Introductory Presentation for JICA Symposium

How Lesson Study Works in Africa and Asia?
—Cases of Indonesia and Zambia—

Atsushi MATACHI
Senior Advisor (Education)
Japan International Cooperation Agency
Japan’s ODA and JICA

- JICA is the executing agency of Japan’s ODA.
JICA’s Technical Cooperation in Basic Education

JICA’s Technical Cooperation Projects by Sub-sector (%) (126 Projects in 1994-2015)

- Teacher Education: 68%
- School Mgt.: 22%
- Non-Formal Ed.: 7%
- Ed. Admin.: 3%

- Teacher Education 68%
- School Mgt. 22%
- Non-Formal Ed. 7%
- Ed. Admin. 3%
JICA’s Technical Cooperation Projects by Region (%) (126 Projects in 1994-2015)

- Africa: 44%
- Asia: 29%
- Latin America: 16%
- Oceania: 2%
- Middle East: 9%
JICA’s Technical Cooperation in Basic Education

Examination /Assessment
Curriculum /Syllabus
Improving Quality of Learning
Lesson
Textbook /Learning Materials

Areas on which JICA has mainly focused in the last 20 years
Major Focuses of JICA-supported Projects for Teacher Education

**<Teaching and Learning Approach>**
To transform lesson delivery from teacher-centered to learner-centered which encourages students to think and find solutions on their own.

**<CPD/INSET system>**
To establish a system for continuous in-service education and training for teachers.
JICA-supported Projects Incorporating Lesson Study Components

Country where T. Edu Projects with LS have been implemented: 27
Country where T. Edu. Projects **without** LS have been implemented: 13
Questionnaire survey was conducted in 2014 in 15 countries which implemented projects on Lesson Study supported by JICA.

<table>
<thead>
<tr>
<th>Region</th>
<th>Country</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>Bangladesh, Cambodia, Indonesia, Mongolia, Vietnam, Pakistan, Philippines</td>
<td>7</td>
</tr>
<tr>
<td>Africa</td>
<td>Ghana, Kenya, Mozambique, Senegal, South Africa, Uganda, Zambia</td>
<td>7</td>
</tr>
<tr>
<td>Latin America</td>
<td>Nicaragua</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

Response rate: C/P: 87% (13 out of 15)  
JICA Specialist: 93% (14 out of 15)
## Challenges in Management of LS (1/2)

<table>
<thead>
<tr>
<th>Challenge</th>
<th>C/P</th>
<th>JICA Specialist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insufficient of commitment and support by policymakers / administrators at national and local level</strong></td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>- Support of local education authorities to schools is insufficient.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Monitoring and support by local education offices is difficult.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Insufficient support by school administrators</strong></td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>- Negative attitudes and little support given to CPD/LS by School administrators.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Difficulties in securing time for LS</strong></td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>- Lesson study requires teachers to devote a lot of time for preparation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Heavy teaching load, a shortage of teachers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Insufficient understanding about LS at school level</strong></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>- The concept of lesson study is narrowed down.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Difficulties of applying LS in daily practices.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>11</td>
<td>8</td>
</tr>
</tbody>
</table>
### Challenges in Management of LS (2/2)

<table>
<thead>
<tr>
<th>Challenge</th>
<th>C/P</th>
<th>JICA Specialist</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lack of motivation of teachers due to policy-related factors</strong></td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>- No policy to make CPD / LS compulsory for teachers / schools.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Teachers are not evaluated based on lesson delivery.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Because the assessment criteria for students is still based on factual knowledge, there is no incentive for teachers to change their teaching style. Hence, no need for LS.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Negative attitudes of teachers</strong></td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>- Felt nervous in teaching in the presence of other teachers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- In the long run, they are reluctant to continue LS.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Low salary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Some teachers expect to be paid to attend LS.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
# Challenges in Quality of LS

<table>
<thead>
<tr>
<th>Challenge</th>
<th>C/P</th>
<th>JICA Specialist</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Difficult to make post-lesson discussions meaningful. Facilitation of discussions is also difficult.</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>- Reflection cannot go into depth.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Comments are personalized and judgmental.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Comments are focused on teachers and teaching.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Insufficient knowledge about subject content and pedagogy of teachers</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>● Persons who are knowledgeable and experienced in LS are inadequate.</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>- Lack of experts in LS, Lack of persons who have a sufficient pedagogical content knowledge (PCK).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Involve universities in supporting teachers.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Establish a system for monitoring and mentoring by experienced teachers, university professors, etc.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● Lack of teaching aids and materials</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>12</td>
</tr>
</tbody>
</table>
Introduction of the Panel Countries (1/2)

- Zambia
- Indonesia
Objective: To share the experiences in improving the quality of lessons so that the lessons improve the learning of students

<table>
<thead>
<tr>
<th>Country</th>
<th>Year Project Started</th>
<th>Targets groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>2006</td>
<td>• Junior high schools</td>
</tr>
<tr>
<td>Zambia</td>
<td>2005</td>
<td>• Primary and secondary schools</td>
</tr>
</tbody>
</table>
Lesson Study in Indonesia: Enhancing quality of learning

Keiko Mizuno
Senior Advisor
Japan International Cooperation Agency
JICA Cooperation for improving educational quality through LS in Indonesia

- 1998-2003: Strengthen PRESET for math and science education - junior secondary (IMSTEP)
- 2003-2005: F/U (LS introduced)
- 2006-2008: Strengthen cluster based INSET with LS for math and science (SISTTEMS)
- 2009-2013: Support nationwide dissemination / implementation of LS for junior secondary ed. (PELITA)
- 2013-2017: Training for teacher educators to learn LS in Japan - CD of TEIs for quality dissemination / implementation of LS (ITTEP)
Factors driving adaptation and dissemination of LS in large scale

◆ Strong political commitment for quality education

New Education Law (2003) - “learner centered” approach

◆ Key educational reforms

Decentralization, SBM
- Districts are key administrative units and in full autonomy in making educational policies
- More financial resources available at schools and districts to be mobilized for quality improvements (e.g. SBG)

Teacher reform: Law on Teachers and Lecturers (2005)
- Incentivize teachers to participate in LS for teacher certification
- School based Induction program for beginning teachers

Core Professionals (Teacher Educators) already capacitated and motivated - through JICA technical cooperation (1998~)
JICA Cooperation for improving educational quality through LS in Indonesia

Foundational Stage:
Core Professionals of TEIs capacitated and motivated

Adaptation/Localization Stage:
Maximize an existing mechanism (MGMP) for LS implementation

Consolidation Stage:
Solid capacity development of extended HRs for quality dissemination and implementation

1999: Decentralization law
2003: New Education Law
2004: Ministerial Reg on SBM
2005: Law on Teachers and Lecturers
2005: SBM School Block Grants
Implementation Structure

National Ministries (MOEC / MORTHE/ MORA)

Provincial Education Office

Operational Budget

Proposal based Block Grant

District Ed. Office

Policy and Financial Support

Operational Budget

Teachers Ed Universities

Technical support

Coordination and Support

Teacher Ed Universities

Community

School Development Plan

(financial planning with School Block Grants)

Cluster Based LS

School based LS

Coordination and Support

Policy consultation and Financial Support (LS grants)

Coordination
Mechanism of Cluster-based INSET/LS (for Math and Science)

Province

Universities

District

Cluster for 10-15 Schools
- Math
- Science

District

Cluster for 10-15 Schools
- Math
- Science

District

Cluster for 10-15 Schools
- Math
- Science

Policy and Operational / Technical Support

Universities

Participants:
All teachers of Math and Science

Frequency:
Twice a month (designated by local policy)

Facilitators:
Selected teachers for math and science

Resource person:
District Supervisors, University Lecturers

Method:
Lesson Study (Plan Do See)
Factors contributing to continuity and effectiveness of LS for enhancement of learning

- Consistent engagement of teacher educators / Teacher Education Universities with accumulated LS experience

- Establish effective partnership among Teacher Education Universities and National / Local education administration

- Realize Policy, institutional and financial support through continued dialogues and coordination

- Continue to build key human resources
  - lecturers, school managers, facilitators, supervisors
- Mobilize nationwide network of Teacher Education Universities (Association of Lesson Study Indonesia)

- Maintain professional motivation of teachers to participate in LS to strengthen their pedagogical content knowledge and to prepare for good lesson

* Utilize “Lesson Design” format focusing on expected changes in students learning, and how to motivate / guide them to learn.
Achievements and Challenges in Implementing of Lesson Study in Indonesia

Asep Supriatna
supriatna_asep@yahoo.de / aasupri@upi.edu
Plan session

Lecturers and teachers are designing lessons through collaborative works: predict student’s response, anticipate, and provide students with necessary assistant.
Reactions Rate

What happen?
CaCO$_3$ + HCl
1) 5 gr granule + 0.1 M
2) 5 gr powder + 0.1 M
c) 5 gr powder + 1.0 M

Why?
The rate of gas formation is different

What factors affect the rate of the reaction?

<table>
<thead>
<tr>
<th>Factor</th>
<th>Value</th>
</tr>
</thead>
</table>
| Particle size | Granule A
                  Powder A
                  Powder B |
| Concentration | Room temperature
                  Hot temperature |
| Surface effect | Collision effect |
| Collision effect | kinetic energy |
| Kinetic energy | Activation Energy: $E_a$ |
| Activation Energy | $V = k[A]^x [B]^y$ |

Using graphical methods

In NH$_3$ gas manufacturing industry uses raw materials of H$_2$ and N$_2$ gas. In order to produce more and faster NH$_3$ gas, what treatments can we take? If the reaction produces heat (exotherm), write down the equation of the reaction!

$H_2 + N_2 \rightarrow NH_3 + E$

In the exothermic reaction when the temperature is added the reaction rate slows down. Conversely, if the temperature is lowered then the reaction rate becomes faster.

- Increase in concentration H$_2$ and N$_2$
  - pressure of H$_2$ or N$_2$
- Reduce pressure / NH$_3$
- concentration NH$_3$
- lowers the temperature reaction

I do not understand why the reaction rate can be different.

Yes……,
I know why the reaction rate can be different.
I know how to set the rate of reaction
Do session

Teaching materials well prepared

Choosing a phenomenon or choosing a problem that makes students curious

in the initial activity of learning is how to create an interesting situation for students to learn.

More Attractive
facilitate students to think and discuss between students to understand the concept.

Creating challenges and atmosphere for students to think and discuss between students

More Challenging
Students thinks and learn from other
At the end of the lesson, students are given the opportunity to communicate their understanding within the group and to other groups in the class.

More difficult challenges are also provided to facilitate students to use all their understanding to solve the problem.
The teacher and observers discuss to share and exchange views regarding student activities.

- Observers learn each other to apply it at their class
- Discuss follow-up
1. Easier to see the teaching allocation start from initial activities, core activities, and end activities
2. Assist in the stages of giving problems (challenges for students)
3. Facilitate anticipating student responses in every learning stage
4. Facilitate how to assist students in every stage of learning
5. Assist in measuring student understanding
Teachers responses in Lesson Study activities

1. improved understanding the teaching subject
2. improved understanding the needed of problem (challenge) in learning
3. increased understanding the need to create a pedagogical dialogue (discussion among students in learning)
4. increasing understanding the importance of understanding the way students think
5. increasing understanding the importance of helping students learn
6. increasing understanding the importance of formative evaluation
7. Understand the existence of learning problems and how to overcome them
8. Improve ability to create challenges (problems) that attract students to learn optimally
9. Improve the ability to facilitate discussion between students
10. Improve the ability to anticipate students’ responses (how students think)
11. Improve the ability to apply formative evaluation
12. Improve ability to allocate teaching duration
Challenges and How to Overcome

Challenges:
1. Teachers busy
2. Lazy to implement a good experience in daily teaching

How to overcome:
1. Once a week or once in two weeks the teacher is scheduled to meet and make lesson design at 13.00 to 15.00, after teaching. Teaching is done at the appointed teaching hour so that all chemistry teachers can observe the lesson, and continue the reflection.
2. The role of lecturers is to assist and encourage teachers to improve the quality of their teaching.
3. In order for lesson study activities perceived benefits by teachers then the lecturers help teachers in writing their experiences into articles that can be presented.
4. Involving the role of supervisors and principals, evaluation of lesson study activities at school is conducted in each semester.
How to sustain SELF INITIATIVE

University supports

Leadership of principals

Supports of district/provincial office of education
Possibility of Lesson Study in Zambia on Improving Learning of Pupils - Implications from classrooms-

Esther G. Kazeze
Subject Coordinator
secondary schools
Kazuyoshi Nakai
JICA Chief Advisor
Ministry of General Education
Republic of Zambia
Lesson Study in Zambia

Planning

Delivering

Reflecting

Improving & Confirming

[Images of various school settings and activities related to lesson study in Zambia]
Lesson Study & Zambia

• Introduced in 2006 by Ministry of General Education as part of National Program

• Tool for Teachers’ Continuing Professional Development

• Assisted by Technical Cooperation Projects by JICA
Administrative Structure for Supporting Lesson Study
Unique Practice in Zambia

• **2 cycles** of Plan-Do-See
• Planning as **a Group**
• Periodical **Stakeholders Meeting** for sharing

• Trained **Lesson Study Facilitators**
• **In-service Coordinators** at all levels
• Supported by **Resource Center staff**
Lesson Study Case at Junior Secondary Level

Sample Lesson Study:

- Kabwe Trust School, Central Province
- **Grade 8** class with 49 learners
- **Subject**: Integrated science
- **Topic**: materials and energy
- **Subtopic**: Effects of Refraction - Real and apparent depth
- **Lesson Objective**: Learners to demonstrate their knowledge and understanding of refraction in water using a coin
- **1st** Lesson and **2nd (revised)** Lessons monitored
Lesson Implementation - 1st Lesson

• Teacher explained effects of refraction and gave group work with instructions to learners to use text books for answering
1. State what will happen to a coin when placed in water
2. How does a coin appear under water?
3. How does the water affect the position of the coin in water?
4. Suggest a reason for your answer.

- The coin will appear closer to the surface.
- Coin looks bigger than its actual size.
- Water is less dense.
- Ray of light slows down.
1st Lesson

Pupils’ answers came from text book

- The coin will appear closer to the surface
- Coin looks bigger than its actual size
- Water is less dense
- Ray of light slows down

Facilitator asked teachers to analyze the Lesson from Pupils’ Aspects of Learning.

Teachers’ Viewpoints on the 1st Lesson

Has it helped to build concept of real and apparent depth in the learners?

What if we ask them to bring basins and give them instructions to do it

This will make them observe “effects of refraction”
2nd (Revised) Lesson Implementation

Triggering Learners’ thinking - “How does a coin appear when placed in water?”

Learners engaged in the activity taking turns while others are observing.

Coin will move to the surface.

Learners presenting view before conducting the experiment.
Learners’ Responses

• Clarity of instruction (Learners moved backwards and stopped moving when they could not see the coin anymore)

• When water covered the coin, learners saw the coin again

• An excitement moment for learners as the question was “how come”

• The observation triggered them to think
Learners changed viewpoint after experiment.

Learners’ Responses

When the coin was in the basin, we moved back and stopped at a point where we couldn’t see the coin, but, when water was added, I saw the coin. This means that water made the coin appear bigger and closer to the surface.

Coin didn’t move but reappeared bigger when we poured water in basin.
Teachers’ Viewpoints on the 2nd Lesson

Learner said coin appeared bigger in water through refraction

I liked one answer ... “refraction changes at the boarder”

Learner said .. we moved backwards to see the coin, it is necessary to measure distance where to stand

Learner said, “light ray was slowed down by water hence refraction took place”
Light ray was slowed down by water hence refraction took place.

2. Learners could explain the resources used in the experiment.

3. Learners could explain tasks and solution methods.

4. Learners had opportunity to collaborate with their peers.

5. Learners arrived at meaningful conclusion on their own.

By Analysis Tool

Teachers’ Views on Pupils’ Learning

Learner said .. we moved backwards to see the coin, it is necessary to measure distance where to stand.
1st Lesson

Pupils’ answers came from textbook
- The coin will appear closer
- Coin looks bigger than its actual size
- Water is less dense
- Ray of light slows down

2nd Lesson

• Hypothesising - 'Coin will move to the surface'.
• Explain - Coin didn't move but reappeared bigger when water was added.
• Explain and Interpret - When the coin was in the basin, we moved back and stopped at a point where we couldn't see the coin, but, instead, I saw the coin. This means that water made the coin appear closer to the surface.

Learners demonstrating their knowledge and understanding of refraction in water using a coin.

In this case, Tool for analyzing Pupils’ Learning and Facilitation asking Teachers to analyze Learning enhanced these changes.
Conclusion – Possibility of Lesson Study

Lesson Study:

- Teachers modified instructions to improve lesson delivery
- Learners deepened their understanding of concept in the second lesson
- There was more learning from activity in the 2nd lesson than in the 1st lesson

Challenges

- Quality of lesson study is in the process of being improved (Kyozai-Kenkyu is just beginning to be practiced)
- Analysis of lessons is not deeply done by some teachers (Teachers’ abilities of analyzing lessons are still being developed)
THE END
THANK YOU FOR LISTENING

Major References;


How Lesson Study Works in Africa and Asia?
– Cases of Indonesia and Zambia –

Takuya Baba
Hiroshima University
What is sustainability?

• Keep doing the same thing in the same way?
• Keep changing the thing in the same way?
• Keep creating a new thing?
(x=constant? v=constant? a=constant?)

• X axis represents time, but what does Y-axis represent?
• Quality

- Quality of Lesson and Lesson Study
  - Post lesson discussion
  - Observe children
  - Supporting system etc.
## Mapping of discussion

<table>
<thead>
<tr>
<th>University</th>
<th>Matachi</th>
<th>Mizuno</th>
<th>Asep</th>
<th>Nakai</th>
<th>Kazeze</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>National Policy</strong></td>
<td></td>
<td>Stages, Core professional, Teacher network, Professionalism</td>
<td></td>
<td>Vertical relation, Facilitation</td>
<td></td>
</tr>
<tr>
<td><strong>Provincial College</strong></td>
<td></td>
<td></td>
<td>Vertical axis, Lesson design (Predict), curiosity, think and learn from others</td>
<td></td>
<td>Process skills Predict, observation, an excitement</td>
</tr>
<tr>
<td><strong>School Class</strong></td>
<td>Knowledgeable others Post lesson discussion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Question</strong></td>
<td>How to demarcate stages?</td>
<td>How to deepen quality learning?</td>
<td>How to put momentum into the system?</td>
<td>How to express the quality?</td>
<td></td>
</tr>
</tbody>
</table>
Aspects of quality of lesson and lesson study

• Essence of the unit and/or topic
• Predictions of students’ responses
• Importance of teachers’ learning and its relation with students’ learning
・ここまで最初のコメント
Summary comments

• 1. What is quality of lesson and lesson study
• 2. How to support the quality
What is quality of lesson and lesson study

- Description of deep learning
- Seeing (見る、観る) children analytically (Internal and external activity) based on prediction of students’ responses
- Proposal of a new lesson based on the essence of the topic
2\textsuperscript{nd} (Revised) Lesson Implementation

Triggering Learners' thinking - “How does a coin appear when placed in water?”

Students engaged in the activity taking turns while others are observing.
Learners’ Responses

Learners changed view point after experiment

When the coin was in the basin, we moved back and stopped at a point where we couldn’t see the coin, but, when water was added, I saw the coin. This means that water made the coin appear bigger and closer to the surface.

Coin didn’t move but reappeared bigger when we poured water in basin.
Factors affect the reaction speed: Particle size, concentration?
2. How to support the quality

- Multi-levels of learning (students, teachers, trainer of teachers, national curriculum developer)
- Supporting system: Vertical and horizontal networks, policy, formal and informal system
### Process oriented curriculum development

<table>
<thead>
<tr>
<th></th>
<th>Mathematics Education</th>
<th>Mathematics Teacher Education</th>
<th>International Cooperation in Mathematics Education</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective</strong></td>
<td>To deepen mathematical thinking</td>
<td>To deepen professionalism</td>
<td>To deepen endogenousness in professionalism development</td>
</tr>
<tr>
<td><strong>Actor</strong></td>
<td>Children</td>
<td>Teachers</td>
<td>Professional group of teachers</td>
</tr>
<tr>
<td><strong>Facilitator</strong></td>
<td>Teacher</td>
<td>Teacher of teachers</td>
<td>External expert(s)</td>
</tr>
<tr>
<td><strong>Issues</strong></td>
<td>To value and concretize mathematical thinking</td>
<td>To form mutual relation between individual teachers as a professional group</td>
<td>To substantiate and relativize sense of issues of professional group</td>
</tr>
</tbody>
</table>

At the background, relativity of knowledge

Baba (2014)
ここまで
## How to measure the quality

<table>
<thead>
<tr>
<th>Stages</th>
<th>Characteristics</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction of the system</td>
<td>Policy initiative</td>
<td>Schools and teachers who implement</td>
</tr>
<tr>
<td>Spread of the system</td>
<td>Policy consolidation</td>
<td>Schools and teachers who continue</td>
</tr>
<tr>
<td>Attention to quality</td>
<td>Professional awareness</td>
<td>Focus on keywords</td>
</tr>
<tr>
<td>Quality lesson</td>
<td>Professional community</td>
<td>Focus on children's thinking</td>
</tr>
<tr>
<td>Internalization of professionalism</td>
<td>Professional culture</td>
<td>Integratedness of</td>
</tr>
</tbody>
</table>
What about Japan

<table>
<thead>
<tr>
<th>Policy</th>
<th>Policy</th>
<th>NIER, NTEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>College</td>
<td>Teachers college</td>
<td>Education university</td>
</tr>
<tr>
<td></td>
<td>Education center</td>
<td>Local education board</td>
</tr>
<tr>
<td>Class</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
• JICA’s approach to enhance local initiative. “self-reliant” and “self-help efforts” are valued in New ODA charter

  – Whom: Local experts
  – What: to grow local and endogenous knowledge and experience
  – How:?
Formation of local experts and accumulation of knowledge and experience (Baba, Nakai 2011)

Modernization Theory
- External Expert: Modern Knowledge from Outside
- Local Expert: Importation of Modern Knowledge from Outside
- Practicing Teacher: Reception of Knowledge from Outside

Endogenous development
- JICA or External Expert:
- Local Expert: Theorization of Wisdom of Practice through Examination of Knowledge from Outside
- Practicing Teacher: Creation of Wisdom of Practice

Lesson Study
What is quality of LS? How to improve it?

- ?
- Objective (intended) – (tension) – Observed (Implemented, attained)
- Objective is not focused
- General (e.g. teaching process) - specific (e.g. individual students)
Lesson Study is a problem solving process of professional development for teachers, which has been practiced in Japan from as far back as 19th century and is still being implemented by teachers in Japanese schools. In this approach, groups of teachers regularly meet at school level to plan, implement, evaluate and improve lessons collaboratively as their continuing professional development (CPD) activity.

Lesson Study practice was adapted by the Ministry of General Education in Zambia in order to contextualize it to suit the Zambian school context and introduced to Primary and Secondary schools as a tool for teachers' continuing professional growth. This has been supported by Japan International Cooperation Agency (JICA) through technical cooperation projects since 2005, especially for the teachers of Mathematics and Science. Since 2016, the practice has involved lecturers at Colleges of Education to further improve the quality of lessons in the classroom by strengthening linkage between in-service and pre-service education.

As a teacher, I have started to introspect deeply on the content I teach, strategies used to teach the content as well as increased permeability to lesson critique by colleagues. In observing lessons, I now focus on the learning of students and, based on that, I provide support, coaching and mentorship to teachers in my department in the process of lesson study. Because of the practice of lesson study, teachers have come to value working together as an ever learning community of practitioners, exchanging ideas, classroom experiences, challenges and best practices through interacting and learning from each other continuously, providing opportunity for alternative ideas and thoughts, regardless of professional qualifications and experiences. Thus, yearly awards to teachers at my school based on learner performance have become more competitive.

As a Deputy Headteacher at a national technical secondary school, I ensure that teachers capacities have been built through in-service activities for learners' high academic performance. Through lesson study, my analytical skills in planning, implementation, observation and monitoring lessons have improved greatly. My interest and involvement in research has also been improved through continuous technical supports from the Ministry and JICA.

My teacher’s planning and lesson delivery skills learnt in lesson study have started bearing fruits. Through learner-centred methodologies, learners are acquiring lifelong knowledge, skills, value and positive attitude towards science. Kapiri girls technical school stands as an example in sustaining lesson study and community of learning by teachers.

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The injection of Lesson Study into the School Programme of In-service for the Term (SPREINT) through School Based Continuing Professional Development (SBCPD) has revolutionised the practice of teaching for improved learning outcomes. Other than that, the Lesson Study has helped to strengthen the efficacy of the structure to support meaningful Continuing Professional Development. Since its inception in 2005, evidence exists to showcase the gains from Lesson Study. Teachers are collaborating more through collaborative lesson planning and are using learner centred pedagogies. The Lesson Study has continued to build teachers’ analytical skills with a definite shift from a focus on superficial aspects of lessons to productive teaching and learning.

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What is Zambian Lesson Study?

Lesson Study practice of teachers is now found in more than 50 countries in the world. It usually follows “Plan - Do - See” process of activities conducted by teachers and educators. In planning, a lesson is prepared by a teacher or a group of teachers with specific objective and focus. In doing, the planned lesson is conducted by a teacher in the classroom, while other teachers observe with specific viewpoints. After the lesson, thorough discussion is held to review and improve the lesson and technique of teaching based on the learners’ reactions and thoughts observed in the lesson.

In Zambia, Lesson Study has 8 steps of activities which go through “Plan - Do - See” process twice as shown in the diagram below (1. Defining problem of teaching/learning as objectives for Lesson Study, 2. Planning lesson as a group, 3. Conduct lesson in the classroom, 4. Having discussion on the lesson for improvement, 5. Planning the lesson with new idea, 6. Conduct lesson again, 7. Having discussion to confirm the changes, 8. Recording learning through Lesson Study). This arrangement was adopted to provide teachers at schools with more opportunities to prepare and conduct lessons together as a community of learning.

Process of Lesson Study in Zambia

<table>
<thead>
<tr>
<th>Plan</th>
<th>Do</th>
<th>See</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Reviewing the Lesson again</td>
<td>8. Compiling Learning</td>
<td></td>
</tr>
</tbody>
</table>

In Zambian Lesson Study, there is no “Trainer” and “Trainee”. Teachers themselves are always main actors in sharing knowledge and experience. Their focus is always on learners in the classrooms. School managers are expected to support teachers in conducting Lesson Study administratively and technically. It is believed that this approach directly addresses concerns of teachers at each school and continuously improves their lesson and learning of learners with little cost and change of system.

Why was Lesson Study introduced?

Teachers at Primary and Secondary schools in Zambia made efforts for a long time to overcome issues in teaching such as big class sizes, insufficient teaching materials, shortages of textbooks and few opportunities of participating in training courses. However, researches conducted in 1990’s and 2000’s indicated that the environment coupled with these challenges tend to lead teachers to frequently conduct “Chalk & Talk” lessons. As a result, learners were often guided to concentrate on copying writings of teachers in their notebooks without having enough opportunities to think and exchange ideas. Unfortunately, national and international assessments, especially in mathematics and science, showed that performance of Zambian learners were not satisfactory comparing with expected outcomes. This situation led the Ministry of General Education to introduce “Lesson Study” of teachers as part of initiatives to improve teachers’ knowledge and skills as well as learners’ performance as its effect.

Lessons in the Classrooms before Lesson Study

Through the practice of Lesson Study, it is expected that teachers obtain new idea of preparing and conducting lessons as well as experience of using variety of methodologies in teaching. In Lesson Study, this change in teachers takes place gradually but firmly based on their continuing efforts. Therefore, it is important to continue the practice as life-long learning of teaching professionals and maintain the quality as learning community.

Enhancing Learners’ Subjective (Active) Learning

If teachers get new knowledge and skills of teaching, quality of Learners’ learning could be improved as a result of Lesson Study. In the technical cooperation projects with JICA, problem solving and inquiry teaching methods have been promoted in mathematics and science lessons. To conduct lessons with these methods, intensive study of teaching/learning materials (Kyozai-Kenkyu practice) have been emphasized among the educators and teachers. It is believed that, if teachers effectively apply these practices in preparing lessons, learners’ opportunities of having “Higher Order Thinking”, “Practicing activities”, “Conducting experiments”, “Collaborative Learning” and “Recording their Learning” are increased. Expected goal of the Ministry is to provide learners with abilities of critical, creative and analytical thinking.
Lesson Study activities of teachers in Zambia are supported by policies on education. Zambia has adopted the position that continuous improvement of teachers' knowledge and skills based on School-based Continuing Professional Development (CPD) is a crucial process as well as an obligation for all teachers.

The national education policy, "Educating Our Future" (1996), and the "Teaching Profession Act" (2013) cite CPD as cardinal for the professional growth of a teacher.

School-based in-service training in Zambia is conducted within the school, through the in-service training framework: the School Program of In-service for the Term (SPRINT). Under SPRINT, there are components of Teacher Group Meeting (TGM), Grade Meeting at Resource Center (GRACE) and Subject Meeting at Resource Center (SMARC). All teachers are encouraged to participate in CPD activities through the above platforms.

In addition, all Head Teachers and Deputy Head Teachers are required to undertake Headteachers' Meeting (HIM) and School In-service Monitoring (SIMON), to monitor CPD activities.

Lesson Study in Zambia was not introduced as a new project or program, but a new practice conducted in the existing framework of SPRINT. Regular meetings of teachers and school staff under SPRINT such as TGM and HIM have been used as a venue for Lesson Study.

Introduction and expansion of Lesson Study has been strategically managed by the Ministry of General Education following "Master Plan for Teacher Professional Growth (TPG) through School-based Continuing Professional Development (SBCPD) Program". The plan describes how the practice could be extended to all primary (Grade 1 - 7) and secondary (Grade 8 - 12) schools in the country and how the quality of Lesson Study and lessons in the classroom are improved.

In the strategy of Master Plan, a phased approach is taken for the expansion. Lesson Study was firstly introduced in Central province in 2006 as a pilot, then extended to two more provinces after 2008. After five years of implementation, the practice involved all the ten provinces in Zambia and reached 46,058 teachers by the end of 2015. The Ministry is still working to enable all the teachers (approx. 100,000 as of 2016) in the country to have opportunities of conducting Lesson Study.

Scaling-up Lesson Study

(MoGE & JICA, 2015, Completion Report of STEPS Project)

<table>
<thead>
<tr>
<th>Year</th>
<th>1 province</th>
<th>3 provinces</th>
<th>10 provinces</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>1 province</td>
<td>3 provinces</td>
<td>10 provinces</td>
</tr>
<tr>
<td>2008</td>
<td>20,000 pupils</td>
<td>560,000 pupils</td>
<td>1,640,000 pupils</td>
</tr>
<tr>
<td>2011</td>
<td>1,989 teachers</td>
<td>14,035 teachers</td>
<td>46,058 teachers</td>
</tr>
<tr>
<td>2015</td>
<td>213 schools</td>
<td>3,121 schools</td>
<td>3,800,000 pupils</td>
</tr>
<tr>
<td>2023</td>
<td>3,800,000 pupils</td>
<td>9,500 schools</td>
<td>100,000 teachers</td>
</tr>
</tbody>
</table>

*Numbers at 2023 are target (100%) as of 2016

In the introduction of Lesson Study, the practice is usually started from mathematics and science subjects, since these subjects are given special focus in Zambia's national development plan; however, with initiatives of the Ministry and schools, it was extended to all the subjects and all the grades in many schools.

Together with policies and framework for enhancing Lesson Study of teachers, the Ministry is making big efforts in improving basic education and teacher education curriculum and providing teaching/learning materials to schools for the better implementation of Lesson and Lesson Study at schools in the country. Zambia's journey in improving quality of lessons at school through Lesson Study is still continued.
While Lesson Study activities of in-service teachers are extended to more numbers of primary and secondary schools in Zambia, the Ministry in collaboration with JICA has started to support Colleges of Education since 2016 to conduct Lesson Study in collaboration with teachers in primary and secondary schools. Colleges are expected to be core centers to improve the quality of Lessons and Lesson Study in the country. Under the initiative, college lecturers (teacher educators) will be visiting schools to work with teachers in developing sample lesson plans to be shared with other schools as good samples. At the same time, lecturers will get real information in classrooms such as how learners think and make mistakes. This knowledge could be used to develop lecture guides and modules for college students, so that teacher education at college level could be practically improved. Thus, through Lesson Study as a collaborative work by college lecturers and teachers at schools, it is expected that in-service and pre-service teacher education would be linked to improve their contents. This linkage will also be supported by Education Support Teams (ESTs) at National, Provincial, District and Zone levels, as the teams are supporting the conduct of Lesson Study in the framework of SPRINT.

In the Master Plan for Teacher Professional Growth, the Ministry of General Education aims to strengthen the linkage between pre-service & in-service and ensure that teachers have skills for enhancing active learning resulting in learners who can think critically, creatively and analytically by 2030.

In the collaborative work of lecturers and school teachers, the focus is on Pedagogical Content Knowledge (PCK) as knowledge to be strengthened to enable them conduct lessons which enhance learners’ critical, creative and analytical thinking. In Zambia, content knowledge (which deals with subject contents) and pedagogical knowledge (which deals with teaching methodology) were generally taught separately at university and college level for a long time. It is believed that this contributed to the teachers at school level experiencing difficulties in applying a variety of teaching methods according to topics and objectives as outlined in the syllabus. Therefore, lecturers and teachers will be requested to use PCK in the process of developing sample lesson plans and teaching materials through Lesson Study. Technical inputs on PCK and support to activities of lecturers and teachers will be organized by the National Science Center (NSC) which will act as a hub for bridging in-service and pre-service teacher education through training of educators, producing teaching/learning materials and conducting research.