



IMPLEMENTATION OF EDUCATION IMPROVEMENT MODEL FOR BIOLOGY IN ACEH PROVINCE

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Abstract

Referring to Mapping Research and Education Quality Improvement (PPMP) for Higher Education (Dikti) in Aceh Province that were conducted in 2011, found several problems about basic competences and standard competences from the Aceh Province' score of National Examination (UN) for 2011. A Survey was done at 12 areas where includes 23 districts/cities reveals low achievement of standard and basic competences in Biology subject, namely: Area 1 includes South East district and Gayo Lues district; Area 2 includes Bireun district and Lhoksumawe city; Area 3 includes Pidie district and Pidie Jaya district; Area 4 includes Simeulue district; Area 2 includes Langsa city and Aceh Tamiang district; Area 6 includes Bener Meriah district and Center of Aceh district; Area 8 includes West Aceh district and Nagan Raya district; Area 9 includes Banda Aceh city and Sabang city; Area 10 includes East Aceh district and North Aceh district; Area 11 includes South West Aceh district and South Aceh district; and Area 12 includes Singkil district and Subulussalam district. Regarding to the problem, experts in related fields developed problem solving model through research and service. This service activity aims to examine the effectivity of the model implementation in order to improve the SK and KD competences towards students in Aceh province. The model is conducted through series of activities: 1) First stage, conducting MGMP workshop to identify problems found based on result of PMPMP research in 2011, then is getting same perception among service activity members, 2) Second stage, developing *lesson plan*, getting same understanding in developing RPP refers to Taxonomy (Affective, cognitive, Psychomotoric), and 3) Third stage, Open Lesson Implementation, gathering all development documents as agreed valid format to be used all over Aceh province. The effectivity of the model implementation is measured by achievement level of determined indicators and improvement of teacher and student competences towards problematic SK and KD in Biology. The implementation shows that generally model and activity stages can be applied, teachers, principals and school supervisors are improved in planning and implementing learning through modelling activity.

Key words: Quality Improvement, Competence Standard, Basic Competence, model implementation

INTRODUCTION

PM-PMP Service in 2012 was targeted for High School level (SMA) in Aceh province where the targeted schools are the location of PP-PMP research done in 2011. Each District has 3 samples of high schools. This service is supported and alligned with education quality improvement program of related institution such as Provincial Office of Education, District/City Office of Education. PM-PMP research conducted in 2011 revealed problems and relevant with the condition and quality of learning implementation at the sample schools in every district.

According to National Exam found that UN score for high school in Aceh Province is low compared to other provinces, indicated by the average score and analysis of student comprehension level at various competences in Biology.

According to National Exam report, informed that Aceh education quality for at every levels is low compare to other provinces in Indonesia. Student comprehension level at every competence in Biology is not distributed equally or variative. Furthermore, for certain competences, 5-7 competences at every subject has students comprehension level under 40%, even there are 3-5 competence where

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the level of student's comprehension is under 10%. The significant difference of level comprehension in between competences cause the average final score of Biology is not maximum.

The following are factors cause national standard can not be achieved: 1) limited comprehension about content curriculum; 2) limited comprehension about subject matter, especially Biology subject; 3) lacking of biology teacher's pedagogical knowledge ; 4) lacking of facilities and infrastructures; 4) unconducive learning culture; and 5) low level capability in managing school. The mentioned factors affect negatively students' comprehension on learning material and National Examination.

METHOD

Lesson Study is considered as suitable solution to solve the identified problems that had been mentioned previously, it is indicated by PPMP in 2011 in Bener Meriah and Center of Aceh district. Statements from several scholars support this model like Susilo, et,al (2009) "*lesson study* is an effective way to improve instruction quality through professional development through collaborative implementation based on instruction practice". Lewis and Catherine (2002) add that "*lesson study* improve educational system widely. Lastly, Lesson study is also effective to be applied for Teaching Practice Program (PPL)(Ibrohim, 2008).

Here, it is only focused on lesson study implementation for Biology subject, where consisted in several stage as follow: socialization workshop, development of *teaching plan*, determine action schedule for *open lesson* that is accompanied by observation and reflection. This problem solution model known as *Lesson Study* model, that is shown at following charts.

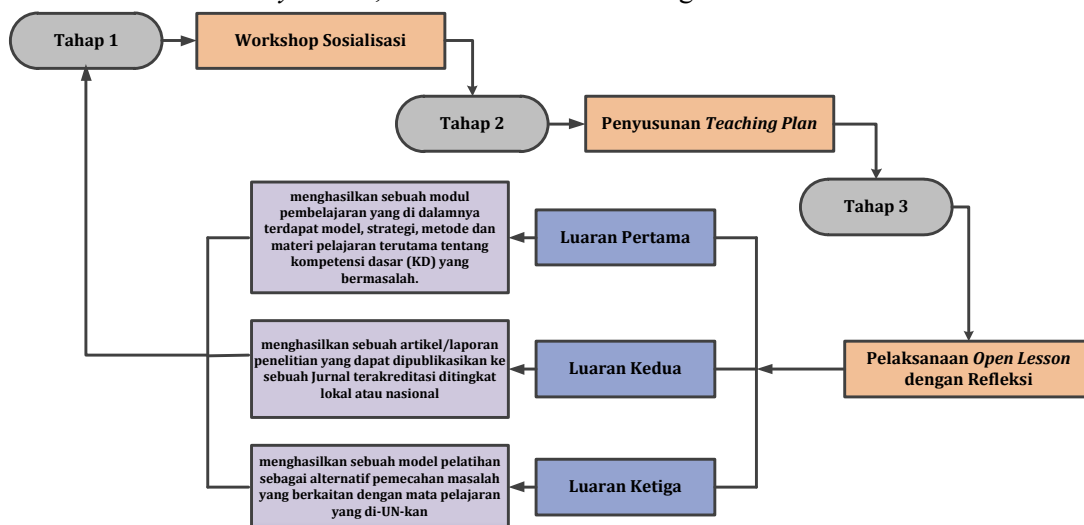


Figure1. Chart of problem Solving Model

Effectivity of lesson study are proved by following outcomes:

- The first stage is MGMP Workshop, aims to strengthen difficult teaching material in order to improve teacher's content comprehension for every subject.
- The second stage *Teaching Lesson*, teachers are trained to develop RPP which is match with teaching material.
- The third stage is *Open Lesson*, teacher model will conduct teaching and learning process according to developed RPP.

The following are indicators that indicated the model is effective to improve teacher professionalism: 1) Teachers are more open towards inputs and critics related to their teaching from observer teachers; 2) teachers learn how to activate students to learn, so teachers are motivated to improve instruction; 3) teachers are more used to receive suggestions, critics from peer teachers, lecturers, supervisors and principals through open-class (reflection); 4) active interaction between student-student, student-object and students-teacher; 5) Principal plays his/her role well in supervising and determine the successfulness of model.

This model motivates teachers to produce best performance, (1) developing instruction planning and it's instruments, (2) implementing developed instruction planning, and (3) receiving inputs or critics from peer teachers, principals, lecturers and school supervisors during instruction planning and implementation, through reflection and discussion. Besides, it also trains teachers to develop peer-ship sense among teachers that motivate them to learn from each others, where peer-ship is also needed to establish teaching team, learning model development, and classroom action research.

RESULT AND DISCUSSION

Workshop (socialization)

The implementation of PM-PMP was done on MGMP workshop, especially for Biology. MGMP was conducted in two stages: 1) at first, MGMP is followed by teachers from all subjects; 2) secondly, it is followed by teachers from certain subject in order to improve comprehension on difficult content. The following figure shows the activities of MGMP workshop that was conducted in two districts.

The workshop was followed by more than 230 teachers. Local education office and principals invite 10 teachers for every subject as workshop participants. But, in this case, other teachers are welcome to join presentation. In this workshop, is discussed two mainly things namely: 1) presentation of difficult content for all subject; 2) reinforcement of learning strategies for teachers; 3) benefits and purposes of MGMP at every school in sub districts and districts; and 4) management of work plan to activate MGMP activity continually.

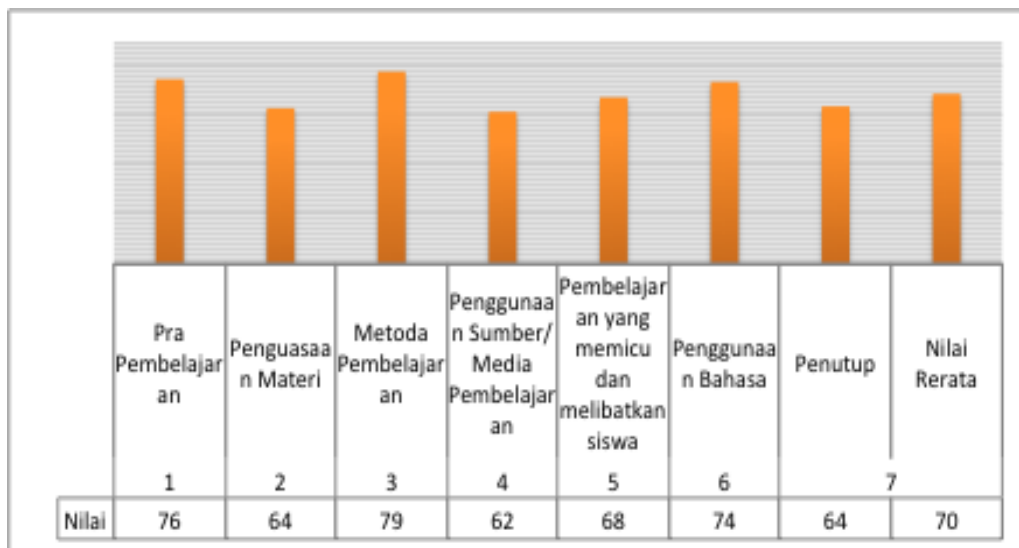
Workshop model that was conducted is Focus Group Discussion (FGD). After all stage of service conducted, at the end of FGD activity, PM-PMP team will distribute instrument of teacher's comprehension level towards difficult KD. It was done to measure the effctivity FGD model utilized by PM-PMP Team. The instrument result proves that for Biology subject, is existed 15 KDs identified as difficult to understood by teachers in average 79,9%.

Teaching Plan

On *teaching plan* stage, for about 60% of teachers develop RPP that do not meet the standards. They make RPP already but never use it in instruction. As the consequence, teachers do not recognize the important aspects of RPP development. Referring to the problem, teachers are trained to develop RPP and character based RPP. In this case, character based RPP has minimum criteria such as purpose and indicators match with cognitive, affective and psychomotor domain. Next, teachers determine learning strategies based on teaching material, eliminating the mindset that all content works for all learning models and methods.

Then teachers are trained to utilize learning media and appropriate evaluation model. In this case, learning media should be design based on needs, especially for Biology learning media usage is really needed. Furthermore, evaluation model should be adjusted to objectives and indicators that have been determined based on Bloom Taxonomy (cognitive, affective and psychomotor domain). As the result, this workshop increase teachers' ability up to 70% in average. The result does not only represent ability in RPP development, but also the knowledge of adjusting learning and teaching process based on learning scenario. The following is teaching plan for biology

Tabel Practice Score of Teaching Biology in every areas



Open Lesson

Open Lesson workshops in 23 districts/cities were conducted by all high school samples and followed by available teachers at that time. Teacher models are teachers who were willing to perform without any force by other teachers or facilitatos. Before perform teaching, they had prepared RPP. In the beginning, they looked nervous because never been observed. But, they was quite confident because they comprehend teaching material very well. The performances were held along two hours for every class at assigned schools.

After open lesson activity, teachers, teacher model and facilitator sit together to reflect strengths and weaknesses of teacher model. Observers criticize that teacher model was forgot to explain expected competences and learning objectives at the beginning of the class. So that students will know what are expected from learning. Teacher model divided students in groups, but she didn't accommodate students' needs according to Jigsaw saw. Teacher model did not give chance to all students equally, only focus to several students. The teacher also did not give motivation when students solved the difficult questions. Students feel that groups are divided not based on abilities but due to the position of seat. Teacher model did not inform the content as contextually so that it makes hard for students to imagine. Teacher model stated that she is not very maximal in teaching because of nervousness and feeling doubtful in delivering information. According to field observation, peer evaluation had increased teacher's ability in teaching for averagely above 70%. It indicates that lesson study is effective to increase teacher's ability in teaching.

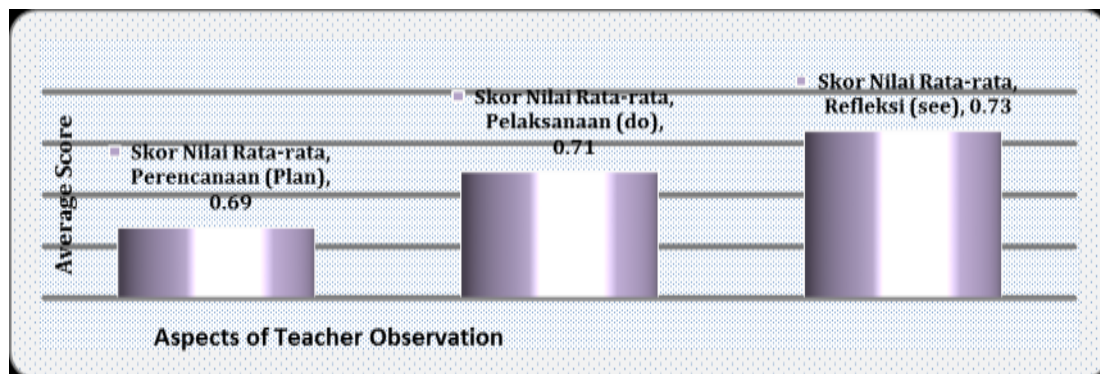


Figure of Observation of Biology teachers in 23 districts/cities

According to observation of outcome behaviors by teacher model, observers need to imagine experiencing what is experienced by teacher model (vicarious learning). Bandura in Uno (2010:195) state there is five (5) lessons that can be learnt through modelling observation, namely:

- 1) Observers can learn new cognitive, affective, or psychomotoric skills, by paying attention to how teacher model conducted instruction;
- 2) Observation can strengthen or weakening various obstacles for observers to observe the same attitude. In other words, observers learn what need to do and do not.
- 3) Teacher model can act as social promptsor supporters to observers. Observers can learn benefits of an action.
- 4) Observers can learn how teacher model use learning media and utilizethe surrounding environment; and
- 5) Observing teacher model express emotional reaction that can stimulate observers also express the same emotional reaction.

After instruction process is done, continued with reflection .Arends (2008:28) mention reflection as activity “learning to teach”. Furthermore, to become skillful teachers take long time, supporting by long life learning. During the reflection, teacher model is given first chance to deliver impression of her teaching. Then, observers are asked to comment about the teaching during open class session.

Reflection session shows that teacher model is able to teach very well, eventhough at first stage of teaching teacher model was getting nervous and was able to state expected learning objective. Teacher model use cooperative learning strategy to activate students. Worksheet deliver change classroom to be alive and skillfull. William Burton, as quoted by Usman (2010: 21) states “teaching is the guidance of learning activities, teaching is for purpose of aiding the pupil learn”. Therefore, students activity is really needed in learning and teaching activity to make students active. Because in this case, students who should do learning, teachers as manager of learning and teaching process who act as facilitator try to create effective learning and teaching condition, so that learning objectives are achieved. Sebab siswa sebagai subjek didik adalah yang melaksanakan belajar. The learning condition, by Yamin (2008) stated as constructivist learning.

The weakness of teacher model through observation is teachers were not able to manage time very well, as an example, teacher opening took long time to open the lesson but took a while to do discussion. Besides, in overall learning condition is quite conducive. But, teacher model needed to divide groups in smaller number and heteregon. At the end of lesson, teacher were not able to conduct

learning evaluation very well, includes assessment towards class discussion activity, providing feedback to students as well to draw summary from learning activity.

CONCLUSION AND SUGGESTION

This MGMP workshop is followed by 50 teachers at every district/city from the beginning until the end. Difficult content is solved through intensive discussion. Many teachers ask the solution of national exam. Teachers are interested with various solutions, and the best way to determine names of species (for example in Latin). Teachers can share with peers in solving practice test. This activity will be realized continuously at every 4 months.

At *teaching lesson* activity, teachers are taught in details about flexible RPP based on needs. In this case, content should match with level of difficulty, then choosing several learning strategies match with learning model, learning method, learning techniques, and learning approaches. RPP should be developed based on national characters, contain cognitive, affective and psychomotor domain. Teachers had also produced several RPP to be tried out in class.

At *open lesson activity*, biology groups determine a teacher model whom able to match content. The model teacher taught students systematically, so that students are able to comprehend content well. Observer teachers supervise all activities done by teacher model from beginning till the end. Observer teachers noted all important information. Then, continued with discussion about the teacher model's performance where every given critics and comments becomes valuable inputs.

In overall, the participants in all assigned areas agree that this program should be done continuously because can teachers to gain more information and knowledge. Education office in the two districts respond this activity by preparing next activity, even facilitator and sources are from another areas. This plan should be realized in Renstra at the areas by involving teachers in all areas. In terms of learning evaluation, the teachers at the two districts agree to ask lecturers from FKIP UNSYIAH to facilitate this activity continuously. Nowadays, Aceh provincial Education Office had launch program for 2013 that focus on education quality improvement.

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