

Why Lesson Study Works in Japan: A Cultural Perspective

Marlon Ebaegu

The University of Melbourne
<m.ebaegu@student.unimelb.edu.au>

Max Stephens

The University of Melbourne
<m.stephens@unimelb.edu.au>

Japanese lesson study has attracted many international educators who have been impressed by its capacity to foster student learning and sustained professional growth of teachers. This paper reports a study on its cultural orientations that may explain why lesson study works seamlessly in Japan. Hofstede's dimensions of national culture are utilised to identify and analyse cultural orientations that support key practices in Japanese lesson study and raise some questions about a simple transference model to other cultures.

The many attempts to translate Japanese lesson study in other countries have tended to rely on a simple dissemination model with no attempt to address its cultural compatibility. This paper aims to examine the cultural underpinnings that explain its success in Japan. With teaching and learning—which are profoundly cultural activities—being at the heart of lesson study, discerning and understanding how teachers would respond to Japanese lesson study is crucial (Stigler & Hiebert, 1999).

In this paper, "culture" is defined to be "any aspect of the ideas, communications, or behaviours of a group of people which give them a distinctive identity and which is used to organise their internal sense of cohesion and membership" (Scollon & Scollon, 1995, p. 127). In an education system, one expects culture to contribute to the forms of acceptable pedagogy, social conventions governing teacher interactions, classroom practice, and teacher professional development programs.

We will refer first to the findings of Hofstede's comparative analyses of national groups. Hofstede's dimensions of national culture, namely power distance, individualism versus collectivism, masculinity versus femininity, uncertainty avoidance, and long-term orientation, will be used to focus on particular features of lesson study in Japan (Hofstede, Hofstede, & Minkov, 2010). These dimensions will be explained later in the paper.

Understanding the Nature of Lesson Study

Lesson Study is a Cycle of Plan, Do, and See

What needs to be clearly understood is that lesson study is a cycle of Plan, Do, and See (Fernandez & Yoshida, 2004; Hart, Alston, & Murata, 2011; Inprasitha, 2011; Lewis, 2002). Lessons are planned, demonstrated and discussed. The results of one cycle will be the basis for revisions for the next cycle. Thus, a 'better' lesson is created at the end of every cycle. This is shown in Figure 1 below.

Planning. The research and planning phase for a research lesson is intended to be thorough and time consuming. The school and the lesson study group determine and focus on a particular research goal (Lewis & Tsuchida, 1998). This phase also involves researching for materials (*kyozaiikenkyu*) including where particular topics fit into the whole curriculum. Teachers also examine critically a range of teaching resources before making a lesson plan which is intended to anticipate the widest possible range of students' responses to particular questions and to indicate how teachers will deal with them.

2014. In J. Anderson, M. Cavanagh & A. Prescott (Eds.). *Curriculum in focus: Research guided practice (Proceedings of the 37th annual conference of the Mathematics Education Research Group of Australasia)* pp. 199–206. Sydney: MERGA.

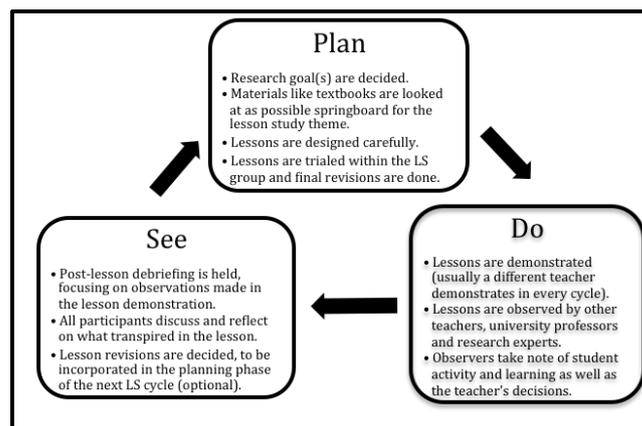


Figure 1. The lesson study cycle (adapted from Fernandez & Yoshida, 2004; Lewis, 2002).

Doing. This phase involves observing and recording the lesson demonstrations, making notes on student activity and learning along with the teacher's decisions. Observers such as university professors, research experts, and district advisers are expected to act as resources to support the teachers engaged in lesson study in their schools.

Seeing. In this phase, participants discuss and reflect on what transpired in the lesson demonstration, based on their observations.

Lesson Study is a Long-term Professional Development Activity

Since teachers face different experiences and challenges in their classrooms, they meet in continuing cycles to discuss, possibly similar topics in varying contexts (Isoda, 2011). This allows teachers in the group to take on different roles and levels of participation. Furthermore, lesson study goes beyond the group of teachers in a particular lesson study cycle. This allows it to build up a pool of lesson study experts as a resource for the future.

Lesson study requires a high level of understanding, commitment and appreciation from principals and district administrators, heads of departments, and teachers of all ranges of experience. They must see one cycle of lesson study as one step in a continuing cycle of staff development and improvement of teaching. "It is focused on building collective capacity over many cycles— not directed at rapid change of individuals or solving problems in the short term" (Stephens, 2011, p. 119).

Lesson Study is a Collaborative Activity

Lesson study is a collaborative activity (Fernandez & Yoshida, 2004; Lewis & Tsuchida, 1998; Stephens, 2011), typically done by a group of teachers with support from school administrators and guidance from university professors and research experts. It is crucial that outside researchers see the lesson with the perspective of the teachers in the lesson study group, and that these teachers also see the lesson from the perspective of a researcher analysing students' understanding (Isoda, 2011).

In a lesson study group each teacher brings a unique contribution to the research lesson. The lesson study situation is like mentoring where everyone is a mentor and a mentee. This allows a rich discussion during every lesson study group meeting (Isoda & Olfos, 2009). Invited resources such as university persons and other outside people come in with wider

perspectives but at no stage are they expected to direct the lesson study or to do the work that teachers themselves are expected to do (Isoda & Olfos, 2009).

Hofstede's Dimensions of Culture

Hofstede defines culture to be “the collective mental programming of the people in an environment. Culture is not a characteristic of individuals; it encompasses a number of people who were conditioned by the same education and life experience” (de Mooij, 2010, p. 48). Five dimensions of national culture elucidate its basic value orientations.

1. *Power Distance Index (PDI)*: “the extent to which less powerful members of a society accept and expect that power is distributed unequally” (de Mooij, 2010, p. 75). In high power distance cultures, recognition of hierarchy is considered important to facilitate effective and smooth functioning of any organisation. In low PDI countries the focus is on equality in rights and opportunities and independence.
2. *Individualism versus Collectivism (IDV-COL)*: “... people looking after themselves and their immediate family only, versus people belonging to in-groups that look after them in exchange for loyalty” (de Mooij, 2010, p. 77). In individualistic cultures, people are more “I” conscious, whereas, in collectivistic cultures, people are more “we” conscious.
3. *Masculinity versus Femininity (MAS-FEM)*: “The dominant values in a masculine society are achievement and success; the dominant values in a feminine society are caring for others and quality of life” (de Mooij, 2010, p. 79).
4. *Uncertainty Avoidance Index (UAI)*: “... the extent to which people feel threatened by uncertainty and ambiguity and try to avoid these situations” (de Mooij, 2010, p. 82). People of high uncertainty avoidance cultures are less open to change and innovation than those in low certainty avoidance cultures.
5. *Long-Term versus Short-Term Orientation (LTO)*: “... the extent to which a society exhibits pragmatic future-oriented perspective rather than a conventional historic or short-term point of view” (de Mooij, 2010, p. 85). For short-term orientated cultures, the focus is on pragmatic day-to-day adjustments.

Starting in the 1980s, Hofstede's research has focused on comparing work-related values, behaviours, institutions and organisations across nations (see Hofstede, 2001). His landmark studies (Hofstede, 2001/2010) were based on extensive samples of participants who were employees of IBM. Using the employees of one multinational corporation to identify differences in national value systems provided Hofstede with nearly perfectly matched samples across countries, thus making the effects of differences in nationality in their responses stand out. In his study, Hofstede (2010) came up with scores for at least 60 countries according to these five dimensions. Figure 2 below shows the scores for Japan.

Critics of Hofstede's position, such as Fang (2003) and McSweeney (2002), have tended to question his methodology, the discreteness and duality of his dimensions and the validity of his findings over time given the advent of globalisation. However, extensive replication studies and meta-analyses of Hofstede's dimensions of national culture (e.g., Henseller, Horváth, Sarstedt, & Zimmermann, 2010) have supported his original results. In this paper, while taking note of these criticisms, we see the potential and value of Hofstede's study to investigate culturally embedded practices in lesson study.

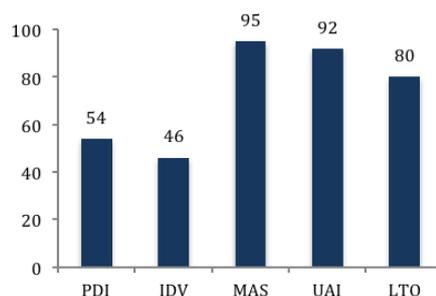


Figure 2. Scores for Japan (from data in Hofstede, Hofstede, & Minkov, 2010)

Implications for Lesson Study as Seen Through Hofstede's Dimensions of Culture

We will now use Hofstede's dimensions of culture to explain why lesson study works well in Japan and why a simple transference model is less likely to be effective.

The score of 54 on PDI for Japan suggests that the Japanese are moderately hierarchical. USA (40) and Australia (36) tend to be more on the egalitarian side. Japanese are conscious of the way they should act with respect to their position in a social setting but there is no “one top person” who makes the decision. In lesson study, initially the more experienced teachers are given the key roles while the novices are asked to observe and take on other roles. In subsequent cycles, other members of the lesson study group, even the novices, will be given a chance to lead the lesson study.

On the other hand, a score of 46 on IDV suggests that Japan is moderately individualistic and moderately collectivistic. By contrast Australia scores 90 on IDV and USA 91. For Japan, this may suggest that harmony in the group is valued as much as individual opinions. This aids in the implementation of lesson study because it is primarily a collaborative effort of the teachers, school administrators, university professors, and research experts. Moreover, this also allows each member of the lesson study group to be self-reflective but still operating within the context of the group.

With a score of 95 in MAS, Japan is one of the most masculine societies in the world, with USA and Australia standing at 62 and 61, respectively. This means strong inclination towards competitiveness, distinctively exemplified by its “work ethic”.

Japan is one of the most “uncertainty-avoiding” countries in the world scoring 92 in UAI. All detailed facts and figures must be looked into before making any decision that contributes to the success of lesson study because the planning phase of lesson study is done meticulously and takes time. An important part of the lesson-planning phase is the anticipation of the students' responses and identification of the best way to address these responses. On the other hand, USA (46) and Australia (51) tend to be more flexible.

With a score of 80 on LTO, Japan is considered by Hofstede (2010) as one of the most long-term oriented countries, along with Hong Kong with a score of 96. USA (57) and Australia (21) lean towards shorter-term orientation. This is favourable to lesson study because it is a continuing cycle whose goal is building collective knowledge over the long term, which can be used by future generations of teachers. Furthermore, the fruits of lesson study can be incremental as a result of continuous effort. In summary, Hofstede's dimensions of culture suggest why lesson study works so well in Japan as Table 1 shows.

Table 1
Summary of Key Cultural Assumptions of Japanese Lesson Study as Seen Through Hofstede's Dimensions of National Culture

Dimensions of Culture	Japanese Lesson Study Assumptions	Japan
Power Distance Index (PDI)	Everyone is given a chance to play a key role in every cycle. Everyone's voice is valued and respected	Moderately hierarchical
Individualism/Collectivism (IDV)	Lesson study is done in a collaborative environment. Everyone is able to engage in self-reflection and self-evaluation.	Moderately collective
Masculinity/Femininity (MAS)	There is a continuous improvement in teacher capacity. A better lesson is developed at the end of every cycle.	Extremely masculine
Uncertainty Avoidance Index (UAI)	Research and planning phase is intended to be thorough and time consuming.	Extremely uncertainty-avoiding
Long-term/Short-term Orientation (LTO)	Teachers and schools are committed to continuing cycles. Goal is to build up a collective knowledge over many cycles.	Extremely long-term orientated

Methodology

The study involved administration of two questionnaires to 70 teachers in junior high schools attached to Tokyo Gakugei University (TGU). Purposeful sampling was utilised. The responses came from five different junior high schools to meet Hofstede's questionnaire's minimum requirement of 50 responses.

Two questionnaires were designed for this research. The first, Values Survey Module for Teachers 2012 (VSMT12) was based on Hofstede's Values Survey Module 2008 (VSMT08). Minor terms were changed to make it more appropriate for the teachers. For example, the term “boss” was changed to “principal or head”. VSMT12 was intended to identify the teachers' cultural orientations (see Table 1), and was given to all seventy teachers (Hofstede, Hofstede, & Minkov, 2010).

The second questionnaire was designed by the researchers to measure the sixteen mathematics teachers' perceptions of a good mathematics lesson. Specific attributes of a good mathematics lesson were matched to similar key elements within Japanese lesson study. Embedded in this questionnaire were what the researchers took to be key aspects of mathematics teaching implied by Japanese lesson study (Fernandez & Yoshida, 2004; Lewis, 2002). One key element is taking into account the range of student responses to a mathematical task, including incorrect responses (see items 4, 5, and 8 in Table 2). With the exception of item 7, positive responses to all other items in Table 2 were indicative of a positive disposition to key elements of lesson study. In the case of item 7, we expected that

the success of lesson study required teachers to value the judgments of colleagues in determining the success of a lesson. The Japanese version of this questionnaire was developed and was first piloted with some Japanese graduate students.

Results of the Two Questionnaires

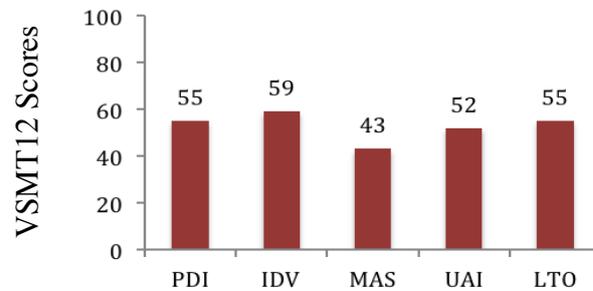


Figure 3. VSMT12 results for junior high school teachers in selected schools in Japan

Although Hofstede (2008) cautions against score comparisons of replicated studies with his published scores, from Figure 3, it can be seen that the Japanese teachers in our sample tended to be moderately hierarchical and individualistic, as for Hofstede's published scores for Japan of 54 for PDI and 46 for IDV. This sample of Japanese teachers acknowledged positions of power but did not let these features intimidate them when in a collaborative environment. Furthermore, their endorsement of moderately "feminine" qualities implied that instead of competitiveness, consensus and harmony within the group were generally sought. While different from Hofstede's published score of 95, this may be attributed to the school/academic versus industry/corporate environment. Figure 3 also shows that the Japanese teachers were moderately uncertainty avoiding and moderately long-term oriented. Compared to the published scores of 92 and 80 for UAI and LTO, respectively, they are still on the same side of the spectrum as in Hofstede's published scores. This means Japanese teachers paid attention to detail and that a certain level of commitment could be expected from them. The scores obtained from this sample of junior high school teachers show an environment conducive for lesson study activities.

Japanese Teachers' Perceptions of a Good Mathematics Lesson

Table 2 summarises the results of the second questionnaire (Mathematics Teachers' Perceptions of a Good Mathematics Lesson) administered to a sample of Japanese junior high school mathematics teachers. The percentages shown in the table gives the proportions of teachers who classified the components as *Not Important* (NI), *Undecided* (U), *Important* (I), *Very Important* (VI), and *Essential* (E). This is intended to capture teachers' attitudes towards key components of lesson study. The categories were assigned 1, 2, 3, 4, and 5 points, respectively, and the weighted means (A_v) were computed.

The Japanese teachers' low response to Item 2 (19% *Very Important* and 19% *Essential*) on "Working with other teachers to plan a lesson" may require an explanation. This may be due to the fact that these teachers distinguish clearly between those lessons that are planned with other teachers, as part of lesson study, and those lessons that are part of day-to-day teaching that they are more likely to plan alone. For seven questionnaire

items, at least half of the sample of Japanese teachers rated the activities as either *Very Important* or *Essential*. These are referred to as “*strongly endorsed*” in what follows.

At least half of the Japanese teachers *strongly endorsed* the following items: Items 1 (Researching curriculum materials), 3 (Having other teachers in the classroom to observe teaching), 5 (Writing a detailed lesson plan), 6 (Sharing successful mathematics lessons with colleagues), and 8 (Evaluating a lesson through collected samples of students' solutions). Considered *Essential* by 69% and 63% respectively of the Japanese teachers sampled were Item 4 (Identifying in advance the range of expected student responses) and Item 9 (Getting involved in school research).

Since lesson study is a collaborative activity, other people's opinions are as important as one's own when determining the success of a lesson. This would explain the low endorsement (44% Undecided) for Item 7 (Relying on one's own opinion in determining success or failure of a lesson). This is consistent with their endorsement of having other teachers in the classroom to observe teaching (Item 3). Japanese teachers' moderately individualistic and collaborative orientations support this. Furthermore, the moderate uncertainty-avoiding and long-term orientations support many of the above items. Attention to detail in lesson planning and engagement in research are strong inclinations.

Table 2

Mathematics teachers' perceptions of how to prepare a good mathematics lesson

Items	Japan (%) n=16					Av
	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.	6	0	13	25	56	4.3
2. Working with other teachers to plan a lesson.	0	25	38	19	19	3.3
3. Having other teachers/colleagues in the classroom to observe my teaching.	6	0	25	38	31	3.9
4. Identifying in advance the range of expected student responses to the task including likely wrong responses in a problem-solving lesson.	6	0	0	25	69	4.5
5. Writing a detailed lesson plan incorporating the range of expected student responses.	6	6	31	31	25	3.6
6. Talking about and sharing successful mathematics lessons with colleagues.	6	0	44	44	6	3.4
7. *Relying on my own opinion as to whether a lesson has been successful or not.	0	44	50	6	0	2.6
8. Evaluating a lesson through analysing collected samples of students' solutions and attempted solutions.	6	0	19	31	44	4.1
9. Getting involved in school research.	6	6	6	19	63	4.3

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

* Lower values are important for this item.

Conclusion

Having originated through decades of teaching practice, there are aspects of lesson study that appear to be culturally rooted. In particular, high respect for collegial relationships among teachers, attention to detail in planning, and a view that real benefits are more likely to be achieved in the longer term all support the way that Japanese teachers approach lesson study. Hofstede's dimensions of culture, as utilised in this study, allow us to see why lesson study and its key practices are very characteristic of Japanese culture point us to practices and values that may not be embraced so easily outside Japan.

References

- de Mooij, M. (2010). *Global marketing and advertising: Understanding cultural paradoxes*. Los Angeles: SAGE.
- Fang, T. (2003). A critique of Hofstede's fifth national culture dimension. *International Journal of Cross Cultural Management*, 3(3), 347-368.
- 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.
- Hall, E. (1984). *Beyond culture*. New York: Doubleday
- Hart, L. C., Alston, A. S., & Murata, A. (2011). *Lesson study research and practice in mathematics education: Learning together*. Dordrecht, The Netherlands: Springer.
- Henseller, J., Horváth, C., Sarstedt, M., & Zimmermann, L. (2010). A cross-cultural comparison of brand extension success factors: A meta-study. *Journal of Brand Management*, 18(1), 5–20.
- Hofstede, G. (2001). *Culture's consequences: Comparing values, behaviours, institutions, and organizations across nations*. Thousand Oaks, CA: Sage.
- 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>
- Inprasitha, M. (2011). One feature of adaptive lesson study in Thailand: Designing a learning unit. *Journal of Science and Mathematics Education in Southeast Asia*, 34(1), 47–66.
- Isoda, M. (2011). Problem solving approaches in mathematics education as a product of Japanese lesson study. *Journal of Science and Mathematics Education in Southeast Asia*, 34(1), 2–25.
- Isoda, M., & Olfos, R. (2009). *El enfoque de resolución de problemas: En la enseñanza de la matemática*. Valparaíso, Chile: Ediciones Universitarias de Valparaíso.
- 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). A lesson is like a swiftly flowing river: How research lessons improve Japanese education. *American Educator*, 12–17; 50–52.
- McSweeney, B. (2002). Hofstede's model of national cultural differences and consequences: A triumph of faith—A failure of analysis. *Human Relations*, 55(1), 89–118.
- Scollon, R., & Scollon, S. W. (1995). *Intercultural communication*. Oxford: Blackwell.
- 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.