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The Effect of a Project-Based Learning Model to Guide Students to Make Blouses in Improving Students' Learning Outcome

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Abstract: The outcome of blouse making in SMK Tarunatama is not optimum since the teaching still uses the classical conventional learning method. The researchers propose a project-based learning model to teach students how to make blouses, specifically for the XI grade students in SMK Tarunatama. The population of this research is all XI grade students of SMK Tarunatama, Semarang, which contains 24 students. The sampling method of this research is total sampling. The researchers collected the data from documentation, observation, and tests. The pre-test and post-test score on the experiment class got the normalized gain value of 0.52. The interpretation of the value is the$<g>$from the improvement of project-based learning to students' learning outcome is at a medium level. In conclusion, students experienced gains in the learning outcome due to the use of project-based learning. The statement is proven from the gain of students score from the pre-test to the post-test.

1   INTRODUCTION

Students' ability to make blouses is very minimum. One of the influences is the teaching and learning process, where the teachers only master a classical conventional learning method, such as lecture, demonstration, and practice. A project-based learning method is a learning model which aims to improve students' learning outcome.

The learning outcome is the portrayal of students' learning experience (Nana Sudjana, 2001:22). The result values students' mastery upon instructional purposes. Learning outcome also portrays the success of a teaching and learning's objective after a sequence of classroom activities.

According to GoetPoespo (2009), a blouse is a casual women's attire which is made of light materials. The new blouse has changed, which is not only used for the casual occasion but also semi-formal or informal occasion. The blouse is the upper outerwear for women which length is to women's hip or shorter. The clothes can be inserted inside of the skirt or just put outside of the dress. Meanwhile, blouse which length is more than the hip, is called tunic. Another opinion is that blouse is women's upper shirt, with or without collar and sleeve, with the size of neck, body, shoulder, and arm circumference as well as the length of arm and blouse (Eddy Budiharjo, 1991 : 3).

The steps of making blouses are designing, taking size, creating a pattern, changing pattern, cutting the pattern, planning the materials, placing the pattern on the materials, cutting the elements, changing the sign on the model, and sewing.

Sutirman (2013: 43) opines that project-based learning is a learning model which actively involves the students to create products.Project-Based Learninguses the problem as the initial states and collects new knowledge to start the learning activity (Husamah, 2013: 97).The other opinion says that project-based learning is a learning process which gives teacher chances to plan a project for the students (Thomas et al., 1999 in Made Wena,2011:144). , project-based learning is a learning model which relates technology and students' daily

problems to create a product based on a specific project (Warsono & Hariyanto, 2013: 153).

A learning unit in the 2013 curriculum becomes the basis for the teaching process in the XI grade of the Fashion department of SMK Tarunatama. The group is the creation of technical clothing. The unit takes the subject of manufacturing blouses based on a classical conventional method. The method is teacher-centred, where the student is passive as the receiver of the materials. The technique only uses lecture and demonstration to guide the students.

Made Wena (2011: 144) mentions that Project-Based Learning is a learning model which helps the teacher to manage classroom projects. According to Made Wena (2011: 108), Project-Based Learning (PBL)is divided into three steps, which are planning, execution, and evaluation. The planning includes the formulation of learning objective or project, analyzing students' character, formulating learning strategy, making job sheet, planning evaluation tools. The execution consists of the preparation of the learning sources, plans, working display as well as divide the tasks and do the project. Then, the evaluation is used to know the effectiveness of a learning activity and also to measure students' learning growth. Along with the steps, it is expected that project-based learning can help the teachers to improve the manufacturing of blouse in the classroom. Hence, it can develop students' mindset, group cooperation, and motivation which later can make the learning process more effective.

The steps of the PBL is explained as follows.

(1) The lesson starts with an essential question to stimulate students' creativity.

(2) The lesson continues with the design of a project based on the students' decision with the assistance of the teacher. The project is also in line with the essential question. The planning of the project includes:

a. Formulating learning objectives of making blouses based on standard sizes of S, M, L.

b. Analysing students' characters to group them based on skills and ability.

c. Making a schedule where teachers and students can do the project collaboratively. The activities in this step are (1) making timeline, starting from marking blouse layout, cutting blouses industrially, identifying signs and actions for the sewing in an industrial style, sewing the component of blouses arms in an industrial way, and merging the elements of the blouse industrially,finalizing the blouses based on the working safety procedures, and packaging the blouses; and (2) making deadlines starting from arranging job sheet and planning evaluation tools.

(3) The lesson progresses to the execution of the project, where the teachers prepare the learning resources and the students making the blouses. The execution is based on the guidance in the job sheets.

(4) The lesson ends with the evaluation from written test and scoring of product display. The scoring is done to measure the standard achievement, evaluate students' advancement, give students' feedback, and to reflect students' capability as well as their learning experience.

This research focuses on the problem of whether PBL in the subject of industrial clothing, particularly blouses, can improve the learning outcome of XI grade students in SMK Tarunatama in the academic year of 2016/2017. This research aims to know whether PBL can improve the students' learning outcome in making blouses.

2 METHODS

The population of this research is all XI grade Fashion department students in SMK Tarunatama, Semarang regency. There are 24 students in the classroom. The sampling method of this research is total sampling. The study gathered data from cognitive and psychomotor test to the respondents and the observation during the treatment. The researcher analyzed the data using t-hypothesis analysis and normalized average gain test.

This research uses the pre-experimental design with pre-test post-test control group design. The influence of the treatment is visible from the gap between the pre-test and post-test. This method will help the researchers to answer the research questions.

The subject of this research is the XI grade fashion department students in the academic year of 2016/2017. The issue will give information of data in regards to the creation of blouses after the treatment of PBL.

This research focuses on the learning outcome of the XI grade fashion department students of SMK Tarunatama in making blouses after teaching with PBL. The method of gathering the data should be strategic (Sugiyono, 2008). The purposes of data collection are as follows.

1. Observation

   This method is used to know the condition of the school environment, learning activities in the classroom, students' behaviour, and their enthusiasm in following the research. In this case, the observation is used to get the data of students' affective response.

2. Documentation

   The documentation is used to document the research. The documents are the picture which portrays students' action during the investigation. Aside from that, the data came from the curriculum, lesson plan, attendance list, syllabus, et cetera.

3. Tests

   In this research, the analysis focuses on the theory of blouse manufacture and the parts to gain the data regarding the effectiveness of PBL.

   The validation of the data came from the average gain score. This research uses these following techniques to analyze the data.

   a. Normality test

      After getting the initial data from the even semester XI students in the Fashion department, the data's normality was tested. The statistics showed a Kai-Square formula. The degree of the equation is $dK= k-1$, which means if $X^{2\ count}<(1-\alpha)\ (k-1)$ from the table, the sample is normal (Sudjana, 2005:273)

   b. Hypothesis test

T-test was done to explain the gap between the pre-test and the post-test. If the pre-test and post-test have a normal distribution, the item discrimination test will have a different average score (Sudjana, 2005:242-243). The steps for the t-test are as follows.

(1) Determining the hypothesis.

   Ho: $\mu_1 = \mu_2$(there is no gap between pre-test and post-test in this research)

   Ha: $\mu_1 > \mu_2$(there is a gap between pre-test and post-test in this research)

(2) Determining the significance rate, which is $\alpha = 5\%$ and $dk = n_1 + n_2 - 2$.

(3) Determining the criteria for the test, which are as follows.

   Ho is accepted, and Ha is rejected if $-t_{table} < t_{count} < t_{table}$.

   Ho is accepted, and Ha is rejected if $-t_{count} \leq -t_{table}$ or $t_{count} \geq t_{table}$.

   t_{table} came from the distribution of the students with $\alpha = 5\%$, probability of $(1 - 0{,}5\alpha)$, and $dk = n_1 + n_2 - 2$.

(4) Determining the statistics if the data has a normal distribution and equal variance.

(5) Concluding. After getting the t_{count}, the t_{count} is compared with the t_{table} based on the criteria of the tests. If Ho is accepted, there will be no gap between pre-test and post-test. In contrast, Ho is rejected.

c. Normalized gain test

   The normalized gain test is used to know how significant is the increase from the pre-test and the post-test.

3 RESULTS AND DISCUSSIONS

The result shows that there is an improvement in the students' learning outcome. The pre-test and post-test of the experiment class scored a normalized gain test of 0.52. The score is interpreted as in the $<g>$ criteria. The criteria mean that there is a medium level of improvement to

students' learning outcome after the application of PBL. The results include an increase in terms of cognitive, affective, and psychomotor aspects.

Cognitive improvement makes the students able to understand how to make blouses. They can also explain the parts of the blouses and mention the materials for making blouses. Furthermore, students know how to change the basic pattern fo blouse and the technique of sewing blouse.

The affective aspects include students' behaviour during the learning process. The analysis to the respondents is in a good criterion with the highest score in terms of cooperation since students work in a group. Therefore, they will show excellent collaboration to work collectively with their friends. Besides, the students are also high-spirited during the group activities in facing difficulties and being curious to find the solution to their problems. They tend to ask other groups or their teachers. The students also grew their motivation in learning by making sure that their work is better, neater, and quicker than the others.

The result of the psychomotor aspect shows the physical ability of the students (Anni, 2007: 10). The result of the psychomotor element in this research shows that the students become skilful in manufacturing blouses. They can perform that based on their motoric and nerves coordination performance. The highest indicator for the psychomotor test in this research is the punctuality of the students, where they can finish the project on time, even earlier.

The scoring aspect for the pattern of blouse shows that the students tend to cooperate with the other groups for the design. They work without monitoring and control. Although some of them are still under the teacher's supervision, they can finish the project well. The scoring aspects include the (1) size accuracy based on the S, M, and L measurement; (2) the neatness of the blouse based on space between the pattern, the ironing, and the cleanliness of the product. Although the area of the design is not the same between groups, the case is acceptable due to the use of the different mechanisms in different classes, and (3) the cut for the materials. In this case, the students have the difficulty since the school does not have a cutting machine. Hence, they have to cut it manually.

4 CONCLUSION

This research shows that Project-Based Learning helps the Fashion department of SMK Tarunatama to improve their skills in manufacturing blouses. The result is evident from the gap between pre-test and post-test.

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