

# Implementation of Lesson Study with Combination of PAKEM and LOVE to Improve Students' Activeness

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**Abstract:** Learning quality improvement has been the main concern of lecturers in Biology Education Department, Faculty of Teacher Training and Education, Universitas Ahmad Dahlan. In order to implement the suitable learning strategy in the class, students' problem in learning must be appropriately recognized. The root problem identified in the animal physiology I course was the students' activeness during learning process. Lesson Study activity was conducted with the implementation of PAKEM (*Pembelajaran Aktif, Kreatif, Efektif dan Menyenangkan*/Active, Creative, Effective and Fun Learning) model. This approach combined with the LOVE (*Lembar Observasi Video*/Video Observation Sheet) aimed to increase students' activeness in learning as well as stimulating their independence in learning process. Using LOVE, students were encouraged to extract information related to the topic independently. Through lesson study activity, lecturers belong to the same subject worked collaboratively based on collegiality and mutual learning in order to create learning community, which was implemented in three main activities, i.e. plan, do and see. Subject in this activity was 48 students joining animal physiology I course, with a lecturer as a model and 9 observers. Four cycles was conducted in this activity during March-April, academic year 2012/2013. Data analysis and discussion from all four cycles in lesson study showed that PAKEM approach combined with LOVE improved the students' activeness in class.

**Keywords:** learning activeness, PAKEM, LOVE, Lesson Study

## 1 INTRODUCTION

One of the important things in our educational system is to improve the learning quality which plays significant role in determine the quality of education. Department of Biology Education, Faculty of Teacher Training and Education, Ahmad Dahlan University is an institution which has responsibilities and strong commitments to create professional biology teachers in order to face such challenges in the future, e.g. globally rapid development of biological science and changes in the educational system. Curriculum evaluation and learning innovation are needed to face such challenges, thus the institution (Department of Biology Education, Universitas Ahmad Dahlan) has made some efforts and one of them is a Lesson Study. Lesson Study is a momentum for lecturer to collegially improve the quality of learning.

One of the problems faced by students in learning the Animal physiology I course was the difficulty in writing and oral expression on the subject. Students tended to be passive during

learning and inquire everything only from their lecturer. PAKEM (*Pembelajaran aktif, Kreatif, Efektif, dan Menyenangkan*/Active, Creative, Effective and Fun Learning) is a learning approach that encourages students to do some activities and develop their skills, attitudes, and comprehension, so that learning becomes more interesting, fun, and effective (Sudrajat, 2012). Active learning is a process that involves all of students to search some information and find out ideas to answer questions given by their lecturers (Ernst and Colthorpe, 2008). In the PAKEM model, learners are encouraged to actively and creatively learn and find out ideas to solve the problem.

The effectiveness of PAKEM implementation in biology learning as previously reported by Udovic et al. (2002) that isto develop students' understanding on concepts related to biological science and improve scientific observational skill of students. This means PAKEM model applied in the class would be effective in solving the students' learning independence as well as students' motivation to learn.



## 2 METHODS

Lesson study activity was carried out on Animal Physiology 1 course, in class B consisting of 48 students, academic year 2012/2013. People that were involved in this activity were a model lecturer and 8 observers.

This activity of lesson study consisted of four (4) cycles and carried out from March 11, 2013 to April 3 2013. Plan, do and see were carried out in every cycle. In plan, all of activities (including preparation of observation sheets, student work sheets) during the lesson study were designed, and identified. In do, a model lecturer taught according to the plan and observers observed the learning. In see, all of activities during lesson study were evaluated.

Data obtained through the observation sheets were evaluated quantitatively and qualitatively.

## 3 RESULTS AND DISCUSSION

Table 1. showed lecturers who served as observers used observation checklist to monitor students learning activities. Monitoring was carried out at each cycle during implementation of LS. In order to produce objective data, observers were divided to observe certain groups according to the number of student groups. There was four students groups. The results of these observations was further used as the data to see an increase in the activity of learning-related oral and writing activities that took place during the lesson.

Table 1. Increase in the activity learning at the course of animal physiology 1

No	Aspects of the learning activities	Increase		
		Cycle 1-2	Cycle 2-3	Cycle 3-4
A Oral Activities				
	1. Learning develops inquiry concept	8,37	12,71	14,46
	2. Asking	14,45	10,45	7,83
	3. Involved and participate in the learning process	1,93	14,11	12,02
	4. Find and communicate ideas	14,8	30,48	2,44
	5. Asking the idea	10,6	10,29	4,19
B Writing Activities				
	Writing and make resume (illustration, concept maps)	14,45	14,45	14,45

The data were then analyzed descriptively to determine whether there was an increase in the students' activity of learning on various aspects of PAKEM indicators. The results of the descriptive analysis are shown in table 1.

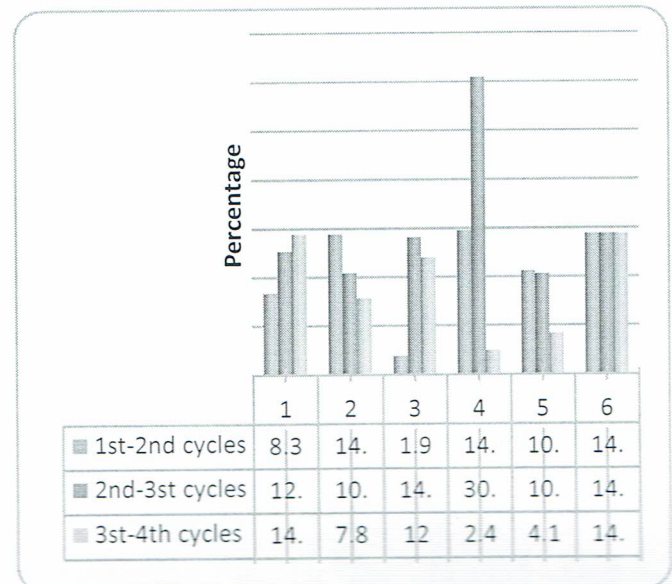


Figure 1. Learning activeness during the lesson study activities.

From Table 1 and Figure 1 above showed an increase of each cycle in the learning activities of both oral activities and writing activities. Aspects of oral activity was seen from five aspects 1) Learning develop inquiry concept increased from the first cycle to the second cycle of 8.37%, and the second cycle to third cycle was 12.71%, and the third to the fourth cycle was 14.4%. 2) Asking aspect increased from cycle 1 to cycle II of 14.45%, and the second cycle to third cycle 10.45%, and the third cycle to the fourth cycle at 7.83%. 3) Engage and participate in the learning gained from the increase in the first cycle of 1.93% to the second, the third to the second cycle of 14.11%, and cycle III to IV was 12.02%, 4) students find and convey the ideas derived from the increase in cycle I to II by 1.80%, the second cycle of 30.48% to third, third to fourth cycle of 2.44%, and 5) Asking the idea, from the first cycle to the second 10.60%, the second to the third cycle of 10.29% and Cycle III to IV was 4.19%. In writing activity with indicators of students in terms of the writing and making of summaries (pictures, map concept) was not increased.

At the meeting of the first cycle in lesson study activities, students are grouped based on the presence number. Students made per group with a

different number of members. Students are grouped heterogeneously (one group consist of intelligent, moderate and less intelligent students) in order to obtain the 4 groups. The findings based on observations, there were three groups that did not want to cooperate with others. They chose to work on their own and they only waited for a response from the group. Interaction with lecturer was still lacking, students were not confident to ask lecturer when he was around the students. Although the model is trying to stimulate questions, there were not many students willing to ask. Some students have asked related to the lesson topic. But the biggest question is about what they should do on the students' worksheet. This indicates that the students still did not really understand or were not accustomed to PAKEM which enabled students themselves to find a concept and or idea of the topic that was being studied.

Other findings were also obtained in the first cycle that some students were reluctant to express their opinions orally and to present in the class even if the student could work on a given student worksheet. When the lecturer asked, many students were silent or tried to appoint his friend to reply. This indicates that students were not accustomed to express their opinions even though they could work on the worksheet or understand the materials. Based on the findings in the first activity, the formation of students' groups from different batch were not suitable to obtained good teamwork. For the second meeting in LS activity, students of different batch are grouped separately. In order to strengthen interactions within a group, it would be helpful if students get together with close friends.

From observation of LS activity in the second cycle, the results obtained are better than previous cycle. There was an increase in the activity and interactions among students. In the second cycle the students started to confidence in asking the lecturer. Students seemed to feel comfortable with the model group in the class and they seem to understand what to do in each of the groups during the learning process. However, interaction between students and lecturers were not seen to be improved. Several times lecturers visited each group and explained the material, some students who were just started to ask about the materials.

LS activities for all three cycles carried out in accordance with the results of the plan session prior to the third cycle. The grouping system at second cycle turned out to give better results so that grouping students according to the batch were still implemented. The findings in third cycle was an active student group was a group of 4th semester students, or students who are currently taking animal physiology 1 course. The group of senior students

(group 1) or repeater students seemed to be not very active. If the lecturer models approached and asked to group 1, only a few students responded, while the other was silence. Another finding that appears on the third cycle is a student presentation to the class was uneven, which was dominated by the same student. There was a tendency to refer to his students the same which they consider more able to communicate the results of their group work to the class. However, in the third cycle, the student activity appeared to increase compared to the previous cycle. Students also listened to an explanation of their friends who were presenting in front of the class while making a summary or notes about the topic. Students also seemed to enjoy the class dynamics as a result of PAKEM implementation. Therefore, in the third cycle in accordance with the results shown in Table 1 that the indicator is active, creative, effective and fun improved compared to the previous cycle. Thus, the problem appears to student learning independence can be fixed using PAKEM in class.

From some of the findings observed in the third cycle, for the fourth cycle activity (last) in accordance with the plan which has been agreed lecturer clumps, namely: (1) the exchange of seating for groups that initially less active (group I) and located next to the front moved forward to the middle position. This is done with the expectation students more active and easily monitored by lecturer models, (2). Opportunity for presentation explaining the concept to the class is not offered to all groups, but only to appointed group. The strategy implemented was choosing group that are usually active given the last chance for presentation. Other treatment conducted was giving additional score for groups and individuals who are active during the lesson. Students seemed more enthusiastic due to the additional score offered by lecturers models if they are active and show the courage to explain the concept of the material. The students' activeness in this fourth cycle already improved than previous cycles. Students' enthusiasm to follow the learning was increasing, the interaction between students and between students and lecturer was more increased, although still was not optimal. The activeness level of students in aspects of working together, engage and participate in learning activities showed an increase which is much better than the previous cycle. Students also appeared to be active in making a summary of the material, especially from a presentation delivered by their own friends. When there was something less obvious, students also confirm to their friends and to the lecturer models. For the last cycle, the achievement of expected competences in animal physiology courses first seen to rise. This is reflected in the student's ability to

answer questions orally and lecturer models of a given student worksheet. Another aspect that also increased was the fun learning, where students feel comfortable with the conditions in the classroom. Overall observations of the last cycle were discussed together in lecturers' reflection session. Various input and suggestions were documented so that it becomes a reference for improving the quality of learning in the biology education department.

The results obtained in lesson study activities for animal physiology course 1 for class B 4th semester students in academic year 2012/2013 was broadly in line with the results of previous LS research activities in biology education department. Students independent learning which were low on animal physiology 1 course 1 in the past, seemed to be overcome by the application of PAKEM model in the classroom. Widyaningrum et al (2012) reported the increase in test scores and the percentage of students passing grade on basic biology courses 2 using jigsaw model in LS activity. Another explanation was also described by Aprilia et al. (2012) that an increase in the activity of the students in the learning process is achieved through LS. The process of reflection among lecturers, was valuable in solving any problems that occur during the learning process in the class. Observations become very valuable input on how students respond to learning.

As stated also by Lenski and Caskey (2009) that LS activity is helpful to develop lecturer professionalism in planning and learning. In LS, teachers / educators construct, organize, share and sharpen their knowledge in learning. Therefore, the process of plan, do and see during LS activities should get full attention so that problems can be solved effectively, in addition, students can also achieve competences expected of a course. For group of lecturers themselves, LS activity patterns can be used as a positive culture for professional development and quality improvement of teachers.

#### 4 CONCLUSIONS

Implementation of Lesson Study in animal physiology 1 course improved learning quality with PAKEM. Students have increased their activeness and creativity, as well as fun learning aspects. The effectiveness of learning was also increase with the achievement of the expected learning competences. Students' independence learning problems can thus be overcome through the implementation of PAKEM in class. Collaboration of lecturer to implement plan, do and see activities was also the key success of LS in order to solve learning

problems experienced by students. For the lecturer, lesson study was an effective tool to improve the professionalism as an educator. It was suggested to implement lesson study continuously as a positive culture for lecturers. PAKEM model in learning process was also recommended to improve students' learning independence.

#### 5 ACKNOWLEDGEMENTS

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