

The World Association of Lesson Studies (WALS) International Conference 2016

SESSION 6

Presentation Code	6A
Title	A Lesson Study team as a Professional Learning Community: Examples from the Netherlands
Presenter/s	Sui Lin Goei, Peter Dudley, Jos Alkemade, Tom Coenen, Nellie Verhoef and Siebrich De Vries
Affiliations	Windesheim University of Applied Sciences
Type of presentation	Plenary Symposium
Strand	Lesson study in different cultural, subject and learning contexts
Time/Location	Monday 5 th September 9:00-10:30am (Alumni Auditorium)
Abstract	<p>Chair: Dr. Sui Lin Goei (<i>VU University Amsterdam/Windesheim University of Applied Sciences, the Netherlands</i>)</p> <p>Discussant: Dr. Peter Dudley (<i>University of Leicester, UK</i>)</p> <p>Jos Alkemade (<i>Windesheim University of Applied Sciences</i>), Tom Coenen (<i>University of Twente</i>), Sui Lin Goei (<i>Windesheim University of Applied Sciences and VU University Amsterdam</i>), Gerrit Roorda (<i>University of Groningen</i>), Nellie Verhoef (<i>University of Twente</i>), & Siebrich de Vries (<i>University of Groningen</i>).</p> <p>This symposium presents Lesson Study as a Professional Learning Community (PLC) in three different Dutch educational contexts. In the last fifteen years worldwide interest in Japanese Lesson Study has spread in a rapid pace; also in the Netherlands there is widespread interest in Lesson Study. Recently reported Dutch Lesson Study research outcomes indicate characteristics agreeing with effective teacher professionalization. The effectiveness of Lesson Study especially points on PLC aspects like 1) participation in reflective dialogues on important topics in classroom practices, 2) collaborative activities, 3) deprivatization of practices visiting colleagues' classroom practices in order to give feedback, 4) shared sense of purposes characterizing teachers' understanding of the schools' curricular goals, and 5) a focus on student learning characterizing teachers' expectations for student achievement (Lomos, 2011). Examples from the Netherlands focus on added values in: inclusive educational settings, relational understanding of mathematics, and PLC's for experienced teachers of Dutch language and mathematics.</p> <p>Paper 1: Lesson Study and Lesson Plans for Inclusive Settings</p>

(Jos Alkemade & Sui Lin Goei)

In Lesson Study lesson plans form an essential ingredient in the process of professional learning and may be seen as a scaffold for the development of pedagogical content knowledge (PCK). This paper focuses on to what extent Lesson Study improves teachers' capability to explicitate pupils' educational (support) needs and how this influences the design of the following lesson plan. Lesson plans designed by twelve Lesson Study teams participating in four Lesson Study cycles conducted in six secondary schools in the Netherlands during 2014-15 and 2015-16 were analysed with a rubric developed for this purpose. Results show that lesson plans indeed contained useful information to monitor professional development of teachers. The lesson plans improved during the Lesson Study cycles: some aspects measured by the rubric are more visible after the cycle; teachers are more able to explicitate educational needs. The rubric used in this pilot can certainly be improved. Though lesson plans are an important vehicle in Lesson Study, in research on Lesson Studies the plans made have not or seldom be used as data to monitor teachers' growth ((Fujii, 2016).

Paper 2: Lesson Study and Relational Understanding of Mathematics *(Tom Coenen & Nellie Verhoef)*

This study reports the effects of mathematics teachers' professional development in a professional learning community, characterized by Lesson Study. Three in-service teachers focused on 14-16 year old students' independent thinking and raising self-confidence in the context of combinatorial reasoning problems. The in-service teachers collaboratively prepared a research lesson in line with Tall's (2013) framework of long-term development of mathematical thinking. The research instruments consisted of field notes of the live observations deepened by transcribed videotapes of student group work. The data were analysed in terms of Gravemeijer's (1999) levels of activity. The results show that the in-service teachers learned from student activities in interaction with their group collaboration and teacher interventions. The students don't automatically develop mathematical reasoning in line with Tall's framework and the distinguished levels do not guarantee a correct solution process. The in-service teachers become aware of the fact that students begin on the highest level without relational understanding. Guidance by the teacher seems important. We believe that education focused on relational understanding is of much more value than instrumental instruction (Skemp, 1976).

Paper 3: The Appreciation of Lesson Study in Interschool PLC's

	<p><i>(Siebrich de Vries & Gerrit Roorda)</i></p> <p>In the Netherlands, Lesson Study is a relatively new professionalization approach. Since Lesson Study is quite a time consuming activity, the question is whether Dutch teachers will be motivated enough to invest their time and energy in Lesson Study (Unified Model of Task-specific Motivation (UMTM), De Brabander & Martens, 2014). The main research question in this study is what experienced teachers think they learn from carrying out a Lesson Study-cycle, and in particular how they value the different parts of a Lesson Study-cycle (research, planning, research lesson, reflection). In the school years 2014-2016, approximately 30 teachers in two PLC's for Dutch language and mathematics of 13 secondary schools carried out four Lesson Study-cycles in Lesson Study-teams of 3-6 teachers. At the end of each cycle, teachers filled out a questionnaire. The results show that teachers in particular appreciate the activities related to the research lesson. Differences between the Lesson Study-teams were found due to interpersonal (quality of the collaboration) and conditional (time and support) factors (Kooy & Van Veen, 2012).</p>
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Presentation Code	6B
Title	Lesson Study: Adapting to English Realities
Presenter/s	Sarah Seleznyov and David Godfrey
Affiliations	London Centre for Leadership in Learning (United Kingdom) Institute of Education
Type of presentation	Workshop
Strand	Lesson study in different cultural, subject and learning context
Time/Location	Monday 5 th September 9:00-10:30am (Newman Red)
Abstract	U.S and Japanese researchers have written extensively about the

	<p>challenges of adopting the lesson study model in a non-Japanese (US) context. Little has been written so far on the nature of implementation in an English context and the tensions that may emerge between the Japanese model and the UK education system; Burghes and Robinson (2009) and Wake, Foster and Swann (2013) are examples of authors who have begun to explore this.</p> <p>This workshop will explore the possible tensions that English schools might face when implementing Japanese lesson study and enable participants to consider which are of most relevance to their own context. This will be done through a combination of exposition and discussion, with a number of hands-on activities.</p> <p>The workshop will consider:</p> <ul style="list-style-type: none">•The tensions around lesson observation in English schools and its link to accountability;•Expectations in England and Japan for teacher development;•Differences in pedagogy and curriculum;•The time required for detailed collaborative planning;•The need for high quality dialogue and strategies to enable it;•The value of kyozaï kenkyu;•The role of the kochi;• Differences in expectations around 'impact'. <p>The session will enable participants to:</p> <ul style="list-style-type: none">•Understand how different the Japanese and English education systems are.•Explore the notion of fidelity in relation to lesson study – what makes it lesson study?•Consider how feasible / advisable fidelity to the Japanese lesson study model is in English schools. <p>Participants will be encouraged to share their own lesson study models. They will be supported to consider what adaptations they may have deliberately or unconsciously made to the Japanese model and what difference this may make to the quality of outcomes. The workshop will enable participants to explore what measuring impact looks like in their own context and to consider the sorts of data gathering tools that might collect the most relevant and valuable impact evidence.</p>
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Presentation Code	6Ca
Title	A Tale of Two Schools: Teacher Learning in Community
Presenter/s	Rachel Goh
Affiliations	Ministry of Education (Singapore)
Type of presentation	Paper presentation
Strand	Developing professional learning communities: models and practices
Time/Location	Monday 5 th September 9:00-10:30am (Forum Seminar 1)
Abstract	<p>Increasingly, teacher professional development initiatives include teacher learning communities as part of their overall strategy. How teacher talk mediates teacher learning in lesson study teams is not well understood. This paper presents the findings of a Singapore study that examined two teams of primary school teachers focused on English language teaching. The purpose of the study was to investigate the affordances of lesson study processes for teacher learning in community as well as the teacher-related factors and school-related factors that shape the contextual conditions which enable or constrain teacher learning. Using a qualitative interpretive case study approach, the study examined the mediation of teacher talk on teachers' learning as they explored the enactment of EL curriculum reform initiatives. Drawing upon sociocultural theory, the study has conceptualized teacher learning as a phenomenon that can be understood, in part, through the interactions of teachers. Providing empirical support for the theorized construct of teacher learning in community as the co-construction of teacher understanding of knowledge and practice that occurs through situated interactions in lesson study teams is an important contribution to the current literature. At the methodological level, the study is significant in examining teacher learning through the discourse analysis of lesson study discussions as opposed to relying solely on teachers' self-reported data from participant interviews and perception surveys. The study also has practical significance in illuminating the affordances of lesson study in grade level teams for inducting and mentoring novice teachers in the team. Data collected include observations, semi-structured interviews, and the artefacts developed and used in the course of the lesson study inquiry. Findings that support several conclusions concerning (a) teachers' reasoning and action, (b) sources of knowledge that teachers draw upon, and (c) the interplay of the teacher's learning orientation and the school's learning orientation in the consideration of practice are presented.</p>

Presentation Code	6Cb
Title	Educational Quality Development of Small-Size Schools based on Professional Learning Community and Lesson Study Approach
Presenter/s	Charinee Triwaranyu and Soison Sakolrak
Affiliations	Chulalongkorn University (Thailand)
Type of presentation	Paper presentation
Strand	Developing professional learning communities: models and practices
Time/Location	Monday 5 th September 9:00-10:30am (Forum Seminar 1)
Abstract	<p>This action research aimed to propose guidelines for developing the educational quality of small-size schools by utilizing Professional Learning Community (PLC) Approach. The research participants included 70 teachers and 8 school administrators from 8 small-size primary schools located in Saraburi province, Thailand, as well as 6 supervisors from the primary educational service area office, 6 university educators and 4 graduated students. Data were qualitatively collected during July 2015 to April 2016.</p> <p>The professional community was initiated and developed according to the needs of school-based teacher profession development and the collaboration between the university and the schools; therefore, the teachers and administrators' needs of professional development were run and assessed by the university educators. The findings from the need assessment showed that all 8 schools were lacking of teachers in several subject areas. Also, students' literacy rate was set as their first priority to be enhanced. Supports and encouragement on pedagogical and content knowledge were highly expected from university educators and peer teachers.</p> <p>Hence, the on-the-job-training system namely "Chulalongkorn University Coaching and Mentoring System (CU-CMS)" was implemented. The first stage of this system is to set the cooperation teams, goals, procedures, and tools. Then the participants were formed as a three-party-team (schools, educational service area and university) to work corporately. The university educators were coaches, supervisors and school administrators were mentors. Peer teachers were buddies. The goals were to develop teacher professional competencies and students' literacy. There were 4 steps procedures; (1) stating aims and cooperating procedures (2) identifying required contents and pedagogical knowledge; (3) applying the Lesson Study Approach to develop ones' professional competencies; (4) sharing and learning with coaches and mentors once a month, and (5) reflecting on lesson-learned. Furthermore, 3 main activities of Contemplative</p>

	<p>Education; deep listening, dialogue, and learning reflection; and Appreciative Inquiry were also applied to lessen members' tensions and create positive attitudes when sharing and working together.</p> <p>The results of initial practices showed that early stages of PLC were developed positive changes. It could be seen that (1) relationships among participants were much better and positive, (2) students became much more active and attentive, and (3) The success factors of this development were "amicably professional friends" of the three-parties from, schools, university and educational service area. PLC members still work together continuously in this 2016 academic year.</p>
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Presentation Code	6Cc
Title	Collaboration and Collegiality in Networked Teacher Inquiry
Presenter/s	Tatang Suratno
Affiliations	Indonesia University of Education (Singapore)
Type of presentation	Paper presentation
Strand	Developing professional learning communities: models and practices
Time/Location	Monday 5 th September 9:00-10:30am (Forum Seminar 1)
Abstract	<p>Collaboration and collegiality are key tenets in establishing a networked teacher inquiry focusing on scrutinizing professional practice. In this presentation, the authors highlight the attempts to establishing the patterns of relationship and norms of networking between teacher educators and primary teachers from Bandung City. Accordingly, the shared role and responsibility among members constitutes the network's activities in studying a cycle of designing and reflecting on classroom practices. By drawing on the very notion of didactics, reflective practice, dialogic inquiry and narrative of experience, we inquire: 1) the design process by employing the idea of "repersonalization" and "recontextualization" of content to be taught while "imagining and predicting the anticipated pupils' responses"; 2) the learning process by digging into "what we learned from students' learning" by means of case studies; 3) the network process by recognizing "what we learned from colleagues" through reflective dialogue; and 4) the subjectification process by sharing the narratives of</p>

	experience. Our initial efforts have shown that equality and mutuality among the network members interweave shared knowledge generated from joint action and reflection.
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Presentation Code	6D
Title	Developing Teacher Mathematical Knowledge in Lesson Study: Theory & Practice
Presenter/s	Stéphane Clivaz, Christine Lee, Catherine Lewis Aoibhinn Ní Shúilleabháin, Akihiko Takahashi and Jess Ellis
Affiliations	Lausanne University of Teacher Education (Switzerland)
Type of presentation	Symposium
Strand	Creating knowledge in practice; action research and other practice based research approaches
Time/Location	Monday 5 th September 9:00-10:30am (Forum Seminar 2)
Abstract	<p>As a model of teacher professional development, lesson study has the capacity to develop teachers' and student teachers' professional knowledge. However, it has been difficult to define and underpin teacher learning in lesson study with specific existing theoretical frameworks of knowledge for teaching. In this symposium, we present and discuss research on the development of mathematical knowledge for teaching at all levels of education, through teachers' participation in lesson study. Embedded in the contexts of international lesson study research, we contribute to the conversation on developing theoretical frameworks identifying teacher learning in lesson study. While specifically relevant to mathematics, this symposium will contribute to broader discussions on teacher learning in lesson study.</p> <p>Presentation 1: Developing Mathematical Knowledge for Teaching in Lesson study: Propositions for a Theoretical Framework.</p> <p><i>(Aoibhinn Ní Shúilleabháin, School of Mathematics & Statistics, University College Dublin, Ireland & Stéphane Clivaz, Lausanne University of Teacher Education, Switzerland).</i></p> <p>In this paper, we propose an extended framework of teacher knowledge for mathematics teaching as applied to teacher learning due to participation in lesson study. While teacher learning through lesson study has been well documented in the research (e.g. Dudley, 2013; Murata et al., 2012), there have been calls to add to the theoretical underpinnings of such learning (Clivaz, 2015). We propose a theoretical framework combining both Mathematical Knowledge for Teaching (Ball et al., 2008) and Levels of Teacher</p>

Activity (Margolinas et al., 2005). Qualitative data generated through teacher participation in lesson study in two case study schools is utilized in testing and demonstrating this new theoretical framework. Primary teachers in Switzerland and lower secondary teachers in Ireland participated in successive cycles of lesson study where teacher meetings and research lessons were recorded in audio and video. We analyze the data according to our proposed theoretical framework and demonstrate teacher learning across various phases of the lesson study cycle. The proposed framework extends the categorization from teacher knowledge utilized in the classroom, to knowledge also utilized in planning and reflecting on the teaching and learning of mathematics as identified through phases of lesson study.

Presentation 2: Reinventing the Wheel? Kyouzai Kenkyuu in Collaborative Lesson Research. (*Akihiko Takahashi, DePaul University, USA*)

To maximize the impact of Lesson Study Collaborative Lesson Research (CLR), a specific form of Lesson Study with six critical components was introduced at WALS 2015. Among the six critical components is Kyouzai kenkyuu, a key to support teachers in developing knowledge for effective teaching. Kyouzai kenkyuu, the careful study of academic content and teaching materials, is integral to Lesson Study as practiced in Japan and is analogous to a literature review in scientific research. It involves an investigation of the intended learning trajectory related to the topic from lower to higher grades, through a review of the standards and curriculum, and research into teaching and learning issues such as typical misunderstandings around the topic. Kyouzai kenkyuu also includes consideration of possible tools, manipulatives, or materials that may be used, and possible tasks that may be presented to students. Through the Kyouzai kenkyuu process teachers can establish a foundation for designing the units and lessons and avoid “reinventing the wheel”. This practice increases the likelihood that research lessons contribute new knowledge to the education community and through CLR, teachers develop new knowledge relevant to their teaching. This paper provides evidence in teacher practice of teacher learning in lesson study.

Presentation 3: Instructor Learning in Teaching Preparation Programs: Highlighting a Knowledge and Practices Framework through Lesson Study (*Jess Ellis, Department of Mathematics at Colorado State University, Fort Collins, USA*).

In this report, a theoretically grounded framework is presented which characterizes instructor preparation programs. The

	<p>framework was originally conceived to understand graduate student teaching assistant (GTA) teaching preparation programs, but has implications beyond this group of instructors and beyond the tertiary level. This framework was developed through case study analyses of four (GTA) teaching preparation programs at institutions identified as having more successful calculus programs compared to other institutions. The components of the framework are: the structure of the program, the departmental and institutional culture and context that the program is situated within, and the types of knowledge and practices emphasized in the program. In this report, one of the programs involved in the development of the framework and inspired by Lesson Study is characterized as an example of how the framework is used. In addition to serving as an example of the use of the framework in teacher learning, referencing the Lesson Study-inspired program helps to articulate the theoretical underpinnings of the Lesson Study model specifically in relation to knowledge needed for teaching (Shulman, 1986) and Pedagogies of Practice (Grossman et al., 2009).</p>
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Presentation Code	6E
Title	Infusing 21st Century Competencies into the Teaching of Symmetry
Presenter/s	Irene Ng, Saleha Hashim, Thakurdas Melwani Lajwanti, Hariani Salleh and Mohd Faisal Mohd Hassan
Affiliations	White Sands Primary School (Singapore)
Type of presentation	Workshop
Strand	Developing Professional Learning Communities: models and practices
Time/Location	Monday 5 th September 9:00-10:30am (Peter Chalk Room 2: 1.4-1.6)
Abstract	<p>The Professional Learning Community (PLC) in White Sands Primary School (WSPS) focuses on continuous improvement in staff performance and more importantly student learning. In 2015, the Mathematics PLC engages in a variety of activities including sharing a vision, working and learning collaboratively and peer observations. During PLC meetings, they work collaboratively to design a lesson package for Symmetry infusing 21st Century Competencies. The use of ICT and hands-on learning, coupled with authentic learning experiences made the learning of the topic very enriching and engaging. Pupils were given the opportunity to be aware of the existence of symmetry in the various ethnic groups (Civic Literacy, Global and Cross-cultural Skills), critique the</p>

	<p>different pieces of symmetric and asymmetric objects (Critical and Inventive Thinking) and use mathematical language to reason their thinking (Communication, Collaboration and Information Skills). Assessment for learning strategies were also used to check on pupils' understanding as they journeyed with their teachers in the learning of this topic. Aim of workshop By the end of the workshop, participants will be able to: 1. gain insights on the design of a lesson package for the topic on Symmetry infusing 21st Century Competencies 2. Experience first-hand learning on the teaching of Symmetry via various approaches (ICT tools and hands-on learning) and how formative assessment is embedded into the lesson 3. Critique whether various cultural pieces are symmetric or not using mathematical language. Design of workshop In the first part of the workshop, participants will be given insights on how the lesson was designed through the collaboration of three Primary 4 Mathematics teachers during PLC meetings. The presenters will share their learning journey in the course of the design of their lesson, and the rationale for choosing Symmetry as the topic for infusing 21st Century Competencies. In the second part of the workshop, participants will be given opportunities to experience the actual symmetry lesson which took place in the classroom. The teaching of using 21st Century Competencies is infused during the lesson introduction where participants will be taught to use the correct mathematical terms to critique a symmetric / an asymmetric piece. Participants will also be made aware of the existence of symmetry across the different cultures and religions in Singapore. Workshop Interactivity Workshop will be interactive with hands-on learning and ICT-based activities for participants to try out. They will also be able to use different formative assessment tools during the workshop.</p>
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Presentation Code	6Fa
Title	The In-Depth Learning Model in Problem-Solving Learning- A Transcript Based Lesson Analysis of History Lesson
Presenter/s	Hongxue Fu
Affiliations	Nagoya University (Japan)
Type of presentation	Paper presentation
Strand	Learning studies
Time/Location	Monday 5 th September 9:00-10:30am (Newman Purple)
Abstract	Due to the influence of Progressivism and the Japan postwar

	<p>education reform after the Second World War, problem-solving learning (PSL) was spread in the field of education through the adaption of lesson study in many local schools. Despite different historical backgrounds, commonalities between PSL and critical thinking such as the emphasis of pupils' independent thinking do exist. The theoretical framework on pupils' thinking in PSL has been explicated in many studies. Teachers could usually gauge the level of pupils' in-depth learning using their professional insight. However, it is deemed difficult to assess the quality of in-depth learning with evidences, especially in subjects that do not require 'one right answer' such as Social Studies. With that, this paper aimed to construct a model of in-depth learning, built on a transcript-based lesson analysis (TBLA) of one's persistent pursuit of a historical problem, which involves PSL process. A sixth-grade Social Studies lesson that focused on a war that lasted for 15 years (1931 to 1945) was studied. This longstanding war is related to the local community where pupils come from. This study adopted the lesson study approach that generally consists of 4 steps. 1. Design- The teacher designed the research lesson with the integration of investigative and experiential learning. The objective of the unit was shared with the researcher. 2. Observation- The lesson was observed and recorded with video cameras and voice recorders. 3. Discussion- Discussion was conducted by researcher and other observers using the method of TBLA- a method used to repeatedly analyze remarks and facts present in a lesson using lesson transcript (Matoba, 2007). Upon discussion, an individual pupil, CY, was selected as the subject of analysis. 4. Outcome-The outcomes of TBLA were shared with the teacher who conducted the lesson. These outcomes might serve for references in the design of future lessons. From the TBLA, it was found that critical thinking works in CY's pursuing of problem in the lesson and this was evidenced by CY's prominent change of opinions regarding her stand on when the longstanding war could be stopped. This cognitive change might be attributed to CY's eagerness for the possibility of stopping the war through the integration of investigative and experiential learning in PSL. It could be argued that in-depth learning might be one of the reasons that made the change possible. Using this result, a model of in-depth learning which involves the process of critical thinking that shifts to and fro between the cognitive and affective aspects was constructed.</p>
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Presentation Code	6Fb
Title	Inquiry Learning in Science through Lesson Study Approach
Presenter/s	Aini Haziah Amirullah, Nuraini Abu Bakar, Zanaton H Iksan and Yee Chu Yun
Affiliations	Universiti Kebangsaan (Malaysia)
Type of presentation	Paper presentation
Strand	Learning studies
Time/Location	Monday 5 th September 9:00-10:30am (Newman Purple)
Abstract	<p>Teaching and learning of science-based inquiry is very relevant because it combines all of the science process skills. But the extent to which it is implemented is still a challenge to educators and students. Looking at the success of Lesson Study approach in Japan has given a high aspiration towards the Ministry of Education Malaysia to adopt this approach and equitable education system in Malaysia. Lesson Study may be a good approach to be adopted in the inquiry teaching activities because it will not only improve teachers' professional skills but also to ensure the practice of student's science process skills while doing science through the collaboration of teachers. Thus, this study aims to explore the development of year five pupils' learning in implementing inquiry-based science activities through Lesson Study approach. The lesson study's step began with the researchers plans lessons that integrate inquiry along with four teachers at the school, followed by open class, which involved eight observers and reflection after teaching. Activities of the inquiry involves seven phases in the 7E inquiry learning model which include of elicit, engage, explore, explain, elaborate, evaluate and extend. As a result of observation and reflection found a few features inquiry was conducted by students during the learning process such as: i) making an observation, ii) engage in questioning, iii) obtain and use relevant information, iv) propose answers, description or expectations about a situation, v) communications, vi) lower-order thinking skills (LOTS) and vii) higher order thinking skills (HOTS). The implications of this study shows that lesson study approach helps teachers plan how to integrate the inquiry while further implementation can be evaluated by other teachers to improve the lesson of inquiry based-learning to be carried out successfully in the context of students learning.</p>

Presentation Code	6Fc
Title	Do Male and Female Students Show Differences in Metacognitive and Critical Thinking Skills in Remap Reciprocal Teaching Model Class?
Presenter/s	Siti Zubaidah
Affiliations	Universitas Negeri Malang (Indonesia)
Type of presentation	Paper presentation
Strand	Learning studies
Time/Location	Monday 5 th September 9:00-10:30am (Newman Purple)
Abstract	<p>Both metacognitive and critical thinking skills are critical for students to acquire. Metacognitive skill helps students to understand their cognitive processes, to think about how to study, and to monitor and improve their learning process while critical thinking skill assists students in solving problems related to the systematic process. Both skills could be developed by applying learning model. Reading-Concept Map-Reciprocal Teaching (Remap Reciprocal Teaching) is one of the models, which has a sequence of asking students to read the learning materials, to construct the concept maps, and later to perform Reciprocal Teaching. Previous research showed that gender has a contribution in acquiring several learning skills, yet so far no research link it to metacognitive and critical thinking skills gaining. This research aims to study whether the use of Remap Reciprocal Teaching model and the difference of gender in Biology class gives a contribution to students' metacognitive and critical thinking skills. This experimental research is conducted using the quasi-experimental with Nonequivalent pretest-Posttest Control Group Design. The subject of study was 125 students of State Senior High School of Batu, Indonesia in 2015/2016 academic year. Samples were taken using random sampling based on equality test. Data was taken by asking students to make an essay which then later assessed by using metacognitive and critical thinking scoring instruments. Data was analysed using ANCOVA. The result showed that application of Remap Reciprocal Teaching model improved all students' metacognitive and critical thinking skills. Different gender showed different ability in metacognitive skill. Female students acquire higher metacognitive skill than its counterpart. However, the male students showed higher improvement in metacognitive skill. There was no difference in critical thinking skill based on gender, although the male students also showed the higher improvement of critical thinking skill ability through the learning process. All in all, this study suggest that the use of Remap Reciprocal Teaching model improved metacognitive and critical thinking skills, particularly for male students.</p>

Presentation Code	6Ga
Title	Developing a Lesson in Ambiguous Case (SSA) by Engaging in Lesson Study
Presenter/s	Gerald Ferre and Minie Rose Lapinid
Affiliations	De La Salle University (Philippines)
Type of presentation	Paper presentation
Strand	Impact of lesson study on student learning
Time/Location	Monday 5 th September 9:00-10:30am (Peter Chalk 3: 2.1-2.3)
Abstract	<p>This study sought to understand the fundamental principles behind Lesson Study, and how it can be applied and contextualized in local Philippine setting such as DLSZ. In particular, it explored the impact of the Lesson Study process on teachers' instructional practices as they teach complex and problematic mathematics lessons to students such as the Ambiguous case. At the same time, it investigated the repercussion to mathematics achievement and learning as students participate in an intended lesson they were privileged in. Thus, in this investigation, the focal research questions aimed to answer the following questions:</p> <ul style="list-style-type: none"> •What are the emerging issues and challenges encountered by the teachers when doing Lesson Study? •What do the teachers learn as they incorporate Lesson Study in developing a lesson in Ambiguous case? •How can students' learning be optimized with the conduct of Lesson Study? <p>Data from videotaped recordings, answers to the questionnaires, field notes, and students' works were utilized to analyze the objectives of this research. Three emergent themes were elevated from this investigation:</p> <ol style="list-style-type: none"> (1) collaboration as a crucial and complicated feature of Lesson Study; (2) importance of creating challenging tasks and activities; and (3) deeper understanding of students' level and conditions of learning. Finally, the culmination of this research proved to provide the impetus for integrating essential elements of Lesson Study in teaching of mathematics as what is on-going in Japan and served as manifold pursuits that will require all stakeholders to engage in timely, relevant and purposeful discussions and meetings for the ultimate goal of student achievement and learning.

Presentation Code	6Gb
Title	Lesson Study by Open Approach in the USA: A Comparison of Students' Mathematical Knowledge
Presenter/s	Gabriel Matney and Sherry Lane
Affiliations	Bowling Green State University (United States of America)
Type of presentation	Paper presentation
Strand	Impact of lesson study on student learning
Time/Location	Monday 5 th September 9:00-10:30am (Peter Chalk 3: 2.1-2.3)
Abstract	<p>One important and looming question for those beginning to do lesson study in their school is what model of lesson study works within the constraints of our system and how do we know the effectiveness of that model. The research community has produced some evidence that particular lesson study models produce growth in student learning and teacher understanding of mathematics (Kadron & Inprasitha, 2013; Lewis, Perry, & Murata, 2008; Meyer & Wilkerson, 2011). The aim of this research paper presentation is to share results of a comparison study between students of teachers in a program that included Lesson Study as its imbedded professional development (PD) and students of teachers not in the PD.</p> <p>Context: The PD involved 30 teachers of students of ages 5-11 from five different schools in the same geographic city in the USA. Prior to the start of the academic year the PD organizers and teachers worked together on mathematics tasks and learning environments for three days to build cohesion as a professional community. There was a focused effort on tasks about Numbers, Operations, and Algebraic Thinking. The teachers worked in age-level teams to create, enact, and revise research lessons through the process of Lesson Study by Open Approach (Inprasitha, 2015) twice during the academic year. Each lesson that was developed was taught, reflected upon by the group, and revised a minimum of two times. In this researcher the Lesson Study by Open Approach process involves teachers meeting together to examine mathematics content and focus on a research question to be explored that involves an "open" mathematics task from which the students do some mathematical thinking and exploration on their own.</p> <p>Instrument: MAP assessments are computer-based adaptive assessments. NWEA has provided computer-based adaptive assessments for almost thirty years, and the data collected from these assessments has been demonstrated to be valid and reliable.</p> <p>Participants: There were two types of participants: PD students and comparison students. PD students are students of teachers who</p>

	<p>participated in the lesson study. Comparison students are students of teachers who did not do lesson study. Demographic data about students' ethnicity and gender was tested showed no difference. Results: PD students showed statistically significant more growth than comparison students in 7 of the 24 sub-disciplines and similar growth in the remaining sub-disciplines. PD students of age 6 and 7 showed significantly more growth than comparison students. More results will be shared in presentation.</p>
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Presentation Code	6Gc
Title	Viewpoints for a Framework to Enhance Active Learning in Mathematics Lessons
Presenter/s	Makoto Ota
Affiliations	Tokai Gakuen University (Japan)
Type of presentation	Paper presentation
Strand	Impact of lesson study on student learning
Time/Location	Monday 5 th September 9:00-10:30am (Peter Chalk 3: 2.1-2.3)
Abstract	<p>This research intends to develop a quantitative evaluation framework on which to judge whether or not elementary school teachers are successful in applying active learning methods in mathematics lessons.</p> <p>As past studies have not determined what defines a successful implementation of active learning in classroom, this research cites the voices of actual classroom observers as well as later video observation to explore the guidelines, which will determine the borderline criteria for active learning from the schoolteachers' point of view. This research indicates that it is of great significance to the development of the study of teaching to build a framework based on the evidence from classroom videos and students' notebooks, in which people can discuss just how much of the practice of active learning can be entrusted to the students with a belief in their potential capabilities, while ruling out the possibility of the teacher dictating all aspects of the lesson or delegating the whole responsibility to the students.</p> <p>In order to develop an evaluation methodology that is understandable and easy to work with for teachers in the classroom, this research will explore the subject, focusing on the four following points:</p> <p>1) The proportion of students and teachers to the number of words spoken in the classroom.</p>

	<p>2) The proportion of time when students or teachers are taking the initiative of the classroom.</p> <p>3) The proportion in which the evaluated level of the Goal Setting of the Study is equivalent to or exceeding the category “in-depth learning of the subject matter.”</p> <p>4) The proportion in which the evaluated level of the Reflection on the Study is equivalent to or exceeding the category “elaboration based on the achievements from learning in the lesson.”</p> <p>These points of attention may be fine-tuned from the actual classroom teachers’ points of view, so that their lessons may become closer to the ideal of active learning. Once a concrete guideline has been established, the degree of success of active learning in mathematics lessons can be diagnosed objectively. Finally, the research holds great potentiality for finding the various specific forms that make successful implementation of active learning in lessons possible.</p>
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Presentation Code	6H
Title	How do Supervisors as Knowledgeable Others Support Teachers’ Professional Development through Lesson Studies in Preschool Education?
Presenter/s	Kiyomi Akita, Riyo Kadota and Marn-ling Shing
Affiliations	The University of Tokyo (Japan)
Type of presentation	Round-table
Strand	Early years education
Time/Location	Monday 5 th September 9:00-10:30am (Newman Green)
Abstract	<p>The role of supervisors in lesson studies as knowledgeable others is very important for teachers’ professional development and for improving quality in school education. With an extensive case-based knowledge of practices and knowledge of lesson studies, supervisors provide three types of knowledge for teachers and schools (Akita, 2016).</p> <p>The first is knowledge about teaching practices. Supervisors show how to observe practices in embedded contexts, children’s learning trajectories. They point to critical points for children’s learning and how to improve practice through manipulation of learning materials, environment, classroom interaction, and the relationships between teacher and children. The second type of knowledge supervisors provide concerns how to organize the cycle of lesson studies in a school year to encourage teachers’ inquiries into their own practices. They coordinate open research lessons</p>

	<p>with teachers considering the situation of each school and tailoring the methods of observing and reflecting to that school. The third type of knowledge supervisors provide is related to school improvement and innovation processes with a longer-term vision. They give advice not only on teaching practices but also on systems of teachers' reflection on their practices with various kinds of tools and artifacts to encourage professional collegiality and distributed leadership for teachers' as learning communities. Supervisors work as mediators and catalysts to schools through connecting knowledge generated among schools.</p> <p>This applies to all school levels, preschool, primary and secondary; however, comparing preschool with formal school education, the system of supervisors pertaining to lesson studies is more established for the latter than the former. This is despite the fact that longitudinal studies, such as the Effective Preschool and Primary Education (EEPE) study, show that the quality of preschool education has major effects on children's learning mindsets and life-span development (Sylva et al., 2010; Iram et al., 2012; OECD, 2015). The purpose of this roundtable, therefore, is to discuss the role—or rather, roles—of supervisors in preschool-education.</p> <p>Taiwan and Japan both have long histories of lesson studies, and they share similar systems of professional development in preschool education. Many professors in universities of teacher education and superintendents of local boards of education have engaged in lesson studies in public and private kindergartens and children's centers. How do they work as supervisors and support teachers' professional development in kindergartens and children's centers? What kinds of factors are related to the success of supervise? What kind of variations and differences of styles among supervisors are there?</p> <p>The three speakers at this roundtable are all experts in lesson studies in preschool education for more than decade. Their presentations will address the questions raised through cases with which they have engaged in different kindergartens, local boards of education, and local associations of private kindergartens. The purpose of the roundtable is not to make a comparison of systems in two countries but to discuss the roles and functions of supervisors as knowledgeable others to generate professional practical knowledge and encourage knowledge mobilization and knowledge management in kindergartens and networks of kindergartens through cases in these two countries.</p> <p>Presentations Chair: Prof. Riyo Kadota (Seinan University, Japan) Presenters: Prof. Shing Marn-Ling (Taipei Municipal University of Teacher Education, Taiwan) Prof, Riyo Kadota (Seinan University, Japan)</p>
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	<p>Prof. Kiyomi Akita (The University of Tokyo, Japan)</p> <p>Prof. Shing will present on the system of supervisors and training of supervisors in Taiwan. She will show various cases of supervisors' roles and work, focusing especially on developing leadership in kindergartens and collaborative relationships between teachers and supervisors.</p> <p>Prof. Kadota will present on the system of supervisors of public kindergartens in Japan. Then she will look at how supervisors understand children's development and give advice in concrete situations and how they support teachers to establishing a system of lesson studies reflecting on their practices using photos and video.</p> <p>Prof. Akita will present on the system of developing supervisors of private kindergartens and childcare centers in Japan. Then she will focus on how supervisors give advice on lesson study cycles through lesson studies and transmit their expertise of knowledge production and knowledge management.</p>
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Presentation Code	61a
Title	Expanding Lesson Study Worldwide: The Long-Term Effects of an Immersion Program for International Lesson Study Practitioners
Presenter/s	Jennifer Lewis and Naoko Matsuda
Affiliations	Wayne State University (United States of America)
Type of presentation	Paper presentation
Strand	Lesson study in different cultural, subject and learning contexts
Time/Location	Monday 5 th September 9:00-10:30am (Queen's Lecture Theatre 2)
Abstract	<p>Research from the last decade shows lesson study in Asia as a model for the improvement of mathematics instruction (Isoda et al. 2007; Lewis et al. 2009; Lewis et al. 2006; Lewis & Tsuchida, 1998; Puchner & Taylor, 2006; Stigler & Hiebert, 1999). Lesson study was one of only two programs of professional development in mathematics (out of 643) that led to statistically significant positive gains for students in the US, according to the criteria of the US Department of Education Institute of Education Sciences (Gersten et al. 2014) and is of increasing interest around the world. The complex nature of lesson study, its departure from modal forms of professional development in many countries, its cultural underpinnings, all constitute challenges to translating the practice into other contexts. To understand these challenges, we conducted a longitudinal study on international participants in an immersion program for lesson study in Japan.</p> <p>Research questions:</p> <p>RQ #1: What do participants adopt in their home contexts from an</p>

	<p>immersive lesson study program in Japan?</p> <p>RQ #2: What are the challenges and obstacles to adopting lesson study outside of the Japanese context?</p> <p>Methods:</p> <p>To investigate these research questions, we designed a survey that was sent to 90 participants in five cohorts of an immersion lesson study program in Japan. This survey inquired about participants' experiences of the immersion program, what stood out to them as professionally valuable, how they understood mathematics teaching and learning in Japan, what they learned about the conduct of lesson study, and their long-term implementation of lesson study as an outgrowth of their immersion study program in Japan.</p> <p>Theoretical framework:</p> <p>This study uses Mary Kennedy's framework from Inside Teaching (1999) for understanding the implementation of reform efforts in teaching and learning.</p> <p>Findings:</p> <p>Although all participants found the immersion program to be extremely informative about the practice of lesson study, and personally and professionally stimulating, one third of participants were not conducting lesson study or involved with lesson study in the years following their trip. Our findings indicate that 1. broader educational values and practices changed even though lesson study per se may not be strictly adopted; 2. lesson study is challenging to implement as a stand-alone intervention, separate from a full system of continuous improvement; 3. culture matters in ways that have not been fully appreciated.</p>
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Presentation Code	61b
Title	Expanding Lesson Study Worldwide II : Teachers' Belief Change Through Intensive Research Lesson Observation and its Post-Lesson Discussion
Presenter/s	Jennifer Lewis and Naoko Matsuda
Affiliations	Wayne State University (United States of America)
Type of presentation	Paper presentation
Strand	Lesson study in different cultural, subject and learning contexts
Time/Location	Monday 5 th September 9:00-10:30am (Queen's Lecture Theatre 2)
Abstract	Research from the last decade shows lesson study as a model for the improvement of mathematics instruction (Lewis et al. 2009;

	<p>Stigler and Hiebert 1999). Because “the belief teachers hold about mathematics and about teaching and learning mathematics filter into what they see and what they internalize (Grant et al,1998)”, teachers’ belief is the key to shift and deepen their viewpoints of lesson observation and discussion for the improvement of mathematics instruction. Research questions of the enquiry: How did the mathematics teachers’ beliefs change from an immersive lesson study program in Japan? Research methods: Shaw (1989)’s teachers’ belief questionnaires were used to see their view of how students learn mathematics and role of the problem solving in mathematics. Participants were asked to put 100 points in total for the states of practice, memory, reasoning and exploring. Then to characterize each cluster trends k-means clustering was used, comparing before and after (short-term and long-term) participating in lesson study the program. Participants’ reflection journals were also used for the qualitative analysis. Analytical framework: This study uses Yoshishige Sugiyama’s “3 levels of teacher” (Sugiyama, Y. 2008). Research findings: We found that there are 5 types of the clusters which are called; 1) practice and memory oriented, 2) practice and memory existent, 3) reasoning oriented, 4) exploring oriented and 5) reasoning and exploring parallel oriented. As a result, the size of the cluster of 1) and 2) decreased just after the participation in the program. It infer that the practice and memorization oriented belief faded away and this might be caused by deep understanding of teaching and learning contents and its educational value and students’ thinking. However, as a result of survey to see long-term effect, 26 valid response showed that the size of the cluster of 1) and 2) tended to increase.</p>
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Presentation Code	6lc
Title	On the Relationship between Learners’ Achievement of 21st Century Learning Outcomes and the Cultural Script of Teaching
Presenter/s	Keith Wood
Affiliations	Universiti Brunei Darussalam (Brunei)
Type of presentation	Paper presentation
Strand	Lesson study in different cultural, subject and learning contexts
Time/Location	Monday 5 th September 9:00-10:30am (Queen’s Lecture Theatre 2)
Abstract	In this paper we present an analysis of the outcomes of a

	<p>professional development program designed to prepare teachers to implement a 21st century national curriculum in Brunei Darussalam. The teachers engaged in cycles of lesson study involving collaborative planning, teaching and review to develop lessons in core curriculum subjects that would achieve the intended outcomes of the curriculum. Six aspects of 21st century learning were operationalized using learning design rubrics designed by SRI International to measure the opportunities for learning. Cycles of design, teaching, review and, if necessary, redesign using evidence of students' engagement at each stage to drive the process were undertaken. Five teacher groups were formed with 10 teachers from each of five public schools in five curriculum areas: science, mathematics, Melayu Islam Beraja (national philosophy and values) (for secondary years 7 and 8) and social studies (for secondary years 7 and 8, and for primary years 4 and 5). This was repeated for three cohorts of 50 teachers with teacher groups meeting regularly for up to three months for each cohort. Each group was introduced to the rubrics through a three-day workshop and supported during the cycles of lesson study by at least one university facilitator and a research assistant. The analysis of data recording the teachers' engagement with the program revealed a positive response with most reporting that they were clear about what is meant by 21st century learning, that they could see - and had experienced - what was needed to redesign lessons for their students to achieve 21st century learning outcomes. However, they were clear also in reporting that their everyday practice was dominated by the need to prepare their students for examinations through practices that were incompatible with these outcomes. The results demonstrate that the development of teachers cannot occur independently of changing the practice of teaching and learning in schools - the tacit assumptions and values manifest in lesson structures, teacher-student interaction and the learning process - cannot occur independently of changing the cultural script of teaching. The implications for curriculum development and the role that lesson study can play in achieving effective change in the quality of education are discussed in the light of this evidence.</p>
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Presentation Code	6J
Title	Making Progress/Finding Meaning An auto-ethnography of a 'Learning Study' group, at a UK Special Needs School
Presenter/s	Tracy Edwards and Margaret Mulholland
Affiliations	Swiss Cottage School (United Kingdom)
Type of	Workshop

presentation	
Strand	Special needs and inclusive education
Time/Location	Monday 5 th September 9:00-10:30am (Newman Blue)
Abstract	<p>This workshop will share evocative and inspirational “learning study stories” from a UK Special Needs School, which relate to practitioner commitment to finding the best ways of enabling the Spiritual, Moral, Social and Cultural Development (SMSCD) of children with learning disabilities. It will do this through a range of interactive “mystery” card sorting activities, where workshop participants categorize “clues” which relate to enquiry questions generated by case learners throughout the process of Learning Study (e.g.: ‘Why is Winnie struggling to count beyond 20?’)</p> <p>In the experience of Swiss Cottage School in London, “Learning Study” has an overwhelming capacity to generate “stories” which then become valuable and powerful tools for professional training and mentoring. The particular “learning study stories” in this workshop, will prompt reflection around “Spiritual, Moral, Social and Cultural Development’, how it can be interpreted by practitioners, and nurtured in children and young people. This will stimulate dialogue about the role and purpose of special education in its broadest sense, and around what it ultimately means to be human.</p> <p>Participants will have the opportunity to hear these stories and also interact with footage that has been captured in the school, using IRIS software. Through capturing anecdotes and creating “learning study stories”, this research lends methodological tools from Anderson’s (2006) “analytical auto-ethnography”, which represents a content-analysis of lived experience. It also lends from Ellis and Boucher’s (2000) “evocative auto-ethnography”, which is the actual writing of “stories” (or other creative forms) from lived experience, and then weaving analysis into them. Much of the presentation therefore, will adopt a range of literary techniques, to “bridge” academic and non-academic discourses, and build the capacity and power to provoke thought across a wide practitioner audience.</p>

Presentation Code	6Ka
Title	Transforming 'Model Lessons' into Everyday Practice: The Case of a Japanese Mathematics Teacher
Presenter/s	Taro Fujita, Keith Jones, Hiroyuki Kumakura and Susumu Kunimun
Affiliations	The University of Exeter
Type of presentation	Paper presentation
Strand	Innovative uses of lesson study
Time/Location	Monday 5 th September 9:00-10:30am (Peter Chalk 1: 1.1-1.3)
Abstract	<p>It is always a challenge for any teacher on a daily basis to plan and implement lessons in which teachers and students gain sound knowledge and understanding. In Japan, so-called 'model lessons' (what in some countries might be called 'demonstration lessons') are often provided by expert teachers during 'Lesson study open house' in which the expert teachers and their schools open their lessons to other teachers. As model lessons are often provided by university-attached schools in which often more-able students are taught by expert teachers, a challenge for many teachers is how to 'transform' such model lessons into their own practice.</p> <p>Our focus is the planning phase of lesson study. This is a critical part of lesson study yet it remains under-researched. Our research questions relate to a) what processes are involved in which teachers use lesson studies to transform model lessons into daily practice, and b) what factors can be identified as essential to enable such processes.</p> <p>In this paper, as a case study, four lessons by one teacher were selected from our larger-scale classroom-based study in Japan. The four lessons were planned by a teacher who works in ordinary public school in her own lesson studies after observing a model lesson. We analyze four lesson plans, four lesson transcripts (in total 180 minutes of teaching time) and the teachers' written reflections on planning and implementing these lessons.</p> <p>We found, for example, that the teacher planned a lesson about 'construction of a square through two given points' that was originally proposed as 'given three points' in the model lesson. This change might look quite small but our analysis suggests that this change was made as a result of 1) the teacher's own explorations of the original problem, 2) the teacher's observation of the model lesson in which students' mathematical explanations were not clear despite them devising many different answers, and 3) the teacher's own professional judgement about ways of presenting the problem that would give her students the best opportunities to explain their reasoning. Our analysis suggests that the process of transforming model lessons into everyday practice is rather complex and that during this process teachers critically evaluate their own subject</p>

	knowledge, pedagogical knowledge, and knowledge about their students in order to create their own lessons. Such findings should provide new insights into how lesson studies can be used by teachers for creating effective future lessons.
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Presentation Code	6Kb
Title	What Happens When a School doing Lesson Study with their Students? -A Case Study of a Junior High School in Japan
Presenter/s	Tomoko Tamura
Affiliations	Gifu University (Japan)
Type of presentation	Paper presentation
Strand	Innovative uses of lesson study
Time/Location	Monday 5 th September 9:00-10:30am (Peter Chalk 1: 1.1-1.3)
Abstract	<p>This paper tries to examine a Japanese Junior High School approach to do lesson study in which involve their students. The objective of this study is to examine how Japanese teachers do practical research in their own classrooms with their own students and support them to learn how to learn, and to learn from each other in practice. Emphasis is here placed on what actually takes place in a Japanese Junior High School through research on teaching with students. For this purpose, a lesson study case is analyzed. This study closely investigates how the lesson study process has the potential to support Japanese students to learn from each other and change their perspectives about meaning and concept of learning.</p> <p>A case study method was employed for data collection, including interviews with the students and their teachers and principal of the school. Detailed descriptions and analysis of the case, including transcript of the lesson and discussion meeting with the teachers and their students, are provided for deep understanding of what actually goes in the lesson study process when students involved. The main research questions are as follows:</p> <ol style="list-style-type: none"> 1) How junior high school students can participate in lesson study. 2) How their participation effect on their learning in practice. <p>In this study, especially for clarifying the features of perspectives of the students who have been involved in the lesson study process, the concept of “learning how to learn” (LHTL, Black et.al 2007) is employed. According to James et.al (2007), the ultimate goal of LHTL is to promote learning autonomy, and the important point is that learners take responsibility for their learning. In this line with, I</p>

	<p>investigated the perspectives of the students in a class to find their learning autonomy in practice. The research findings show that the students take responsibilities for learning in their classroom, because of participant in lesson study process. They are conscious of how they learn and do monitoring, reflection, and even planning of their learning at classroom level with their teachers.</p> <p>The meaning of such study in Japan it is more related to the 'active learning' movement in Japanese high schools as well as a critical issue of the revision of the national curriculum in Japan which is in process now.</p>
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Presentation Code	6Kc
Title	A Lesson Study on Enhancing Students' Learning through the Use of Assessment for Learning (AFL) Strategies
Presenter/s	Jasmine Tay, Marinda Ali, Siew King Yeo, Carol Chan and Lee Kok Leon
Affiliations	Bukit Batok Secondary School (Singapore)
Type of presentation	Paper presentation
Strand	Innovative uses of lesson study
Time/Location	Monday 5 th September 9:00-10:30am (Peter Chalk 1: 1.1-1.3)
Abstract	Lesson Study (LS) has been a key staff training program in BBSS since 2012. After five years of implementation, LS has become the soul of the learning culture in BBSS. All teachers work in groups, according to their own subject discipline, to systematically examine their practice, with the goal of becoming more effective. Teachers work collaboratively on a small number of "study lessons" which cumulate into a learning symposium for the whole school.

Presentation Code	6L
Title	Lesson Study Teams in a Professional Learning Community for Experienced Teachers of Dutch as Mother Tongue
Presenter/s	Carien Bakker, Jean Lang, Jenneke Wilms, Floor Goettsch and Bonne Ziengs
Affiliations	University of Groningen (The Netherlands)
Type of presentation	Symposium
Strand	Developing professional learning communities: models and practices
Time/Location	Monday 5 th September 9:00-10:30am (Queen's Lecture Theatre 1)
Abstract	<p>This symposium presents Lesson Study (LS) teams as part of a Professional Learning Community (PLC) for Dutch as mother tongue. The PLC is a three year pilot launched by the Dutch Ministry of Education in the Netherlands. The PLC consists of 12 teachers of 7 secondary schools spread throughout North Netherlands. Each school year, two LS cycles take place. The teachers work in LS teams of three or four persons, and visit each other's schools for observing the research lesson Teachers are supported by two subject pedagogy teacher educators. The general theme of the PLC is activating and differentiating education, since 20% of the teachers in Dutch secondary education don't succeed in activating their pupils and more than 50% of the teachers don't adapt their teaching to differences between pupils (Dutch Schools Inspectorate, 2015). Furthermore, the content specific theme of the PLC is enhancing Dutch reading skills. In the context of this PLC, teachers are asked to develop activating and differentiated series of lessons focused on enhancing pupils' reading skills. In this symposium, three interrelated case studies will be presented: the first two on enhancing thoroughly reading by giving pupils several choices; the third on enhancing the ability to judge the argumentation in texts by modeling.</p> <p>Case study 1: Enhancing Thoroughly Reading (1) (Jenneke Wilms)</p> <p>This LS took place in pre-university education with pupils aged 15-16 years. Most of these pupils don't like to read non-fictional texts, find it hard to read a text thoroughly, and answer questions about the text mainly by using search strategies. The research question of this LS was: do pupils read more thoroughly when they have a choice of two text topics with a meaningful exercise? The LS team developed a series of three lessons with the mentioned characteristics. The research methods used were observations of individual pupils, interviews with the observed pupils, and a survey.</p>

	<p>Findings were that pupils read the text more thoroughly and with better understanding.</p> <p>Case study 2: Enhancing Thoroughly Reading (2) (<i>Floor Goettsch</i>)</p> <p>This LS took place in lower secondary professional education with pupils aged 14-15 years. These pupils are sloppy readers who find it hard to read a text thoroughly. The research question was: does giving choice in text topics, different types of learning style related exercises and different ways of working (individually, in pairs or in groups) enhance pupils' motivation for reading? The LS team developed a series of three lessons with the mentioned characteristics. The research methods were observations and interviews with individual pupils. Findings were that the motivation for reading a text more thoroughly raises when student are given choices in text topics and exercises. Most pupils choose exercises that fit their learning style on intuition. Furthermore, motivation in a class raises when pupils are allowed to choose to work together.</p> <p>Case study 3: Peer Modeling Versus Teacher Modeling in Reading Comprehension (<i>Bonne Ziengs</i>)</p> <p>This LS took place in a higher general pre-university education with pupils aged 15-16 years. In the final examination of pre-university education reading skills and judgment of the quality of the argumentation in texts are examined. Many pupils experience difficulties in comprehending argumentation theory and obtaining the skills to judge the quality of used arguments. The LS team wondered whether modeling and observational learning was a good method to enhance pupils' learning on argumentation. The LS team especially was interested in finding out whether peer modeling was a better method for the pupils than teacher modeling. Two interventions were developed. Pupils of intervention A observed a teacher modeling the process of judging the reliability of argumentations. Afterwards they made in groups an instruction video in which they showed how to judge the reliability of the argumentation. The best video was selected as the peer model video for pupils of intervention B. Pupils of intervention B observed a peer doing the same. The research methods were observations and interviews with individual pupils. The findings were that pupils of intervention B listened more attentively to the instruction than pupils of intervention A.</p>
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Presentation Code	6Ma
Title	Understanding Student Diversity through Intersubjectivity: Introducing Lesson Study in Teacher Education in Norway and the United States
Presenter/s	Nina Helgevold and Aki Murata
Affiliations	University of Stavanger (Norway)
Type of presentation	Paper presentation
Strand	Lesson study in different cultural, subject and learning context
Time/Location	Monday 5 th September 9:00-10:30am (Peter Chalk 4: 2.4-2.6)
Abstract	<p>Practicum, also called clinical experiences, is seen as a key component in preservice teacher education (Anderson & Stillman 2013, Darling-Hammond 2010). Lesson Study is a form of professional learning community that aims to help teachers deepen their understanding of student learning through inquiry (Murata 2011).</p> <p>This study investigates preservice teachers' learning processes in two different teacher education programs, one undergraduate-level program in Norway, and another graduate-level program in the United States. Although there are differences between these two programs (e.g., program levels, structures and organizations of courses at campus, organization of practicum), both programs have introduced lesson study as an approach to support preservice teachers' learning during practicum. Our research aim was to understand, despite the program differences, if there is a common trajectory on teacher learning about student diversity when preservice teachers engage in a carefully - designed practicum. Focus group interviews with 8 student groups (4 Norwegian/ 4 US) were conducted before and after Lesson Study. In analyzing pre-service teachers' talk about student diversity, we have adapted a framework developed by Matusov & Smith (2007). Their core argument is that teaching needs to seek towards achieving intersubjectivity between the teacher and the student, as this "makes the teacher work with the student as a co-learner and co-partner in learning rather than work on the student as an object of pedagogical actions" (Matusov & Smith, 2007, p.3).</p> <p>Our study found that preservice teachers' talks included more intersubjectivity in both groups after their Lesson Study experiences. As a part of the process, preservice teachers collected student learning data in lessons and interviews, which helped them become aware of students' perspectives. In post-interviews, preservice teachers discussed student diversity in a more fluid manner. Diversity among students was no longer discussed as labels to constrain what students cannot do, but as contextual factors that can be positively handled in lessons for increased student learning. Students' experiences informed teaching, and</p>

	<p>preservice teachers expressed excitement for a more open teaching to respond to student diversity through the process of Lesson Study.</p> <p>The findings of the study suggest that Lesson Study can help shift the ways preservice teachers think about their teaching and student learning and change their practices accordingly.</p>
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Presentation Code	6Mb
Title	Participants' Views of the Implementation of Lesson Study in Secondary Mathematics Pre-service Teacher Education in Indonesia
Presenter/s	Meiliasari Meiliasari
Affiliations	Deakin University (Australia)
Type of presentation	Paper presentation
Strand	Lesson study in different cultural, subject and learning context
Time/Location	Monday 5 th September 9:00-10:30am (Peter Chalk 4: 2.4-2.6)
Abstract	<p>Despite the widespread implementation of lesson study for teacher professional development in Indonesia, little is known about its use in pre-service teacher education. This paper reports participants' views on their learning and some practical issues during the implementation of lesson study in a teaching practicum program at a university in Jakarta. The lesson study in the teaching practicum was conducted in two secondary schools, involving five pre-service teachers, two mentor teachers, and one university lecturer in each school. Two cycles of lesson study were implemented in each school and the researcher acted as the knowledgeable other in both schools. Semi-structured interviews were conducted after the completion of the lesson study implementation. This research employed case study methodology. Data were collected through field-notes, interviews, and video recordings of all phases of the lesson study. This paper reports the findings from qualitative data analysis through inductive approach of the interview data from one school. Data triangulation was carried out by juxtaposing the interview data with the field-notes and video data. Although the lecturers often missed the planning sessions due to their work schedule, pre-service teachers and mentor teachers showed their appreciation of the planning sessions. It allowed pre-service teachers and mentor teachers to exchange ideas about the subject matter, students' thinking, and the enactment of the lesson. The pre-service teachers found that anticipating students' thinking was</p>

	<p>challenging but with guidance from the mentor teachers and the knowledgeable other, especially during the post-lesson discussions they were able to identify students' difficulties and use that to refine the lesson plans and design better teaching materials. Although the planning sessions gave much insight for mentor teachers and pre-service teachers, they required significantly more time than the regular teaching, and this was a challenge for them. All participants valued the reflective practice provided by the post-lesson discussions. Moreover, pre-service teachers appreciated the constructive feedback from the lesson study group. In conclusion, the implementation of lesson study during teaching practice offered rich learning experiences for pre-service teachers and mentor teachers through collaborative lesson design and reflective practice. Mentor teachers and lecturers raised concerns about extended time required and scheduling issues associated with lesson study implementation.</p>
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Presentation Code	6Mc
Title	Participants' Views of the Implementation of Lesson Study in Secondary Mathematics Pre-service Teacher Education in Indonesia
Presenter/s	Siti Malikh Towaf Towaf
Affiliations	State University of Malang (Indonesia)
Type of presentation	Paper presentation
Strand	Lesson study in different cultural, subject and learning context
Time/Location	Monday 5 th September 9:00-10:30am (Peter Chalk 4: 2.4-2.6)
Abstract	<p>Teaching Practice is a required courses for all students in education programs, divided into two sections. The first, is intended as the process of creating Syllabus, teaching plans, instructional medias and supporting material for peer teaching practice. The second, is intended to assign students to do classroom teaching. Lesson Study (LS) has been integrated in the State University Of Malang for a while; after people recognize the benefit of Lesson Study it was decided to integrate it in teaching practice of all students. This study to describe: the integration of LS in teaching practice for students teachers; the implementation of Lesson Study in the teaching practice of the Social Studies student teachers; the</p>

	benefits of the implementation of LS in the teaching practice; the constrains and the supporting factors in integrating teaching practice for Social Studies students teachers. This study uses a qualitative research; researcher as the main instrument; conduct a study of documents, observations, gives open ended questions, interviews and focus group discussion. Lesson Study strengthened the process of teaching practice and promotes the competency of Social Studies students' teachers. Classroom teachers and Social studies student teachers recognize the important of continuing teaching-learning improvement that can be done by practicing Lesson Study.
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Presentation Code	6Na
Title	Inservice Teachers' Competence In Developing Thematic Teaching Material Through Lesson Study Based Learning At Graduate School Of Universitas Negeri Malang, Indonesia
Presenter/s	Cholis Sadijah
Affiliations	Universitas Negeri Malang (Indonesia)
Type of presentation	Paper presentation
Strand	Lesson study in different cultural, subject and learning contexts
Time/Location	Monday 5 th September 9:00-10:30am (Newman Collaborative)
Abstract	A preliminary study was conducted to assess 45 thematic teaching materials developed by 45 in-service teachers who studied in the first semester on Master Degree Program at Graduate School Universitas Negeri Malang in December 2015. The preliminary study revealed the data as follows. More than half the in-service teachers lack in the following six competences: (1) select/developing learning indicators that conform Basic Competency of Indonesia National Curriculum (Curr-2013), (2) implementing the innovative learning strategies/models that conform learning indicators and Cur-2013, (3) describing learning stages that conform learning models and Cur-2013, (4) select/developing media, (5) developing worksheets (6) developing assessment that conforms learning indicators, learning models, and Cur-2013. Through Lesson Study (LS), teachers can plan, do, observe, and reflect the teaching and learning collaboratively. So, they can revise the teaching materials. Even though LS has been implemented in Indonesia for more than 15 years, only 5 of 45 the in-service teachers above had experiences in LS. The aims of this

	<p>research is to improve the competence of the teachers in developing thematic teaching materials through Lesson Study-based learning. The thematic teaching materials included lesson plans, worksheets, teaching media/manipulative materials, and assessment. The subjects are 40 in-service teachers who had no experiences in LS who studied in the second semester in Master Degree Program at Graduate School Universitas Negeri Malang on January-April 2016. The subjects had teaching experiences between 4 – 16 years. They were from 12 provinces of Indonesia, namely Jawa Timur, Jawa Tengah, Jawa Barat, Yogyakarta, Bengkulu, Sumatera Barat, Lampung, Nusa Tenggara Timur, Nusa Tenggara Barat, Bali, Kalimantan Timur, and Sulawesi Selatan. This research is classroom action research. The success of this action research is determined when at least 85% research subject gained satisfactory or distinguished competences on each of the six competence categories. This research was conducted in 3 cycles in 14 weeks. At the end of the first cycle, the third category (i.e. describing learning stages) and sixth category (i.e. developing assessment) were not achieved. At the end of second cycle, the sixth category (i.e. developing assessment) was still not achieved. Finally, at the end of third cycle, all of the each six categories were achieved. This research concludes that the competence of the in-service teachers in developing thematic teaching materials improve through Lesson Study-based learning.</p>
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Presentation Code	6Nb
Title	Lesson Study and Development of Teachers' Professional Teaching Practice in Mathematics
Presenter/s	Anita Tyskerud
Affiliations	University of Stavanger (Norway)
Type of presentation	Paper presentation
Strand	Lesson study in different cultural, subject and learning contexts
Time/Location	Monday 5 th September 9:00-10:30am (Newman Collaborative)
Abstract	<p>The Norwegian Government presents Lesson Study as an example of how Norwegian schools can improve teaching practice and student learning (KD, 2014). Even though some schools have tried to implement Lesson Study, there is a lack of research on the implementation and outcome of Lesson Study in Norway. This study thus focuses on whether and how Lesson Study might contribute to the development of teachers' professional teaching practice in</p>

	<p>mathematics. Research questions/focus of the enquiry: The following research question is approached in the study: How does the teachers' mathematical discourse on teaching practice and student learning develop in Lesson Study?
Research methods and/or mapping of the literature: The study is a qualitative longitudinal single case study of a group of five mathematics teachers in a Norwegian lower secondary school. Data is constructed from transcripts of video- and audio-recordings from the teachers' meetings – including teachers' notes taken during the LS cycle – and focus group interviews before and after each LS cycle. Previous research on Lesson Study has shown how teachers change their way of asking questions, more open-ended to accentuate student mathematical thinking (Dudley, 2013; Robinson & Leikin, 2011). This study attempts to investigate what teachers learn about their own teaching practice and student learning in Lesson Study from a participationist (rather than acquisitionist) perspective (Sfard, 2008). Analytical and/or theoretical framework:
Two sociocultural theories are combined in a way that enables focusing on teachers' participation both in object-oriented activities and discourse. Activity theory is focusing on humans object-oriented activities, whereas discourse theory is focusing on humans who communicate. In this study, second generation of activity theory (Leontiev, 1978) and Sfard's (2008) theory of thinking as communicating are applied in particular. Activity theory seeks to analyse development within practical social activities (Sanniono, Daniels & Gutiérrez, 2010), and Lesson Study is such a practical social activity where teachers collaborate and research their own practice. In correspondence with Sfard's theory, development is investigated by analyzing changes in the teachers' mathematical discourse throughout two Lesson Study cycles. Research findings and/or contribution to knowledge: The study is still in progress, but preliminary findings from the first cycle, indicate that the teachers become gradually more concerned about the pupils' learning. There also appears to be a tension in that the teachers expect a response from the pupils that they do not get. The second cycle will take place in autumn 2016.</p>
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Presentation Code	6Nc
Title	Developing Students' Critical Thinking Skills in Sharing Ideas Using Rotating Station Game through A Lesson Study-based Action
Presenter/s	Agustina Rina, Aulia Nisa Khusnia, Dyah Kusumastuti
Affiliations	The University of Muhammadiyah Purwokerto,
Type of presentation	Paper presentation
Strand	Lesson study in different cultural, subject and learning contexts
Time/Location	Monday 5 th September 9:00-10:30am (Newman Collaborative)
Abstract	<p>Speaking requires students to explore their ideas using utterances. However, there are several problems that are still faced by students, namely: 1) formulating ideas in the form of English sentences is difficult and challenging and 2) limited ideas to be shared to other students. These two constraints happened due to low critical thinking skills, in which students are unable to use their previous and current learning experiences actively. Therefore, a lesson-based program was designed to assist students to speak their mind actively in the speaking class by using Rotating Station games. The activities were done in the speaking class of second semester students of Class 2013, which consisted of 28 students. Rotating Station Game was one of discussion techniques, which was described as the following steps: (1) students were divided into groups, (2) they discussed a topic within 10 minutes and exchanged their roles, (3) a flip chart was used and left after one discussion, and (4) a new flip chart was used for encouraging a further discussion where one or more students could be traded to other groups (Dunne, 2004). This game was very useful to stimulate students to express their critical thinking skills by showing their agreement and disagreement towards an issue (Walcyn-Jones, 1997). Furthermore, the roles of students would be varied in their group and everyone had the same opportunity to experience each role, .i.e., a manager of the discussion time, a note taker of any important points during discussion, and a speaker who delivered his group's discussion results (Celce-Murcia, 2001). The game was used in ten cycles of lesson study during which two observers helped to monitor the speaking activities. The focus of the LS itself was encouraging students' active involvement in making opinions and delivering them using English simple sentences. The lesson study activities revealed that there were some English grammatical mistakes occurred as well as repeated use of vocabulary. However, students were able to think critically of an issue, work as a team and appreciate each other's ideas. As a result, there was a gradual</p>

	<p>rise in students' active involvement of sharing their ideas. In fact, 24 of 28 students responded to the issues initiated by their teacher, they switched roles repeatedly and practised their English in the process. In summary, Rotating station game was very helpful for students to discuss their ideas, give arguments and deliver them in English simple sentences.</p>
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