

Teaching academic writing by using problem based learning strategy

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Abstract: This research designs a new way of teaching writing, that is, the use of Problem Based Learning strategy (PBL). By utilizing this strategy, the students should be active to manage their own way to learn. The intention is designing a teaching method or teaching instructional model by using problem based learning strategy. And then the design will be treated to the students of the second semester of English Department of Mulawarman University. For this purpose, the objectives of the research are claimed as the following: 1) To develop English teaching instructional model of Intermediate Writing course which applies Problem Based Learning Strategy. and 2) To find out the effect of Problem Based Learning Strategy toward Students' Writing ability. The design and development research is research design to create English Teaching and Instructional model. Furthermore, experimental research design is utilized to search the effect of PBL toward students' writing ability. Writing test is also administered to the students to see the effect of PBL toward their ability. Dependent t-test formula is used to analyze this effect. The analysis shows the result that PBL strategy gives significant effect toward students' writing ability.

Keywords: Problem Based Learning strategy, Intermediate Writing, PBL Procedures, Design and Development research

Introduction

Academic writing is a discipline which is offered to the students of English Department and English Literature of Mulawarman University. To be able to write appropriately and correctly is a demand since the students finally must produce undergraduate thesis as a requirement for their graduation. Academic writing is different from free writing or writing for diary. In academic writing, the students are directed to have knowledge and apply the knowledge for making good writing results. Commonly, the students learn and practice how to write well by considering the aspects or criteria of good writing. The students learn how to make good sentences, paragraphs, and essays in English. This basic knowledge helps them to produce their undergraduate thesis with acceptable manner on how to write well and appropriately, especially the language used.

There are some aspects to be considered when someone writes. Starting from the smallest unit, that is words. The spelling must be correct and the choice of words must be appropriate. When arranging words into sentences, someone must

understand about rules or grammar, style, and sentence construction, whether they build simple sentence, compound, or complex sentence. The next step is making paragraph. There are some elements of a paragraph that need to be their concern: topic sentence, supporting sentences, concluding sentence, unity, and coherence. The following step is how to make an essay: how to make introduction, body, and conclusion. He also learns various kinds of essay and styles and how to organize them. Respectively, to be able to write well, someone must understand the knowledge of academic writing and then practice or utilize it.

In fact, writing correctly and appropriately is not an easy way. The writing instructors have responsibility to deliver the academic writing knowledge and give feedback to the results of writing. During her experience to be a writing instructor, the researcher finds the fact that the students are not successful to produce good writing. They frequently missed in applying the rules on how to write correct sentences and build good paragraphs. It seems they lack of knowledge on these points although they have learned about them. The researcher's assumption

is they fail to apply the basic knowledge of writing because of two reasons: first, they do not understand the basic knowledge of writing well, and the second, they are not careful when they write.

Since the problem frequently happened, the researcher is intended to find other ways to teach writing. Previously, the researcher provided teaching by lecturing, discussing, and practicing. However, such ways did not give delightful effect to students' writing results. This research tries to design a new way of teaching writing, that is, the use of problem based learning strategy (PBL). By utilizing this strategy, the students should be active to manage their own way to learn. The instructor will be the facilitator for giving problems to be solved and possible learning sources to be used. As Wilkerson and Gijsselaers (1996) stated that one of the characteristics of PBL is the use of student-centered approach and teachers as facilitators that serve as the initial stimulus and framework for learning.

Furthermore, since the students are the center of learning, they feel free to study the topics they are interested in and manage the way how to study including identifying their learning needs, planning classes, leading class discussions, and assessing their own work and their classmates' work (Gallagher, 1997; Reynolds, 1997). In addition, Arambula-Greenfield (1996) claims that in PBL, students become more effective problem-solvers and self-directed learners. However, the instructor becomes a tutor or cognitive coach who models inquiry strategies, guides exploration and help students clarify and pursue their research questions.

Considering the role of students in PBL strategy, the idea to apply it emerged. Hopefully, students' self-directive learning will be more successful than the previous method used in which the lecturer is the focus of learning. The students manage themselves to decide the sources to solve the problems given and work cooperatively. They construct their understanding by combining their prior knowledge and new experience they get. They also get a chance to discuss with their own team and the whole class. The lecturer facilitates this activities and guides for exploration.

Respectively, this research is intended to design a teaching method or teaching instructional model by using problem based learning strategy. And then the design will be treated to the students of the second semester of English Department of Mulawarman University. The second semester students are having Intermediate Writing subject at the moment. They have passed Intensive Writing for their basic knowledge on how to write English sentences. In intermediate level, they are learning on how to organize sentences into paragraphs, kinds of paragraph and learning more about mechanical aspects of writing: punctuation and capitalization.

In order to focus her concern in this study, the researcher formulates problems of the study as the following:

1. How to develop English teaching instructional model of Intermediate Writing course which applies Problem Based Learning Strategy?
2. How is the effect of Problem Based Learning Strategy toward Students' writing ability?

Theoretical Framework

A. The Concepts of Problem Based Learning

Problem-Based Learning (PBL) is a total approach to education that challenges students to learn through an active engagement in real life problems. It was first used as a pedagogical approach in the 1960's at McMaster University Medical School (Ontario, Canada), in an attempt to restructure medical school education and enable students to apply their scientific knowledge to clinical problems. Today, PBL is used extensively in elementary, secondary and tertiary education institutions worldwide, and has also been adopted in various fields of professional training, such as nursing, engineering and architecture, among many others (Ioannou, 2000).

The key characteristics of PBL are that it involves team work and communication skills, a problem-solving, critical, analytical and creative capacity, as well as individual research. In addition, Wood (2003) declares:

Group learning thinking facilitates not only the acquisition of knowledge but also several other desirable attributes, such as communication skills, teamwork, problem solving, independent responsibility for learning, sharing information, and respect for others. PBL can therefore be thought of as a small, group teaching method that combines the acquisition of knowledge with the development of generic skills and attitudes.

Regardless of the discipline, PBL is a method that basically challenges students to think; it triggers their curiosity and their interest and engages them in a process of problem-solving that involves experiential learning, through the utilization of genuine experiences. Students then become “*engaged problem solvers*” (Torp and Sage, 2002). They are able to identify the root of the problem and the conditions that are needed in order to find a good solution to it, thus becoming self-directed learners. Meanwhile, teachers / instructors become problem-solving colleagues or cognitive coaches, who build a learning environment that is receiving open inquiry, and also provide enthusiasm for the students (Torp and Sage, 2002). Throughout the process the tutor acts as a facilitator rather than a teacher. Instead of providing answers the tutor encourages useful lines of questioning and, where necessary, provides some problem solving structure (Kiley, Mullins, Peterson and Rogers, 2000).

It ought to be emphasized that PBL is based upon resolving problems that are encountered in everyday life. As Merrill explains, in the PBL process, guidance is provided by the instructor at the early stages, and later, as learners gain expertise and become more confident, this guidance gradually faded (Merrill, 2002). PBL can be more effective if students are first introduced to simple problems, and then are gradually given more complex problems, where elements are added to make them more realistic (Merrill, 2002, 2007). Sweller described this as the “*guidance-fading effect*” (Sweller, 2006). He proposed cognitive load theory in an attempt to explain how a learner reacts to problem solving at the early stages of learning, and suggested that at these early stages worked examples should be offered; gradually, as learners gained experience

and expertise, actual problems should be given to them to solve (Sweller, 1988).

Duch, Groh, Allen (2001) believe that problem-based learning (PBL) provides a forum in which these essential skills will be developed. The basic principle supporting the concept of PBL is older than formal education itself; namely, learning is initiated by a posed problem, query, or puzzle that the learner wants to solve (Boud & Feletti, 1991). In the problem-based approach, complex, real-world problems are used to motivate students to identify and research the concepts and principles they need to know to work through those problems. Students work in small learning teams, bringing together collective skill at acquiring, communicating, and integrating information.

From the pedagogical perspective, PBL is based on the constructivist theory of learning (Schmidt, 1993; Savery & Duffy, 1995; Hendry & Murphy, 1995). In PBL approaches:

- understanding is derived from interaction with the problem scenario and the learning environment
- engagement with the problem and the problem inquiry process creates cognitive dissonance that stimulates learning
- knowing evolves through collaborative processes of social negotiation and evaluation of the viability of one’s point of view

B. The Procedures of PBL

In line with the world demand, the teaching today should consider appropriate ways to construct students’ knowledge and understanding as well as students’ ability to communicate using international language. One learning strategy which trains the students to have this kind of ability is problem-based learning (henceforth *PBL*). As Duch et al. (2001:3) declare, problem-based learning is one educational strategy that helps students build the reasoning and communication skills necessary for success today. Actually *PBL* derives from a theory which suggests that for effective acquisition of knowledge, learners need to be stimulated to restructure information they already know within a realistic context, to gain new knowledge, and to then elaborate on the new information they have learned (Kilroy,

2003). Therefore, problem-based learning can be implemented to assist the students to increase their understanding or cognitive competence toward content subjects written in English. By applying this strategy, both students' understanding and communication skills can be constructed.

The general principle of the *PBL* strategy as stated by Bound and Feletti (1997:2) started by presenting a problem (case, research paper, videotape, for example). Students working in permanent groups organize their ideas and previous knowledge related to the problem and attempts to define the broad nature of the problem. Throughout discussion, students pose questions called "learning issues" that delineate aspects of the problem they do not understand. These learning issues are recorded by the group and help generate and focus discussion. Students are continually encouraged to define what they know and—more importantly—what they do not know. Students rank, in order of importance, the learning issues generated in the session. They decide which questions will be followed up by the whole group and which issues can be assigned to individuals, who later teach the rest of the group. Students and instructor also discuss what resources will be needed to research the learning issues and where they could be found. When students reconvene, they explore the previous learning issues, integrating their new knowledge into the context of the problem. Students are also encouraged to summarize their knowledge and connect new concepts to old ones. They continue to define new learning issues as they progress through the problem. Students soon see that learning is an ongoing process and that there will always be (even for the teacher) learning issues to be explored.

In brief, the *PBL* strategy starts the session with the students' activities by giving problems/questions related to the topics that should be discussed in groups. Students classify the questions that they can answer and they cannot answer at that time. The teacher facilitates the students with content materials to help them answer the questions. Then the students share the tasks that will be done individually or in groups. They discuss all the problems together until the tasks are completed. If they get problems they can ask the teacher to verify their answers. Then the teacher invites each group to report their answers to the other

groups. The other groups can give comment, questions, or any other addition toward the report of the presenting group.

Method

This study applied both qualitative and quantitative approach to solve the research problems. Ary, Jacobs, and Razavieh (2002: 425) state that the qualitative inquirer deals with data that are in the form of words, rather than numbers and statistics. Since the focus of the study was on developing English teaching and instructional model of Intermediate Writing Course using Problem-Based Learning Strategy, this research created the activities based on the strategy that could be applied to teach Intermediate Writing by using Problem-Based Learning Strategy.

Moreover, design and development research seeks to create knowledge grounded in data systematically derived from practice. As Rechev & Klein (2007) define design and development research as the systematic study of design, development and evaluation processes with the aim of establishing an empirical basis for the creation of instructional and non-instructional products and tools and new or enhanced models that govern their development.

In order to observe the effect of *PBL* to the students' writing ability, therefore, the experimental study was carried out. According to Ary, Jacobs and Razavieh (2002: 276), an experiment is a scientific investigation in which the researcher manipulates one or more independent variables, controls any other relevant variables, and observes the effect of the manipulations on the dependent variable. In this case, the researcher used the designs that did not include random assignment known as pre-experimental design. This research only used one group as the experimental group.

The subject of the study was the second semester students of the English Department of Mulawarman University in academic year 2017/1018 which consisted of 30 students. According to Gay & Diehl (1992), generally the number of respondents acceptable for a study depends upon the type of research involved. For experimental research 30 subjects per group is often cited as the minimum. In fact, among the 30 students, only 26 students were involved in

both pre-test and post-test. So, there were 26 students as the sample of this research.

In analyzing the data, the researcher follows Miles and Huberman theory in analyzing qualitative data. Miles and Huberman (1994:10) proposed a flow model. The basic principles of the model are that analysis is conducted from the data collection, reduction, data display, and conclusion drawing/verification. Actually, the data collected were in the forms of students' tasks and performances applied. The researcher who was the instrument of the study analyzed and classified the data on the activities that could be applied to teach intermediate writing by using Problem-Based Learning.

In order to find the effect of PBL toward students' writing ability, this research measured the results of pre-test and post-test which were conducted before and after the treatment by using dependent t-test. The following is the formula of dependent t-test or paired t-test:

$$t = \frac{(\sum D)/N}{\sqrt{\frac{\sum D^2 - \frac{(\sum D)^2}{N}}{(N-1)(N)}}$$

$\sum D$: Sum of the differences between two paired samples

$\sum D^2$: Sum of the squared differences between two paired samples

$(\sum D)^2$: Sum of the differences, squared.

N: The sample size

However, to find out the result of t-test, this research used SPSS 17 to calculate the difference between two paired samples, students' writing scores before and after the treatment using PBL strategy.

Findings and Discussion

The following table shows the teaching-learning materials and students' activities based on PBL.

N o.	Materials	Students' and Lecturer's activities
1.	Five qualities of Good Writing and Questions/Problem	1. Students are given some questions about the criteria of good writing and topic.

s:	2. Students write and understand the questions.
1. What are the criteria of good writing?	3. Students are asked to work in groups and are given instruction on how to work in group.
2. What is topic sentence?	4. Students arrange their groups and distribute the questions to the members of the group.
3. How to make an interesting topic?	5. Students classify the questions they can and cannot answer.
4. What is the controlling idea of a topic sentence?	6. The lecturer facilitates the students with sources to find the solution of the problems.
5. Where is the position of a topic sentence in a paragraph?	7. Students find the sources to solve or answer the problems or questions.
6. What is the purpose of putting the topic sentence at the beginning of the paragraph?	8. Students are invited to communicate the results to class or make a report/presentation.
	9. Students communicate the answer to other groups or make presentation/ report.
2. Supporting sentences and concluding sentence.	1. Students are given some questions about the criteria of good writing and topic.
Questions/problems :	2. Students write and understand the questions.
1. What is the purpose of supporting sentences?	3. Students are asked to work in groups and are given instruction on how to work in group.
2. How to develop the supporting sentences?	4. Students arrange their groups and distribute the questions to the members of the
3. What kinds of supporting sentences do you know?	

<p>4. What is the group purpose of concluding sentence? 5. How to make concluding sentence?</p>	<p>5. Students classify the questions they can and cannot answer. 6. The lecturer facilitates the students with sources to find the solution of the problems. 7. Students find the sources to solve or answer the problems or questions. 8. Students are invited to communicate the results to class or make a report/presentation. 9. Students communicate the answer to other groups or make presentation/ report.</p>	<p>or questions. 8. Students are invited to communicate the results to class or make a report/presentation. 9. Students communicate the answer to other groups or make presentation/ report.</p>
<p>3. Unity and Coherence. Questions/problems : 1. What is Unity? 2. How to make a unity paragraph? 3. What is coherence? 4. How to make coherence paragraph?</p>	<p>1. Students are given some questions about the criteria of good writing and topic. 2. Students write and understand the questions. 3. Students are asked to work in groups and given instruction how to work in group. 4. Students arrange their groups and distribute the questions to the members of the group. 5. Students classify the questions they can and cannot answer. 6. The lecturer facilitates the students with sources to find the solution of the problems. 7. Students find the sources to solve or answer the problems</p>	<p>1. Students are given some questions about the criteria of good writing and topic. 2. Students write and understand the questions. 3. Students are asked to work in groups and are given instruction on how to work in group. 4. Students arrange their groups and distribute the questions to the members of the group. 5. Students classify the questions they can and cannot answer. 6. The lecturer facilitates the students with sources to find the solution of the problems. 7. Students find the sources to solve or answer the problems or questions. 8. Students are invited to communicate the results to class or make a report/presentation. 9. Students communicate the answer to other groups or make presentation/ report.</p>
	<p>4. How to entitle. Questions/problems :</p> <p>1. Do you know the techniques of how to entitle? What are they? 2. Can you give the examples of titles following the techniques of titling? 3. Why do the writers need to know the techniques of titling? 4. How are the styles of titling?</p>	<p>1. Students are given some questions about the criteria of good writing and topic. 2. Students write and understand the questions. 3. Students are asked to work in groups and are given instruction on how to work in group. 4. Students arrange their groups and distribute the questions to the members of the group. 5. Students classify the questions they can and cannot answer. 6. The lecturer facilitates the students with sources to find the solution of the problems. 7. Students find the sources to solve or answer the problems or questions. 8. Students are invited to communicate the results to class or make a report/presentation. 9. Students communicate the answer to other groups or make presentation/ report.</p>
	<p>5. Descriptive</p>	<p>1. Students are given</p>

<p>paragraph. Questions/problems : 1. What is descriptive paragraph? 2. How to arrange the description? 3. Do you know kinds of descriptive paragraph? 4. How to describe things, humans and places? 5. What kinds of expression do we need to describe things, humans, and places?</p>	<p>some questions about the criteria of good writing and topic. 2. Students write and understand the questions. 3. Students are asked to work in groups and are given instruction on how to work in group. 4. Students arrange their groups and distribute the questions to the members of the group. 5. Students classify the questions they can and cannot answer.</p>	<p>distribute the questions to the members of the group. 5. Students classify the questions they can and cannot answer. 6. The lecturer facilitates the students with sources to find the solution of the problems. 7. Students find the sources to solve or answer the problems or questions. 8. Students are invited to communicate the results to class or make a report/presentation. 9. Students communicate the answer to other groups or make presentation/ report.</p>
<p>6. Narrative Paragraph Questions/problems : 1. What is narrative paragraph? 2. How to arrange the narration? 3. What kinds of expression do we need to make narrative paragraph?</p>	<p>1. Students are given some questions about the criteria of good writing and topic. 2. Students write and understand the questions. 3. Students are asked to work in groups and are given instruction on how to work in group. 4. Students arrange their groups and</p>	<p>7. Expository Paragraph Questions/problems : 1. What is expository paragraph? 2. What should be included in exposition? 3. What kinds of expression do we need to make expository paragraph? 1. Students are given some questions about the criteria of good writing and topic. 2. Students write and understand the questions. 3. Students are asked to work in groups and are given instruction on how to work in group. 4. Students arrange their groups and distribute the questions to the members of the group. 5. Students classify the questions they can and cannot answer. 6. The lecturer facilitates the students with sources to find the solution of the problems.</p>

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7. Students find the sources to solve or answer the problems or questions.
 8. Students are invited to communicate the results to class or make a report/presentation.
 9. Students communicate the answer to other groups or make presentation/report.
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Based on the presented data which is shown by the table mention previously, there are seven topics which are delivered by using PBL, that is, Five Qualities of Good Writing and Topic Sentence, Supporting Sentences and Concluding Sentence, Unity and Coherence, How to Entitle, Descriptive Paragraph, Narrative Paragraph, Expository Paragraph. All the topics were taught by using PBL and started from giving questions which were related to the topics. The students were grouped into several groups which consisted of five students in each group. Since there were 30 students all together, six groups were formed. Each group discussed about the questions and tried to find the answers by distributing the questions to be answered among the members of the group. After thinking and searching about the answers, they made a list of which questions could be answered at that time and which questions that could not be answered. The lecturer monitored the activities and then facilitated some sources of information to help them solve the questions they did not know. After that, each group was invited to present or discuss the finding with the whole class.

In order to see the effect of PBL strategy toward students' writing ability, the students' writing results before and after the treatment using PBL strategy were compared by using dependent t-test to find out whether there was a difference before and after getting treatment. In this case, the researcher used SPSS 17 to calculate the result of the t-test. Based on the statistical analysis using SPSS calculation, it was found that sig (2-tailed) was 0.000 (p score). To see

whether H_0 (null hypothesis) was rejected or accepted, the p score (0.000) was consulted to hypothesis testing. Since $p (0.000) \leq 0.05$, H_0 was rejected. It could be concluded that there was significant difference of students' writing ability before and after the treatment using PBL strategy. It means that PBL strategy gave significant effect toward students' writing ability.

Since *PBL* showed different results to the students' scores which increased their writing ability, it built students' ability to answer and give solution to the problems related to the topics. It also increased students' ability to restructure information they had already known from various sources and combined their prior knowledge and the new information to answer the questions. They constructed their understanding on the problems given. Communication skills were also applied when the students shared their findings with the whole class. All the activities in PBL strategy gave an effect on the development of students' competence in learning language skill, especially writing. To be able to produce writing results well, the students learned about the theories of academic writing. And then they produced or practiced to write based on the knowledge they experienced.

Conclusion

The conclusion is created based on the answers of the two research questions which are stated as the findings of the research. The following shows the answer of the analysis of those research questions:

1. The teaching model instruction of Intermediate Writing has been developed by using Problem-Based Learning strategy which shows the topics of the materials and the problems or questions. Actually, there are seven topics all together. Then, the activities of students and lecturer are presented which reflect the procedures on how to conduct teaching and learning by using PBL strategy.
2. The analysis by using dependent t-test shows the result that PBL strategy gives significant effect toward students' writing ability. It can be concluded that there is significant difference of students' writing ability before and after the treatment using PBL strategy.

Biography

Satyawati Surya got S-1 Program at English Department, FKIP, Unmul in 1994. She got Master Degree at the English Education of the State University of Malang in 2012. Now She is teaching at the English Department and English Literature of Mulawarman University.

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