level of the "jumping" tasks was similar to the "sharing" ones. For instance, in her class Ida spent too much time in the pre-teaching stage emphasizing the importance of being disciplined and introducing the topic of the lesson (i. e. Forest fire), and the importance of learning the topic. In whilst teaching stage she also gave quite a long explanation. Consequently, the pupils were not fully engaged.

Ida: I spent too much time on the pre-teaching phase. This was not planned. But, you saw that a pupil came late, more than 10 minutes late. I had to warn that pupil and had to make sure that the other pupils understood why being late was not good. This influenced the whole lesson.

Rumi: I understand why some pupils were not interested in the lesson. The activities were monotonous. I asked them to listen too much and to do activities while sitting only.

In the reflection section and in the interview the teachers said that what happened in the process was beyond their expectation. They thought they had designed the lesson in accordance with direction given in the workshop. However, they were influenced by the way they usually taught. This implies that changing teachers' teaching conception from teacher-centered to student-centered was a challenge in manifesting the planned lesson (Mon et al., 2016).

After the first lesson design practice, tips for collaborative work were briefly reviewed. At the redesign activity and at the planning stage of the second cycle, some progress was evident. It was found that all teachers participated actively. When the collaboration ran naturally as an informal chat, every teacher gave a contribution. All the teachers were more active than in the first cycle. Their design was also more creative than the one in the first cycle. Apparently familiarity with the activity and the review positively affected the teachers' collaboration. The teachers said:

Lusi: The second time designing the lesson I felt excited because I had rather a lot of ideas about the theme. Seeing my friends were stuck, I began the discussion by telling my rough ideas.

Riza: I know I am not that good at expressing my ideas and opinions. But as you said, everyone may have an idea that the others don't. Why don't I try saying something? I was happy I did have an idea which my friends agreed with.

The lesson designs produced through collaboration in the second cycle revealed the teachers' increasing creativity in terms of the variety of learning activities and the choice of "sharing" and "jumping" tasks. The activities were more student-centered. Most of the activities involved frequent physical movement. In effect, the pupils' engagement increased. That helped the teachers reduce their talking time. For instance, the design of Group 2 contained various activities and tasks. In Fitri's (year 3) class the pupils learned about 'harmony' under the theme 'art'. The pupils learned to apply the concept of harmony through colouring pictures individually. Then, for group collaborative work, they were assigned to arrange plastic flowers into a vase. The pupils were highly engaged in the learning process. The same was also marked in the other classes. The teachers were satisfied.

Fitri: The plan was good. I am glad that most of the pupils seemed to enjoy the activities. For me, it is natural that a few pupils are not as active as I hope. It is difficult to make all pupils follow what we want.

Nana: In my opinion the pupils were interested in the activities we designed. Previously only some of them were active. But, I had not been successful to make the slow learners and the quick ones collaborate like you explained to us.

Refni: I think our lesson plan is good enough. We have interesting activities.

In short, the process of collaboration indicates the teachers built a sense of collegiality and improved their communication. The feeling of being of junior and senior seemed to decrease. This can be interpreted that collaborative

nature of lesson study enables participation and collegiality to reach consensual and mutual understanding (Cooper, 2014). This affected their active participation in sharing ideas which yielded a better lesson design.

Scaffolding Strategy

Giving necessary help was another noted finding. The importance of giving appropriate and sufficient help was emphasized in the workshop introducing the concept of LSLC. Prior to the commencement of LSLC, a brief class observation and interview with the teachers indicated that scaffolding had not been well practiced. Having been introduced to the concept of scaffolding in the workshop, practiced in two cycles of 'Do' and getting feedback in the Reflection, some progress was noticeable.

At the first 'Do', the teachers helped the pupils even though they seemed to still have difficulties using appropriate strategies and spotting those who really needed help. Help was apparently interpreted into 'telling' the pupils what they did not know or what they could not do. As for individual task, whenever the teachers saw certain pupils had difficulties, they approached those pupils and told them 'how to do' it directly or gave a very brief explanation. They hardly encouraged the pupils using ways such as cueing or prompting questions which could promote analytical and critical thinking. The teachers approached the pupils who asked for help, meanwhile those who were silent and had difficulties did not get attention.

In group work, the teachers reduced their help. They tended to watch the pupils working, going from one to another group. Sometimes they interrupted the group when they found the pupils did not work as expected such as when the pupils were noisy and disturbed their peers. They asked the pupils to help each other. However, the slow learners were not pushed to ask their peers to teach them 'how to do'. Instead, the quick learners were encouraged to help their peers. In the interviews, the teachers gave these reasons for such practices.

Ida: I could not help noticing pupils getting stuck. I believed they had not understood the point yet. So, if necessary I re-explain the point. ...Yes I think if the pupils are not on task, they have difficulties or ... maybe they did not pay attention to the lesson beforehand.

Rumi: I could detect which pupils needed help. I pushed them to ask their peers, but they were too quiet. So I asked their peers to help them.

Upik: Waiting for the pupils to get the answer and giving them indirect help such as prompting questions as you have suggested in the workshop was a bit of a waste of time. I am not patient enough. So I told them the answer directly.

In the second cycle the way the teachers scaffolded the pupils improved. The teachers learned how to use various ways to help the pupils who had difficulties to understand a concept or to do a task. Help through explanation decreased; the teachers led the pupils to find the answers through elicitation techniques, and by guessing and directing them to look at the examples given in the lesson. When the pupils worked in groups, the teachers gave attention to all groups and tried to identify the pupils that needed help. They motivated the slow learners to ask their peers to help them. Unfortunately, they failed to ensure that all the learners could finally execute the tasks. The slow learners were not able to do the tasks well.

Fitri: I had given necessary help for the pupils. I thought I learned how to identify which pupils that needed extra help or attention. But I could not give them my full attention because there were some pupils who needed such extra help while the time was very limited.

Nana: I did try to apply the way to help the pupils in doing the tasks. I felt happy because I found that some reticent students became active. Yet, I admitted that it was quite hard to teach the pupils to tell their friends how to solve the problems.

Refni: We seldom use group work activity. Group work is used only for game-like activities. So, the students are not familiar with collaboration as you mean. I did ask the students to help their friends.

In short, even though the teachers tried to use various techniques to scaffold the pupils, the result was not satisfactory. The key features of scaffolding- contingency, fading, and transfer of responsibility- was not clearly seen. The teachers seemed to have limited understanding of the principles of scaffolding. They tended to interpret scaffolding into giving help regardless their pupils' state of ability. Furthermore, the teachers were constrained by time and big number of pupils in a class.

Reflection

Reflective practice is applied in the Reflection Stage. At this stage the observers and the model teachers conveyed the result of their observation. The observers conveyed the result of their observation after the model teacher expressed what they thought about their teaching. The practice of Reflection in the first and in the second cycles showed progress in the content and the way to convey the result of reflection.

The three model teachers in the first cycle were different in terms of the depth and breadth of the ideas they conveyed and the way they communicated ideas. In the first cycle Ida (an observer) had many things to say and talked comfortably. However, the teachers (Rumi and Upik) had only a few ideas and seemed to be a little uneasy to convey what they thought.

Ida: I felt happy with my teaching and the pupils. They were active and obeyed me as usual. I hope they understood my explanation. But... I know that I could not finish all the activities in the lesson plan. I spent too long in introduction... But I think it's okay because I believe I need to remind the pupils about the importance of being discipline.

Rumi: Well... I do not have many things to say. Generally I think I did what we had planned. Most pupils were active enough even though some were not. That's it.

Upik: I had difficulty to make the pupils focus when I gave an explanation. But when they worked in groups I found they were enthusiastic. I think I have reached the objectives.

The observers generally followed the guidelines; the content of their reflection focused on pupils' learning and reactions towards the teacher's instruction. Thus, almost all of their comments were about what the pupils did individually and collaboratively in the process of teaching and learning. Some also could identify which pupils needed to get focused attention in the observation. Here are some quotes from the observers.

Desi: Generally the pupils were actively involved in the process of teaching and learning, but some pupils did not stay in their place was normal. They are kids. And, just now I focused on two groups. In the first group Hana was busy with her things; she kept checking her bag. She took out her water bottle, and she put it in again.

Havid: I noted that some pupils did not really pay attention to the lesson. The first group in the right corner on the front worked well. However, only one of them was serious. The pupils on the left side were generally active.

Reflection after the second Do was rather similar to that of the first Do. The model teachers were still hesitant to express their perception or feeling about their teaching. Here are the quotes:

Fitri: I thought I did as we had planned. But I had a little bit of difficulty in managing the class. Some pupils were noisy. I think it's okay.

Nana: Well, I felt happy. Titan was usually difficult to manage, but today he obeyed my instructions. And, some students were very active. So, I think generally the lesson ran quite smoothly.

Refni: Most of the activities could be executed. I had a little bit of difficulty monitoring the group work because the activities made them move around a lot.

The comments above indicate that the teachers were generally happy with the learning process and results, but they did not elaborate the points they raised. Unlike the model teachers, the observers were more explicit.

Titin: I found most of the students were active and happy. The group that I looked at closely was Group 3 (in the left corner). Dendi and Ihsan did the task seriously. They did not talk to their peers (Ani and Ira). Ira seemed to have difficulty. She just looked at the paper and flipped the textbook occasionally. After that, the teacher came and asked Ira to do the task. She also asked Dendi and Ihsan to share ideas with Ira and Ani. Ira observed Dendi and asked him about the task. Until the end of the discussion, I found that Ani did not really collaborate with her friends. She did not finish the task.

Desi: I focused on Group 5. There was a pupil with a special need. I focused on Lily. She was an attentive pupil I guess. When she found Dina unable to wrap the stem of the paper flowers they were asked to make and arrange, she told her how to do it. The teacher actually did not see this. Toni, another pupil in the group, also paid attention to Lily when she helped Dina.

Reflection conducted in the first and the second cycles indicated that although they were hesitant, the model teachers could articulate their opinions about their own teaching. Their reflection on their teaching, however, was limited to their pupils' reaction in general. They were not able to look at the classroom incidents critically. They were also concerned more on their teaching rather the pupils' learning. This may imply that the teachers need to be empowered to increase their capacity (Tindowen, 2019). In contrast, the observers were explicit and were able to focus on the learners rather than the teacher, especially at the second cycle. This implies that the existence of peer observers is important to assist the teachers to 'mirror' their instructional practices.

Discussion

Even though the results of the LS implementation show gradual improvement, collaborative and classroom observation has promoted teachers' reflection. This was due to two main factors, the principal's strong commitment to improve the quality of the school and the bottom-up implementation strategy. The first was indicated by the principal's encouragement of his teachers, and active involvement in most LSLC activities at school. The principal has a positional authority to control the teachers (McLaughlin & Talbert as cited in Scipper, 2019). Secondly, the school-based and self-initiative implementation of LSLC seems to be welcomed by the teachers of the schools. The teachers' intrinsic

motivation to change and develop their own competencies might have increased because of voluntarily program implementation; the school was ready to build LS community (Bussmann & Trujillo, 2007). A survey conducted by Zubaidah and Mahanal (as cited in Zubaidah, 2010) towards a group of Indonesian teachers also reveals that a strong support of successful LS implementation was teachers' intrinsic willingness to increase their professionalism. The existence of a facilitator who plays a pivotal role (Lewis, 2016; Saito & Atencio, 2013) may also have contributed to the teachers' ability to "construct knowledge and practices" (Borko, 2004, p. 4). This seems to be in line with a study by Schipper et al. (2017) which shows the positive contribution of facilitators to teacher professional growth. The three themes in focus of the current study (collaboration, scaffolding, and reflection) reveal some improvement.

The practice of collaboration has positive impact on teacher-teacher relation, communication, and design of a lesson. The latter affected the improvement of student learning (Dudley, 2013; Lewis et al., 2006) as the teachers gained better awareness of their pupils' needs (Schipper et al., 2017). This echoes the results of the previous studies (e. g. Cajkler et al., 2015; Lewiset al., 2006; Sibbald, 2009). Furthermore, collaborative work yields better result. The teachers created meaningful activities which moved their students to participate actively. It was also reflected in the improved lesson design, especially the design of sharing and jumping tasks, at the second Plan stage. The result was consistent with some previous studies (see e. g. Aimah & Purwanto, 2018; Rozimela & Tiarina, 2018). Through collaborative planning, the student-teachers and the teachers were able to design their lessons better.

On the down side, the result of this study also shows that the junior teachers' reluctance to share ideas the first collaboration practice was due to their view about deferring to the seniors. This condition confirms Armstrong's (2011) statement; that is, collaboration is easier to value than it is to implement. In fact, only after they were given an understanding that collaboration means everyone is equal in terms of idea sharing, they then began to speak up regardless seniority. This confirms Cajkler and Wood's argument (2016) saying that development of social and decisional capitals are needed for productive collaboration.

Next, the teachers' way of assisting their pupils showed some improvement, but the teachers employed limited scaffolding strategies as suggested by some authors (see e. g. Dansie, 2001; Sharpe, 2001). In the first cycle the teachers tended to use only "instructing" and "explaining" scaffolding means (van de Pol et al., 2010, p. 6). In the second cycle they also used "hints" such as prompting questions, cueing, and directing. Modelling was hardly used. This is similar to Mahan's study (2020). She found that the teachers used very limited instances of modelling. Furthermore, the teachers had limited ability to apply the concept of the key characteristics of scaffolding mentioned earlier, "contingency", "fading", and "transfer responsibility" (van de Pol et al., 2020). It was evident that the teachers had difficulties in judging the pupils' current state to give suitable support. Based on the results of their study, Nathan and Kim (2009) state that teaching in a contingent manner is difficult for the teacher. Applying the strategies of withdrawing support gradually (fading) to increase learners' responsibility were problematic for the teachers. It was found that transfer responsibility happened too early; in other words, "fading" strategy hardly occurred. In Reigosa and Jimenez-Alexandre's study (2007), the students' inability to progress independently was due to excessive task difficulty. In this current study, from the teachers' answers, the problems of using fading and transfer of responsibility scaffolding strategies were resulted from the teachers' misunderstanding of the concept of scaffolding.

With regards to reflection, articulating the result of self reflection in front of peers was not a common practice for the teachers. They were reserved; they could only say a few things in a couple of statements. At first the teachers tended to give general ideas about their teaching and they did not reflect on their teaching critically. Only after a workshop about reflection was done they became more productive. This supports Kayapinar's study (2016) which reveals that the teachers had few ideas and put forward only general ideas. She found that idea sharing was the most intricate issue. One explanation is that the teachers seem to have limited ability to read "learners responses and make judgments in action" (Cajkler & Wood, 2016, p. 10). In their study Megawati et al. (2020) found that this ability is pivotal because teachers can describe incidents from which they can make necessary and quick improvement. The studies by Cirocki and Widodo (2019) and Rozimela and Tiarina (2018) revealed that when this skill was enhanced, teachers were able to make their own teaching better. This current also study shows that the teachers were reticent to convey what they felt about their teaching or/and they could not reflect upon their own teaching well. As they become familiar with that activity, they may be more confident. In relation to this, Akiba et al. (2018) advocate the importance of reflective dialogues for continuous improvement.

In spite of the gradual improvement, the program also underwent a few difficulties. Firstly, due the teachers' full time schedule, workshops and discussions were conducted on Saturdays. Luckily, the school had decided to use Saturdays for non-teaching and extracurricular activities so that we could use it for LS. It was difficult to run a big open lesson where all teachers could be present. Secondly, as the school only had one class for every grade, a group consisted of teachers teaching different grades. This had an effect on the richness of ideas shared in the collaborative lesson design. A study of Akiba et al. (2016) found that time spent affected the sustainability of LS. Also, Cajkler et al. (2015), state that LS "requires an investment of time and patience" (p. 192).

Conclusion

This article has reported how and the result of LS implementation at an elementary school. The findings of this study support previous research in a way that Lesson Study brings about positive impact on teachers' professional development. Even though the progress was slow at the start, it increased gradually in the second cycle. Working collaboratively to design a lesson the teachers gradually improved their academic collegiality and ability to create better and meaningful learning activities. Collaborative work also boosted interaction among teachers, and thus apparently enhanced their communication skill. Learning from the result of observation and reflection they also improved the way to scaffold the pupils. In fact, they began using different scaffolding strategies for different pupils experiencing different difficulties. Next, the teacher observers could focus their attention on pupils and could convey the result of their observation in Reflection stage. In spite of the positive impact, some areas that need improvement were also revealed. This positive and promising result has been made possible by the full support of the principal and the commitment of all the teachers.

Suggestions

Based on the findings of this study, it is suggested that some important sub-skills of collaboration, scaffolding, and reflection be introduced and trained. For example, giving examples and modeling various scaffolding strategies seem to be essential for successful scaffolding. Teachers' ability to design challenging tasks, to use various scaffolding strategies, and to do self-reflection should be continuously developed. Above all, continuous training and reinforcement seem to be essential in order to empower the teachers to sustain LS at the school. In addition, future research could investigate longitudinally the degree to which LS contributes to teacher professional development.

Limitations

The progress of the teachers' practice of the three foci (collaboration, scaffolding, reflection) was not seen from a comparison of a teacher's performance in the first cycle with hers/his in the second cycle. Instead, it was seen how well a teacher learned from her/his peer's performance and applied it in her/his teaching. Furthermore, the number of the teachers was limited; one group consisted of teachers teaching different grades. Thus, when one meeting discussed the material of grade 1, for instance, the teachers of the other grades learned from the discussion and designed their lessons by themselves.

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