

THE EFFECT OF PROBLEM SOLVING TECHNIQUE AND MOTIVATION TOWARD STUDENTS' WRITING SKILLS

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Abstract: This study was conducted to find out the effect of Problem Solving technique and motivation toward students' writing skills in STKIP Adzkia. This research was based on the problems which were occurred in the writing class. The students at STKIP Adzkia did not sufficiently-learn skills on how to make a good paragraph, how to get many ideas when they start their writings and how to arrange their ideas systematically. This research was a quasi-experimental research with factorial design 2x2. The instruments that were used for this research were writing test and motivation questionnaire. T-test analysis and two ways ANOVA analysis were used in analyzing the data. The result of this research revealed that: (1) Students who were taught by Problem Solving Technique were better than students who were taught by brainstorming technique toward students' writing skill; (2) Students who had high motivation and were taught by Problem Solving Technique were better than who thought by Brainstorming technique; (3) Students who had low motivation and were taught by Problem Solving Technique were better than who were thought by Brainstorming technique; (4) There was no interaction between technique and motivation toward students' writing skill. The Findings had been proven that Problem Solving technique gave significant impact on students' writing skills.

Keywords: Problem Solving technique; motivation; writing skill

Abstrak: Penelitian ini dilakukan untuk mengetahui pengaruh teknik Problem Solving dan motivasi terhadap keterampilan menulis siswa di STKIP Adzkia. Penelitian ini didasarkan pada masalah yang terjadi di kelas menulis. Mahasiswa STKIP Adzkia tidak cukup mempelajari keterampilan membuat paragraf yang baik, cara mendapatkan banyak ide saat memulai tulisan dan cara menyusun ide secara sistematis. Penelitian ini merupakan penelitian eksperimen semu dengan desain faktorial 2x2. Instrumen yang digunakan dalam penelitian ini adalah tes menulis dan angket motivasi. Analisis uji-t dan analisis ANOVA dua arah digunakan dalam menganalisis data. Hasil penelitian menunjukkan bahwa: (1) Siswa yang diajar dengan Teknik Problem Solving lebih baik daripada siswa yang diajar dengan teknik brainstorming terhadap keterampilan menulis siswa; (2) Siswa yang memiliki motivasi tinggi dan diajar dengan Teknik Problem Solving lebih baik daripada siswa yang berpikir dengan teknik Brainstorming; (3) Siswa yang memiliki motivasi rendah dan diajar dengan Teknik Pemecahan Masalah lebih baik daripada yang berpikir dengan teknik Brainstorming; (4) Tidak ada interaksi antara teknik dan motivasi terhadap keterampilan menulis siswa. Temuan telah membuktikan bahwa teknik Problem Solving memberikan dampak yang signifikan terhadap keterampilan menulis siswa.

Kata kunci: Teknik Pemecahan Masalah; motivasi; keterampilan menulis

In education, English plays a crucial role as there are many sources of knowledge that are written in English. The important role of English encourages the government of Indonesia to mandate English as a compulsory subject taught from junior high school to university level. Even nowadays, English has been taught from kindergarten and elementary school. This speciality can also be seen from the inclusion of English subject in the National Examination, a test based on which students are determined whether they pass their junior and senior high schools. For the university students, English is a compulsory general basic subject. In other words, English has a big portion in Indonesian educational curriculum to be implemented both at schools and universities.

There are four skills that must be achieved in English class. The language skills consist of listening, speaking, reading and writing. It means that those four skills are to be integratively learned by students. Among those skills, writing is considered to be the most difficult skill because many components that should be considered. We must be able to uncover and think of new ideas in order to write properly. It can be said that writing is a process in which the writer can compose ideas, opinions, feelings, and thoughts into written words through the process of writing. Arranging, composing, describing an event, writing in the form of a collection of letters, words, sentences, paragraphs, and collection of paragraphs making the discourse or essay whole and meaningful are all examples of writing tasks. Writing is a complicated skill because it involves

several interconnected aspects of problems such as organization, grammar, vocabulary and mechanics (Sidauruk, et. al., 2020).

Many English teachers realize the difficulties of the students in writing class. Many students have low writing skills. This is a situation that occurs not only in Indonesia but also Pakistan. In Pakistan, secondary school students have difficulty communicating in written form in both academic and real-life circumstances (Dastgeer & Afzal, 2015). There is very little effort made to increase students' ability to express themselves freely in writing.

These problems were also found at STKIP Adzki. There were some problems faced by students in writing English. The first problem was related to students' writing skills. Students have no sufficient vocabularies, lack grammatical knowledge and insufficient skills on how to build a good paragraph. This phenomenon was happened because the students' habits who were rarely to use English in their daily activities. Therefore, they were not familiar with English and it was difficult for them to create the idea and to write English sentences. The second problem was related to the students' motivation. Most of the students have low motivation to write in English. It had negatively affected students' writing achievement. The students with low motivation had not really performed well in their writing class.

It may be concluded that STKIP Adzki students did not learn enough about how to write a decent paragraph, how to generate a lot of thoughts when they start writing, and how to organize their ideas methodically. Dealing with

this phenomenon, it can say that the first phase of writing is the important step for the students before coming to the first draft of their writing. The students have to familiar with the topics and have many ideas on their mind about the topic so it will be easy for them to make a good paragraph because their ideas come smoothly when they write something. Therefore, it is believed that kinds of techniques used in the first phase of teaching writing and students' motivation would significantly affect the students' learning achievement. However, a common technique such as Brainstorming is only effective for some students, such as for the students with high motivation. However, brainstorming is still one of the most popular technique for teaching writing. In the first phase of teaching writing, teachers usually brainstorm with students. Therefore, the writer would like to try to implement Problem Solving technique as the new technique in teaching writing especially in first step of writing.

Problem solving technique can improve a student's language writing skills. It may be simple for students to express their feelings, opinions, and thoughts in writing. Students' confidence and motivation in conveying their thoughts and solving their problems in life. In other words, it can be said that the Problem Solving Technique is a technique for improving students' ability to use information, facts, and data to solve problems effectively. Students might approach their challenges in life in a more critical manner by employing this technique. Problem Based Learning is a method that uses problems to teach students how to

think critically when confronted with a problem. This strategy focuses on how teacher may help students to increase their skills to solve problems at school (Khotimah, 2014).

Santrock also said that finding a suitable technique to achieve a goal is part of problem solving (Santrock, 2012). Problem-Based technique encourages students to think critically (Narmaditya, et. al., 2018). Students are invited to find a problem that is relevant to their lives and interests using this technique. They next collaborate to properly define the problem, then list the problem's root causes in their group, identify two or more primary causes, and discuss strategies for rectification. Finally, each person presents the challenges from various perspectives and their solutions.

This technique aids in the development of students' problem-solving abilities, communication skills, critical thinking skills, and a lifelong learning attitude, as well as motivating them to learn. In addition, PBL is effective at reducing students' anxiety, motivating them, making them responsible for their learning, teaching them how to share and exchange their ideas with others, encouraging them to actively participate in learning, allowing them to explore their skills to solve problems, increasing their self-confidence, and making them eager to learn by allowing them to explore their skills (Ghufron and Ermawati, 2018)

The Problem solving technique procedure that commonly used is proposed by Arends (Sidauruk, 2020). There are; Orient students to the problem, Organize students for study,

assist independent and group investigation, develop and present artifacts and exhibits, analyze and evaluate the results of problem solving process. There are some important points that need to be considered in problem solving technique: identify the problem, define the context, enumerate the choices, analyze options, list reasons explicitly and the last look it again or self correct.

All the procedures must be done by the students in their group while the lecturer's role as facilitator that controls all of the students' activities. The lecturer's must be sure that all steps of the problem solving technique procedures have been done by the students. In addition she/he must be sure that the learning process is student-centered learning not teacher-centered learning. In other words, students have more chance for their learning creativeness by solving the real world problems. Then, the lecturer just guides and monitors them in using this technique.

Another variable that should be considered by a lecturer of foreign language is provision of sufficient motivation within the learners. Therefore, the researcher also assessed the students' motivation in this research. The motivation used as moderator variable that influenced students' writing skill. It means that motivation was one of the factors that participated or influenced strengthened or weakened students' writing skill. Motivation could be divided into several categories based on its functions. However, in the context of this study, the researcher classified the motivation into high and low motivation after distributing questionnaires of motivation to the

students.

METHOD

To investigate the hypothesis, this study used a quasi-experimental design. The pretest-post test design was used in this study. Both groups (experiment and control) were given a pretest to ensure that they were similar. A post-test was given to both groups at the conclusion of the treatment.

Participants

The participants in this study were 92 students in the fifth semester of PGSD STKIP Adzkie. The research sample consisted of two classes: VA, which had 34 students as the experimental class, and VC, which had 32 students as the control class. They were chosen using cluster random sampling.

Instruments

There were two types of instrumentation used in this research: writing test and questionnaire. The writer used O'Malley and Pierce's scoring rubric for student writing. Composing, style, sentence formation, usage, and mechanics are the five components they propose. Then, the items of questionnaire were arranged based on the indicators of motivation.

Techniques of Data Gathering

The data was collected through writing test and students' motivation questionnaire. The tests were achievement-test for both experimental and control classes. There were two kinds of test; pretest and the post

test. The pretest was conducted before the treatment done, and the post-test was done after the treatment for eight meeting. Both pretest and post-test were tested to both groups; experimental, and control groups. For the experimental group, the pretest was aimed to get the students' real writing skill proficiency before getting the treatment by Problem Solving technique. Similarly, the control group was also tested to get information on their writing proficiency before using Brainstorming technique. The result of post-test of both groups after eight meetings were compared in order to get the result if the Problem Solving technique applied to the experimental group was proved to be able to increase the students' writing skill.

To know students' motivation in writing, the questionnaire was used. The result of the questionnaire was analyzed in order to decide whether the students have high or low motivation.

Techniques of Data Analysis

Having collected the data, it was analyzed by normality testing, homogeneity testing, and hypotheses testing (t-test). In order to know the interaction between technique used and motivation on students' English writing skill, it was tested by using ANOVA 2x2 with formula

unweighted means method because of experimental and control classes had different sample.

RESULT AND DISCUSSION

Problem Solving Technique resulted the better effect on students' writing skills than the brainstorming technique. Based on the statistical analysis of hypothesis testing, there are four findings to discuss here.

1. Students who are taught using the problem-solving technique perform better in English writing than those who are taught using the brainstorming technique.

The result of writing skill t-test for both experimental and control class can be seen at Table below. From the findings above, it were shown that Students who are taught using the Problem Solving technique perform better in English writing than those who are taught using the Brainstorming technique. This results were caused by the effect of the technique used by the researcher in the class. This technique gave the change to the students to create many ideas for their writing, and they were free to mention their opinion about the topic being

Tabel 1. The Summary of t-test Students' Writing Skills of Experimental and Control Class

Variable	Class	N	\bar{X}	t-observed	t-table	Note
Writing Skill	Exp.	34	10.721	4.387	1.671	t _{observed} > t _{table} H ₁ : accepted
	Cont.	32	8.172			

discussed in the class. Creating many ideas is a very crucial step before coming to the next step of writing. They would have an easier time writing after this phase because they had many ideas in their heads and understood exactly what they intended to convey in their writings. It is possible to conclude that the Problem Solving Technique had a significant impact on students' writing skills.

This finding was in line with a number of theories and findings from prior investigations conducted by a number of specialists. The study's findings demonstrated that critical thinking processes improved people's capacity to solve problems and draw conclusions (Narmaditya, et. al., 2018). When the teacher provided exercises during questioning, discussing difficulties, and coming up with solutions relevant to the course's theme, this was an example of Problem-Based Learning that explicitly encourages students to think critically. Students were aided in understanding deeper and avoiding misconceptions via a revision and reflection process supplied at the end of the study. This critical thinking is very important to enhance students' writing skills. In their studies the use of Problem Based Learning (PBL) is successful enough to boost students' learning ability in writing, according to the results of the data analysis (Sidauruk, et. al., 2020). The data analysis shows that in the experimental group, using problem-based learning had a considerable impact on the learning process. Students have improved their understanding of tenses and how to use them. The Problem Solving technique offered students with

several opportunity to think critically and objectively about the problems or phenomena that they were confronted with. Students learn how to see, how to find the basis of the problem, and how to overcome the situation surrounding them by discussing it in groups. This suggests that PBL was a more effective technique for teaching English essay writing to students and enhancing their English writing skills than traditional technique (Dastgeer & Afzal, 2015).

This technique is very affective for writing class, because it can help the students to generate a lot of ideas for their writings and made it simple for them to develop them. It would be simple for students to construct a decent paragraph if they were highly familiar with the issue and had a good frame of mind about how to explain the topic in their writings. As a result, this technique can help students develop critical thinking skills while also improving their writing skills.

Students in the control class, on the other hand, who were taught using the brainstorming technique, were unable to construct a good paragraph. They merely studied how to generate numerous thoughts connected to the given issue, with no discussion of how to perceive and solve the problem. It would be difficult for the writer to organize their thoughts or construct a strong paragraph if they were unfamiliar with the issue and had never discussed it before. This technique might be considered to have bored, disinterested, and frustrated students who were learning to write.

It can be concluded that students who are taught using the

problem-solving technique perform better in English writing than those who are taught using the brainstorming technique.

2. The Students with High Motivation who are Taught By Problem Solving Technique, and Get Better Result in English Writing Skill than Those who are Taught by the Brainstorming Technique.

The result of writing skill t-test of highly motivated students' for both experimental and control class can be seen in table 2.

Many experts agree that there is a positive relationship between motivation and students' achievement. As what motivation is linked to a student's intellectual aptitude, their ability to think creatively and critically through language, and their willingness (Galishnickova, 2014). It is motivation that is tied to interest, which is linked to mentality, learning style, intellectual and emotional expressions, and overall achievement.

That motivation is really important in the process of learning a language. Teachers can play an important role in encouraging students to acquire a second or foreign language. Motivation is a key aspect in learning a foreign language, and it is influenced by a variety of factors (Alizadeh, 2016).

It means that motivation is one of the most important factors to success in learning English especially in writing. The theory above was proven by the score of students' writing skill with high motivation. These highly motivated students were successful in their writing test, but the students with low motivation did not perform well enough in their writing test.

In this research, it was found that the students with high motivation were more active to involve in classroom activities. They tended to be more interested in group discussion than the students with low motivation. They also tried to do their best in their writing task.

Furthermore, based on the result of the second hypothesis, it was found that the mean score of highly motivated students' writing skill with high in the experimental class taught by using the Problem Solving Technique was higher than the mean score students' writing skill with high motivation in the control class taught by the Brainstorming technique. The mean score of highly motivated students' writing score in the experimental class was 13, meanwhile the mean score of students' writing score with high motivation in control class was 10.111. These differences were influenced by some factors.

Tabel 2. The Summary of t-test Students' Writing Skill of Experimental and Control Class Who Have High Motivation

Variable	Class	N	\bar{X}	t-observed	t-table	Note
Writing Skill	Exp.	9	13	2.663	1.748	t _{observed} > t _{table} H ₁ : accepted
	Cont.	9	8.778			

First, the students in experimental class who were taught by Problem Solving technique got more opportunity to create and share many ideas in their group. Each student could express their ideas, so it helped them to have more self confidence and motivation in developing their writing.

Second, this technique also could stimulate the students to think critically because in this technique they tried to diagnose the problem: what the problem was, why this problem occurred, how to overcome this problem and what the best solution was. This technique could also guide them how to formulate their thought. In other word, it was easy for them to develop many ideas and arguments in their writing and they could make a good paragraph.

This was different from the control class. Here, the students also got freedom to express their ideas about certain topic but they did not practiced to think critically. They just tended to convey their ideas without practice how to see the problem from different side. According to Voon (Mehr, et. al., 2016) Brainstorming is a prewriting activity that helps participants generate ideas for the content of their writing, allowing them to write better developed essays. The purpose of the brainstorming is to generate the ideas as possible in

specified and short time. In applying this technique, the students only generated many ideas in certain topic within limited time. In fact, they did not learn how to overcome the cases or problem given. So, they did not learn how to think critically about the topic discussed; they had little arguments, and ideas to develop their writing even though they had high motivation. This condition made them not so interested in developing their writing. Therefore, writing class was very anxious for them. It is no wonder that their scores in writing skill were not satisfied enough.

From the discussion above, it can be concluded that the students with high motivation who were taught by Problem Solving Technique have better writing skill than who were taught by the Brainstorming Technique.

3. Low Motivated Students Who are Taught by Problem Solving Technique Get Better Result in English Writing skill than Those Taught by the Brainstorming Technique

The result of the writing skill t-test for low motivation students' in both experimental and control class can be seen at Table below.

Table 3. The Summary of t-test Students' Writing Skill of Experimental and Control Class Who Have Low Motivation

Variable	Class	N	\bar{X}	t-observed	t-table	Note
Writing Skill	Exp.	9	8.778	2.815	1.746	t _{observed} > t _{table} H ₁ : accepted
	Cont.	9	6.667			

The students with low motivation who were taught by the Problem Solving technique had better writing skill than the students with low motivation who were taught by the Brainstorming technique. The mean score of writing test of the low motivated students in experimental class with low motivation was 8.778 while the mean score of writing test of students in control class was 6.667. This happened because the students with low motivation in experimental class got chance to communicate with their friends in their group. They could also get the opportunity to discuss how to see the problem, why the problem occurs, and how to overcome the problem. They involved a good environment too in where all the students involved in developing their critical thinking.

In other words, by using Problem Solving technique in this conducive environment, the low motivated students also got the good impact indirectly. The use of the Problem Based technique in the classroom could boost students' motivation and interest for learning English. In addition, they were stimulated to think critically too because the technique used enabled someone to be active and involved in group discussion. Then, they could familiar with the topic given and they knew how to overcome that problem. So, it became easy for them to make a good paragraph (Khotimah, 2014).

In contrast, even-though the low motivated students in control class could get the opportunity to express their ideas but they could not get the chance to think critically. In addition, they also tended to be passive in the classroom and group discussion. In

learning activities, motivation is a key aspect. Learning goals are difficult to achieve without motivation because students' effort and desire affect their ability to achieve learning goals. Students will be energized in their learning process if they are motivated, and they will be pushed to understand English properly. (Purnama, et. al., 2019)

The indicators of highly motivated students are those who have desire and want to be success in learning, have willing, spirit and need to learning. It was different from the low motivated students in control class; they had no desire and did not want to be successful. They also did not have willingness, spirit and need for learning. So, they tended not to pay much attention to the teaching and learning process. They were also not interested in involving actively in their group. They tended not to talk much in their group. They felt that learning activity was a boring especially in writing activity. They had no ideas and had no good arguments in creating a good paragraph.

Therefore, the students with low motivation who were taught by the Critical Thinking Skill through Problem Solving technique had better writing skill than who were taught by the Brainstorming technique.

4. There is No Interaction between Teaching Techniques (the Problem Solving technique and the Brainstorming technique) and Motivation toward Students' Writing Skill

In this study, the researcher used ANOVA 2x2 formula *unweighted means* in analyzing the interaction between both the

Table 4. The Result of ANOVA

Sum of Variance	SS	df	Variance	F _{observed}	F _{table}
Inter-row	132.228	1	132.228	33.732	4.15
Inter-column	56.25	1	56.25	14.349	4.15
Interaction	1.359	1	1.359	0.347	4.15
Within Cell	125.444	32	3.92		

techniques and motivation to students' writing skill. The result of the analysis can be seen on the table 4.

Based on the result of the fourth hypothesis, the F_{observed} for interaction was lower than the F_{table} value. It means that H₀ was accepted, there was no interaction between both techniques and students' motivation toward students' writing skill. It could also be seen from the result of fourth hypothesis (H₀) was accepted and alternative hypothesis (H₁) was rejected. If the null hypothesis (no difference among treatments or interactions) is accepted, there is an implication that there is no relation between factor levels and response.

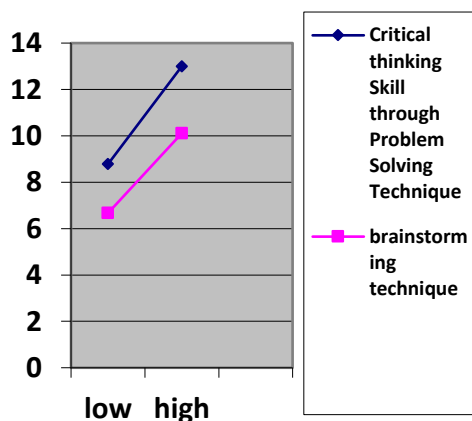


Figure 1. Interaction Between Techniques and Motivation toward Students' Writing Skill

The significant interaction both of the techniques used and motivation can be seen in figure 1 (Interaction

between Techniques and Motivation toward Students' Writing Skill).

This figure shows that the students taught by the Critical Thinking Skill through Problem Solving Technique had higher mean score than students taught by Brainstorming technique. The mean score of both high and low motivated students' writing skill in experimental class were higher than the mean score of writing skill of students in control class.

Moreover, the differences of mean score of both experimental and control that have high and low motivated students at figure 1 show that the line was parallel. This indicates that there was no significant interaction between both strategies used and motivation to students' writing skills. Whereas, the data also shown that the Critical Thinking Skill through Problem Solving Technique was more effective than the Brainstorming technique to enhance students' writing skills from the mean scores of students' writing skills. It proves the classes which involve elements of critical thinking tend to be generally interesting and engaging, and give the classroom a more meaningful and cohesive environment. The students who work together will be more likely to attend the classes and will be more active and involved in class discussion.

In addition, through this Problem Solving technique, students

were forced to consider the real problems that influenced their daily lives in a critical way. As what Narmaditya, et. al. (2018: 386) argued that Problem-Based technique that explicitly encourages students to think critically problem. The teacher provided exercises during questioning, discussing problems, and coming up with solutions relevant to the course's theme. This technique offered students opportunities to analyze an issue critically through problem given to be discussed. So, it becomes easy for them to arrange and make a good paragraph especially in analytical exposition.

In conclusion, there was no interaction between teaching techniques (Problem Solving technique and the Brainstorming technique) and motivation toward the improvement of students' writing skills. Motivation indirectly led the students to develop their writing skills. However, based on statistical calculation, the interaction between techniques used and motivation could not directly affect students' writing skill.

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CONCLUSION

Based on the results of this study, it can be concluded that the Problem Solving Technique can help students at STKIP Adzkie Padang solve their writing problems. Furthermore, the following are the research's detailed conclusions:

1. Students who are taught using the Problem Solving technique perform better in English writing than those who are taught using the Brainstorming technique.
2. Students who are taught using the Problem Solving technique and who have a high level of motivation perform better in English writing than those who are taught using the Brainstorming technique.
3. The students with low motivation who were taught by the Problem Solving technique get better result in English writing skill than those who were taught by the Brainstorming technique.
4. There is no interaction between techniques used and students' motivation toward students' writing skills.

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