The Influence of Discovery Learning and Problem Based Learning Models on Citizenship Education Learning Outcomes

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Abstract

This research aims: (1) To determine the effect of the Discovery Learning learning model on student learning outcomes in Class XI Citizenship Education lessons at the Teluk Dalam Campus Private High School. (2) To determine the effect of the Problem Based Learning learning model on student learning outcomes in Class XI Citizenship Education lessons at Teluk Dalam Campus Private High School. (3) To determine the significant differences between the Discovery Learning and Problem Based Learning models on student learning outcomes in Class XI citizenship education at the Teluk Dalam Campus Private High School. The research method uses quantitative methods in the form of experiments. The population in this study were all class XI students at the Teluk Dalam Campus Private High School, and the samples chosen were class The data collection technique is by means of a learning outcomes test in the form of multiple choice questions, the learning outcomes test is carried out twice, namely (1) a pre-test carried out before implementation in the experimental class (discovery learning) and in the control class (problem based learning), (2) the post-test is carried out after implementation in the experimental class (discovery learning) and in the control class (problem based learning). The technical analysis of this research data uses test requirements in the form of normality and homogeneity tests as well as hypothesis testing using the t-test. The results of the research show that there is a significant difference between the pre-test scores and the post-test scores in the experimental class which uses the discovery learning model and in the control class which uses the problem based learning model. This is proven based on the results of the paired sample T-test table, it is known that the pair value is 1 sig. is 0.000 < 0.05 then Ha is accepted and HO is rejected. Furthermore, the research results showed that there was no difference in the learning outcomes of students studying PPKN for class. This is proven by the results of the t-test with a significance level of 0.093 (0.903 > 0.05). This means HO is accepted and H1 is rejected or HO is rejected or H1 is accepted. Based on the results of this research, it can be concluded that there is no significant difference in PPKN learning outcomes for class.

Keywords: Discovery Learning, Problem Based Learning and Student Learning Outcomes.

I. INTRODUCTION

Education is basically a conscious effort to prepare and grow students into potential, capable, creative and competitive human beings as stated in the National Education System Law Number 20 of 2003. Education is a conscious and planned effort to create a learning atmosphere and learning process. so that students actively develop their potential to have religious spiritual strength, self-control, personality, intelligence, noble morals and skills that are needed by themselves and society. In achieving national education goals, schools are a very important center in developing human resources which is carried out systematically, practically and in stages. Apart from the role of schools, the role of teachers is also very much needed in achieving a good learning process.

Since the teacher's role is very important in achieving school success, a teacher must be able to create and design a better learning process, so that students are more active in learning. Using the right learning model can create an active learning environment and can increase student insight, skills and mastery of learning material.This is in accordance with what Rostiyah (1989) said: "Each type of teaching method must be appropriate or appropriate to achieve a certain goal. So, for different purposes, teachers must use different presentation techniques to achieve their teaching goals."In achieving good teaching goals, a teacher must be able to design a better learning process by using learning models that are able to stimulate students

to be more active in the learning process. Because if the learning process is less consistent, it will result in less success for students in following the learning process.

Based on the initial observations carried out, the researchers found a problem, namely that there were still many students who did not reach the minimum completeness criteria (KKM) with a value of 65. The minimum completeness criteria (KKM) value with a value of 65 which had been determined by the school was the value of students' knowledge of mastery of the material they had learned. studied over several meetings. Based on the results of actual report cards, many students' scores did not meet the minimum completeness criteria as set by the school. Bearing this in mind, teachers carry out remedial measures for students who do not meet the minimum criteria and add new assignments so that students' grades are able to meet the minimum completeness criteria. According to interviews conducted by researchers with teachers, this is because the learning methods used by teachers so far have only focused on questions and answers and discussion methods. So that the teaching process is more active and students are able to master the teaching material, a teacher must use the right learning model, namely, using the Discoverery Learning and Problem Based Learning learning models. Model*Discovery learning*is a learning method that applies inquiry-based instruction. The discovery learning method will encourage students to investigate for themselves, build on past experiences and knowledge, use intuition, imagination, creativity, search for new information to find facts, correlations and new truths. whereasProblem Based learning modelmodelteaching that is characterized by real problems as a context for students to learn critical thinking and problem solving skills and gain knowledge. This is in line with the research results of Nadya Partiwi (2023) with the research results stating thatDiscovery learning methods can increase students' interest and motivation and can be more easily understood and simulations carried out by teachers and students make it easier to convey material and learning objectives so that they can improve students' abilities. Furthermore, the research results of Agustin Husnul Khotimah, Dedi Kuswandi, Sulthoni (2019) concluded that learning using the Problem Based Learning model had a better effect in improving students' Civics learning outcomes compared to discussion learning at Karangploso Islamic Middle School.

The Pancasila and Citizenship Education (PPKN) subject is a subject that focuses on forming citizens who understand and are able to carry out their duties and obligations as members of society and the State. The objectives include, among other things, to form a civic attitude, teach the concept of democracy and government, form an attitude of tolerance, respect diversity and develop civic awareness and identity. Pancasila and Citizenship Education subjects aim to prepare students as part of society to participate in the development and welfare of society and the country. To achieve the objectives of the Pancasila and Citizenship Education (PPKN) subject by using the Discoverery Learning and Problem Based Learning learning models. Model*Discovery learning*is a learning model that invites students to learn actively to find their own knowledge while Problem Based Learning invites students to actively find solutions to problems themselves. Where these two learning models can increase student involvement, critical thinking skills, creativity and initiative, which are in accordance with PPKN learning objectives. This is in line with the aim and hope of researchers in conducting this research, namely to solve a problem that researchers found when conducting initial observations at the Telukdalam Campus Private High School, namely that there were still many students who did not reach the minimum completeness criteria (KKM) with a score of 65. By using learning model*Discovery learning.Discoverery Learning*and Problem Based Learning can improve student learning outcomes in Pancasila and Citizenship Education subjects beyond the minimum completeness criteria (KKM) with a score of 65. So with this achievement the goals of the teaching and learning process and national education goals can be achieved.

Results of research conducted by Muhyadi (2023). shows that there is no significant difference between the Discovery Learning learning model and the Problem Based Learning learning model on learning outcomes. Furthermore, the results of research conducted by Abdul Salam, et al (2023). States (1) There is a

difference in the influence between the Problem Based Learning (PBL) Model and Conventional learning on students' Physics learning outcomes, (2) There is a difference in the Physics learning outcomes of students who have high learning motivation and students who have low learning motivation. and (3) There is an interaction between the learning model and learning motivation on Physics learning outcomes. Physics learning using the Problem Based Learning (PBL) Model, students who have a high level of learning motivation have better Physics learning outcomes than students who have a low level of learning motivation. Then based on the results of research conducted by Nurazizah (2020). shows that the thematic learning outcomes of students taught using the discovery learning and problem based learning (VB) models are higher than the thematic learning outcomes of students taught using the conventional model (VC). Thematic learning results in the experimental class with the discovery learning model obtained a posttest average of 85.89. In the problem based learning model, an average of 84.10 was obtained. Meanwhile, in the control class (VC), the posttest average was 72.5.

II.   RESEARCH METHODS

This research method is quantitative research with experimental methods. Experimental research can be interpreted as a research method used to find the effect of treatment on others under controlled conditions. This research was carried out in Classes XI-IPS and XI-IPA of Private High School, Teluk Dalam Campus, South Nias Regency, North Sumatra Province. This research conducted initial observations on 26 September 2023 and carried out research for two months starting 05 February 2024 - 05 April 2024 in the even semester of the 2023/2024 academic year, on the main subject matter of the legal and judicial system in Indonesia. The design of this research is quantitative research with experimental methods. This experiment was carried out in the form of a pure experiment and the sampling technique used was a saturated sample. The experimental design uses a control group. The independent variables in this research are discovery learning and problem based learning methods, then the dependent variable is student learning outcomes. This research design determines two groups of subjects, namely the experimental group and the control group.

The population in the study were all class XI students at Teluk Campus Private High School in the 2023/2014 academic year, totaling 57 people. The sample used in this research was 57 students consisting of two classes, namely Class XI-IPS (experimental class) with 28 students and Class XI-IPA (control class) with 29 students. The sampling technique used in this research is non-probability sampling with purposive sampling technique. The reason the researcher used a purposive sampling technique was because the sample was not chosen randomly, but was chosen according to considerations and adjusted to the aims and objectives of the research. The data collection technique used in this research is the learning achievement test which is used to assess learning progress and look for problems in learning. The learning achievement test applies to the experimental class and control class with the same type and number of questions. The test is in the form of a multiple choice objective with four alternative answers. The use of this test is intended to determine the success of student learning outcomes achieved by using the Discovery Learning and Problem Based Learning models.

The instrument used in this research is a test in the form of multiple choice questions. The multiple choice questions are accompanied by four alternative answers, namely a, b, c, and d. Of the four alternative choices, only one answer is considered correct. Scoring the answers from this instrument uses a score of 10 correct answers and a score of 0 for incorrect answers. The data analysis technique for this research uses test requirements in the form of normality and homogeneity tests as well as hypothesis testing using the t-test using the SPSS version 25.0 for Windows software program.

III.   RESEARCH RESULT

Before providing treatment, the researcher first conducted a pre-test in the experimental class (discovery learning) and a pre-test in the control class (problem based learning). The pre-test scores for the experimental class and the pre-test scores for the control class can be seen in Figure 1. Based on the graph below, we can see that the pre-test scores in the experimental class of 28 students who got a score of 80 - 95

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were 3 students in the very high category, while a score of 60 - 75 was 19 students in the high category, followed by a score of 40 - 55 as many as 3 students with a medium score. In the control class before the implementation was given, there were 29 students who got a score of 80 - 90, there were 5 students in the very high category, while the score of 60 - 75 was 16 students with a high score, then the score of 45 - 55 was 8 students with a medium score. Furthermore, after the researcher gave the application in the experimental class using the discovery learning model, while in the control class the application was given using the problem based learning model. The post-test scores for the experimental class and control class can be seen in the picture below:
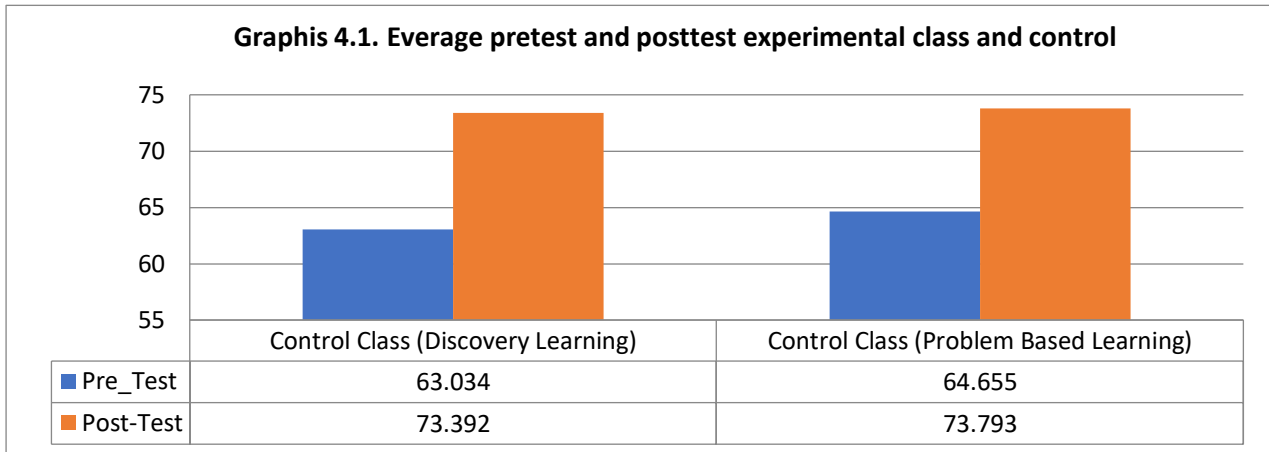

Graphis 4.1. Everage pretest and posttest experimental class and control

	Control Class (Discovery Learning)	Control Class (Problem Based Learning)
■ Pre_Test	63.034	64.655
■ Post-Test	73.392	73.793

Fig 1. Class Pre-test and Post-test scores

Experiment and Control Class

        Based on the picture above, it can be seen that the post-test scores in the experimental class using the discovery learning model with a total of 28 students, 5 students got a score of 80 - 95 in the very high category, then 16 students got a score of 60 - 75 in the high category and 8 students got a score 45 – 55 in the medium category. Meanwhile, the post-test scores in the control class after implementation using the problem based learning model consisted of 29 students, there were 10 students who got a score of 80 - 100 in the very high category, then 16 students who got a score of 60 - 75 in the high category and 3 students get a score of 50 – 55 in the medium category. Descriptives on the initial scores of student learning outcomes prove that the average score for assessing student learning outcomes in the experimental class is 63.034, after the correction was carried out there was an increase in the average score of learning outcomes in the experimental class which was 73.392. Furthermore, the descriptive initial score for student learning outcomes in the control class was 64.665, after the treatment there was an increase in the average score for learning outcomes in the control class, which was 73.793. It can be concluded that there is a significant difference in student learning outcomes after the discovery learning model treatment in the experimental class and the problem based learning model treatment in the control class.

Table 1. Normality Test Results

		Tests of Normality					
		Kolmogorov-Smirnova			Shapiro-Wilk		
Class		Statistics	Df	Sig.	Statistics	Df	Sig.
Student Learning Results	Experimental Class	0.122	28	,200*	0.959	28	0.338
	Control Class	0.123	29	,200*	0.963	29	0.385

From the table above, it can be seen that the significant value of the experimental model class (Discovery Learning) is 0.338 > 0.05, the significant value of the control class (Problem Based Learning) is 0.385 > 0.05. This shows that the data is normally distributed.

Table 2. Results of Homogeneity Test for Experimental and Control Classes

<table>
<tr><th colspan="6">Test of Homogeneity of Variance</th></tr>
<tr><th></th><th></th><th>Levene Statistics</th><th>df1</th><th>df2</th><th>Sig.</th></tr>
<tr><td rowspan="4">Student scores</td><td>Based on Mean</td><td>0.949</td><td>1</td><td>55</td><td>0.334</td></tr>
<tr><td>Based on Median</td><td>0.876</td><td>1</td><td>55</td><td>0.354</td></tr>
<tr><td>Based on Median and with adjusted df</td><td>0.876</td><td>1</td><td>53,243</td><td>0.354</td></tr>
<tr><td>Based on trimmed mean</td><td>0.954</td><td>1</td><td>55</td><td>0.333</td></tr>
</table>

From the table above it is known that the sig value is 0.333 > 0.05, so the population variance of the experimental class and control class is homogeneous.

Table 3. Experimental Class Linearity Test Results (Discovery Learning)

<table>
<tr><th colspan="8">ANOVA Table</th></tr>
<tr><th></th><th></th><th></th><th>Sum of Squares</th><th>Df</th><th>Mean Square</th><th>F</th><th>Sig.</th></tr>
<tr><td rowspan="5">Posttest * Pretest</td><td rowspan="3">Between Groups</td><td>(Combined)</td><td>3278,720</td><td>9</td><td>364,302</td><td>52,900</td><td>0,000</td></tr>
<tr><td>Linearity</td><td>3211,075</td><td>1</td><td>3211,075</td><td>466,280</td><td>0,000</td></tr>
<tr><td>Deviation from Linearity</td><td>67,646</td><td>8</td><td>8,456</td><td>1,228</td><td>0.338</td></tr>
<tr><td colspan="2">Within Groups</td><td>123,958</td><td>18</td><td>6,887</td><td></td><td></td></tr>
<tr><td colspan="2">Total</td><td>3402,679</td><td>27</td><td></td><td></td><td></td></tr>
</table>

From the table above it is known that the Deviation from Linearity value is sig. is 0.338 > 0.05, so it can be concluded that the independent variable X1 (Discovery Learning) and the dependent variable Y (Student Learning Outcomes) have a linear relationship.

Table 4. Control Class Linearity Test Table (Problem Based Learning)

<table>
<tr><th colspan="8">ANOVA Table</th></tr>
<tr><th></th><th></th><th></th><th>Sum of Squares</th><th>Df</th><th>Mean Square</th><th>F</th><th>Sig.</th></tr>
<tr><td rowspan="5">Posttest * Pretest</td><td rowspan="3">Between Groups</td><td>(Combined)</td><td>1699,425</td><td>10</td><td>169,943</td><td>0.918</td><td>0.539</td></tr>
<tr><td>Linearity</td><td>250,857</td><td>1</td><td>250,857</td><td>1,355</td><td>0.260</td></tr>
<tr><td>Deviation from Linearity</td><td>1448,569</td><td>9</td><td>160,952</td><td>0.869</td><td>0.568</td></tr>
<tr><td colspan="2">Within Groups</td><td>3333,333</td><td>18</td><td>185,185</td><td></td><td></td></tr>
<tr><td colspan="2">Total</td><td>5032,759</td><td>28</td><td></td><td></td><td></td></tr>
</table>

From the table above it is known that the Deviation from Linearity value is sig. is 0.568 > 0.05, so it can be concluded that the independent variable X2 (Problem Based Learning) and the dependent variable Y (Student Learning Outcomes) have a linear relationship.

Table 5. Paired Sample T-test Results

					95% Confidence Interval of the Difference				
Paired Samples Test									
			Paired Differences						
		Mean	Std. Deviati on	Std. Error Mean	Lower	Upper	Q	Df	Sig. (2-tailed)
Pair 1	Experimental Pre-Test - Experimental Post-Test	-10,357	3,832	0.724	-11,843	-8,871	-14,303	27	0,000
Pair 2	Control Pre-Test - Control Post-Test	-9,138	6,556	1,217	-11,632	-6,644	-7,506	28	0,000

From the table above it is known that the pair value is 1 sig. is 0.000 < 0.05 then Ha is accepted, and the pair value is 2 sig. is 0.000 < 0.05 then Ha is accepted. Based on the Hajj t test, the hypothesis that reads is:

1)   Ha:There is a significant difference between the pre-test scores of the experimental class and the grades Experimental class post-ttest after the discovery learning method was implemented.
     With the word Ha accepted and Ho rejected
2)   Ha:There is a significant difference between the pre-test scores of the control class and the scores Post-ttest of the control class after applying the problem based learning method.
     With the word Ha accepted and Ho rejected

Table 6. Independent Sample T-test Results

		Levene's Test for Equality of Variances		t-test for Equality of Means						
Independent Samples Test										
		F	Sig.	Q	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Stude nt Learn ing Resul ts	Equal variances assumed	0.949	0.334	-0.122	55	0.903	-0.400	3,281	-6,976	6,175
	Equal variances not assumed			-0.122	53,936	0.903	-0.400	3,271	-6,958	6,158

Based on the results of the independent test table, the T-test sample obtained Sig. (2 tailed) of 0.903 > 0.05. From the results of the t test, it is Sig. (2-tailed) 0.903 > 0.05, so the hypothesis reads: there is no significant difference in student learning outcomes in the Class XI Citizenship Education subject at Teluk Dalam Campus Private High School between the experimental classes using the model Discovery Learning with a control class that uses the Problem Based Learning model. In other words, Ho is rejected and Ha is accepted.

IV.   DISCUSSION

This research was conducted at the Teluk Dalam campus private high school involving two classes, namely class XI-IPS as an experimental class using the discovery learning model and class XI-IPA as a control class using a problem based learning model. Before implementing these two models, both in the experimental class and in the control class, the researcher conducted a pre-test in both the experimental class and the control class with the aim ofTo determine the effect of the Discovery Learning learning model on student learning outcomes in Class XI Citizenship Education lessons at the Teluk Dalam Campus Private High School. (2) To determine the effect of the Problem Based Learning learning model on student learning outcomes in Class XI Citizenship Education lessons at Teluk Dalam Campus Private High School. (3) To determine the significant differences between the Discovery Learning and Problem Based Learning models on student learning outcomes in Class XI citizenship education at the Teluk Dalam Campus Private High School. The average pre-test score for the experimental class (discovery learning) was 63.03, and the average pre-test score for the control class (problem based learning) was 64.655.

After knowing the initial abilities of the students in both classes, the researchers then conducted lessons for the students using different learning models, but with the same material, namely the legal and judicial system in Indonesia. Students in class XI-IPS as an experimental class are given learning using the discovery learning model, while in class After being given different applications to the two classes, then at the last meeting the students were given a post-test which aims to determine the students' learning outcomes abilities. The average post-test result score in the experimental class using the discovery learning model was 73.39, while the average post-test score in the control class using the problem-based learning model was 73.792.

After the researcher carried out the pre-test and post-test in the experimental class and control class, a normality test was then carried out on the results of the post-test in the experimental class and the results of the post-test in the control class by getting a significant value in the control class (discovery learning) 0.338 > 0.05 and a significant value in the control class. (problem based learning) with Sig. 0.385 > 0.05. Based on normality testing, the data is normally distributed. then carry out a homogeneity test where based on this test it is found that the sig value is 0.333 > 0.05, so the population variance of the experimental class and control class is declared homogeneous.

After carrying out a linear test on the results of the pre-test and post-test in the experimental class (discovery learning) and in the control class (problem based learning), the results were obtained that the two linear tests in both the experimental and control classes were found to be linear. WithDeviation from Linearity value for experimental class (discovery learning) sig. is 0.338 > 0.05, so it is concluded that the independent variable is 0.568 > 0.05, so it is concluded that the independent variable X2 (Problem Based Learning) and the dependent variable Y (Student Learning Outcomes) have a linear relationship.

Next, a hypothesis test was carried out using the T-test sample comparison test with the SPSS version 25.0 for Windows software program, from the paired sample T-test test in the experimental class (discovery learning), getting pair results of 1 sig. is 0.000 < 0.05 then Ha is accepted, and the paired test and T-test of the control class (problem based learning) get a pair result of 2 sig. is 0.000 < 0.05 then Ha is accepted. It can be concluded . (1). Ha: There is a significant difference between the pre-test scores of the experimental class and the post-test scores of the experimental class after the discovery learning method was implemented. With the word Ha accepted and Ho rejected. (2). Ha: There is a significant difference between the pre-test scores of the control class and the post-test scores of the control class after the problem based learning method was implemented. With the word Ha accepted and Ho rejected.

Then an independent sample T-test was carried out in the experimental class (discovery learning) and control class (problem based learning). From the independent sample test, the experimental class T-test (discovery learning) obtained a Sig. (2 tailed) of 0.903 > 0.05. From the results of the independent sample T-test control class (problem based learning) is Sig. (2-tailed) 0.903 > 0.05, then the hypothesis reads: there is no significant difference in student learning outcomes in the Citizenship Education subject Class XI SMA

Teluk Dalam Private Campus between the experimental class which uses the Discovery Learning model and the control class which uses the Problem Based Learning model. In other words, Ho is rejected and Ha is accepted.

V.   CONCLUSION

Based on the results of the research carried out along with the explanation of the data analysis presented in the previous Chapter IV, the following conclusions can be drawn:

1. There is a significant difference between the pre-test scores of the experimental class and the post-test scores of the experimental class after the discovery learning method was implemented. This is proven based on the results of the paired sample T-test table, it is known that the pair value is 1 sig. is $0.000 < 0.05$ then Ha is accepted and HO is rejected.
2. There is a significant difference between the pre-test scores of the control class and the post-test scores of the control class after the problem based learning method was implemented. This is proven by proving based on the results of the paired sample T-test table that it is known that the pair value is 1 sig. is $0.000 < 0.05$ then Ha is accepted and Ho is rejected.
3. There is no significant difference in student learning outcomes in the Class XI Citizenship Education subject at Teluk Dalam Campus Private High School between the experimental class which uses the Discovery Learning model and the control class which uses the Problem Based Learning model. This is proven based on the results of the independent T-test sample test table which obtained Sig. (2 tailed) of $0.903 > 0.05$.

VI.   RECOMMENDATION

From the results of the analysis and conclusions, the researcher provides the following recommendations:

1. Based on the results of this research, the application of the discovery learning and problem based learning model provides positive results, this is proven by the increase in student learning outcomes after the implementation of the discovery learning and problem based learning model. For this reason, schools or PPKN subject teachers should apply discovery learning and problem based learning models so that students are more motivated and enthusiastic in learning and can improve their learning outcomes.
2. It is hoped that the principal of the Teluk Dalam Campus Private High School will be able to provide more adequate school facilities, this will have a big impact on improving student learning outcomes.
3. Considering the various limitations of researchers in this research, the author hopes that other parties can carry out more research using discovery learning and problem based learning models systematically and in more depth, with the aim of further perfecting the results of this research.

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