

# The Implementation of Active Learning Model for Preparing Pre-Service Teachers

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**Abstract** — The study aim at investigating the implementation of active learning model to increase pre-service teachers' ability before they follow teaching practice. The study was conducted because based on observations most of the students still did not have appropriate skills and knowledge when they do teaching practice. The participant of the research are 6th semester students. This report reveals the result of the first step in *research and development* design. One of the results from research step is guideline for learning active model. In the guideline some aspects are highlighted. Those aspects among others: the characteristics of active learning, the structure of learning model, teaching material, the language appropriateness, and communicative factors. The study also shows that based on some test, students High Order Thinking ability are increase. This preliminary study shows that some further studies must be taken so that the active learning model could be implemented appropriately and the goal can be achieved.

**Keywords:** *active learning model, pre-service teacher*

## Introduction

PPLK or Teaching Practice for pre-service teacher is an activity that must be followed by the students of Faculty of Teachers' Training and Educational Sciences. This is a form of training that intended to apply the theory acquired when they study. The aim of the teaching practice is to establish pre-service teacher skills in order to become professional teachers. It is in accordance with the principles of competency-based education, which includes pedagogical competence, personal competence, professional competence and social competence (Albarkah, 2012).

In Universitas Islam Nisantara, Faculty of Teachers' Training and Educational Sciences, teaching practice has 4 credits. It must be followed by all six semester's students. It aim to prepare students readiness to become educators who meet competency as mentioned above. However, based on observations and informal interviews, there are many students who are not yet ready to implement what they had already learn into real practice. This can be seen from the teaching simulation which was

done during the course. Some factors that cause students unreadiness are: learning undertaken by lecturers, lack of teaching materials, and instructional media used by lecturers. In conveying material of teaching practice some lecturers still use conventional way with limited teaching materials without using sufficient learning media. Those things became factors that make students did not engage with the material. Students felt that it did not give significant contribution to their readiness to teach in the real classroom. In addition, there are many material sources that are not in accordance with the concepts.

Based to the problems above, alternative models of learning and the development of innovative instructional media are urgently needed. The learning model that proposed in this research is an active learning model that hopefully can decrease students' problem in preparing themselves before teaching in real classroom. An active learning model has been subject to some components approaches, models, and methods of learning in the curriculum of 2013 which nowadays implemented in Indonesia. In 2013 curriculum there are some models that could be used in teaching, those are problem based learning, project-based learning, discovery learning and active learning. To meet the teaching model of the kind described above, an active teaching model in which can improve students high order thinking are required. In this study the writers try to develop active learning model that could be implemented in preparing future teacher to do their teaching practice.

## The Study

The definition of active learning raise from Dewey (1924) opinion in Bonwell and Eison (1991). Dewey states that active learning is an individual does when he studies that is active and personally conducted affair. Currently, definition of active learning is proposed by Collins and O'Brien (2003) as cited in Edwards (2015) that active learning is process where students engage in activity that forces them to reflect upon ideas an how students are using those ideas. Moreover, Warsono and Heriyanto (2012) elaborate that active learning is all forms of learning models that focus on the students. From some definitions above it is clear that teachers act as facilitators. The variety of active learning methods are

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embodied in collaborative learning, cooperative learning, problem-based learning and project-based learning.

Active learning need to be implemented in the classroom as it refers to De Porter and Hernacki (2001) statement, that 90% of learning took place from what we said and done. In line with that, Rohani (2004) states that successful learning must be done through physical and psychological activity. Furthermore, Bonwell and Eison (1991) elaborate the characteristics of active learning as follows.

1. The student-centered learning model
2. The learning model associated with real life
3. The learning model encourages children to acquire high-order thinking
4. The learning model serving different children's learning styles.
5. The learning model encourages children to interact with multi directional (student-teacher)
6. The learning model using the environment as a medium or source of learning
7. The model supports structuring the learning environment to facilitates student learning activities
8. The model helps teachers monitor students' learning process
9. The model helps teachers provide feedback on the work of children

According to Bean (2011), by nature lecture courses place students in a passive role. Usually lecturers imply a transmission theory of knowledge in which students receive the ideas and information sent by instructor. This conventional way of transferring the knowledge should be change into active activity. Bligh (2011) in Bean (2011) propose that lecture should maximize the transmission of information while promoting deep processing of lecturer content, in this regard the material for teaching practice.

Mintz (2015) elaborates that there are some ways to incorporated active learning in the classroom. Based on some recent studies, an instructor generally says 100-200 words a minute and students are attentive just 40 percent of the time. One study concluded that students retain about 70 percent of what they hear in the first ten minutes of class, and just 20 percent during the last ten minutes. Adding visual aids increased retention from 14-38 percent. A picture may not be worth thousands words, but it helps. Furthermore, Mintz (2015) concludes that in active learning teacher or lecturer could not solely give material by speech. Interactive learning media can be used by the teacher or lecturer to deliver material so that the students will be active. By the use of an appropriate learning media and learning method, students will pay more attention to the subject given.

Students' less attention towards the lecturer could possibly caused by unattractive teaching method or strategies. As it is stated by Knight and Wood (2005) in Eison (2010) that when compared to students' performance when the course was taught using a traditional lecture format, students who were taught with (a) in class activities in place of some lecture time, (b) collaborative work in student groups, and (c)

increased in class formative assessment and (d) group discussion were observed to make significantly higher learning gains and better conceptual understanding.

To solve the problem concerning lecturing for pre service teachers, the writers think it is necessary to conduct thorough studies upon the matter. For that purpose, this research apply Educational Research and Development model (R&D) as research design. This research design allows the researcher to investigate the problem, do the research, and develop the active learning model appropriate for future teacher students. Educational Research and Development (R&D) is a process used to develop and validate educational products. The steps of this process are usually referred to as the R & D cycle, which consists of studying research findings pertinent to the product to be developed, developing the product based on these findings, field testing it in the setting where it will be used eventually, and revising to correct the deficiencies found in the field-testing stage. In more rigorous programs of R & D, this cycle is repeated until the field-test data indicate that the product meets its behaviorally defined objectives (Gall, Gall, and Borg, 2003). Furthermore, Gall, Gall, and Borg (2003) elaborate that Educational Research and Development (Educational R & D) is an industry-based development model in which the findings of the research are used to design new products and procedures, which then are systematically field-tested, evaluated, and refined until they meet specified criteria of effectiveness, quality, or similar standard. The participants of the study are students of sixth semester of the school year 2015/2016 at Mathematics study program. The reason for choosing VI semester students as subjects of the research is based on the distribution of the courses in Mathematics Education Program at Faculty of Teachers' Training and Educational Sciences, UNINUS.

The study reveals that learning is a complex process. Especially in teaching practice, learning process should involves several components that are interdependent and influence each other. The components namely a) objectives or expected competencies b) materials, c) method, and d) evaluation. Moreover it was found that task of the teacher as a lecturer required educational qualifications. Lecturer should be able to play role as teaching agent which acts as a facilitator, motivator, hyper learning, and inspiration for students. To play role as a professional teacher, future teacher should have knowledge education, teacher training, and more specifically the teaching of basic skills such as opening skills, explained, variations in stimulus, provide feedback and reinforcement, use of the method and an absolute must-controlled media.

For future teacher, mastering number of skills should be done through a process, among other through the micro learning. As elaborated by Sukirman (2012), micro learning is part of teaching practice that emerged around 1963 in the United States. It is intended to train basic skills teaching for future teachers to improve professionalism. By implementing micro teaching model, future teacher could learn the development of science education and teacher training, and learn the development of teaching practice through learning activities. Some basic skills that must be mastered by the

future teacher through learning in general include: stimulus variation, induction sets, closing technique, non-verbal cues, reinforce of student participation, fluent in asking questions, the use of illustration and example, and material explanation.

In teaching practice, active learning considered as a simplified of learning approach. In this study it was performed in the actual learning activities, in the form of peer teaching, not in real classroom. The implementation of active learning with peer teaching plays some role, namely: a) The role of a teacher training (trainees), b) the role of a student, c) the role as an observer, d) the role of mentor or supervisor, and e) the role of infrastructure and facilities to support micro learning.

In this research, the writers develop some active learning models that can be implemented in the classroom. Furthermore, in this study, the writers also investigate students' High Order Thinking (HOT)'s ability before and after the implementation of the active learning models in form of problems to be solved.

An active learning model used in this research is guided discovery learning model through *Role Playing* and guided discovery learning model through *Making A Direction*. Moreover, the researcher also develop guided discovery learning through *Make a Phone Call* and guided discovery learning through *Peers instruction*. The characteristics of the learning models implemented in this study are as follows.

#### 1. **Discovery guided learning through role playing**

In this model of learning, students should be able to play the role given, based on the problem sketch given by teacher.

Time allotment: 1 meeting (2 x 45 minutes)

Material: Multiplication (example)

Activities:

Opening and praying

Teacher explain the activity

Students work in group (max 3 students)

Each group member has their own role

Two groups present their discussion

Students are led to make conclusion

Reflection and evaluation

#### 2. **Making a direction learning model**

Time allotment: 2 meetings (2 x 45 minutes)

Material: Multiplication rules (example)

Activities:

Opening and praying

Teacher explain the activity, and connect it with previous activity.

Students were led to comprehend the activity

Teacher provide real problem situation

(example: the probability of pin or password numbers)

Discussion

Students are led to make conclusion

Reflection and evaluation

#### 3. **Guided learning through phone calling**

Time allotment: 1 meeting (2 x 45 minutes)

Material: Permutation (example)

Activities:

Opening and praying

Teacher explain the activity, and connect it with previous activity

Students were divided into big groups consist of phone caller and phone receiver

Teacher provide real problem situation

Two or three groups practice phoning simulation

Students are led to make conclusion

Reflection and evaluation

#### 4. **Discovery learning through peer instruction**

Time allotment: 1 meeting (2 x 45 minutes)

Activities:

Opening and praying

Teacher explain the activity, and connect it with previous activities

Students work in group (max 3 students), teacher give instruction to the group leader

Teacher explain real problem situation to the group leaders and they share it with group members.

Group members discuss the problem and find the solution to solve the problem

Two or three groups share their discussion

Students are led to make conclusion

Reflection and evaluation

#### 5. **Conversation learning model**

Time allotment: 1 meeting (2 x 45 minutes)

Activities:

Opening and praying

Teacher explain the activity, and connect it with previous activities

Teacher illustrate the problem about color combination

Students make dialog to explain problem and find alternative solution from the teacher's illustration

Two or three groups share their dialog

Students are led to make conclusion

Reflection and evaluation

After the writers implemented the active learning models above it could be seen that students learn better. It was because learning activity is active where students are physically and mentally involved. Furthermore, students feel that they are engaged in hands-on activities, and involved in a process of inquiry, discovery, investigation, and interpretation. This condition enhances the better condition of active learning as proposed by Mintz (2015). The implementation of active learning models enhances real learning that is more than memorization. Students get involved need to undertake inquiries and solve problems and apply what they have learned. In the implementation of some active learning models students have the opportunity to repeat the information in their own words, give examples or make use of the information.

The study reveals that from the implementation of five active learning models, students increase their ability in terms of Cognitive Process Dimension proposed by Bloom (Krathwohl, 2002).

### a. Analysis

The analysis indicator is the highest average score got by students compared to evaluate and creative indicators. In each active learning models students are required to analyze the assignment given. The students breaking material given by the lecturer into its constituent part, then continue by detecting how the parts relate to one another. One example is when students did *Making a Phone Call* models. The activity within the model is pair communication as if they make real telephone conversation. The difference is in term of content of the conversation where the student explain to other student about the mathematics problem.

### b. Evaluation

Evaluation indicator obtained second highest average score. In evaluation students make judgement based on criteria and standards provided. The activity within this category among others checking and critiquing. The example of evaluation in *Making A Phone Call* model happen when students check the problems given and making judgement about the problem given. In *making a phone call* model, the number of group member are fewer. It made the students more focus on the content of material and the problem given. Furthermore, it made the students happy and raise students' interest in learning. However, the time to explore the material and practice matters was too short and it made the students have to continue the learning process outside the classroom.

### c. Creation

Creation indicator got the lowest average score in each limited trial. In this indicator, students are required to put element together to form new things or new ideas. Unfortunately the models which were implemented only involve students actively in learning in analysing and evaluating element of the problems. The activities did not required students to create something new, but more to choose appropriate and best way to solve the problem given.

As previously stated, the study also investigate students' High Order Thinking ability before and after the implementation of the active learning models in form of problem solving test. The result of the test are as follows.

**Table 1: Results of the HOT Test**

Subject	Score	
	Limited Trial 1	Limited Trial 2
S-1	65	72
S-2	45	77
S-3	51	85
S-4	51	84
S-5	50	90
S-6	56	70
S-8	50	70
S-9	30	59
<b>Average</b>	<b>49,75</b>	<b>75,88</b>

From Table 1, it could be seen that in the first limited trial, the highest score is 65, whereas the lowest score is 30. In the limited trial 2, the highest score is 90 and the lowest score is 59. From the average score, it could be seen that the average score in first limited trial is 49.75, whereas the average score in the limited trial 2 that is 75.88. The data from Table 1 reveal that student HOTS ability is improve after the implementation of active learning models.

## CONCLUSION

Active learning is a process which students are engage in activities such as reading, writing, discussion, and problem solving. The activity hopefully could promote students' ability in analysis, evaluate problem and continue creating something. The study implemented active learning models as one model to prepare pre service teachers who will teach in real classroom. The study shows that students engage in teaching learning activity physically and mentally. Furthermore, the implementation of the models also increase students High Order Thinking ability. The study also show that from various model covered in active learning, some are suggested to be implemented in teaching practice learning activity.

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