Implementation Of Project-Based Learning (Pjbl) Model To Improve The Creative Thinking Ability Of Cosmetology Education Study Program Students

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Abstract. The ability to think at a high level of students, particularly creative thinking. This affects students' ability for creative thinking, hindering their ability to generate and explore ideas, as well as to resolve problems that remain unsolved. This study's objective was to ascertain whether there was an increase in students' creative thinking skills when the PjBL model was applied. This type of research is a quasi experiment using quantitative research with a nonequivalent control group design Pretest Posttest model and observation. The sampling technique employed purposive sampling with the sample objects are 30 students from class B acted as experimental class and 27 students from class C as the control class students for implementing of PjBL learning method. Data collection techniques using experimental and non- experimental techniques. The Posttest value of students' creative thinking skills in the experimental class has an average value of 84.50 and the average Posttest value in the control class is 71.85, then hypothesis testing has a 2-tailed significance value of 0.00 <0.05. The observation results show that aspects of students' creative thinking skills, especially elaborative, reached 92% and obtained an N Gain score of 0.60 in the moderate category because students have the ability to build detailed strategic solutions to complete projects according to the timeline, so it can be concluded that there is an increase in students' creative thinking skills in traditional cosmetics and beverage courses with the implementation of the PjBL model Language and Literature Education Study Program of Universitas Negeri Medan.

Keywords: Project Based Learning, Creative Thinking Skills, Traditional Cosmetics and Beverages

1 Introduction

Learning in the 21st century is an activity to gain knowledge about procedures that are characterized by improving intellectual, moral, and improving diverse abilities including the ability to ask questions, the ability to create, problem solving, and mastery of standards in obtaining knowledge through the means of educators [1]. Creative thinking is essential for students as it cultivates skills and information necessary for business development and the

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discovery of innovations. Numerous initiatives have been undertaken to address this issue, including enhancing the learning system by instructing students in creative thinking.

This affects students' creative thinking skills, especially in the Traditional Cosmetics and Beverages course. It is difficult for students to explore creative ideas and ideas and solve problems that cannot be solved or cannot be solved. Based on the observation results of traditional cosmetics and beverage learning, problems were found in the learning process that required students to think creatively in making a product that was not in line with the learning objectives. Students also tend to be passive in learning, and do not understand the material presented because the learning model is not varied resulting in students becoming bored in receiving learning, the learning process will be less effective and learning objectives are not achieved as expected.

One of the efforts to realize learning with these objectives is the Project Based Learning (PjBL) model. The PjBL learning approach emphasizes project-based learning, culminating in a tangible product as the result. A defining feature of the Project Based Learning (PjBL) paradigm is the utilization of creative thinking, critical thinking, and information-seeking skills to conduct investigations, formulate conclusions, and generate products [2]

This cognitive skill is a process that deconstructs concepts generated by pupils, subsequently transforming them into new thoughts or knowledge to address emerging challenges [3]. According to Sudarma (2013: 21) that creative thinking is an intellectual capacity that evolves within individuals, manifested via attitudes, habits, and activities aimed at generating novel and original solutions to issues [4]. The Ministry of National Education (2010: 10) explains that creative thinking is thinking to do something by producing a way or result from something that is already owned [5]. Classroom indications of creative thinking include the establishment of learning environments that promote creative thought and behavior, as well as the assignment of tasks that stimulate the production of original or adapted works [6]

Based on some of the theories above, it can be concluded that the ability to think creatively is the ability to think in doing something to create new ideas or ways of solving problems and creating a new, unique product. This ability will encourage creative thinking and action by providing challenging tasks

2 Method

The research method was conducted using quantitative method with quasi-experiment research type and carried out at the Cosmetology Education Study Program, Faculty of Engineering, State University of Medan. Two study variables exist: the dependent variable and the independent variable. The study population comprised all students from classes A, B, and C in 2023 enrolled in the Traditional Cosmetics and Beverages course, totaling 85 students. The research sample consisted of 30 students from class B and 27 students from class C.

Data collection techniques encompass both tests and non-tests utilizing tools devised by researchers. Data analysis methodologies employ descriptive and inferential statistics. Inferential statistical approaches are employed to initially assess the prerequisites of the study, namely by the application of the data normality test. Subsequently, hypothesis testing was conducted employing the paired sample test to ascertain if a significant difference existed between the pre-test and post-test outcomes

3 Results and Discussion

The descriptive statistical analysis was conducted to ascertain the differences in outcomes before treatment and after treatment, along with a characterization of the data from a variable. The data about pretest and posttest outcomes for both experimental and control groups are displayed in Table 1, as follows:

Table 1.The descriptive statistical data of test results

	N	Minimum	Maximum	Mean	Std. Deviation
Control Class Pretest	27	25	75	60.00	13.110
Control Class Posttest	27	45	100	71.85	14.620
Experiment Class Pretest	30	35	70	52.33	9.890
Experiment Class Posttest	30	45	100	84.50	15.776

According to the data above, the outcomes of experimental and control class had an average pretest score of 52.33 and 60, respectively. Furthermore, the average pretest scores indicate that the results of the two classes are quite similar. Following the administration of therapy in both the experimental and control groups, discrepancies were seen in the posttest scores. The experimental group and control group achieved an average posttest score of 84.50 and 71.85, respectively. The findings indicate that the mean value of the experimental class exceeds that of the control class.

Prior to performing hypothesis testing, initially execute a data normality test. The outcomes of the data normality assessment are presented in Table 2

Table 2. Tests of Normality

Test of N						
	Kolmogorov-Smirnov[n]			**Shapiro-Wilk**		
	Statistic	df	Sig.	Statistic	df	Sig.
Control Class	0.823	27	0.507	0.617	27	0.622
Experiment Class	0.753	30	0.841	1.294	30	0.070

The control class has a significant value of 0.622, which is greater than 0.05, whereas the experimental class shows a significant value of 0.070, also beyond 0.05. Table 1.2 presents the outcomes of normality testing conducted applying the Kolmogorov-Smirnov test on pretest and posttest data regarding students' creative thinking skills, which are deemed normally distributed as the significance level for both classes exceeds 0.05.

The research type is an experiment that aims to determine whether there is an escalation in students' creative thinking skills in traditional cosmetics and beverage courses by applying the PjBL learning model. The selection of the PjBL model is based on the researcher's observation

of student learning activities that rarely use practicum looks less creative and not enthusiastic in the learning process. This greatly affects the level of student understanding.

Table 3. N-gain Test Calculation

Class	N-gain	Ket
Control Class	0,40	Medium
Experiment Class	0,60	Medium

After the experiment was carried out, namely by applying the PjBl model with a project to make cosmetics and traditional drinks from natural ingredients, the average obtained from students' creative thinking skills increased. The findings of the N-gain test indicate a medium category with a value of 0.60. This study identifies four aspects of assessing students' creative thinking skills, utilizing non-test instruments, specifically observation.

Table 4. Aspects of Students' Creative Thinking Ability

No.	Indicator	Average	
		N-gain	**Criteria**
1.	*Fluency*	71%	Creative enough
2.	Flexible Thinking (*Flexibility)*	86%	Very Creative
3.	*Originality*.	88%	Very Creative
4.	*Elaboration* Thinking	92%	Very Creative

Based on the observation results presented in table 1.4 indicating that elaborative thinking ability (Elaboration) is the highest aspect with a percentage of 92%, because when making projects and completing discussion materials students are able to make detailed strategies such as the division of tasks for each completion by making a project work plan with a predetermined time. The elaborative process is also very dominating for students when the project creation process is complete, namely when presenting their work in different ways from each group**.**

The output of the paired sample t-test analysis indicates a significance result of sig. (2-tailed) at 0.000 < 0.05. The output results indicate that the alternative hypothesis (Ha) is supported, demonstrating an enhancement in students' creative thinking skills in traditional cosmetics and beverage courses through the application of the PjBL, while the null hypothesis (Ho) is denied. The results of this study are also in line with Mulia Sinta's research (2022) which concluded that learning with the PjBL model able to improve students' creative thinking processes so it is highly recommended in learning such as student problem-solving by looking for varied alternative solutions.

4 Conclusion

The Implementation of the PjBL learning model can improve students' creative thinking skills in traditional cosmetics and beverage courses in the Cosmetology Education Study Program for

the 2023/2024 academic year with an N-gain value of 0.60 in the medium category because students are able to complete detailed discussion materials and strategies such as division of tasks by making project work plans within a predetermined time. The elaborative process is also very dominating for students when the project creation process is complete, namely when presenting their work in different ways in each group.

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