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An Examination of a Japanese Model of Teacher Professional Learning
Through Australian and Malaysian Lenses.

Allan Leslie White, University of Western Sydney, Australia
Lim Chap Sam, School of Educational Studies, Universiti Sains Malaysia
Chiew Chin Mon, School of Educational Studies, Universiti Sains Malaysia

Lesson Study was developed in Japan over 40 years ago. A model of school based teacher professional learning, it examines practice either through direct observation or through classroom artefacts and case studies. It assumes that teacher learning will be more meaningful and effective if embedded in their everyday work. The core of the Lesson Study process involves working on focus lessons, providing a meaningful context for non-threatening lesson observation, and promoting greater collaboration within the group and wider mathematics staff. In Australia, the Lesson Study Project was a state-wide government secondary schools initiative conducted by New South Wales Department of Education and Training for mathematics teachers. It began in 2001, and continues to function after the end of support from the Department. In Malaysia, Lesson Study has just been implemented in two secondary schools since May 2004. This paper aims to share with conference participants, experiences of the Lesson Study Process from two countries: Malaysia and Australia. It seeks to highlight the challenges, constraints and the modifications made as a result of differing cultural contexts.

Background to Lesson Study Process

National and international research into school teacher professional development was mapped by McCrae, Ainsworth, Groves, Rowland and Zbar, (2001) into four discernible phases containing distinctive models of professional teacher learning. They were:
Training (in the 1950s and 1960s) that was highly centralised and use of experts who circulated among the schools;
In-service education (1970s and early 1980s) involving short courses, highly centralised and with a higher level of awareness of individual student needs. There was greater use of the train-the-trainer and other cascade models.
Professional development programmes usually involving whole schools’ pupil-free days (1980s and early 1990s). There was more local control; and
Learning and development involving a learning culture approach (now and in the future) with schools and teachers making their own choices.

The Lesson Study program can be placed in the last phase and belongs to the tradition of teacher professional learning that concentrates upon an examination of practice through the direct observation by colleagues of each others' practice, and through the examination of classroom artefacts or through case studies of teachers by teachers (Stigler, Gallimore & Hiebert, 2000). While the Lesson Study program originated in Japan (Stigler, & Hiebert, 1999) it has manifested itself in various forms according to cultural contextual differences in countries such as USA (Fernandez, 2000), Australia (White & Southwell, 2003 a, b), and Malaysia (Chiew & Lim, 2003).

A key assumption of the Lesson Study process is that teacher learning and development will be more meaningful and effective if it is embedded in the teachers' everyday work, or that of their colleagues (Lieberman, 1996). The key principles of the
program have been listed by Stigler and Hiebert (1999), as (a), it is a process based on a long-term continuous improvement model, where change is incremental; (b) it uses a local school context and maintains a constant focus upon student learning; (c) there is a direct focus on the improvement of teaching and not upon the teacher; (d) the process used is collaborative in nature where improvement is the work of the teacher; (e) it builds teacher perceptions of contributing to the development of knowledge as well as their own professional development; and (f) the process builds a system that can learn from its own experience.

The New South Wales Lesson Study Program

The New South Wales (NSW) Department of Education and Training in conjunction with the Australian Quality Teaching Program (QTP) initiated a trial project in 2001 called Lesson Study. It quickly grew from an initial three suburban secondary schools in 2001 to over two hundred secondary schools from across the state by the end of 2004 when funding for a continuation of the project was stopped.

The NSW Lesson Study model of professional learning was designed to assist mathematics teachers produce quality lesson plans while gaining a better understanding of student learning in mathematics across the secondary school Years 7 to 12. Twice a year, schools would volunteer for a six month program through their District Mathematics Consultant. The successful school teams were funded for the six months in order to obtain casual relief teachers and to purchase resources. A project officer was assigned to coordinate the project. This officer organised an introduction session to the program, provided some written material and resources and maintained a web site available to all governmental secondary schools. This assisted schools to share their work and to further publicise the program. The Lesson Study process has continued to be used in schools after the cessation of the initial six months of support (White, 2004).

The NSW process involved a small group of volunteer teachers under the coordination of an elected team leader. They met regularly (1-2 periods per week) to plan, design, implement, evaluate and refine lessons for a unit of work that they had selected. The process encouraged classroom observation by team members as one member would present the lesson while the others monitored student learning. Casual teachers were employed if needed to allow this process to happen. The team would then meet again and after a process of reflection and refinement of the lesson, another member of the team would present it to their class with the others observing. Generally after a further period of reflection and refinement, the resulting lesson was written up and circulated. In some schools, however, a third and some times a fourth cycle was completed before the report was written. The team could invite outside experts if they so desired and sometimes other colleagues who were not part of the team would also observe the lessons or otherwise participate in the process.

The pedagogical implications were that the teams worked on developing lessons to implement the new K-10 mathematics syllabus that was written with a strong constructivist theoretical basis. A video produced to inform teachers of the Lesson Study project also demonstrated how a common typical mathematics lesson could be adapted to use stronger constructivist strategies by making particular adjustments in the use of group work and ensuring the students accepted responsibity for their own learning.
A Snapshot of Two NSW Schools

The first is a regional country secondary school situated in a large country town. The school population consists of approximately 1100 students drawn mainly from within the town but with approximately 20% of students travelling from the surrounding farming district. It is a year 7-12 school with all students housed on the one site and runs between the times of 8.45 am til 3.25 pm. The mathematics secondary staff is composed of eleven teachers and one Head Teacher. The Lesson Study team leader was the acting Head Teacher. The age of the staff members ranged from 30’s through late 50's and the school attracts very few young teachers. The team concentrated upon year 7 and the implementation of the new syllabus. At the end of the program, the leader felt the program was a success and there were plans to run another program in first term of the following year. She was hopeful that the momentum and motivation already achieved would continue to entice the other staff to become actively involved.

The second school is a city suburban secondary school situated in a lower middle class suburb of Sydney. It has a multi-cultural school population of 950 students with 27 countries of origin. It is a year 7-12 school with all students housed on the one site and runs between the times of 8.55 am til 3.35 pm.. The mathematics secondary staff have seven teachers and one Head Teacher who was the team leader. At the completion of the period of support, the leader said that the Lesson Study program was a great success and listed the strengths as observing others teach and team teaching. She was intending to continue the process in the following year in spite of the end of external support.

The Effectiveness of the NSW Program

An evaluation of the whole program based on the five critical levels of professional development evaluation proposed by Guskey (2000) and was carried out during 2002 (White & Southwell, 2003a) with a follow-up study conducted during November 2003 (White, 2004). The data collection techniques employed involved a questionnaire and a number of telephone interviews. The questionnaires were designed to cover each of the five critical levels of professional development proposed by Guskey (2000) and contained a range of closed questions scored on a four or five point Likert scale and open-ended questions which invited an extended response.

The initial evaluation (White & Southwell, 2003a, p.3) stated:

In summary the Lesson Study program was experienced by teachers as a powerful process for guiding them towards new practices and dispositions. The program united an examination of practice with commonly accepted features of quality teaching and learning to create a well-defined and structured process. The core of the Lesson Study program involved working on focus lessons, a process which was natural, useful and easily sustainable by teachers. The program provided a comfortable forum for teachers to challenge ideas about their practice and the content that they taught. The program provided opportunities for the system to learn from its own experience and fitted comfortably into the secondary school structure. The program was efficiently and effectively supported by the project officer.

White's (2004) follow-up study dealt only with the 2002 participants, where the support had ended either twelve or eighteen months previously. He postulated that the success of the scheme would be reflected in the number of schools and teachers who were still using the Lesson Study process after the support had ended. Although suffering from poor response rate, he reported that a high number (90%) of respondents indicated that they still used what they had learnt during the Lesson Study project. White (2004, p. 337) stated that:
For all groups and across all the surveys, participants continually highlighted and commented on the use of collaborative work, working on common goals, sharing of ideas, team teaching and cooperation among staff as of primary importance. Some reported that the Lesson Study process had been their first experience of collaborative planning and teaching. They found that the discourse in the staff rooms developed a focus directed to a greater extent on issues of teaching and learning. Their colleagues showed more willingness to share ideas. Teams were able to discuss and resolve differences through the focus on the lessons. Teachers expressed in various ways that "teachers getting together and working on a common goal is very satisfying especially when their efforts can later be shared.

It was felt that while the longitudinal effects of the program would continue to be monitored, the signs so far were very positive for the continuation of the process.

**The Malaysian Lesson Study Project**

The School of Educational Studies of University Science Malaysia initiated a *Lesson Study Research Project* in June 2004 at two secondary schools in a district of Northern Malaysia. It aimed to evaluate the implementation of the Lesson Study process as a professional development program for mathematics teachers. It adopted the Japanese model of Lesson Study as described by Fernandez and Yoshida (2004). Two schools volunteered and were situated in the same semi-urban district. School S had eight mathematics teachers while school K had six. It also involved collaboration with the NSW researcher.

While the Lesson Study group in both schools began at the same time (June 2004), yet by the end of the semester (November, 2004) one school had gone through two cycles of the lesson study process whereas the other school had only managed to complete one cycle.

The research process compiled a number of data sources such as: having the participants write their reflection on the lessons in a journal; conducting interviews of group and individuals; audio-taping group discussions; and all lessons taught were videotaped for further analysis. The researchers also kept detailed field notes on their observations and reflections.

*A Snapshot of Two Secondary Schools*

The school is a secondary school located in a rural area with approximately 1300 students and is a single session school from 7.30 am till 2.00 pm. The Senior Teacher of Science and Mathematics led her team of eight mathematics teachers in the Lesson Study process after school teaching hours. The school timetable was re-arranged to allow the participants to meet regularly (once a week) from 1.00 pm till 3.00 pm. An interview with the team leader disclosed that some participants who were reluctant at the initial stage began to change their attitudes in the second cycle of Lesson Study process. She believed that the teachers concerned had recognised the benefits after the first cycle of the process.

The second school runs a morning and afternoon session and is located within the town and the 1200 students are academically selected. The morning session begins at 7.30 am and ends at 2.00 pm while the afternoon session begins at 1.20 pm and ends at 6.30 pm. As in the first school the principal instructed the Senior Teacher of Science and Mathematics to coordinate the Lesson Study research project. However, she also delegated the task and seven mathematics teachers were recruited with four from the morning session and three afternoon session. There was difficulty completing the first cycle and at its completion three teachers withdrew blaming their workload and lack of time.
Commonalities and Differences between the Australian and Malaysian Experiences

While the particular input processes of both programs have been described above, this section will focus on the commonalities and differences in the outcomes.

Administrator Support

In the Malaysian case, while one principal was very interested and supportive of Lesson Study and so were the deputy principal and the head of the mathematics department. The deputy through her administrative position allowed her more flexibility in terms of timetable arrangement as well as monitoring the discussion group. Whereas the other principal did not display much interest and viewed the whole process as merely another university research project. The head of the mathematics department also espoused support but was too busy with her work and had no time to be involved herself in the lesson study process.

In the NSW case, teachers were externally supported by the project coordinator for the first six months. However, resonating with the Malaysian experience, they did report varying degrees of organisational and executive support within their schools that they felt had direct influences upon the success of the process. Yet, there were instances of successful programs in the face of executive indifference (and in one case hostility) to the team and to the program.

Teacher Commitment

In the Malaysian case, the differences in administrative support was reflective of the teacher commitment in both schools. Where the head of the mathematics department was also a key participant of the group, she became the motivator for the group there was strong commitment to the process. So while three out of the eight mathematics teachers were not very keen at the start after the first cycle, many of these teachers seemed to develop a ‘group spirit’ and their attendance at all time became important.

In contrast, only two out of the six mathematics teachers of the second school were seen as committed to the Lesson study group. The other four mathematics teachers were absent most of the time during the discussion and observation sessions including the head of mathematics department who was one of the frequent absentees. This pattern of frequent absence during the discussion and observation sessions, resulted in some sessions being cancelled or postponed causing a further loss of momentum.

The main difference regarding the commitment of the teachers in the Australian case depended a great deal upon the team leader who had usually volunteered for the program. As the other teachers had also volunteered and were only a part of the school staff, they tended to form a tight creative team. The efforts of this team tended to draw in the other staff and had an influence across the whole staff room. Where staff had been co-opted or volunteered by others into the program, the commitment of these teachers tended to reflect the commitment of the teachers in the second case reported by the Malaysian program above. Having external support would have also contributed to the commitment of the teachers for the first six months allowing them to experience the benefits of the process while to some extent reducing the perception of an added burden.

Time Constraints

In the Malaysian case, both schools allocated two hours a week for the Lesson Study session. However, if some of the participants were unable to attend due to various
circumstances then the planned Lesson Study sessions were disrupted and postponed if more than half were unable to attend the session. As a result, the research project outcomes differed due to different staff levels of commitment.

In the NSW case, schools reported time (or lack of it) as the greatest constraint, followed by the difficulty in hiring casual replacement teachers. Organisational changes were being made in many of the schools in order to allow the meetings to occur during the school day and to facilitate classroom observation. Yet as the team was smaller than in the Malaysian case, it was easier for the team to be flexible and cater for variations.

**Perceptions about Teaching**

Although the participants in the Malaysian program were generally aware of the importance of active student participation in the learning process, this was not practised in the actual teaching context. The pressure of examinations by the school administration was cited as the main factor by the participants for adopting a drill and practice pedagogy as the main teaching approach for mathematics. Teachers felt a teacher-centred approach was more practical for controlling time in order to complete the syllabus and prepare for examinations.

As the NSW program occurred during the same time as the implementation of a new syllabus in mathematics (Board of Studies NSW, 2002), the teachers tended to concentrate on trialing the spirit and direction of this document. This direction was towards further development and improvement of student centred classroom strategies. Also because the teachers were volunteers, as a group they tended to be more creative and adventurous when compared to the whole population of teachers. As a result teachers experimented with lessons that expanded their usual repertoire. They were usually very practical, collaborative, student centred and involved concrete materials and technology.

**Conclusion**

In a world that at times appears to be shrinking due to the incredible pace of change in global communications and technologies. It is easy to be seduced by the idea that a successful program in one country can easily be copied exactly in another. The publication of international comparison studies often encourages and supports such an idea. However, while the collaboration between colleagues from different countries has increased the amount of sharing of ideas and programs, nevertheless collaborative research has reported important cultural differences that impact upon the success of this sharing. Lesson Study is an idea that has travelled from Japan to many countries, yet it's success in other countries has depended upon the adjustments that have been made to account for the local context.

The importance of this paper and others like it, lies in their ability to present the commonalities and differences that programs like Lesson Study have produced in differing contexts. Sometimes, approaches adopted to overcome a particular cultural issue in one country provide the direction for another country to proceed in facing their own challenges.

Finally, Lesson Study can be regarded as an internationally successful process for enhancing teacher professional learning.

**References**


