

Promoting Teacher Growth through Lesson Study: A Culturally Embedded Approach

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Lesson Study has captured the attention of many international educators with its promise of improved student learning and sustained teacher growth. Lesson Study, however, has cultural underpinnings that a simple transference model overlooks. A culturally embedded approach attends to the existing cultural orientations and values of host schools. This paper reports on the author's implementation of Lesson Study in a Philippine public school and the growth teachers experienced as a result of their participation.

With its long tradition, Lesson Study (LS) is the most prevalent practice-based form of teacher professional development in the Japanese primary schools. It is a school-based collaborative activity that involves a continuous cycle of planning, demonstrating, and improving a lesson (Fernandez & Yoshida, 2004; Lewis & Tsuchida, 1998; Stephens, 2011). It is a good catalyst for teacher growth as it allows the teachers to interact with the curriculum, their own and colleagues' content and pedagogical content knowledge.

Over the past decade, there has been a vast interest on Lesson Study (LS) with many international educators implementing it in their local context. Though the author strongly believes that LS is a powerful tool for effecting teacher growth through understanding of student thinking, an uncritical transfer to a different national context may prove to be problematic. Teaching and learning are profoundly cultural activities (Stigler & Hiebert, 1999) that there certainly are aspects of LS that may not be readily embraced by the teachers in the importing context (Ebaeguín & Stephens, 2014).

Two Approaches of Implementation

There seem to be two approaches to the implementation of LS outside Japan—the fidelity approach and the culturally embedded approach. A fidelity approach to implementation means bringing LS to another context by demonstrating how it is done in Japanese schools and faithfully executing the same procedures with the local teachers. This approach makes several assumptions. First is that a simple transference or 'copy-paste' model works across cultural contexts. Second is that LS is a package of procedures, that may be taught to and learned by the teachers in a seminar/workshop, after which, the teachers are expected to have acquired the skills, to be able to participate in LS, and to be able to integrate it in their regular practice. Third assumption is that all teachers are capable of and open to changing their beliefs and practices to meet the requirements of LS. Finally, a fidelity approach assumes that the school structure and administrative support for LS present in Japanese schools are easily replicable in any context. Certainly, an implementation that is as faithful as possible to LS is desirable as this would assure realisation of the benefits of LS, but this, of course, is very ideal.

A fidelity approach fails to recognise that culture is expected to contribute to the forms of acceptable pedagogy, teacher-student interactions, classroom practices and teacher professional development programs (Ebaeguín & Stephens, 2014). Though it is possible, of course, to learn the procedures and to acquire the skills needed to participate in LS, the author believes that this would lead to something that is short-lived and without continuity

like most sporadic professional development training teachers would have. This increases the chances of developing misconceptions on LS (Yoshida, 2012; Fujii, 2014). In addition, considering the high demand of work LS puts on the teachers, it can be expected that not all teachers would be very receptive to new ideas and practices and open to modifying their own beliefs and practices.

A culturally embedded approach to implementation assumes that there are aspects of LS that may not be transferrable to another context. It acknowledges that LS, having originated from Japan, has cultural underpinnings that explain its success in the Japanese school system and that these, however, may not necessarily be present in another context. It recognises that when LS moves into another culture, it is likely to change and be adjusted to fit the local context of the importing culture. In a study conducted by Dudley (2012), LS was regarded as a useful method for professional learning in England because of the culture of collaborative enquiry in the schools. However, the nature of research questions in LS, which is always based on the school's aims and values, conflicted with England's tradition of action research in which the research question varies from project to project. While retaining the elements of learning as a professional community, LS's purpose for them became a means to creating new practice knowledge (Dudley, 2012). A culturally embedded approach entails identifying which aspects of LS could be supported by existing practices and beliefs of the importing culture, and which ones may not be easily embraced or may need to be modified. The goal is not to turn teachers in the importing culture to be a Japanese teacher but rather come up with an adaptation of LS that would be easily supported by the teachers and the school system. This means a continuous and sustainable professional growth for the teachers. One obvious weakness of this approach, though, is that it will not guarantee realisation of the same benefits, in terms of level or quality, as with LS in Japan. As each school would have their own practices and beliefs within the same cultural context, the adaptations and speed of realising the growth would also vary. Despite this weakness, however, the author believes that a culturally embedded approach to implementation, aside from being more critical, promotes a more systemic professional development for teachers. Having said this, an important question to ask now is how, then, can LS change if it is to work well in another country?

Methodology

In a prior study, Ebaeguin and Stephens (2014) provided insights on how culture may contribute to the success of LS implementation in Japan. That study, they described and used Hofstede's dimensions of national culture—Power Distance Index (PDI), Individualism/Collectivism (IDV), Masculinity/Femininity (MAS), Uncertainty Avoidance Index (UAI) and Long-term Orientation (LTO). PDI pertains to hierarchy in the system which influences interaction between stakeholders and distribution of key roles, while IDV deals with propensity towards collaboration. MAS distinguishes between achievement and competitiveness or harmony and consensus. UAI relates to openness to change and innovation, while LTO is associated with having future-oriented or short-term perspectives (for a more detailed discussion on Hofstede's dimensions of national culture, please refer to Hofstede, Hofstede, & Minkov, 2010). Based on these dimensions, their instrument Values Survey Module for Teachers 2012 (VSMT12) was administered to their sample of Japanese teachers to identify orientations that support LS in Japan (see Figure 1). Their second instrument, the Mathematics Teachers Perceptions of a Good Mathematics Lesson (MTPGML), asked the sampled Japanese teachers to rate nine attributes of a good mathematics lessons implied by JLS, as Not Important (NI), Undecided (U), Important (I),

Very Important (VI), or Essential (E). This showed the sampled Japanese teachers’ endorsements of key aspects of planning a good mathematics lesson and was used to identify value orientations that would be conducive for LS implementation (see Table 1).

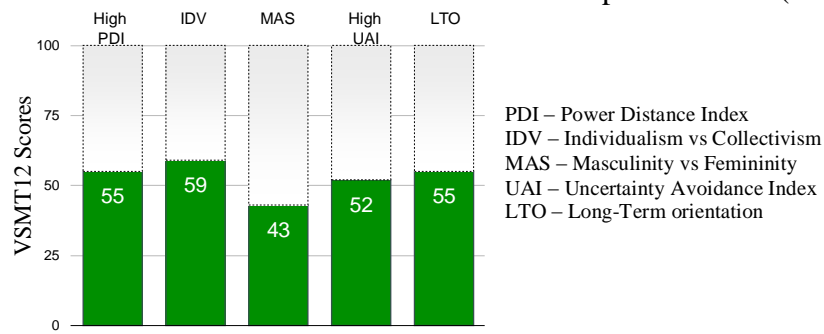


Figure 1. Cultural orientations of the sampled Japanese teachers (from Ebaeguin & Stephens, 2014)

Table 1

Sampled Japanese mathematics teachers’ endorsement of some key aspects of planning a good mathematics lesson (from MTPGML, Ebaeguin & Stephens, 2014)

Items	Japan (%) n=16				
	NI	U	I	VI	E
1. Using/researching on curriculum materials (national curriculum, textbooks, course syllabus, scope and sequence, etc.) in planning out your lessons.	0	0	13	25	63
2. Working with other teachers to plan a lesson.	0	19	38	25	19
3. Having other teachers/colleagues in the classroom to observe my teaching.	0	0	25	38	38
4. Identifying in advance the range of expected student responses to the task including likely wrong responses in a problem-solving lesson.	0	0	0	25	75
5. Writing a detailed lesson plan incorporating the range of expected student responses.	0	6	31	31	31
6. Talking about and sharing successful mathematics lessons with colleagues.	0	0	44	44	13
7. *Relying on my own opinion as to whether a lesson has been successful or not.	0	44	50	6	0
8. Evaluating a lesson through analysing collected samples of students’ solutions and attempted solutions.	0	0	19	31	50
9. Getting involved in school research.	0	6	6	19	69

Notes: Shading indicates combined percentages of *Very Important* (VI) and *Essential* (E) ≥ 50%.

* Lower values are important for this item (from data in Ebaeguin & Stephens, 2014)

The moderate orientations for each of Hofstede’s dimensions (see Figure 1) can be expected to provide support for LS implementation. Table 1 highlights the consistency in the strong valuing of aspects of lesson planning across the sampled Japanese mathematics teachers. These cultural and value orientations provide an environment that is conducive for LS implementation (Ebaeguin & Stephens, 2014) in Japan. These orientations, however, cannot be assumed outside Japan.

This study replicates the methodology and instruments used in the aforementioned study. It focuses on a LS implementation in a public high school in the Philippines using a culturally embedded approach and the growth the participating mathematics teachers experienced. In this study, School A, a Philippine public high school was recruited. The school was chosen to maximise the participants in the school to meet the minimum requirement of fifty responses for one of the instruments to be administered. The author worked with eight participating mathematics teachers in the school, meeting them twice a month over a period of seven months; and implemented three cycles of LS. The small sample limited the analysis of the data to simple descriptive statistics.

There were two phases to the study. First phase involved administration of two questionnaires, VSMT12 and MTPGML. VSMT12 was administered to all the teachers in School A. The results were used to identify the teachers' existing cultural orientations which then informed the strategies employed to promote attitudes conducive for LS. For example, if the group appeared to be hierarchical, novice teachers may find themselves either unable to participate or assigned much of the work. The author needed to employ strategies that distribute the participation evenly amongst experienced and novice teachers.

The MTPGML questionnaire was administered only to the mathematics teachers. The results from this questionnaire showed the extent of the mathematics teachers' endorsements of key aspects of LS and were used to inform the focus of the training that was given to the teachers. For example, if most of the teachers rated working with other teachers to plan a lesson U or NI, more sessions that involve collaborating with colleagues in planning a lesson need to be provided. This questionnaire was again administered to the same teachers after the research intervention. Results from the pre- and post-intervention administration of this questionnaire were compared to identify what teacher growth occurred after their experience of the adapted LS.

The second phase of the study involved execution of the intervention program. An intensive workshop on LS was given to the participating mathematics teachers prior to the regular monthly meetings. The focus in these regular monthly meetings is based on the results of the pre-intervention administration of MTPGML. For example, if majority of the teachers rated anticipating student responses to be NI or U, activities that would require them to think like their students will be given. At the end of these monthly meetings, the teachers were also asked to write short reflections about the session. At the end of the intervention, when the teachers would have already gone through 2-3 cycles of LS, post-intervention administration of MTPGML and exit interviews were done. The author interviewed the participating teachers individually and asked them to talk about four core themes/tasks. First part asked the teachers to talk about how important professional development is for them and how their experience of LS helped them grow. In the second part, the teachers were shown their pre-LS and post-LS ratings in MTPGML. The teachers were asked to talk about the items where their endorsement changed and to give examples on how this affected their regular practice. The third part of the interview required the teacher to analyse a mathematical task and a set of student solutions. The last part of the interview asked the teachers to raise any issue or comments they had/have in their experience of LS. The next section will report on results in School A.

Results and Discussion

Hofstede cautioned against comparisons of replicated studies with his published scores, for doing so requires matched samples. This is not part of the aim of this paper. The author

utilised Hofstede's dimensions to anticipate possible affordances and/or barriers that culture may bring to the plate when implementing LS outside Japan.

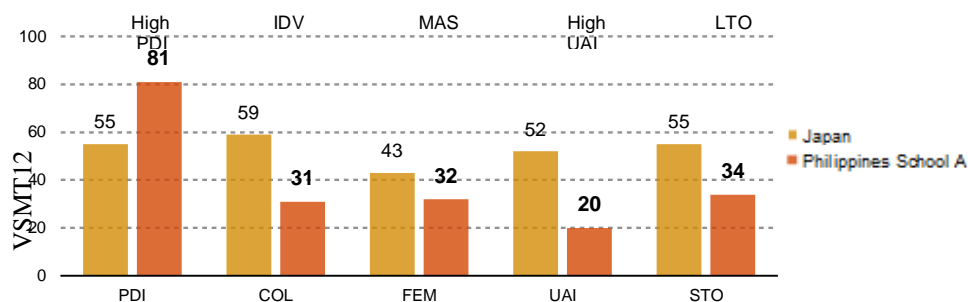


Figure 2. VSMT12 scores for Japanese sample (adapted from Ebaeguin & Stephens, 2014) and School A

From Figure 2, it can be seen that School A is very high in PDI, moderately collaborative, moderately feminine, low uncertainty-avoidance and moderately short-term oriented. Obvious barriers would be the very high PDI, very low UAI, and the moderate short-term orientation. Despite being quite collaborative, the very hierarchical nature of the teachers may affect the level of participation of the teachers. Novice teachers may tend feel intimidated and remain passive in discussions, whereas, the seasoned teachers may feel the need to assert themselves and dominate the exchanges. Also, how the teachers see the author, either as an outside resource person who is there to train them or a colleague/fellow educator who is there to work with them, may affect the teachers' involvement. To address this, the author designed the trainings and meetings such that everyone's opinions will be heard, tasks are distributed fairly to everyone, and that the novice teachers were given the chance to take on more important roles. The author was also consultative when making decisions. Low UAI was also an impediment because the teachers may not have seen the value in making detailed lesson plans, for example, or rehearsing lessons prior to actual teaching of the lessons. Moderate short-term orientation was also a challenge as the teachers may see LS as a one-shot activity like seminars or workshops they go to because they did not see the long-term benefits of engaging in this activity. To avoid a low level of commitment from them, it was important to have immediate superiors involved such as the mathematics department head: to keep them in the program; to make them realise the learnings they get from each session so they could feel they are improving; and to constantly remind them of other possible benefits they can get such as prepared lessons or activities which they can use for the next school years. Note that the study did not aim for the Philippine teachers to have the same orientations with their counterparts in Japan, but to create an environment that would be supportive of a LS implementation.

Figures 3—6 below show some results of MTPGML for the sampled Japanese teachers (Ebaeguin & Stephens, 2014) and the pre- and post-intervention of teachers in School A. As mentioned in the methodology section, analysis of data from this instrument has been limited to simple descriptive statistics due to the small sample. Furthermore, the results from the Japanese sample did not serve as the goal for the teachers in School A post-intervention, but to highlight the differences between what the sampled Japanese teachers and School A teachers, pre-intervention, value when planning a lesson and to anticipate aspects of LS School A teachers may struggle with or may not readily embrace. These became the focus of some sessions with the teachers.

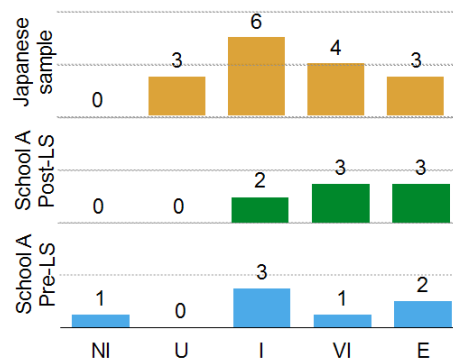


Figure 3. Japanese sample and School A teachers' endorsement for 'Working with other teachers to plan a lesson.' (adapted from Ebaeguin & Stephens, 2014)

There was one teacher in School A who thought collaborative lesson planning was not important. Public school teachers in the Philippines are provided with outlined lesson plans by the Department of Education and have the leeway to execute the lesson in their respective classes. This was not the case with LS which is a collaborative activity that provides teachers, whether novice or experienced, an opportunity to share their expertise when designing a lesson. Post-LS, several teachers in School A shifted towards a positive endorsement. In his exit interview A7, a novice teacher from School A, said:

"It gave me an idea how important it is to collaborate with other teachers in planning a lesson...Majority of us plan our own lessons...but through LS, there was a realisation that I am not alone in the academe and you can collaborate with others teachers. Since they are the more experienced ones, they can advise me about the best strategies and methods to use in teaching a topic... [Because of this] my relationship with my fellow year 7 teachers improved...the superiority complex of some teachers lessened."

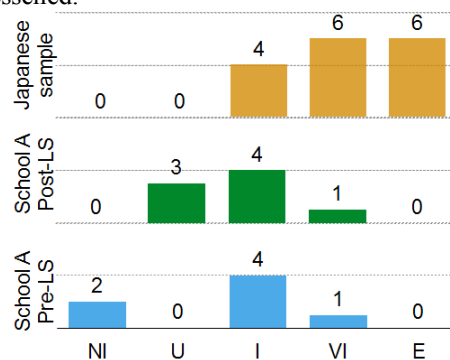


Figure 4. Japan sample and School A teachers' endorsement for 'Having other teachers/colleagues in the classroom observe my teaching.' (adapted from Ebaeguin & Stephens, 2014)

Figure 4 shows that there were two teachers in School A, both classified as experienced teachers, who thought having colleagues observe their teaching was NI. Notice also that none of them rated it as E which was very different from their Japanese counterparts who all rated this item as at least I. This aversion of School A teachers may be attributed to the fact that classroom visits are used by department heads, supervisors and principal to evaluate the teacher's performance. This is very different from LS where the lesson, not the teacher, is the focus of the observations. Looking at the post-LS results, it may seem that there was not much shift in endorsement except for the two experienced teachers, A1 and A5, who initially rated it as NI shifting to U. This may be something that School A

teachers needed more convincing on because of the teacher evaluation scheme employed by the school and required by the Department of Education. A2. A novice teacher, though, said in her interview “I was able to learn different teaching strategies. I was able to observe how other teachers teach so I was able to improve my own practice.”

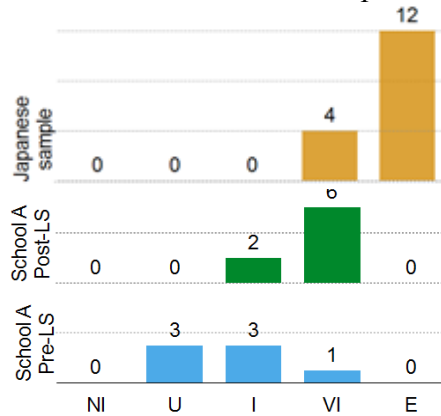


Figure 5. Japanese sample and School A teachers’ endorsement for ‘Identifying in advance the range of expected student responses in a problem-solving lesson.’ (adapted from Ebaeguin & Stephens, 2014)

In Figure 5 there is a striking difference of value orientation between the Japanese sample and School A teachers. Every Japanese teacher rated “Identifying in advance the range of expected student responses in a problem-solving lesson” to be at least VI, whereas, three School A teachers rated U and none rated E. This could be attributed to the low UAI. In planning a lesson, teachers need to anticipate possible correct solutions, misconceptions and needed support for their students. Post-LS, there was a clearer endorsement of this item with the majority rating it VI. A1, an experienced teacher, said:

“It helped me to construct a good lesson plan wherein we need to consider the students’ anticipated responses. It’s only now that I realised the need to consider these because you can use them to develop the flow of your lesson by connecting the students’ ideas from one another.”

A5, another experienced teacher, further added:

“Readiness in dealing with my students every day. Usually, we only expect the correct answer to be given. When a wrong answer is given, we assume that all the wrong responses are the same. But through LS, we consider all possible student responses so we’re able to prepare responses in case a wrong response comes up.”

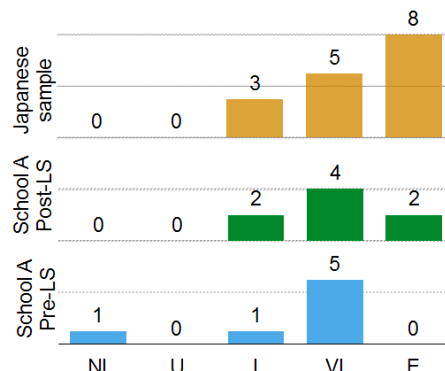


Figure 6. Japanese sample and School A teachers’ endorsement for ‘Evaluation of a lesson through analysing collected samples of students’ solutions and attempted solutions.’ (adapted from Ebaeguin & Stephens, 2014)

In Figure 6, though a majority of the teachers in School A rated “Evaluation of a lesson through analysing collected samples of students’ solutions and attempted solutions” at least

I, none rated it E, compared to the Japanese sample where the majority rated E. In the Philippines, more often than not, lessons are evaluated based on test scores. If most students get passing scores, then the lesson is considered successful. In LS, collecting student artefacts is important because this allows the teachers to understand how students think. Other student responses that were not anticipated prior to teaching of the lesson are then integrated into a revised version of the lesson plan. Post-LS, the lone teacher who rated this NI shifted to at least I and two teachers who rated it as E. A4, a seasoned teacher shared “*In LS, you get to look at the different answers from the students some of which may appear wrong but, on a closer look, may be correct. Even the teachers are learning.*”

Conclusion

Culturally grounded aspects of LS contribute to how they are embraced by the teachers in the importing culture. A culturally embedded approach to implementation builds on the teachers’ cultural and value orientations in order to facilitate a locally appropriate implementation of LS. Knowing the disparities in the orientations with the importing culture allowed us to be more strategic in our implementation and focus our intervention where necessary. The shift in endorsement of some key aspects of LS, and reflections from teachers in School A, provided solid evidence of teacher professional growth. This shows that LS, if adapted and implemented critically is a successful and sustainable program that will provide teachers with opportunities for professional growth.

References

- de Mooij, M. (2010). *Global marketing and advertising: Understanding cultural paradoxes*. Los Angeles: SAGE.
- Dudley, P. (2012) Lesson study development in England: from school networks to national policy, *International Journal for Lesson and Learning Studies*, 1(1), 85–100.
- Ebaeguin, M. & Stephens, M. (2014). Cultural challenges in adapting lesson study to a Philippines setting. *Mathematics Teacher Education and Development*, 16(1), 43–64.
- Fernandez, C., & Yoshida, M. (2004). *Improving mathematics teaching and learning: The Japanese lesson study approach (Studies in Mathematical Thinking and Learning Series)*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Fujii T. (2014). Implementing Japanese lesson study in foreign countries: Misconceptions revealed. *Mathematics Teacher Education and Development*, 16(1), 65–83.
- Hofstede, G., Hofstede G. J., & Minkov, M. (2010). *Cultures and organizations: Software of the mind: Intercultural cooperation and its importance for survival*. New York: McGraw-Hill.
- Hofstede, G., Hofstede, G. J., Minkov, M., & Vinken, H. (2008). *Values survey module 2008*. Retrieved from <http://www.geerthofstede.nl/vsm-08>
- Lewis, C. (2002). What are the essential elements of lesson study? *The California Science Project Connection*, 2(6), 1, 4.
- Lewis, C., & Tsuchida, I. (1998, Winter). A lesson is like a swiftly flowing river: How research lessons improve Japanese education. *American Educator*, 12–17; 50–52.
- Stephens, M. (2011). Ensuring instruction changes: Evidence based teaching: How can lesson study inform coaching, instructional rounds and learning walks? *Journal of Science and Mathematics Education in Southeast Asia*, 34(1), 111–113.
- Stigler, J. W., & Hiebert, J. (1999). *The teaching gap*. New York, NY: Free Press.
- Yoshida, M. (2012). Mathematics lesson study in the United States: Current status and ideas for conducting high quality and effective lesson study. *International Journal for Lesson and Learning Studies*, 1(2), 140-152.