

Creating Teacher Communities of Inquiry through Lesson Study

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Opportunities for teachers to engage in collaborative learning to examine and reflect on their practice are vital for sustained professional learning. Lesson Study centres on teachers coming together with colleagues to plan, observe, and reflect on classroom teaching and learning as a Community of Inquiry. In this project, six teachers from three Victorian schools worked together with four coaches in two cross-school planning teams. Findings indicate that Lesson Study provides a vehicle for teachers to deepen their professional learning.

The notion of a community of inquiry entails participants working collaboratively on common goals to generate knowledge by examining their practice with questioning attitudes driven by mutual trusts (Groves, Doig, 2000; Jaworski, 2008). Jaworski (2008) argues that in an inquiry community, systematic and purposeful questioning into one's own practices by participants qualify them as researchers. Japanese Lesson Study has been widely valued as a model for teacher-led professional development that centers on teachers coming together with their colleagues to plan, observe, and reflect on classroom teaching and learning as a community (Lewis, Perry & Hurd, 2009; Takahashi & Yoshida, 2004). Teachers take a central role in researching classroom practices and exploring ways to improve students' learning in collaboration with others. The public research lessons in Lesson Study provide a basis for teachers to function as communities of inquiry as they give and receive feedback and explore ideas during the post-lesson discussion.

A recent survey revealed Australian teachers' readiness to learn from their colleagues and school based leaders. Clarke, Clarke and Sullivan (2012) call for opportunities for curriculum leaders, systems and schools to invest in groups of teachers to enable them to create communities of inquiry. Regularly scheduled meetings are encouraged to facilitate teachers working together to develop their curricular and content knowledge. A commitment to establish collaborative school environments by having teachers and coaches work in Professional Learning Teams is articulated as one of the foci of the Western Metropolitan Region (Department of Education Early Childhood and Development, 2012). Whilst the policy articulates the intention to establish teacher communities of inquiry in Australia, there is little evidence of how teachers create communities of inquiry. This paper will examine how teachers and numeracy coaches worked together as a community of inquiry in one cross-school Lesson Study planning team. It will draw on data from planning meetings and interview data. The data is a subset data from the first research cycle in Term 3, 2012 of the *Implementing structured problem-solving mathematics lessons through Lesson Study project*¹.

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Design of the Study

This study adopted Design Based Research (DBR) methodology (Design-Based Research Collective, 2003) with two cycles, one in Term 3 and the second in Term 4 of 2012. Design-based research sees researchers and teacher-practitioners working together to produce meaningful change in the context of classroom instruction. Three Victorian schools from a network of schools took part in this study. Six teachers along with four numeracy coaches from the three schools and network worked collaboratively in two across-school planning teams. Four two-hour planning meetings were allocated in each cycle to prepare a public research lesson. Two university researchers joined each planning team to observe and facilitate the planning process by providing readings on Lesson Study and examples of lesson plans used in Japanese Lesson Study. This paper will draw on field notes from the first cycle of planning meetings and interview data of one planning team.

Collaborative Planning

Planning is an integral part of teachers' professional work. Collaborative planning is perceived as valuable by Australian teachers adapting Lesson Study (Groves & Doig, 2010; Hollingsworth & Oliver, 2005). Opportunities to learn with and from one another as professional colleagues were identified as valuable elements of Lesson Study process by Australian teachers (Hollingsworth & Oliver, 2005).

In this project, teachers and coaches worked collaboratively in the planning team with each person contributing their knowledge and experience to the planning of the research lesson. Interview data revealed that at the initial stage of the planning teachers and coaches were overwhelmed by the minute details and the amount of time devoted to planning a single research lesson. Megan, one of the numeracy coaches struggled with lack of directions from the university researchers in the beginning but finally understood the need for them to step back and let teachers lead the planning process. There might be an expectation that the researchers would lead the way in planning the research lesson. However this thinking shifted over the planning meetings particularly after the team observed real benefits of in-depth planning and being in charge of the planning. The detailed planning process helped the planning team to clearly articulate their thoughts and reflections of the research lesson during the post-lesson discussion:

I was feeling a bit overwhelmed at the beginning, very much out of my comfort zone of knowledge. After the first planning session, I think I felt like I needed more information. At the end of the first cycle I can see why. I feel like I've developed a lot more because I can see why you guys sort of stepped back and let us do the talking and really speak about what we thought and the different aspects of the lesson. (Interview with Megan, 4/9/2012)

Paula, the regional numeracy coach in the team, highlighted the benefit of having a mixture of people from different schools to plan and discuss fine details and various elements of the lesson in planning teams. Furthermore she noticed the ongoing professional discussions between coaches from the two planning teams in the fortnightly network meetings:

So they still could have professional discussions, ongoing professional discussions in the fortnight between the teams meeting, ... although they were quite different and there would be a lot of sharing. They'd say, "Oh, you know the other group said this", and so they had done a lot of reflecting, a lot of sharing, a lot of conversations in between. (Interview with Paula, 4/9/2012)

Paula's viewpoint was shared by Henry, a teacher in the planning team who commented that "if you're planning a lesson on your own, you might skip over". There

was acknowledgement of the great value of having a school-based coach involved in the team to support teachers and to ensure that changes made for the research lesson brought into general classroom and “didn’t get swept under the carpet”.

Teachers as Researchers

The use of an evidence-based model that incorporates research findings and assessment data to inform teaching practice is valuable. Lieberman and Miller (1990) call for teachers to reinvent their practice to reflect the fact that teaching and learning are interdependent “[Teachers] are problem posers and problem-solvers; they are researchers, and they are intellectuals engaged in unravelling the process both for themselves and for [their students]” (p. 112). The Japanese Lesson Study involves teachers as researchers throughout the whole process and is driven by data and goals (Lewis & Tsuchida, 1998). Takahashi and Yoshida (2004) point out that the Japanese Lesson Study engages teachers as “investigators of their own classroom practices” and “researchers of teaching and learning in the classroom.” (p. 438). In Japanese Lesson Study, the planning teams determine their research goals and often inform observers of these goals to guide them during their observations of the public research lessons.

Teachers act as researchers who collect evidence of students’ learning, observe, and document critical moments in teaching and learning process during the research lesson. The Japanese Lesson Study planning team realised the significance of collecting specific and detailed data of students’ learning including their misconceptions or difficulties, in order to have a better grasp of students’ learning. Henry underscored the research conducted to examine the effective use of prompting questions prior to the research lesson:

So the research before the lesson, you were able to find out what good teacher questions you could use to prompt the students thinking. Whereas this we were able to look at teacher prompted questions before the actual lesson. So we were able to use those in the lessons and we’re seeing that that helped guide the lesson, to getting the goal of the lesson. (Interview with Henry, 4/9/2012)

Critical analysis and reflection of students’ learning and various elements of the lesson were shared during the post-lesson discussion. The benefit of this process was pointed out by Keith, a teacher in the planning team:

Well it opens the floor to a lesson ..., a critical manner, but an analysis that looks at what the students got out of it and a learning that happens. We always talk about reflecting on our lessons but we don’t that much and we don’t always get the time. (Interview with Keith, 4/9/2012)

Communities of Inquiry

Lesson study embodies features of professional development that encourages teachers to form a community of inquiry. Establishing a community of inquiry through Lesson Study is a gradual process that takes time and requires a collective effort from all members of the community. The cross-school Japanese Lesson Study planning team in this project took a bit of time to feel comfortable working together as a team. Megan admitted that it was challenging for her at first to build rapport with the two teachers from other schools, whom she did not know before. At the end of the first cycle, she acknowledged the positive value of the different knowledge and ideas that other teachers brought. Megan attributed the success of the planning team to everyone’s committed effort in planning a quality research lesson. This underscores the importance of collective effort by every member of the planning team acting as a community of inquiry.

The planning team formed a community of inquiry. Megan, Trevor and Lyn, who worked in the same school, broadened their community of inquiry to include other teachers in the school as articulated by Megan when commenting on her coaching plans:

I think, I've kind of been doing a little bit of it with it anyway, but I think again, using Trevor and Lyn and their knowledge, they're a part of it, a numeracy professional learning team that I've got at the school, so, they could really be, they could really be a strong voice in getting other teachers onboard, and then being again, I guess a bigger voice to the rest of the school. (Interview with Megan, 4/9/2012)

Concluding remarks

It is encouraging to observe teachers and coaches work productively together in cross-school Lesson Study planning teams. Having a shared commitment to work on common goals in improving their practice in a community of inquiry is identified as vital. The involvement of school-based numeracy coaches and the regional numeracy coach in the planning team was valuable in supporting teachers within the school and in ensuring that changes are translated into school practice. The fact that the Western Metropolitan Region advocates teachers and leaders work together as a learning community using an evidence-based learning model is a valuable stimulus for teachers and coaches to embrace opportunities to deepen their professional knowledge through Lesson Study. A common concern about time and continued support from the school community needs to be taken seriously in order to sustain and extend teachers' communities of inquiry in their existing school communities and with neighbouring schools.

References

- Clarke, D., Clarke, D. J., & Sullivan, P. (2012). Important ideas in mathematics: What are they and where do you get them?. *Australian Primary Mathematics Classroom*, 17(3), 9-12.
- Department of Education Early Childhood and Development (2012). *Western Metropolitan Region A Learning Community 2012–2014: Every child, every classroom, every school*. Melbourne: The Western Metropolitan Region Department of Education and Early Childhood Development
- Design-Based Research Collective. (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational Researcher*, 32(1), 5-8.
- Groves, S., & Doig, B. (2010). Adapting and implementing Japanese lesson study - some affordances and constraints. In Y. Shimizu, Y. Sekiguchi & K. Hino (Eds.), *The Proceedings of the 5th East Asia Regional Conference on Mathematics Education: In Search of Excellence of Mathematics Education* (pp. 699-706).
- Groves, S., Doig, B., & Splitter, L. (2000). Mathematics classrooms functioning as communities of inquiry: Possibilities and constraints for changing practice. In T. Nakahara & M. Koyama (Eds.), *Proceedings of the Twenty-fourth Conference of the International Group for the Psychology of Mathematics Education, Vol. III* (pp. 1-8). Hiroshima, Japan: Hiroshima University.
- Jaworski, B. (2008). Building and sustaining inquiry communities in mathematics teaching development In K. Krainer & T. Wood (Eds.), *Participants in Mathematics Teacher Education* (pp. 309-330). Rotterdam: Sense Publishers.
- Hollingsworth, H., & Oliver, D. (2005). Lesson Study: A professional learning model that actually makes a difference In J. Mousley, L. Bragg & C. Campbell (Eds.), *Mathematics - Celebrating Achievement. Proceedings of 2005 MAV conference* (pp. 168-175). Melbourne MAV.
- Lewis, C., Perry, R., & Hurd, J. (2004). A deeper look at Lesson Study. *Educational Leadership*, 61(5), 18-23.
- Lewis, C., & Tsuchida, I. (1998). A lesson is like a swiftly flowing river: How research lessons improve Japanese education. *American Educator*, 12(Winter), 12-17; 50-52.
- Lieberman, A., & Miller, L. (1990). Teacher development in professional practice schools. *Teachers College Record*, 92(1), 105-122.
- Takahashi, A., & Yoshida, M. (2004). Ideas for Establishing Lesson-Study Communities. *Teaching Children Mathematics* (May), 436-443.