



# Implementing Problem-based Learning: Improving Students' Basic Haircutting Skills in Vocational School

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## ABSTRACT

Students minimum understanding and low skills in basic haircutting materials have been the results of the inappropriate learning model applied. This study aimed to determine whether there was an increase in students' basic haircutting skills both cognitively and psychomotorly before and after the application of the problem-based learning model for students of State Vocational School 3 Kediri. This study used a pre-experimental design with a one-group pretest-posttest design. There were 32 beauty class students who contributed as research participants. Data were collected using a cognitive learning outcome test for the pretest and posttest and a psychomotor learning outcome test for the performance test. This study also used observation to find out the implementation of the syntax of the problem-based learning model and a questionnaire to reveal students' responses. The obtained data were analyzed using paired sample t-tests with the assistance of SPSS software. Results showed that there was an increase in student learning outcomes cognitively and psychomotor after the implementation of the problem-based learning model ( $M = 82.7$ ), which passed the passing grade of 78. Another finding was that student responses were categorized at a very high level. Thus, the problem-based learning model is an effective learning model to improve students' basic haircutting skills both cognitively and psychomotor.

**Keywords:** *Problem-based learning, Basic haircutting skills, Vocational student.*

## 1. INTRODUCTION

Education is a basic need for the development of a nation. Whether a nation advances or not depends on the quality of education. If education is of good quality, it is very likely that the country will experience progress [1]. To be able to advance this nation, the next generation of the nation is needed who are capable and ready to compete in this era of globalization. Education can be interpreted as a process of changing the behavior of students so that they become adult humans who are able to live independently and as members of society in the natural environment around which the individual is located [2]. In essence, education is a process based on developing individual potential so that they have thinking intelligence, emotional intelligence, character and skills to be ready to live in society. "Education must be placed on four pillars, namely learning to know, learning to do, learning to live together, and learning to be yourself" [3].

A great country will place education as its first priority, because with education, poverty among the people of that country will be replaced by prosperity. However, in its development, education in Indonesia always has to face several problems at every stage. These problems can only be resolved with the participation of all parties involved in the education system, such as the students themselves, parents, the community, teachers and schools. Especially vocational education schools, which are a type of formal education that focuses on preparing students to enter the world of work as professionals [4]. This is based on the requirement for a qualified workforce in the present and the future. Vocational schools focus on preparing students with expertise in particular subjects so that they can go into the workforce or pursue further education after graduation. The competency of cosmetology skills, namely hairstyling skills, one of which is fundamental hair trimming, is one of the competencies that vocational students are required to learn.

Basic hair trimming is a task that involves shortening one's hair using certain methods and tools like combs and scissors in order to improve one's appearance and modify factors like facial features, hair type, and personality [5]. The application of a learning model that does not foster students' creativity and is still teacher-centered, students' mastery of the subject matter is still below the KKM, and students are less skilled when performing practice are all issues that can be seen in basic hair cutting learning.

Applying the Problem Based Learning (PBL) learning model, which is used in basic hair cutting capabilities, is one way to encourage student creativity in acquiring the content. PBL can aid students in developing their critical thinking and problem-solving abilities as well as their capacity to study independently [6].

The objectives of this study were to assess the Problem Based Learning (PBL) learning model's application, assess students' mastery of cognitive and psychomotor skills, and assess students' reactions to the model's use. A learning technique called problem-based learning (PBL) makes use of real-world issues to provide a context for learning. the method of employing issues in learning activities as a way to gather information, encouraging students to exercise critical thinking and work alone or in small groups to discover a solution to the issue[7]. The learning model that is believed to be able to develop students' critical thinking skills is the problem-based learning model. [8].

Trimming hair is a crucial step in the hair style process since it involves shortening the hair to obtain the desired look. The term trimming is from the root "*pangkas*," which meaning cut, according to etymology. A straight line is pruned (one length cut/solid shape) by elevating the branch at a 0° angle or by not lifting the branch at all. The hair falls in a straight line because the longest and shortest hairs fall at the same height. Straight line trimming (solid form/one length cut) results in smooth, passively textured hair on the surface [9].

It is impossible to separate the teaching and learning processes from one another. While teaching refers to instructor activities, learning relates to student actions. Learning outcomes are skills that students possess following their learning experience [10]. Throughout the classroom learning process, it is possible to see student reactions to a method or model used by the teacher in a lesson. Explaining the positive response of students, according to Nugraha, can be utilized as a benchmark to determine whether students are becoming more at ease with the learning process.

## 2. METHODS

This study used a pre-experimental design type called One Group Pretest-Posttest Design to determine whether there was any impact on basic hair cutting before and after using the Problem Based Learning (PBL) learning.

There were 32 students from SMK Negeri 3 Kediri class XI involved as the research participants [11].

The data were obtained using several data collection techniques, namely:

- 1) Observation was used to observe the implementation of the syntax of the Problem Based Learning (PBL) learning model in basic hair cutting.
- 2) Tests were used to determine student learning outcomes cognitively and psychomotor before and after applying the Problem Based Learning (PBL) learning model to basic hair cutting [12].
- 3) Questionnaire was used to determine student responses to the application of the Problem Based Learning (PBL) learning model in basic hair cutting [13].

The obtained data were analyzed as follows:

- 1) Analysis of the implementation of the syntax of the Problem Based Learning (PBL) learning model using a Likert Scale and calculated by the mean formula [14].
- 2) Analysis of student mastery of the application of the Problem Based Learning (PBL) learning model in the cognitive analysis of student learning outcomes was carried out by normality tests and paired sample t-tests. and psychomotor analysis of student learning outcomes was carried out by the normality test and one sample t-test [15].
- 3) Analysis of student responses to the application of the Problem Based Learning (PBL) learning model used percentages.

## 3. RESULTS AND DISCUSSION

The results of the study on the application of the Problem Based Learning (PBL) learning model to cognitive and psychomotor mastery of basic hair cutting were drawn as follows.

### 3.1. Analysis of the Implementation of the Problem Based Learning (PBL) Model

The results of the observers' observations provided information about the PBL model's implementation. Four observers—two hairstyling subject teachers and two Unesa cosmetology education undergraduate students—evaluated the observation sheets. To determine how Problem Based Learning (PBL) syntax is applied to cognitive and motor mastery of simple hair clipping, analysis of the research data was done using analysis of syntax implementation observation sheets.

The teacher was judged to have good or very good skills in executing learning activities, the application of learning could be stated to be successful [16].

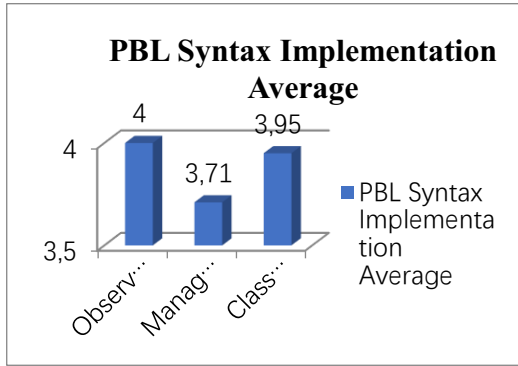


Figure 1 PBL syntax implementation average.

The preliminary teaching and learning at the first and second meetings, as observed from the overall aspect, has an average of 4 (very good criteria), according to the research results on the first aspect of measuring the implementation of the syntax of the PBL model. In the core activities section, the average value at the first and second meetings experienced an increase of 0.19, and in the concluding part, the first meeting and the second meetings have an average value of 4.

The core learning management element saw a rise in average scores of 0.08 between the first and second meetings, and the mood of the core class saw an increase in average scores of 0.07 between the first and second meetings.

When the PBL learning model was put to the test, it was discovered that the overall average was 3.91, with the syntax implementation at the first meeting scoring 3.87 in the good category, and the average at the second meeting coming in at 3.94 with good criteria. Syntax learning implementation has increased by 0.07 utilizing the PBL methodology [17].

Thus, it can be said that learning using the PBL paradigm results in an increase in the level of cognitive and psychomotor mastery of basic hair clipping.

### 3.2. Analysis of Student Mastery of the Application of the Problem Based Learning (PBL) Model

To gauge the cognitive and psychomotor student learning results, descriptive and inferential statistical analysis was used to analyze the research data. Learning outcomes, were the degree to which pupils were successful in learning subject matter at school as indicated in scores acquired from the results of examinations to recognize a particular subject area [18].

By analyzing descriptive statistical data, it was possible to measure the cognitive learning outcomes of students. It was discovered that the average score on the pretest was 73.2 in the high category, whereas the average score on the posttest was 85.7 in the same group.

After using the PBL paradigm to learn, the level of student learning outcomes mastery then rose. The following was an average diagram of the results of cognitive learning between the pretest and posttest:

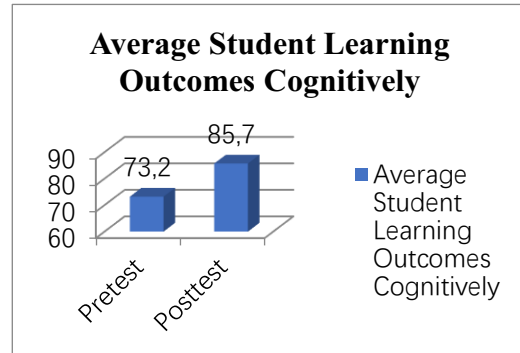


Figure 2 Average student learning outcomes cognitively.

Additionally, the normality test and paired sample t-test used in inferential statistical data analysis were used to examine the cognitive outcomes of student learning.

Table 1. Cognitive normality test.

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		32
Normal Parameters <sup>a</sup>	Mean	,0000000
	Std. Deviation	4,68645778
Most Extreme Differences	Absolute	,178
	Positive	,178
	Negative	-,088
Test Statistic		,178
Asymp. Sig. (2-tailed)		,011 <sup>c</sup>
a. Test Distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

The data were normally distributed according to the Asymp. Sig. (2-tailed) normality test result of 0.011 > 0.05. A paired sample t-test was then performed.

**Table 2** Paired Sample t-test

Paired Samples Test									
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		T	Df	Sig. (2-Tailed)
					Lower	Upper			
Paired	PRE TEST - POST TEST	-12,43750	6,30380	1,11437	-14,71026	-10,16474	-11,161	31	,000

After using the PBL learning model, the paired sample t-test table revealed that the Sig. (2-tailed) = 0.000 ( $p < 0.05$ ) and  $H_0$  was rejected, indicating that there were variations in the learning outcomes for students.

In psychomotor measurements carried out through practice which showed that the average obtained on psychomotor was 82.9 in the skilled category. So, students were considered skilled after learning by applying the PBL model.

Furthermore, psychomotor measurements of students were carried out through inferential statistical data analysis, namely the normality test and one sample t-test.

**Table 3.** Psychomotor normality test.

Tests of Normality						
	Kolmogorov-Smirnov <sup>a</sup>			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Psikomotor	,170	32	,020	,927	32	,032

a. Lilliefors Significance Correction.

The normality test table showed that Asymp. Sig. (2-tailed) of 0.032 in Shapiro Wilk because the research subjects were <50 people. The results showed Asymp. Sig. (2-tailed) of 0.032 > 0.05, the data were normally distributed.

Furthermore, to see the effect of the PBL learning model on students' psychomotors, a t-test was carried out with the following decisions:

$H_0$  = The average value of student learning outcomes was equal to 78 after implementing the PBL learning model.

$H_a$  = The average value of student learning outcomes was not the same as 78 after implementing the PBL learning model.

1. If the Sig. (2-tailed) < 0.05 then  $H_0$  was rejected
2. If the Sig. (2-tailed) > 0.05 then  $H_a$  was accepted

**Table 4.** Test one sample test

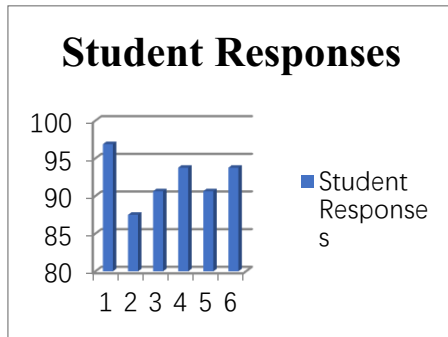
One-Sample Test						
	Test Value = 78					
	T	df	Sig. (2-Tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Psychomotor	11,531	31	,000	4,93750	4,0642	5,8108

The one sample test table showed that Asymp. Sig. (2-tailed) of 0.000 < 0.05 and  $t_{count} > t_{table}$  which was 11.531 > 0.2869 then  $H_0$  was rejected and  $H_a$  was accepted so that the average value of student learning outcomes after applying the PBL learning model was not the same as 78.

### 3.3. Analysis of Student Responses to the Application of the Problem Based Learning (PBL) Model

To comprehend the implementation of learning from the student's point of view as a study aim, questionnaire analysis of student responses to the application of the Problem Based Learning (PBL) model was used to analyze research data. Regardless of whether the stimulus could be identified or could not be seen, the response was the effect of the stimulus behavior, specifically the activity of the person in question [19].

The application of the Problem Based Learning (PBL) model to the cognitive and psychomotor mastery of fundamental hair cutting could be seen in students' responses as evidenced by their ability to solve problems set by the teacher, their mastery of the subject matter, and their responses to questionnaires. In the graphic diagram below, the usage of the Problem Based Learning (PBL) model on fundamental hair cutting was depicted based on an analysis of the results of the student response questionnaire.



**Figure 3** Student responses.

According to the image above, student responses to the application of the problem-based learning (PBL) model were very high, with an average percentage of 92.19%, with the highest score on aspect 1 being 96.88% in the very good category and the lowest score on aspect 2 being 87.5% with very good category.

Describing the students' positive response could be used as a benchmark to determine whether or not they were feeling more at ease with the learning process. The outcome could be either a favorable or negative response [20].

From the discussion as a whole, student responses could be categorized in very good categories starting from aspect 1 to aspect 6, which meant learning using the PBL learning model was easy to understand, students felt that there were progresses after learning, lots of ideas and questions to solve problems, and discussions that arose well with the group. Moreover, they felt helped by the practical activities in learning.

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