# THE EFFECT OF PROBLEM BASED LEARNING AND SELF-ASSESSMENT ON STUDENTS' WRITING COMPETENCY AND SELF-REGULATED LEARNING

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**Abstract**. This experimental study aimed at investigating the effect of Problem Based Learning (PBL) and self-assessment (SA) on students' writing competency and self-regulated learning in Tabanan Regency. This research applied 2x2 factorial design. 96 students were selected as sample through random sampling. Data were collected by test (writing competency) and questionnaire (self-regulation). Students' writings were scored by analytical scoring rubric. The obtained data were analyzed statistically by MANOVA at 5% significance level. This research discovers: 1) there is a significant effect of PBL which occurs simultaneously and separately on students' writing competency and self-regulated learning, 2) there is a significant effect of SA which ocurs simultaneously and separately on students' writing competency and self-regulated learning, 3) there is a significant interaction between teaching model and assessment type on students' writing competency and self-regulated learning which occurs simultaneously, 4) there is no significant interaction between teaching model and assessment type on students' writing competency, and 5) there is a significant interaction between teaching model and assessment type on students' self-regulated learning. This research results implies that PBL and SA should be applied in instruction process as a way to improve the quality of students' writing competency and self-regulated learning.

Keywords: Problem Based Learning, self-assessment, writing competency, self-regulated learning

## 1. Introduction

Until this era, Indonesian is still faced by low students' competency. Competency is actually the estuary of instruction process on certain range of time. It consists of three domains, namely: cognitive, affective, and psichomotor [1]. Operationally, it is knowledge, skills, and norms. To achieve it, good planning, implementation, and assessment should be applied [2]. It must be applied to all subjects including in English Foreign Language. Writing is one of the skill which should be mastered. Writing itself is a cognitive process involving complex mental activities [3]. In writing, the students should be able to produce and organize ideas into a peice of paper by using quality language. Through writing, the students' creative, critical, and analytical thinking can be trained.

Based on the observation in senior high schools in Tabanan regency, teaching and assessing writing are still dominated by teacher. The teacher explained writing materials and then asked the students to write it down. Assessment was just done at the end of learning with certain scratch and score. There was no report on the students' learning progress. This situation made the students feel boring and some of them just copy their friends work. As the result, the students' writing competency was still low. Furthermore, they seemed to have

low effort in searching their learning materials and they just waited to be "fed up" by their teacher. This condition is absolutely out of the modern learning paradigm.

To find solution on the problems, it was experimented Problem Based Learning (PBL) and self-assessment (SA). PBL is learning model which is based on constructivist perspective [4]. It uses problems as the trigger for learning [5]. Learning is ill-structured since the students contruct it through social interaction in which one student may differently acquire knowldge from others [6]. In PBL, there is no rote learning of facts and figures, students brainstorm problems, arrange possible solutions, decide collectively on their learning objectives, do individual work to seek out necessary information, then report back to synthesize and apply their new knowledge collectively to the problem at hand [7]. These features parallel to the important factors that are necessary for authentic learning environments and for creating authentic real world tasks used in assessment [8].

To support the PBL which demands real world task, authentic assessment is needed [9]. Self-assessment is parralel to PBL since it gives chance for students to do reflection on their learning. In self-assessment, the students judge their work (writing) by using evidence and clear criteria by themselves [10-11]. This conditions makes the students have critical and analytical thinking on their learning [12]. It leads the students to produce quality writing. Self-assessment can be guidance for the students to write which means it can also lead the students to be self-regulated [13].

## 2. Methods

This research applied posttest only control group design. Four classes in two different schools were randomly selected to be sample (class X IPA 4 and X IPA 5 of SMAN 1 Tabanan and Class X IPA 1 and X IPA 2 of SMAN 1 Baturiti). After they were proven to be equal in nature, treatment were given. Class X IPA 4 were treated by using conventional model and conventional assessment; class X IPA 5 were treated by PBL and self-assessment, class X IPA 1 were treated by PBL and conventional assessment; class X IPA 2 were treated by conventional model and self-assessment. They were treated for 12 times, then posttest was done to collect students' writing competency data and questioniare was for self-regulated data. then, the obtained data were analyzed by using MANOVA formula.

## 3. Results and Discussion

Finding of this research is divided into two parts, descriptive and hypothesis testing. The result of the descriptive analysis can be presented in the Table 1.

**Table 1** The Result of Descriptive Analysis

| Descriptve Analysis | A1 | | | | A2 | | | |
|---|---|---|---|---|---|---|---|---|
| | B1Y1 | B1Y2 | B2Y1 | B2Y2 | B1Y1 | B1Y2 | B2Y1 | B2Y2 |
| Mean | 85.46 | 91.00 | 81.83 | 81.00 | 77.83 | 75.96 | 74.96 | 76.67 |
| Std. Deviation | 7.989 | 5.125 | 8.781 | 8.016 | 6.585 | 7.992 | 8.073 | 5.917 |

Note : A1 = PBL, A2 = Conventional model, B1 = self-assessment, B2 = conventional assessment, Y1 = writing competency, Y2 = self-regulated learning

Based on the Table 1, it is known that students' mean score writing competency and self-regulated learning instructed by PBL is higher than conventional model. It means that PBL gives better effect than conventional model. Furthermore, the standard deviation of students' writing competency and self-

regulated learning instructed by PBL is higher than conventional model. It means that PBL students are more hetergonous than conventional students.

Next, it was continued to hypothesis testing done by MANOVA formula and the result can be presented in the Table 2.

**Table 2** The Result of Hypothesis Testing

| No | Compared Groups | Probability | Decision |
|----|-----------------|-------------|----------|
| 1 | PBL vs CM | 0.000 | Significant |
| 2 | SA vs CT | 0.001 | Significant |
| 3 | Simulatnuous Interaction | 0.001 | Significant |
| 4 | PBL vs CM Y1 | 0.000 | Significant |
| 5 | PBL vs CM Y2 | 0.000 | Significant |
| 6 | SA vs CT Y1 | 0.047 | Significant |
| 7 | SA vs CT Y2 | 0.001 | Significant |
| 8 | Interaction on Y1 | 0.317 | Insignificant |
| 9 | Interaction on Y2 | 0.000 | Significant |

Based on the Table 2, it is known that 1) there is a significant difference in students' writing competency and self-regulated learning occured simulatnously between the students instructed by using PBL and conventional model, 2) there is a significant difference in students' writing competency and self-regulated occured simulatnously between the students assessed by using SA and conventional assessment, 3) there is a significant interaction between teaching model and assessment type on students' writing competency and self-regulated learning occured simultanously, 4) there is a significant difference in students' writing competency between the students instructed by using PBL and conventional model, 5) there is a significant difference in students' self-regulated learning between the students instructed by using PBL and conventional model, 6) there is a significant difference in students' writing competency between the students assessed by using SA and conventional assessment, 7) there is a significant difference in students' self-regulated learning between the students assessed by using SA and conventional assessment, 8) there is no significant interaction between teaching model and assessment type on students' writing competency, and 9) there is a significant interaction between teaching model and assessment type on students' self-regulated learning.

Those results prove that PBL combined with SA gives positive effects on students' writing competency and self-regulated learning. In the implementation of PBL, SA is implemented in discussion phase. In writing, the students were firstly oriented into writing problems. They were given some examples of writing to be analyzed and decided the best writing in group. To do it, each group was assigned to find out the criteria of good writing both from ideas and linguistics aspects. In this time, opened communication is done by the teacher to help the students make hypothesis of good writing. Then, presentation was done and other groups could complete their friends presentation. Here, the students interacted and discussed each other in group so they could mutually complete. They could also make strategic planning to finish their assignement. It trained the students the students' self-regulated in learning. Finally through interaction, discussion, and guidance, the good writing criteria was established.

Based on the explanation, PBL creates four positive atmospheres on students' learning facilitating the improvement of writing competency and self-regulated learning. *First*, it provides scaffolding in writing. The students learn to identify and understanding posed problems writing. Here, writing concept is constructed step by step. By having the concept, good writing can be produced.

*Second*, productive and critical thinking is trained. Writing demands products consisting on certain elements. The habit of problem solving exercises to think productively and critically. It facilitates creative and deep writing product. *Third*, interaction is opened. During writing, problems is discussed in group firstly. If it is stuck, the students can ask to the teacher. It is only guidance and clues are given, not fixed answers. *Fourth*, it leads the students to make strategic planning. By realizing the learning, the awareness of planning or making decision arise on students themselves. It leads into self-regulated learning.

This finding is also supported by other researchers discovering PBL is effective for writing competency [14,15,16] and self-regulated [17,18]. All of the researchers agree that PBL creates opened ended, problem solving, interactive, and discovery learning. By posing the problems, the students do efforts to solve the problems and formulate hypothesis about good writing. It directs the students to think actively, critically, and creatively so that the students are accustoming to be productive thinker. In addition, interaction and discussion while the PBL is implemented make the students become self-regulated. It is because they have peer to work together so if they have problems they can consult them.

After the students have good writing concept, the students start to write certain genre based on the criteria established. During writing, the students were also introduced into self-assessment and how to do it. Here, open communication was also held by the teacher. The students could freely ask questions and guidance if they had difficulties in assessing their writing. Self-assessment was in the form of checklist so the students judge their writing by just focusing on the criteria. This process led the students to think about their thinking in writing or doing reflection. When the students did reflection, it facilitated their critical and analytical thinking which directing into productive learning. In addition, by understanding the criteria, the students could know what they should do. It was actually a process to be self-regulated.

From the implementation, it is known that SA provides guidance on criteria of good writing and writing strategic planning. It makes the students know what should be done in writing. At least, it can keep the students in tract. Furthermore, self-reflection is constructed. By seeing the checklist, reflection will be done on the work/writing; whether or not it has been matched to their works. Gradually, the awareness increases leading into taking decision independently and confidently. Lastly, the availablity of feedback along learning process helps the students to monitor their learning. SA is on going assessment which make feedback is available. It can be from the students or the teachers. From it, the students are aware on their strengths and weakness so improvement can be done as fast as possible.

The effectiveness of SA on students' writing competency [19,20,21] and self-regulated learning [22,23] are also proven by others. They discover that SA gives chance for the students to do self-reflection and on going process which enable the students to revise their writing. In addition, the use of checklist can be used as guidance for the students to write so they can keep in tract while writing. In terms of self-regulation, SA has strong correlation on it since the students' awareness increases. When they are aware of their writing, the students can do certain efforts to produce it in good quality. Finally, this research and previous researches agree that SA is very hard to be implemented at the beginning.

Besides of their effectiveness, there are several challenges which might be faced in implementing them. Both PBL and SA are very students centered so it will be very hard for the students who are previously treated by lecturing models. The

students should be accostumed to do it firstly. This research proves that the students can apply them well after eighth meeting. Cultural background should also be taken into account. Indonesian culture which is thick of east culture impedes the PBL and SA implementation. Indonesian is usually keep silent or affraid in telling their problems or ideas in public. Some students might have problems or solution, but they do not share it. Lastly, it is harmful for less motivated students. Increasing learners' motivation can become first thing and should be done before class to keep them follow the learning process.

## 4. Conclusion

This research has proven that PBL and SA have better effect on students' writing competency and self-regulated learning than conventional learning model and assessment. Learning experiences created by PBL and SA, such as : scaffolding, productive thinking, students centered, process oriented, reflective learning, problem solving, and democratic grow the students' writing competency and self-regulated learning. Those conditions actually make the students active in constructing knowledge of writing and attitudes of self-reguation.

By seeing the research result, some recommendations are given for three parties. For the EFL teachers, implementing PBL and SA should be implemented step by step since they are hard at the beginning. The teachers have to be opened for the students' problems and give strategic solution. For the Indonesian government, PBL and SA should be used as the main instruction and assessment approach in teaching EFL for secondary school. In addition, the government can make a team to develop self-assessment checklist for each topic in English, such as: writing, speaking, listening, reading, learning strategy, etc in each grade so the EFL teachers can just use it. Finally, the other researchers is recommended to research the effectiveness of PBL and SA in different language skill, grade, and attitudes (motivation, democratic, hard working, etc). In addition, it is also important to find out how and why the different results in separated are occured.

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