

## **Indonesian Teachers' Perception on the Implementation of Lesson Study: Exploring Teachers' Awareness of Pedagogical Knowledge**

**Siti Aimah**

English Education Department, Faculty of Foreign Language and Culture  
Universitas Muhammadiyah Semarang, Indonesia

**Bambang Purwanto**

English Literature Department, Faculty of Languages and Arts  
Universitas Negeri Semarang, Indonesia

### **Abstract**

This study aims to know Indonesian teachers' perception of the implementation of lesson study. A case study was used as the design of this study with six teachers of Islamic Elementary School in Semarang, Indonesia, were chosen by using purposive sampling. A questionnaire with the Likert Scale of 1 to 4 was distributed to the respondents after implementing lesson study. A deep interview was also given to the teachers to explore their awareness of pedagogical knowledge. The quantitative data were analyzed statistically and they were used to support the qualitative data got from the interview. The result showed that the teachers had a new perspective in the pedagogical context in which a preparation of teaching could be prepared well by formulating and designing the lesson collaboratively with the other teachers to achieve the learning goal. Through the intensive collaboration with the teachers, they were more aware to create the effective and meaningful teaching to the students. They knew how to teach the students through the instructional strategies designed.

*Keywords:* awareness, collaboration, lesson study, pedagogical knowledge, teachers' perception

**Cite as:** Aimah, S., & Purwanto, B. (2018). Indonesian Teachers' Perception on the Implementation of Lesson Study: Exploring Teachers' Awareness of Pedagogical Knowledge. *Arab World English Journal*, 9 (4), 380 -391. DOI: <https://dx.doi.org/10.24093/awej/vol9no4.28>

## Introduction

What did we teach to the students? How was it taught? Did we create a positive climate for learning? Did we stimulate the students to explore their ability in learning? How were the students' responses? Did we get feedback from the students toward our teaching? Those questions are commonly required by teachers in reflecting their own teaching and learning. However, not all the teachers are aware to do self-reflection even though it benefits them to improve their teaching. Clarke (2008) states that reflection on teaching goals, teaching methods, the level of students' ability, etc. basically promotes the teachers to create an effective teaching. Through reflection, they can identify the things related to what they have taught such as the mastery of teaching material, teaching practice, the students' learning styles, and the strategies that would be used to counter the problems of teaching (Ibrahim, Surif, Arshad, & Mokhtar, 2012). In fact, some of the teachers are reluctant to learn with the others through interaction with their peers. They are ashamed that their problems of teaching will be identified by the others. They think that they will be regarded as unexperienced teachers who could not counter the problems.

Basically, each teacher faces his/her own problem of teaching. The problems commonly deal with how to handle the class, how to make the students more active, how to teach the students with the simplest way to understand, how to simplify the material, and how to create a meaningful learning (Munijah, conveyed in Workshop of Lesson Study on March 24, 2018). Those problems are virtually related to pedagogical content knowledge in which it is an amalgam of teacher's pedagogical knowledge and her/his understanding of the content so that it influences the way she/he teaches (Jang, Guan, & Hsieh, 2009). Pedagogical content knowledge (PCK) which is firstly introduced by Shulman (1987) at Stanford University is the basic knowledge that the teacher should have pertaining to teaching. Dealing with the knowledge of pedagogy, it covers pedagogical techniques, knowledge of students' prior knowledge, and knowledge of teaching.

Considering about the demands of the government in Indonesia, the teacher needs to possess four competencies that cover pedagogy, professional, social, and personal (The Regulation of The Minister of National Education No. 6 Year 2007). It means that to be a teacher, he/she could not choose only one of them, but all must be mastered in order to implement the instructional practices in the classroom. Those competencies are very crucial because they are related each other. When the teacher wants to teach in a classroom, surely she/he must have her/his pedagogical knowledge that includes the ability to prepare the needs of teaching including designing the scenario of learning which is very basic need to prepare (Hudson, 2007; Matanluk, Johari, & Matanluk, 2013). Through the scenario of learning, she/he must consider what should be done in the first five minute in the classroom, what should be told to the students, what questions should be posed, what activities should be explored from the students, what method of learning should be used, etc. (Hudson, 2007). It is not a simple thing to do by the teacher because the teacher should consider carefully to avoid ineffective teaching.

According to Lenhart (2010), pedagogical knowledge is the knowledge of how to teach. It means that without having the knowledge of pedagogy, the teacher could not prepare his/her teaching well. Pedagogical knowledge is used to support the teacher's

performance of teaching and learning process, and it needs to be built through the experiences of teaching practices in the classroom by facing students' learning problems with various different characteristics (Aimah, Ifadah, & Bharati, 2017). By knowing the students' problems of learning, the teacher is expected to counter the students' problems of learning, and manage the class well. It is in line with what is expressed by Syahrudin, Ernawati, Ede, Rahman, Sihes, & Daud (2013) that the teacher's pedagogical knowledge could be seen from his/her ability in managing teaching and learning process from planning to evaluation stages.

Dealing with the phenomena above, to cope with the problems in order to be effective, the teachers can make an interaction with their peers to learn (Bocala, 2015). The interaction can be through participation in groups facilitated in a lesson study in which each participant knows the interactions that should be made. The phases of lesson study include preparation, implementation, and reflection (Lewis, 2002). In the phase of preparation, the teachers should prepare and provide their lesson plan to be implemented in the class collaboratively (Matanluk, Johari, & Matanluk, 2013) so that they could help the students in learning a particular topic easily (Baba, 2007; Fernandez & Yoshida, 2004; Lewis, 2002). Through collaboration, the teachers have a chance to share their own experiences of planning and conducting their teaching in the classroom which also encourage them to have the knowledge to enhance their teaching. This activity also enables them to do reflection to what they have done in their teaching so that it helps them in strengthening their pedagogical skills (Shimahara, 1998). The teacher's preparation encouraging joint inquiry, teaching practice, and reflection to the classroom instruction is to result the professional growth (Kotelawa, 2012; Rock & Wilson, 2005).

There are some previous studies which are similar with this study. However, most of the research only focused on the study of Science and Mathematics. Matanluk, Johari, & Matanluk (2013) investigated the teachers and students' perception about the implementation of lesson study. The result showed that they had a positive perception towards the implementation of lesson study. Further, it encouraged the teachers to stimulate the students' participation in the classroom. Inprasitha & Changsri (2014) concerned with the teachers' beliefs about teaching practices in the context of lesson study and open approach. Teachers' beliefs of teaching influenced their very own teaching practice. Lesson study also allowed the teachers a space to provide the students to encounter their problems of learning.

Considering the gap with the previous studies, this study aims to know Indonesian teachers' perception about the implementation of lesson study. Further, it also explores their awareness of pedagogical knowledge.

### **Literature Review**

In the context of teaching, pedagogical awareness is very crucial for teachers in which they need to notice and interpret the aspects of classroom practice, and make the decisions of something occurs in the classroom. Without having pedagogical awareness, teachers will get difficulties in identifying and reflecting their own teaching including what needs to be

repaired from classroom practice. Considering the important of awareness as a part of teacher knowledge that needs to be possessed by teachers, it is then considered as a crucial factor in implementing instructional practice. It is in alignment with Potari (2013), awareness is related to teacher knowledge and is rooted in the context of the actual classroom practice.

Teacher knowledge, according to Guerriero (n.d) deals with the process of teaching and learning, the concept of knowledge, as well as the way the teachers transfer their knowledge in the practice of teaching. Similarly, Fernandez (2014) mentions that teacher knowledge is related to skills that needs to know to teach. Shulman (1987) identifies teacher knowledge which not only focuses on the content, but also teacher's ability in teaching. It is then, well known with pedagogical knowledge.

Pedagogical knowledge deals with knowledge of teaching process and methods used by the teachers including knowledge of teaching preparation, knowledge about classroom management, knowledge of developing lesson plan, knowledge of teaching methods and strategies, knowledge of students characteristics, and knowledge of designing learning evaluation (Aimah, Ifadah & Bharati, 2017; Aksu, Metin & Konyalioğlu, 2014; Mishra & Koehler, 2006). It is in alignment with Gess-Newsome (1999) that pedagogical knowledge deals with classroom organization and management, instructional models and strategies, and classroom communication and discourse. Further, it is believed that pedagogical knowledge helps to guide teachers' decision and action in the instructional practices.

Pedagogical knowledge is necessary knowledge for teachers to implement teaching and learning process in the classroom. The knowledge encompasses knowledge about understanding how students learn, planning an instruction of learning, assessing students, and managing the classroom. Teachers who have deep pedagogical knowledge will understand how the students construct knowledge, acquire skills, and develop their positive minds of learning (Aksu, Metin & Konyalioğlu, 2014).

Therefore, it is required by teachers to have the awareness of pedagogy. To possess pedagogical awareness, it could be facilitated through lesson study. Lewis (2009) defines lesson study as:

a professional approach in which teachers work together to formulate goals for student learning and long-term development; collaboratively plan a 'research lesson' designed to bring to life these goals; conduct the lesson in a classroom, with one team member teaching and others gathering evidence on student learning and development; and discuss the evidence gathered during the lesson, using it to improve the lesson, the unit, and instruction more generally (p. 95).

Lesson study provides teachers to make a community learning in which they collaborate together to formulate the goal of learning, design a creative lesson plan, and implement it into an instructional practice. In designing the lesson plan, the appropriate strategies are required to create an effective teaching in which it is based on students' needs in order to create an effective teaching

(Aimah, Ifadah & Bharati, 2016). Those strategies are achieved through collaboration between them intensively (Bocala, 2015) in which it enables them to share their knowledge and experiences of teaching including how to counter the students' learning problems.

When preparing/designing their lesson plan, teachers predict students' reaction to specific activities in the classroom and it requires them to reflect on their teaching approaches (Coenders & Verhoef, 2018). Through the stages of "plan, do, and see" (Hurd & Musso, 2005), lesson study emphasizes on student learning. Therefore, teachers are expected to develop their pedagogical knowledge (known PCK) as proposed by Shulman. In this case, teachers need to understand how students learn, how to plan an instruction of learning, how to assess students' learning, and how to manage the classroom effectively (Aksu, Metin & Konyalioğlu, 2014).

## Methods

In this study, a case study was implemented. Six teachers from fourteen at Islamic Elementary School, Indonesia, were chosen using purposive sampling. The consideration of selecting the participants was based on the length of their experiences of teaching, the complexity of the various teaching and learning problems, and the recommendation of the principal as well. Two instruments were used to obtain the data: questionnaire and interview. The questionnaire was distributed to the teachers to examine their perception about the implementation of lesson study in their class. The questionnaire consisted of 15 questions, asking about teachers' pedagogical knowledge involving the preparation that they have to set up before teaching. The Likert Scale was used in order to make the objective answers of their perception with the range of 1 (strongly disagree), 2 (disagree), 3 (agree) to 4 (strongly agree). The quantitative data then were analyzed statistically to see the teachers' perception on the implementation of lesson study. To support the quantitative data, deep interview was also given to support the quantitative data given through questionnaire.

## Findings and Discussions

### *Teachers' Perception on the Implementation of Lesson Study*

In examining the teachers' perception on lesson study through questionnaire, it was found that the implementation of lesson study helped them much in improving their pedagogical knowledge. The questionnaire consisted of 15 questions that covered some questions pertaining to the ability of choosing the appropriate method of learning utilizing the learning media, managing the classroom, evaluating the teaching and learning process in the classroom, mastering the material taught, knowing how to teach, solving the contextual problems of learning, and communicating with the students interactively. The result of the questionnaire pertaining to the implementation of lesson study could be seen in the following table.

Table 1 *Teachers' Perception on the Implementation of Lesson Study*

Number of Teachers	Average	Category
6	3.85	Very Good

Based on Table 1, the average of the teachers' perception on lesson study shows a good response that is 3.85 (very good). The teachers agreed that lesson study helped them

in preparing their teaching. If they usually only prepared the materials that would be taught to the students from the textbook used, through lesson study they were trained to prepare from designing the lesson plan (it was usually obeyed by them because of their overloads of teaching hours) that covered the detailed activities from the beginning of the study until the end. It was done in order to be easy for the teachers involved in a group of learning in lesson study in measuring each point within it.

In the phase of planning, the teachers together with the others collaborated actively in formulating the scenario of learning. All the teachers involved in a lesson study team discussed the stages of conducting teaching and learning process in the classroom. They shared their experience of teaching in the stages of planning to enhance the quality of teaching. The teacher not only discussed with the others (observers) what must be written there, but also simulating the scenario of learning created in front of others. Through the activity, it could not be avoided to make some revisions of what they have designed. Selecting the use of appropriate media and method of learning which was based on the students' problems and characteristics was also important to help the teacher in achieving the goal of learning. However, dealing with this point, the teacher must be careful in selecting and implementing the certain technique in the classroom because there were some illiterate students. It means that they were needed to be assisted intensively during teaching and learning in order they comprehended what they were studying.

Facing the various students with the different style of learning, made the teachers to consider the level of which the difficulty of the materials taught. They had to simplify the materials in order to be easy to understand. Not only knowing what to teach, the important point for the teacher in teaching is also about how to teach it (Lenhart, 2010). That's why in lesson study, the phase of planning is regarded as a crucial factor in determining whether or not the teaching and learning process will be successful (Rock & Wilson, 2005). All the participants of a group learning could collaborate to discuss the teachers' planning dream, and the purpose of designing a lesson plan in order to meet the students' needs. Through this activity, the teachers would grow professionally. They would understand the students better.

### ***Teachers' Awareness of Pedagogical Knowledge***

Lesson study provides a chance to the teachers to be professional teachers (Rock & Wilson, 2005). Through the stages of lesson study, the teachers got a positive impact on their instructional practices to be more effective. Their awareness of pedagogical knowledge was well-built. It could be seen when they had to be careful in preparing their teaching and anticipating some possibilities that would occur to their students in the classroom. Through the stage of planning, Bocala (2015), and Kotelawala (2012) explain that the teachers must formulate the learning goals by implementing instructional strategies that have been discussed collaboratively in a group of learning. The teachers also selected the materials that must be based on the goal of learning and the students' needs. One of the teachers, Mrs. Ika told the benefit that she got pertaining to her pedagogical knowledge from the implementation of lesson study in her school.

*Sebenarnya banyak manfaat yang saya peroleh melalui kegiatan lesson study ini seperti bagaimana menentukan tujuan pembelajaran yang harus dicapai. Untuk mencapai tersebut, langkah-langkah yang harus dilakukan oleh guru harus jelas melalui kegiatan seperti apa di dalam kelas, dari apa yang saya lakukan, dan apa yang dilakukan siswa, bagaimana sikap mereka, dan lain-lain. Kemudian...melalui dalam pemilihan media pembelajaran sampai juga harus dibahas bersama-sama untuk melihat apakah media tersebut cocok atau tidak. Itu semua menunjang pengetahuan pedagogis saya. Namun sayangnya, nampaknya tidak mudah untuk selalu berkumpul bersama...Jadwal kami yang berbeda-beda membuat kami susah untuk berkumpul dan berdiskusi bersama.*

Actually, many benefits that I have gained through the activity of lesson study such as how to determine the learning objectives that must be achieved. To achieve it, the steps that must be done by the teacher must be clear through what activities in the classroom, from what I do, and what students do, how they have to behave, and so on. Then ... through the selection of learning media, it must also be discussed together to see whether it is suitable or not. Those promoted my pedagogical knowledge. But unfortunately, it didn't seem easy to gather... Our different schedules made it difficult for us to gather and discuss together with others (First Interview, 20180407)

Those conditions are in line with what Baba (2007) says that in a process of planning, the teachers begin their activities by finding and selecting the materials that are relevant to the goal of learning and refining the design of learning based on the actual needs of the students to be written in a lesson plan. Those are required to promote teachers' pedagogical knowledge to become professional teachers. The similar view about selecting the material was also expressed by Mrs. Endah as follows.

*Lesson study ternyata sampai membahas tentang materi yang akan diajarkan kepada siswa apa saja ya? Apakah siswa nanti dapat memahami materi yang diajarkan atau tidak, apakah materi tersebut sudah disederhanakan sesuai dengan kemampuan siswa atau belum, dan bagaimana cara mengajarkannya. Benar-benar sangat detail.*

Lesson study discussed what material would be taught to students, didn't it? Whether or not the students will be able to understand the material taught, and the material has been simplified based on the students' abilities, and how to teach it. It's extremely very detail (Third Interview, 20180428).

Not only about how to select and simplify the material, the important point deals with how to teach the material to the students as expressed by Mrs. Endah. It is also in line with Lenhart (2010) in which pedagogical knowledge is about how to teach the material to the students. In this case, Shulman (1987) highlights that the teachers should represent and formulate the material in order to be comprehensible to the students.

Mrs. Uswatun who was one of the observers also underlined some points about designing the instructional strategies, discussing and formulating the indicator of the observation form used by the other teachers whose role as observers to observe the students' activities in the classroom. In this case, the teachers must think what the students thought about the material or how their reaction was, what problems usually faced by the students and their approaches to the problems. That's why in lesson study cycle, the teachers illustrated the activities designed in a lesson plan and facilitated them with the ability in solving their problems through the activities explored.

*Kelebihan dari lesson study ini adalah bahwa kita juga harus mampu memprediksi sikap dan respon yang ditunjukkan oleh siswa seperti apa, termasuk dari teknik tertentu yang kita gunakan dalam pembelajaran, kita pun juga diharapkan dapat membayangkan seperti apa sikap-sikap positif mereka. Kondisi ini tentu juga akan lebih mempermudah para observer untuk mengamati sikap siswa meskipun yang terjadi sering berbeda.*

The advantage of lesson study is that we also have to be able to predict what students' attitudes and responses to teaching and learning process, including from a certain technique that we use, we are also expected to be able to imagine what their positive attitudes look like. This condition will certainly make it easier for the observers to observe students' attitudes even though what happens is often different (First Interview, 20180407).

On different occasion, Mrs. Lusiana also shared a similar view:

*Sangat beruntung saya ikut kegiatan lesson study ini. Pengetahuan pedagogis saya semakin bertambah. Mengajar anak-anak SD sangat lah tidak mudah. Sikap yang mereka tunjukkan juga biasanya cukup beragam. Ketika saya mencoba menenangkan siswa pada bagian kanan, yang kiri rame sendiri. Yang kiri dितertibkan, yang kanan malah menyusul... tapi setidaknya kita dapat melihat bahwa ada yang salah tidak dengan bagaimana kita mengajar? Sehingga siswa menunjukkan sikap seperti itu? Mengamati satu per satu siswa dalam satu kelas tentu juga tidak mudah dan tidak dapat dilakukan oleh satu orang saja. Di sini kita belajar mengamati apa yang menyebabkan siswa bersikap seperti itu? Senang sih... tapi juga agak capek...*

I was very lucky to join this lesson study. My pedagogical knowledge improved. Teaching students in the Elementary School is not easy. The attitude they show is usually quite diverse. When I am trying to handle the students in the right side, the students in the left one will make noisy then. The students in the left are put in order, those in the right follow them in the left one as well ... But at least we can see whether or not there was something wrong with what we had taught that affected the students to show their attitude. Observing each student in one class was certainly not easy and could not be done by only one person. Here we could

learn to observe what caused the students to behave like that. I am so happy ... but also feel a little bit tired ... (Second Interview, 20180419).

The different situation shown by one of the teachers who objected with the process of lesson study which was very detail in each stage. The teacher had the responsibility to formulate the initial lesson plan to be discussed with the other teachers in a group of learning. It should also have covered the problems that must be countered and what strategies used to. Based on the result of discussion, the teacher must also be ready to revise the lesson plan. This condition is not always acceptable to teachers who have quite a lot of teaching hours. Mrs. Rahayu, for example said that:

*Saya kan memiliki jam mengajar yang cukup banyak. Tugas-tugas siswa juga harus dikoreksi. Kalau harus kemudian berkali-kali membuat lesson plan kemudian merevisi dan seterusnya, saya kok tidak sanggup.*

I had a lot of teaching hours. The students' worksheet must also be checked. If I have to make a lesson plan many times and then revise it and so on, I am afraid I could join this activity (Second Interview, 20180419).

Dealing with the condition above, in conducting lesson plan, Fernandez (2002) states that the teachers should provide adequate time to meet and discuss the lesson plan designed and/or developed collaboratively. The inadequate time had by the teachers in lesson study will only make them isolated as they have to make it individually (Cohan & Honigsfeld, 2006). Another problem faced by the members of lesson study is about the Indonesian culture which is very different from Japan in implementing lesson study. Not all teachers are confident and comfortable to be observed by the others in open class. Some of them thought that being observed by the others made them to think that they would be justified whether or not their performance was good. This view was also shared by Mrs. Rohmah:

*Saya tidak bisa membayangkan jika mengajar di kelas nanti diamati oleh guru sebanyak ini. Bisa-bisa saya malah ngewel (baca: gemetaran). Berkumpul di awal seperti ini saja sudah riweh (baca: repot) karena jadwal harus diatur, dan banyak hal yang harus dibahas dan direvisi.*

I could not imagine if I had to teach in the classroom and many observers joined to observe my class. I would be trembling then. Gathering at the beginning of the process of lesson study was already complicated because the schedule must be arranged, and many things to be discussed and revised (Third Interview, 20180428).

Observing the teaching and learning process commonly makes the class looks like unnatural. The students did not feel free to behave. They felt that their attitude was monitored by another teacher. That's why the teacher whose class would be observed, asked the students to be good and active students. This condition was also explained by some of the teachers joining the lesson study. However, to anticipate the condition, Mrs. Uswatun highlighted that lesson study should be

implemented continuously in any class. Both the teacher and the students will get used to be observed and they will look natural for joining teaching and learning process as usual even though there are some observers in the class.

Dealing with the different culture in implementing lesson study, for some teachers who did not have adequate time, and/or their inconvenience in collaborating to the others, they preferred to design it individually to be discussed it with the others in the next time. It was effective for those who were busy in having a lot of teaching hours. The characteristic of Indonesian teachers who tends to work individually in planning their lesson is also similar with what Nami, Marandi, & Sotoudehnama (2015) say that Iranian teachers tends to plan their lesson individually. It was caused by individualist culture of teaching that make them difficult to collaborate.

### **Conclusion and Suggestion**

Indonesian teachers' perception on the implementation of lesson study shows a good response (3.85) with the category of very good. Lesson study which is a model of professional development in teacher education through a collaborative learning helps them in maintaining their pedagogical knowledge. Pedagogical knowledge relatively depicts a clear description to teachers' preparation of teaching (Kotelawa, 2012). The implementation of lesson study attempts to promote teachers' preparation of teaching better. Teaching preparation deals with the awareness of pedagogical knowledge that must be possessed by the teacher. Without having the awareness of pedagogical knowledge, teachers surely could not decide what should do to create a meaningful learning as they do not know what to teach and how to teach to the students with the appropriate strategies.

However, dealing with the implementation of lesson study in Indonesia, it seems that it needs more efforts in order to be acceptable among teachers. Some teachers' awareness of pedagogical knowledge is better through a collaborative learning in lesson study. They admitted that the implementation of lesson study helped them more in preparing their teaching well. They collaboratively discussed to formulate the learning goal that must be achieved through the instructional strategies designed. Through collaborative learning, the teachers could also select the most comprehensible material to be presented to the students and they know how to teach it (Lenhart, 2010).

The different culture in Indonesia in which the Indonesian teachers are not used to be observed by many people in their class needs to be evaluated. Teachers should be involved in some activities to promote their professional development through peer reflection and the similar activities that encourage them to evaluate their teaching. Teachers should also open their mind that collaboration is very important to improve their teaching.

### **About the authors:**

**Siti Aimah** is a lecturer of English Education Department, Faculty of Foreign Language and Culture, Universitas Muhammadiyah Semarang (Unimus). Her research interest is in the field of English Language Teaching (ELT) including teaching methodology and pedagogy. ORCID: <https://orcid.org/0000-0001-5355-4523>

**Bambang Purwanto** is a lecturer of English Literature Department, Faculty of Languages and Arts, Universitas Negeri Semarang (Unnes). His research interest is in literature studies and he has been teaching in English Literature Department since 2008. ORCID ID <https://orcid.org/0000-0002-7110-2878>

## References

- Aimah, S., Ifadah, M., & Bharati, D. A. L. (2017). Building Teacher's Pedagogical Competence and Teaching Improvement through Lesson Study. *Arab World English Journal (AWEJ)*, 8, (1), 66-78.
- Aimah, S., Ifadah, M., & Bharati, D. A. L. (2016). Effective Use of Lesson Plan to Trigger Students' Autonomy. *Proceeding of International Seminar on Education Technology (ISET)* (Retrieved from <https://jurnal.unimus.ac.id/index.php/psn12012010/article/view/1977>)
- Aksu, Z., Metin, M., & Konyalioglu, A. C. (2014). Development of the Pedagogical Content Knowledge Scale for Pre-Service Teachers: The Validity and Reliability Study. *Mediterranean Journal of Social Sciences*, 5, (20), 1365-1377. doi: 10.5901/mjss.2014.v5n20p1365
- Baba, T. (2007). "How is Lesson Study Implemented?" *Japanese Lesson Study in Mathematics: Its Impact, Diversity and Potential for Educational Improvement*. In M. Isoda, M. Stephens, Y. Ohara & T. Miyakawa (Eds.) Singapore: World Scientific Publishing.
- Bocala, C. (2015). From Experience to Expertise: the Development of Teachers' Learning in Lesson Study. *Journal of Teacher Education*, 66, (4), 349-362.
- Clarke, P. A. (2008). Reflective Teaching Model: A Tool for Motivation, Collaboration, Self-reflection, and Innovation in Learning. *Georgia, Educational Research Journal*, 5, (4).
- Cohan, A., & Honigsfeld, A. (2006). Incorporating 'Lesson Study' in Teacher Preparation. *The Educational Forum*, 71, 81-92.
- Coenders, F., & Verhoef, N. (2018). Lesson Study: Professional Development (PD) for Beginning and Experienced Teachers. *Professional Development in Education*, 1-15. doi: 10.1080/19415257.2018.1430050
- Fernandez, C. (2014). Knowledge Base for Teaching and Pedagogical Content Knowledge (PCK): Some Useful Models and Implications for Teachers' Training. *Problems of Education in the 21<sup>st</sup> Century*. 60, 79-100.
- Fernandez, C. (2002). Learning from Japanese Approaches to Professional Development: The Case of Lesson Study. *Journal of Teacher Education*, 53, 393-405.
- Fernandez, C., & Yoshida, M., (2004) .Lesson Study: A Japanese approach to improving Mathematics teaching and learning. Mahwah, NJ: Lawrence Erlbaum Associates.
- Gess-Newsome, J. (1999). The Complex Nature and Sources of Teachers' Pedagogical Knowledge. In J. Gess-Newsome & N. G. Lederman (Eds.) *PCK and Science Education* (pp. 3-17). Netherlands: Kluwer Academic Publishers.
- Guerriero, S. (n.d). Teachers' Pedagogical Knowledge and the Teaching Profession. Retrieved from [http://www.oecd.org/education/ceri/Background\\_document\\_to\\_Symposium\\_ITEL-FINAL.pdf](http://www.oecd.org/education/ceri/Background_document_to_Symposium_ITEL-FINAL.pdf)
- Hudson, P. (2007). Examining Mentors' Practices for Enhancing Pre-service Teachers' Pedagogical Development in Mathematics and Science. *Mentoring and Tutoring*, 15, (2), 201-217.
- Hurd, J. & Musso, L. L. (2005). Lesson Study: Teacher-Led Professional Development in Literacy Instruction, *Language Arts*, 82, (5), 388-395.
- Ibrahim, N. H., Surif, J., Arshad, M. Y., & Mokhtar, M. (2012). Self-Reflection Focusing on Pedagogical Content Knowledge. *Procedia - Social and Behavioral Sciences*, 56, 474-482.

- Inprasitha, M. & Changsri, N. (2014). Teachers' Beliefs about Teaching Practices in the Context of Lesson Study and Open Approach. *Procedia - Social and Behavioral Sciences*, 116, 4637-4642.
- Jang, S. J., Guan, S. Y., & Hsieh, H. F. (2009). Developing an Instrument for Assessing College Students' Perception of Teachers' Pedagogical Content Knowledge. *Procedia Social and Behavioral Sciences*, 1, 596-606.
- Kotelawala, U. (2012). Lesson Study in a Methods Course: Connecting Teacher Education to the Field. *The Teacher Educator*, 47, 67-89.
- Lenhart, S. T. (2010). The Effect of Teacher Pedagogical Content Knowledge and the Instruction of Middle School Geometry. *Dissertation*. Liberty University.
- Lewis, C. (2002). Does the Lesson Study have future in the United States: *Nagoya Journal of Education and Human Development*, 1, 1-23.
- Lewis, C. (2009). What is the Nature of Knowledge Development in Lesson Study? *Educational Action Research*, 17, (1), 95-100. doi: 10.1080/09650790802667477
- Matanluk, K., Johari, K., & Matanluk, O. (2013). The Perception of Teachers and Students toward Lesson Study Implementation at Rural School of Sabah: a Pilot Study. *Procedia-Social and Behavioral Sciences*, 90, 245-250.
- Mishra, P. & Koehler, M. J. (2006). Technological Pedagogical Content Knowledge: A Framework for Teacher Knowledge. *Teacher College Record*. 108, (6), 1017-1054.
- Nami, F., Marandi, S. S., & Sotoudehnama, E. (2015). CALL Teacher Professional Growth through Lesson Study Practice: an Investigation into EFL Teachers' Perception. *Computer Assisted Language Learning*, 1-26. doi: 10.1080/09588221.2015.1016439.
- Potari, D. (2013). Promoting Teachers' Mathematical and Pedagogical Awareness. *Journal of Mathematics Teacher Education*, 16, 81-83. doi: 10.1007/s10857-013-9238-3
- Rock, T. C., & Wilson, C. (2005). Improving teaching through lesson study. *Teacher Education Quarterly*, 32, 77-92.
- Shimahara, N.K., (1998). The Japanese Model of Professional Development: Teaching as Craft. *Teaching & Teacher Education*, 14, (5), 451-462.
- Syahrudin, Ernawati, A., Ede, M. N., Rahman, M. A. B. A., Sihes, A. J. B., & Daud, K. (2013). Teachers' Pedagogical Competence in School-Based Management. *Journal of Education and Learning*, 7, (4), 213-218.
- Shulman, L. S. (1987). Knowledge and Teaching: Foundations of the New Reform. *Harvard Educational Review*, 57, (1), 1-22.
- The Regulation of the Minister of National Education No. 16 Year 2007 on *Teacher Academic Qualification Standard and Competency*. Jakarta.