

# HASIL CEK\_Artikel\_Kumara\_THE IMPLEMENTATION OF THE PROBLEM BASED LEARNING TO INCREASE THE PUPILS PROBLEM SOLVING SKILLS IN ASEAN ECONOMIC COMMUNITY (AEC)

*by Mufied Fauziah Bk*

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## HUMAN RESOURCE IMPROVEMENT

in The Current ASEAN Economic Community (AEC)  
Through a Psychological Perspective  
August 8th, 2016, Muang, Songkhla, Thailand



Held by Ahmad Dahlan University  
and Thaksin University



Proceeding of Joint International Seminar

**Human Resource Improvement in The Current ASEAN  
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## PREFACE

ASEAN has a new momentum for enhancing the nation competitiveness through mutual collaboration in any sectors. One of the important aspects is on education as a system to improve human resources quality. This joint international seminar on Human Resource Improvement In The Current ASEAN Economic Community (AEC) Through A Psychological Perspective as a part of manual cooperation between Universitas Ahmad Dahlan, Yogyakarta, Indonesia and Thaksin University, Songkhla, Thailand is intended to study any issues concerning with education and psychology especially on facing ASEAN Economic Community era.

These proceedings contain the results of a research presented at joint international seminar. Through this seminar, all participants and both universities can seek the possibilities of joint research or collaborative research especially education and psychology.

Thank you very much to all participants from Indonesia, Thailand, Sweden, Malaysia and Philippines for your beneficial discussion and new perspective on education and psychology.

Songkhla, August 2016

Editor

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## THE IMPLEMENTATION OF THE PROBLEM BASED LEARNING TO INCREASE THE PUPILS PROBLEM SOLVING SKILLS IN ASEAN ECONOMIC COMMUNITY (AEC)

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### ABSTRACT

Life situations in the AEC increase complexity, full of opportunities and challenges. Pupils as part of the AEC community are forced to have skill to develop dynamically, productively and independently. The skill that required problem-solving skill. Problem-solving skills are the skills to find, vote and conduct the way to find the solution. In the framework of intact learning, pupils are raw input, while learning strategy is very significant process. The Problem Based Learning as one of based learning strategy problems that emphasizes problems as relevant reference for study with the development of problem-solving skills. Pupils who able to face and solve the problems precisely will be able to survive in all of new paradigm life type and their social academic will increase better.

**Keywords:** problem based learning, problem solving skills, AEC.

### INTRODUCTION

ASEAN Economic Community (AEC) makes life situations increase complexity, which is full of opportunities and challenges. The world community competence is demanded for having to develop dynamically, productively and independently. This time, developing the mega-competition required the availability of resources quality. It cannot be denied that the students contributes will be difference in his life since the AEC. In this case, students are faced with the various academic competition and problems on it. It means that the students should have a good quality and be able to improve their creativity, thus they be ready to face AEC when they graduate (fresh graduate). ASEAN is ready to create graduated needs to develop some skills: (1) teaching quality; (2) reasoning skills; (3) problem-solving skills; (4) analytical skills; and (5) critical thinking skills (Wibawa, 2016).

ASEAN Economic Community is part of the 21 century. The students must have a good skills As noted by Fasli Jalal (2008) quoting from Kai Min Cheng showed that the 21st century skill and literacy, includes: basic skills, technology skills, the problem solving skills, communication skills, critical and creative skills, information



<sup>9</sup> digital / skills, inquiry / reasoning skills, interpersonal skills, and multicultural and multilingual skills. In addition, the exposure to education and culture ministry in the test public K-13 served TIMSS report, where shows that only 5 % students in Indonesia can do actual exercises in a high category and advance which is need reasoning and 78 % students in Indonesia only able to do the actual exercises in a low category need only knowledge. These result shows that the capacity of how the students think is remain at a low level. In the capacity of high level thinking will, emphasized skills needed reasoning, thi<sup>3</sup> critically, and creative. The three of these components trained on the kids through the problem solving.

The problem solving skills is the essential skill need right now. A problem-solving skill is a skill used by the students which have various reasons as deductive or inductive. This skill use a way of system thinking and make decisions and tackle (Trilling & Fadel, 2009).The emergence of new paradigm in “the palace” human life, seems demanding human beings including students for able to face various problems that have touched them.

<sup>12</sup> To develop the student’s problem-solving skills in the era of AEC is not easy. The students should become an active learner because the learning process is an essential thing. Redesigning learning strategy can be done to develop students’ problem solving skill. The teaching process in class, did not run well and has not been carried out interactive, where the estimation is 74 % in the class activity done by teachers and only 11 % conducted with students. This activity cannot foster student’s creativity, excitement power of critical thought and student’s analytical capability (Jalal, 2015). A study carried out by Trilling and Fadel (2009) also shows that students still incompetent in some respects they are critical thinking and problem solving. Hence, it needs learning strategy to stimulate students to master it.

The Indonesian government, through Kemendikbud service develop and implement the K-13 to answer the challenges and demands of the future competence, the development of science technology and avoid the negative phenomena. Hence, Kemendikbud started the concept of the new learning that is learning rendering. The learning is designed and organized to support the student’s creativity <sup>19</sup> observing, trying, and thinking, creating and communicating (Kemendikbud, 2013). The Problem Based Learning <sup>3</sup> (PBL) is part of the rendering learning that let the development in an intense manner to support the development of the student’s problem solving skills.

The Problem Based Learning (PBL) assumed as active learning, integrated, and the process of constructive influenced by a factor of social <sup>21</sup> and contextual (Winter, 2001). Meanwhile, Kemendikbud (2013) explained that the problem based learning is learning that presents th<sup>22</sup> contextual problem to stimulate learners in learning. Learning PBL activit<sup>12</sup> able to facilitate the students to increase their self-interest to the scientific issue in the process of problem solving. The students have to be comfortable looking for the information themselves, identify and formulate the problems, perform effectively in the group, and build the link, as well as having high creativity (Sani, 2014).

In research conducted by Nisa and Hayat (2015), indicated that learning PBL can stimulate student's interest to the scientific issues, increase inquiry scientific and encourage a student's sense of responsibility towards local environment. Meanwhile, Trianto (2009) said that business to looking for the completion of independently will give a concrete experience to solve the same problem in the future. The implementation of the problem based learning need planning, where the students activity should learn directly to the real world with the various problems and they have to capable undertook the problem identification and solve it. The purpose of PBL includes learning content, acquisition of the skill process and the ability solve the problem. The development of intelligence problem solving is the important goal of PBL (Tan, 2004). Hence, it is important to examine them about how the implementation of the problem based learning in improving the student's problem solving skill in the era of AEC. Thus, the students should have critical thinking, become a wise problem solver then they will reach a better life.

## PROBLEM BASED LEARNING TO INCREASE PROBLEM SOLVING SKILLS

### Definition Problem-Solving Skills

In language, problem solving derived from two words that is problem for solves. According to AS Hornsby (1995), the language meaning of the problem is "a thing that is difficult to deal with or understand" could be if defined "a question to be an answered or solved", while solve can be defined as "find an answer to the problem". While in terminology the problem solving are defined by Syaiful Bahri Djamarah and Aswan Zain (2002) is the way of thinking scientifically looking for the solution of the problem.

According to the opinion of James (2010), problem solving is an activity where the learner feels different between a current conditions and desired. Realize that the feeling is unsure condition then subsequently try to act upon the given situation in order to achieve that goal. It is accompanied by a number of mental and behavioral processes that may be not necessary take place in sequential order, but can run in parallel.

Meanwhile, PISA defines the problem solving individual capacity as the situation is looking for a solution to the unclear problems. This definition includes willingness to engage with the situation to reach the potential a person as a citizen who constructive and reflective (Organization for Cooperation and Development, 2010). Someone knowledge is very influential in the process of solving the problem because the problem solving skills involve the capability to acquire and use new knowledge to solve the problem itself (Griffin, 2015).

Solve the problem is the basis human activity because the will face it n the real life. If one solution or strategy is failed to complete a problem, one should attempted another way to complete it. Teach the students to solve the problems enables them to

be more critic making the decision. In other words if the students are trained to face the problem and they are capable to take decision because they already have skill about collecting the relevant information, analyzing and realizing how the research need to obtain the result (Hertiavi, 2010).

### Concept of Problem Based Learning

To prepare students who capable become a problem solver we need to development learning strategy. Students learning orientation mean implement the problem based learning. As revealed by James (2010), "...that we do a better job preparing our students as problem solver. We should provide them to improved the strategy, help them deal with the problem as recite in our educational system. Problem based learning (PBL) is one of the strategies offer".

PBL is an approach to develop students experience in critical thinking hence they will able to solve the complex problem by their own. The problem source is the teaching material that will be identified, find solutions and resolved by a student during a learning process.

As an approach for learning, the PBL have certain characteristics. According to Savoie and Hughes, was quoted as saying by Wena (2011:91-92) that learning based problems have some characteristics includes:

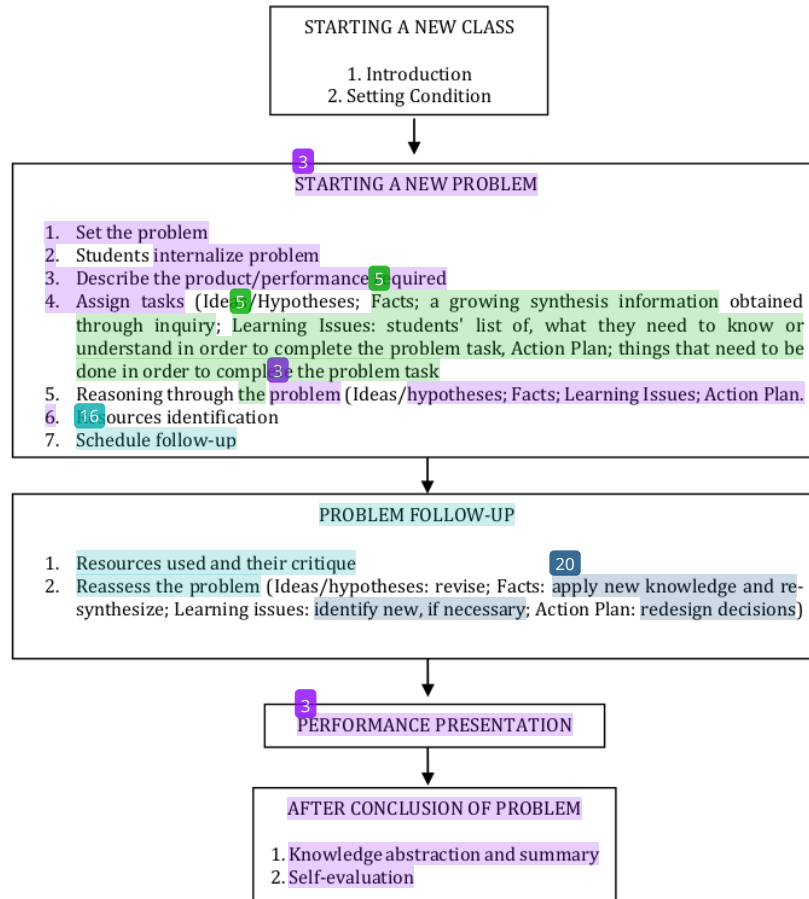
- a. Learn begins with a problems.
- b. The problems given should be related to the student's real world.
- c. Organizes the material based on the problem not only based on the science discipline.
- d. Build the students responsibility to create and do the learning process directly by them.
- e. Use small group
- f. Ask the students to demonstrate what he had learned in the form of products and performance

Some of the important features in PBL also said that Brooks & Martin (1993), that is as follows:

1. The learning purpose is designed to stimulate and involve the students in a problem solving pattern. This matter will develop them in mastering problems identification
2. The nature of a problem which are presented in learning is continues. In this case there are the two things should be fulfilled. First, problems have to have concept or relevant principle of the domain content discussed. Second, let them to feel the real life problem, thus they will have the real problem imagination.
3. The problem presentation. Students involved in doing the problem presentation, thus they feel they have own these problems.
4. Teachers act as a tutor and facilitators. In this case, teacher's role is as the facilitator to develop students creative thinking to control the problem solving and help them to be independent.

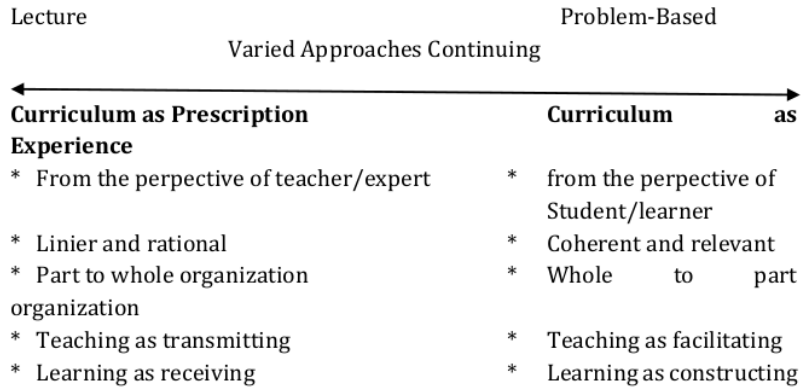
## Implementation of Problem Based Learning to increase Problem Solving Skills

To be able to implement PBL in teaching, required design learning special so it would increase the student's problem solving skills. Design learning based problems can adapted or modified of the table developed by Barrows & Myers (1993) as follows



Bagan 1. Problem Based Learning Process

In <sup>23</sup> implementation, there are several comparison between the fundamental concepts of the problem based learning with strategy/ learning model in the terms of various aspects, one of them is the aspect of curriculum:



While in the terms of teachers/ lecture and pupil / student college aspects role, it obtained the information as in table below:

Table 1. The Comparison between Problem Based Learning with Strategy/ other Learning Model

Instructional Approach	The Role of the Teacher	The Role of the Student
Lecture	<sup>15</sup> <b>As Expert:</b> <ul style="list-style-type: none"> <li>- Directs thinking /</li> <li>- Holds knowledge</li> <li>- Evaluates students</li> </ul>	<b>As Receiver:</b> <ul style="list-style-type: none"> <li>- Inactive</li> <li>- Inert</li> <li>- Empty</li> </ul>
<sup>2</sup> Case Methods	<b>As Consultant:</b> <ul style="list-style-type: none"> <li>- Lectures pre/post</li> <li>- Sets the environment</li> <li>- Evaluates students</li> </ul>	<b>As Client:</b> <ul style="list-style-type: none"> <li>- Responsive</li> <li>- Semi active</li> <li>- Applying own experience</li> </ul>
Discovery/ Inquiry	<b>As Mystery Writer:</b> <ul style="list-style-type: none"> <li>- Combines parts that lead to "discover"</li> <li>- Provides clues and foreshadows events</li> <li>- Evaluates students</li> </ul>	<b>As Detective:</b> <ul style="list-style-type: none"> <li>- Picking up clues</li> <li>- Semi-active</li> <li>- Seeking out evidence</li> </ul>
Problem Solving	<sup>14</sup> <b>As Resource:</b> <ul style="list-style-type: none"> <li>- Explicitly teaches content</li> <li>- Poses problems with which students relate</li> </ul>	<sup>14</sup> <b>As Problem-solver:</b> <ul style="list-style-type: none"> <li>- Evaluating resources</li> <li>- Grafting divergent solutions</li> <li>- Active</li> </ul>

<p>Problem Based Learning</p>	<ul style="list-style-type: none"> <li>- Translates into students' world</li> </ul> <p><u>As Coach:</u></p> <ul style="list-style-type: none"> <li>- Presents problematic situation</li> <li>- Engages in the process as "co-investigator"</li> <li>- Assess learning</li> </ul>	<p><u>As Participant:</u></p> <ul style="list-style-type: none"> <li>- Actively grappling with the complexity of the situation</li> <li>- Investigating and re-Solving problem from the inside</li> </ul>
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There are several techniques that can be used for the implementation of the PBL. In the context of the development of the problem solving skills this techniques used is a scaffolding technique. According to Wood dkk in Anghileri (2006), Scaffolding is the technique used by the parents to give adapted assistance of what have been learned by children, it reduced or eliminated the independent kids' time. Scaffolding itself is one of the assembling of the Social Cognitive theory developed by Vygotsky. Vygotsky in Lambas (2004: 21) said that social interaction is the most important factors in led to the development of one cognitive. Cognitive development will help in solve the problems levels behind higher than one basic skill after they getting helped from people who is capable.

According to Mc Kenzie (1999) the scaffolding characteristic in learning are: scaffolding give an obvious clue, explain the purpose of learning, show students' duty, hold evaluation learning, efficient time to do their tasks on time and the steps was shown, the learning process is appropriate with education planning and teachers give assistance not only in the form of problem solving, but also motivation thus the students feel easier to do the task. In addition, Slavin in Rosdiati (2014) expressing that "scaffolding is presented numerous assistance to school tuition for the first stages of learning, then reduced assistance and give opportunity to increase the responsibility later".

The scaffolding technique show strong support to the efforts of the progress of student's problem solving skills. The students will be faced by the various questions related to the teaching materials, with the help of teacher or facilitator in the beginning of time. The assistance is provided in step of seek and decide problem solving and motivate them to keep study and finish the task. In this case, students will have knowledge and skill in find problem solving to a thing as well as having highly motivated to complete a task for find a best solution. Then, slowly teacher or facilitators relieve help and the students start learning and self-propelled find a solution to problems faced by them.

Rosdiati (2014) explained about steps a method of learning scaffolding, they are as follows:

- a. Assesmen ability of the economic situation development of each student to determine zone of proximal development (ZPD). This can be done by check their study results earlier (prior learning)
- b. Outline the duty of problem solving into phases in detailed in order to help the children see a zone will scaffold

- c. Presenting study responsibility in stages based on the economic situation of the students development
- d. Get students to done the job independently
- e. Give in the form of cue, keywords, minders, encouragement, or other thing that provoke students moving toward to the independence learning.

For the implementation of Scaffolding, teachers are the facilitators. Teachers indicate the object learning (problem solving and explain stage duty to solves the problem. At the beginning of the learning process, the teachers provide assisting and directing them problem solving strategy. During the learning processing, the teachers motivate the students to complete the task. Then, at the end of learning, teachers guide them to do reflection based on the learning result. Students play an active role, student's studies and find problem solving based on the teacher's instruction. Students will also studies and apply stages in problem solving, either at the time of learning and outside the learning process. Thus, students will have better problem solving skills applied in daily life, not only in learning process.

## CONCLUSION

Complexity life the era of AEC is full of challenge and problems which force the students to have the problem solving skills. This skill is very crucial to developed by the students as the next generation. This skill is to find the solution for the problem and apply it in the similar problem and new problems in the future. The development of the problem solving skills can be done with the strategy implementation of the problem based learning. This learning focus on the studnets development activity to face a complex problem. A problem source is the teaching materials that will be identified, find a solution and solve by student. Scaffolding is the techniques used by the students in the implementation of PBL in order to increase the problem solving skills. This technique asks the teachers to assist them at the beginning of the learning process, then reduced or eliminated it when they can do it independently. By the help of capable people in the process of systematic and intensive learning, students will study a number of knowledge and skill in solving problems that they could apply in daily life in the era of AEC.

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