IMPLEMENTATION OF LESSON STUDY FOR IMPROVING THE QUALITY OF MATHEMATICS INSTRUCTION IN MALANG

Muchtar Abdul Karim
Faculty of Mathematics and Science,
State University of Malang

Japan International Cooperation Agency (*JICA*) and The Government of Republic Indonesia have collaboratively established the Project for Development of Mathematics and Science Teaching for Primary and Secondary Education since October 1, 1998

The name of the project is "Indonesian Mathematics and Science Teacher Education Project – Japan International Cooperation Agency, (*IMSTEP – JICA*)"

Three participated universities:

- Indonesia University of Education [*Universitas Pendidikan Indonesia (UPI)*] – Bandung – West Java. Faculty of Mathematics and Science Education [*Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam (FPMIPA)*]
- State University of Yogyakarta [*Universitas Negeri Yogyakarta (UNY)*] Faculty of Mathematics and Science [*Fakultas Matematika dan Ilmu Pengetahuan Alam (FMIPA)*]
- State University of Malang [*Universitas Negeri Malang (UM)*] – Malang – East Java Faculty of Mathematics and Science [*Fakultas Matematika dan Ilmu Pengetahuan Alam (FMIPA)*]

Two phases of project:

- IMSTEP-JICA (1 October 1998 – 30 September 2003): piloting schools and exchange experience
- Follow-Up Program of IMSTEP-JICA (1 October 2003 – 30 September 2005): piloting schools, lesson study, and exchange experience

The purpose of *IMSTEP-JICA* or the first phase is to enhance the capacities of teachers in mathematics and science both through pre-service teacher training and in-service teacher training

The activities of IMSTEP-JICA are:

- providing laboratory facilities,
- curriculum revision and its subject content,
- syllabi revision,
- teaching method development,
- teaching materials development,
- evaluation and communication development for both pre-service and in-service teacher training

Four task teams are:

A: curriculum and subject contents,

B: syllabi and teaching method,

C: teaching materials, and

D: educational evaluation and communication for the project

After mid-term evaluation conducted in July 2001, piloting activities and exchange experience are introduced

Four piloting schools in piloting activities conducted in Malang:

- Public Junior High School 4 of Malang [*Sekolah Menengah Pertama Negeri 4 Malang (SMPN 4 Malang)*],
- Laboratory Junior High School of State University of Malang [*Sekolah Menengah Pertama Laboratorium Universitas Negeri Malang (SMP Lab UM)*],
- Public Senior High 2 of Malang [*Sekolah Menengah Atas Negeri 2 Malang (SMAN 2 Malang)*], and
- Laboratory Senior High School of State University of Malang [*Sekolah Menengah Atas Laboratorium Universitas Negeri Malang (SMA Lab UM)*]

The second phase: Follow-up Program from October 1, 2003 to September 30, 2005

During Follow-up Program, the project introduced and implemented an approach, a technique, or a method of instruction to piloting school: **Lesson Study**

Lesson study has been implemented for mathematics instruction in piloting schools, for example:

- *Puspitasari*, mathematics teacher from *SMPN 4 Malang*, implemented it successfully.
- *Arsita* and *Setiawan* – mathematics teachers from *SMA Lab UM* - have also tried this approach to their classroom instruction

Participants of the exchange experience activities are:

- districts education officers,
- subject matter supervisors, principals,
- principals association [*Musyawarah Kerja Kepala Sekolah (MKKS)*],
- teachers,
- subject matter teacher association [*Musyawarah Guru Mata Pelajaran (MGMP)*], and
- academic staffs from university

Approach to Lesson Study:

- conducting workshop and training for piloting school teachers and lecturers of *FMIPA UM*
- conducting workshop and training for planning lesson study
- implementing and observing research lesson
- discussion on data collected
- reflection and revision

Five good practices:

(1) relationship and communication between *FMIPA UM* and schools run smooth and efficient,
(2) partnership among teachers and lecturers is mutually developed,
(3) collegiality among teachers and/or lecturers is developed,
(4) mathematics instruction is more effective, and
(5) professional development of mathematics teachers is achieved