

The Influence of The PJBL Model Assisted by Quizizz Evaluation Media on Motivation and Learning Outcomes at SMKN 4 Pariaman

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Abstract - This study discusses the influence of the Quizizz media-assisted learning model on students of class X TEI SMKN 4 Pariaman on motivation and learning outcomes. The objectives of the research are: 1) to determine the influence of the Project Based Learning model assisted by Quizizz evaluation media on learning motivation in class X TEI SMKN 4 Pariaman and 2) to determine the influence of the Project Based Learning model assisted by Quizizz evaluation media on the learning outcomes of class X TEI SMKN 4 Pariaman. This type of research is quantitative. The design of this study uses a pre-experimental design One-Group Pretest-Posttest Design. The sampling technique uses a purposive sampling technique with a research sample, namely 24 students in class X TEI SMKN 4 Pariaman. The data collection methods used are questionnaires and tests. Then, for data processing techniques, descriptive analysis and hypothesis analysis are used. The results of the research obtained from class X TEI were processed using descriptive statistical analysis, and the average pretest and posttest scores of learning motivation were obtained = 66.43 and 66.47. Meanwhile, the average score of pretest and posttest learning outcomes was = 57.04 and 68.86. The results of the hypothesis analysis showed that the Paired Sample T-Test on the Learning Motivation Variable (Y1) P-Value (0.039) < (0.05). Meanwhile, the Paired Sample T-Test on the Learning Outcome Variable (Y2) had a P-Value of (0.004) < (0.05). It can be concluded that Ho was rejected and Ha was accepted from each variable so that there was a significant influence between the Project Based Learning model assisted by Quizizz Evaluation Media on the Motivation and Learning Outcomes of Class X TEI SMKN 4 Pariaman students.

Keywords— Project-Based Learning, Learning Outcomes, Motivational Learning, Quizizz

I. INTRODUCTION

The Industrial Revolution 4.0 brings major changes in the world of work and affects various aspects of life, including education. Technological advancements and digitalization are key in the Industrial Revolution 4.0, and this affects how students learn and develop the skills needed to face the challenges of the future. One way to help students adapt to the Industrial Revolution 4.0 is to utilize technology in learning.

Technology in education not only provides benefits for students, but also for teachers and educational institutions as a whole. The use of technology in learning can improve the efficiency, effectiveness, and quality of learning [1].

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The curriculum has an important role in the form of a learning tool that contains the planning of learning activities in the form of the process of acquiring knowledge and experience obtained through a series of learning activities [2]. The curriculum occupies a central position in all kinds of educational activities, to create educational goals, the curriculum must be able to improve its quality, where the curriculum must be able to adapt to the situation of each school, pay attention to the needs and stages of student development, the needs of national development while still remembering that national education is rooted in national culture and national education based on Pancasila and the 1945 Constitution.

Learning is an interaction between educators and students in utilizing all the potential and resources that exist in teachers and students. Learning is an interaction between a teacher and one or more individuals to learn, planned in advance to cultivate and develop knowledge, skills, and learning experiences to students [3]

Assessment of learning outcomes is only part of the evaluation of learning. Learning outcomes reflect the breadth and depth and complexity of competencies formulated in knowledge, behaviors, skills, attitudes and values that can be measured using various assessment techniques [4]. Student learning outcomes can be influenced by many factors, including student attitudes, interests, desires and motivations. If these factors are improved, then student learning outcomes tend to increase [5].

Learning motivation is the tendency of students to carry out learning activities that are driven by the desire to achieve the best learning outcomes. Learning motivation will encourage learning enthusiasm in students and vice versa, lack

of learning motivation will weaken learning enthusiasm which will also affect student learning outcomes [6].

Based on the observations made by the author during the learning process in class X of Industrial Electronics Engineering SMK Negeri 4 Pariaman, the author found several problems that occurred during the learning process. First, some students stay busy with their own activities, such as playing games on their phones or opening social media, and second, most students don't pay attention to the teacher's presence.

Students in vocational schools are more likely to like work-related and project-based activities. Thus, conventional learning models, such as lectures that require students to be silent and listen to what the teacher says, seem monotonous and difficult for students to accept lessons. On the other hand, if teaching and learning activities are designed in a more engaging way and require students to actively participate in the classroom, this can be an excellent alternative to improve student learning outcomes.

From the data obtained when carrying out the Educational Field Practice, the results of the Mid-Semester Summative Study (STS) class X of Industrial Electronics Engineering on Engineering Drawing Elements for the 2023/2024 school year can be seen in Table 1.

TABLE I
TEI CLASS X MIDTERM EXAM SCORES SMKN 4 PARIAMAN

Class	Number of Students	Value			
		≤75 (Incomplete)	Percent (%)	≥75 (End)	Percent (%)
X TEI	31	10	32%	21	68%

The learning model applied to the independent curriculum is the Project Based Learning learning model or better known as the project-based learning model. Project Based Learning is an individual or group project that is carried out in a certain period of time to produce a product, then the results are displayed or given a percentage.

Evaluation is a systematic and continuous assessment of learning outcomes to determine the effectiveness of learning and as input for further learning improvement. One of the interesting web-based learning media is quizzes. Quizizz is a net in the form of a game and assists teachers in creating materials and evaluations during the learning process [7].

The use of *quiz learning media* that is collaborated with a learning method or model, namely *quizzes*, is used on students after learning the material and together discussing the material in the final session with the quiz game on *the quiz* so that it can improve the quality of learning by providing the latest innovations that aim to provide colorful learning so that students are always enthusiastic in learning [8].

II. RESEARCH METHODS

This research was conducted at SMKN 4 Pariaman in July – August 2024. This type of research is a pre-experimental design research. The design of this pre-experimental design is the One Group Pretest-Posttest Design. This design was used because this study only involved one class, namely an experimental class that was carried out by

comparing the results of the pre-test with the results of the post-test.

The subject of this study is all students of class X Industrial Electronics Engineering SMKN 4 Pariaman for the 2024/2025 school year using 1 class, namely an experimental class, a homogeneous class in the sense that students have never received the learning provided by the teacher with practicum learning. The sampling in this study was selected using the purposive sampling technique, which is a sampling technique based on certain considerations made by the authors themselves. The sample in this study is 24 students.

The object of this research is a quiz-assisted learning model about the motivation and learning outcomes of students in class X TEI SMKN 4 Pariaman.

TABLE II
ONE-GROUP PRETEST-POSTEST DESIGN

Pretest	Treatment	Posttest
Y1	X	Y2

Information:

Y1 = Initial test before learning starts (*Pre tests*)

Y2 = Final test after learning is complete (*Post tests*)

X = Given the treatment of the PjBL learning model assisted by evaluation media *Quizizz*.

The data that has been collected is carried out a normality test, namely the Shapiro-wilk test, the Shapiro-wilk test is used if the number of samples taken is less than 50 respondents. After the normality test, the data obtained in both groups were distributed normally with $p = 0.332$; $p = 0.53$ for the pretest value; student learning outcomes posttest and $p = 0.087$; $p = 0.730$ for the posttest and pretest scores of student learning motivation ($p > 0.05$), so the paired sample T test was used. The paired sample T-test is used to compare the average of two variables in a single sample group

III. RESULTS AND DISCUSSION

1. Descriptive Statistics

Based on the research, researchers looked for statistical descriptive (mean, median, mode and standard deviation).

A. Calculation of Learning Motivation Pretest

The following are the results of the calculation of the learning motivation questionnaire that has listed statistical descriptive results in the form of Mean, Median, Mode, and standard deviation.

TABLE III
DESCRIPTION OF MOTIVATIONAL PRETEST STATISTICS

N	Legitimate	23
	Disappear	0
Mean		64.43
Median		65.50
Std. Deviation		7.216
Range		34
Maximum		77
Minimum		43
Sum		1482

Below is a calculation table with the specific conditions of the score, the number of frequencies (many students answered) and the percentage.

TABLE III
FREQUENCY OF MOTIVATIONAL PRETEST

Legitimate	Frequency	Valid Rewards	Comulativ is present
43	1	4.3	4.3
54	1	4.3	8.7
58	3	13.0	21.7
61	2	8.7	30.4
64	1	4.3	34.8
65	4	17.4	52.2
66	2	8.7	60.9
67	4	17.4	78.3
70	1	4.3	82.6
71	1	4.3	87.0
73	1	4.3	91.3
74	1	4.3	95.7
78	1	4.3	100
Entire	23	100.0	

Based on the results of Table 3, it can be concluded that a student scored 43 with a percentage of 4.3%, a student scored 54 with a percentage of 4.3%, 3 students scored 58 with a percentage of 13%, as many as 2 students scored 61 with a percentage of 8.7%, a student scored 64 with a percentage of 4.3%, 4 students scored 65 with a percentage of 17.4%, A total of 2 students scored 66 with a percentage of 8.7%, as many as 4 students scored 67 with a percentage of 17.4%, students scored 70 with a percentage of 4.3%, students scored 71 with a percentage of 4.3%, students scored 73 with a percentage of 4.3%, a student scored 74 with a percentage of 4.3%, and a student scored 77 with a percentage of 4.3%. So out of 23 students, the entire percentage is 100%.

So, based on the data above, the total number of students is 23 people with scores of 43, 54, 58, 61, 64, 65, 66, 67, 70, 71, 73, 74, 77, with a percentage of 100%. Based on Table 3, the researcher also created a chart using barchat which will be displayed in the following chart:

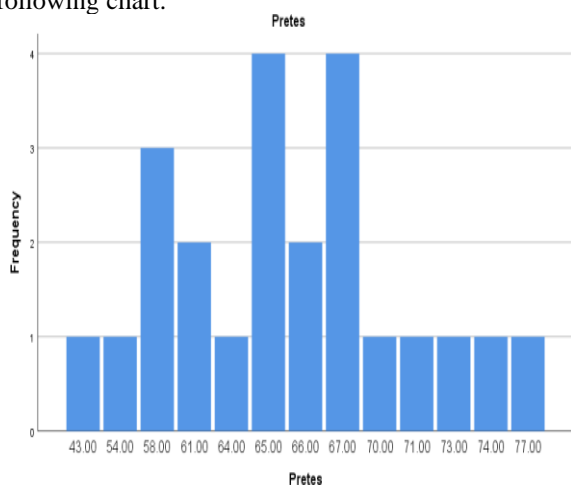


Figure 1. Pretest Interval Chart Motivation Questionnaire

TABLE V
DESCRIPTION OF MOTIVATIONAL POSTTEST STATISTICS

N	Legitimate	23
	Disappear	0
Mean		66.47
Median		66.75
Std. Deviation		7.057
Range		26
Maximum		79
Minimum		53
Sum		1529

After that, the researcher will also display the results of the Student Motivation Questionnaire assessment with the number of scores and how many students answered with the assessment score. Below is a calculation table with the specific conditions of the score, the number of frequencies (many students answered) and the percentage.

TABLE VI
FREQUENCY OF MOTIVATIONAL POSTTEST

Legitimate	Frequency	Valid Rewards	Comulativ is present
53	2	8.7	8.7
59	2	8.7	17.4
60	1	4.3	21.7
61	1	4.3	26.1
63	2	8.7	34.8
64	1	4.3	39.1
66	2	8.7	47.8
67	2	8.7	56.5
68	2	8.7	65.2
69	1	4.3	69.6
72	1	4.3	73.9
73	1	4.3	78.3
74	2	8.7	87.0
75	1	4.3	91.3
76	1	4.3	95.7
79	1	4.3	100.0
Entire	23	100.0	

Based on the results of the table, it can be concluded that 2 students got a score of 53 with a percentage of 8.7%, 2 students got a score of 59 with a percentage of 8.7%, students got a score of 60 with a percentage of 4.3%, students got a score of 61 with a percentage of 4.3%, 2 students got a score of 63 with a percentage of 8.7%, a student got a score of 64 with a percentage of 4.3%, 2 students got a score of 66 with a percentage of 8.7%, 2 students scored 68 with a percentage of 8.7%, students scored 69 with a percentage of 4.3%, a student scored 72 with a percentage of 4.3%, a student scored 73 with a percentage of 4.3%, 2 students scored 74 with a percentage of 8.7%, a student scored 76 with a percentage of 4.3%, and one student scored 79 with a percentage of 4.3%. So out of 23 students, the entire percentage is 100%.

So, based on the data above, the total number of students is 23 people with a score of 53, 59, 60, 61, 63,

64, 66, 67, 68, 69, 72, 73, 74, 75, 76, 79, with a percentage of 100%. Based on Table 18, the researcher also created a chart using barchat which will be displayed in the following graph:

B. Posttest Learning Outcome Calculation

The following are the results of the calculation of the learning motivation questionnaire that has listed statistical descriptive results in the form of Mean, Median, Mode, and standard deviation.

TABLE V
DESCRIPTION OF MOTIVATIONAL POSTTEST STATISTICS

N	Legitimate	23
	Disappear	0
Mean		66.47
Median		66.75
Std. Deviation		7.057
Range		26
Maximum		79
Minimum		53
Sum		1529

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TABLE VI
FREQUENCY OF MOTIVATIONAL POSTTEST

Legitimate	Frequency	Valid Rewards	Comulativ is present
53	2	8.7	8.7
59	2	8.7	17.4
60	1	4.3	21.7
61	1	4.3	26.1
63	2	8.7	34.8
64	1	4.3	39.1
66	2	8.7	47.8
67	2	8.7	56.5
68	2	8.7	65.2
69	1	4.3	69.6
72	1	4.3	73.9
73	1	4.3	78.3
74	2	8.7	87.0
75	1	4.3	91.3
76	1	4.3	95.7
79	1	4.3	100.0
Entire	23	100.0	

Based on the results of the table, it can be concluded that 2 students got a score of 53 with a percentage of 8.7%, 2 students got a score of 59 with a percentage of 8.7%, students got a score of 60 with a percentage of 4.3%, students got a score of 61 with a percentage of 4.3%, 2 students got a score of 63 with a percentage of 8.7%, a student got a score of 64 with a percentage of 4.3%, 2 students got a score of 66 with a

percentage of 8.7%, 2 students scored 68 with a percentage of 8.7%, students scored 69 with a percentage of 4.3%, a student scored 72 with a percentage of 4.3%, a student scored 73 with a percentage of 4.3%, 2 students scored 74 with a percentage of 8.7%, a student scored 76 with a percentage of 4.3%, and one student scored 79 with a percentage of 4.3%. So out of 23 students, the entire percentage is 100%.

So, based on the data above, the total number of students is 23 people with a score of 53, 59, 60, 61, 63, 64, 66, 67, 68, 69, 72, 73, 74, 75, 76, 79, with a percentage of 100%. Based on Table 18, the researcher also created a chart using barchat which will be displayed in the following graph:

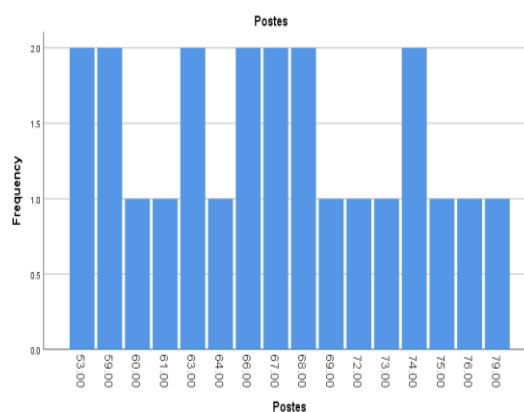


Figure 2. Frequency graph Posttest Motivation Questionnaire

Based on the Postes Interval Graph above, the total data from 23 students of class X TEI was obtained as 2 students got a score of 53, 2 students got a score of 59, one student got a score of 60, students got a score of 61, 2 students got a score of 63, a student got a score of 64, 2 students got a score of 66, 2 students got a score of 67, 2 students got a score of 68, One student got a score of 69, one student got a score of 72, one student got a score of 73, 2 students got a score of 74, one student got a score of 75, one student got a score of 76, and one student got a score of 79.

C. Calculation of Pretest Learning Outcomes

In this calculation, the researcher presented SPSS version 25.0 calculations on mean, median, mode and standard deviation. In the following table:

TABLE VII
STATISTICAL DESCRIPTION OF LEARNING OUTCOMES PRETEST

N	Legitimate	23
	Disappear	0
Mean		57.0435
Median		58.66
Std. Deviation		13.333
Range		48.00
Maximum		84.00
Minimum		36.00
Sum		1312

Based on the calculation of data using SPSS version 25.0, it was found that the average, median, mode, and standard deviation were found.

After that, the researcher also found the frequency of the pretest interval as follows:

TABLE VIII
FREQUENCY OF PRETEST LEARNING OUTCOMES

Legitimate	Frequency	Valid Rewards	Comulativ is present
36	1	4.3	4.3
40	3	13.0	17.4
44	3	13.0	30.4
48	1	4.3	34.8
52	2	8.7	43.5
60	4	17.4	60.9
64	3	13.0	73.9
68	2	8.7	82.6
72	2	8.7	91.3
76	1	4.3	95.7
84	1	4.3	100.0
	23	100	

From the table, it is known that a student got a score of 36 with a percentage of 4.3%, as many as 3 students got a score of 40 with a percentage of 13%, as many as 4 students got a score of 44 with a percentage of 13%, a student got a score of 48 with a percentage of 4.3%, as many as 2 students got a score of 52 with a percentage of 8.7%, as many as 4 students got a score of 60 with a percentage of 17.4%, A total of 3 students got a score of 64 with a percentage of 13%, as many as 2 students got a score of 68 with a percentage of 8.7%, a total of 2 students got a score of 72 with a percentage of 8.7%, students got a score of 76 with a percentage of 4.3%, and finally students got 84 with a percentage of 4.3%.

So, based on the data above, the total number of students is 23 people with scores of 36, 40, 44, 48, 52, 60, 64, 68, 72, 74 and 84 with a percentage of 100%.

Based on Table 7, the researcher also created an interval using barchat which will be shown in the following graph.

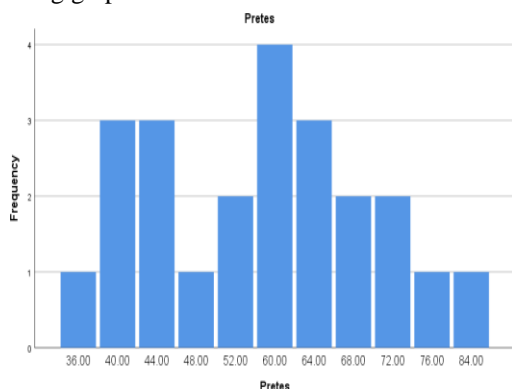


Figure 3. Pretest Student Learning Outcome Graph

Based on the Pretest Interval graph, a total of 24 students of class X TEI were obtained as many as 1 student got a score of 36, 3 students got a score of 40, 3 students got a score of 44, 1 student got a score of 48, 2

students got a score of 52, 4 students got a score of 60, 3 students got a score of 64, 2 students got a score of 68, 2 students got a score of 72, 1 student got a score of 76, and 1 student got a score of 84.

D. Posttest Calculation of Learning Outcomes

In this calculation, the researcher displays calculations about the mean, median, mode and standard deviation.

In the following table:

TABLE IX
DESCRIPTIVE ANALYSIS OF LEARNING OUTCOMES POSTTEST

N	Legitimate	23
	Disappear	0
Mean		68.86
Median		72.00
Std. Deviation		13.318
Range		52.00
Maximum		88.00
Minimum		36.00
Sum		1584

Based on the calculation of the data, it was found that the average, median, mode, and standard deviation were found. After that, the researcher also found the frequency of postes intervals as follows:

TABLE X
FREQUENCY OF POSTTEST LEARNING OUTCOMES

Legitimate	Frequency	Valid Rewards	Comulativ is present
36	1	4.3	4.3
40	1	4.3	8.7
56	3	13.0	21.7
64	4	17.4	39.1
72	5	21.7	60.9
76	3	13.0	73.9
80	3	13.0	87.0
84	2	8.7	95.7
88	1	4.3	100.0
Entire	23	100	

From the table, it is known that a student got a score of 36 with a percentage of 4.3%, a student got a score of 40 with a percentage of 4.3%, as many as 3 students got a score of 56 with a percentage of 13%, as many as 4 students got a score of 64 with a percentage of 17.4%, as many as 5 students got a score of 72 with a percentage of 21.7%, as many as 3 students got a score of 76 with a percentage of 13%, A total of 3 students got a score of 80 with a percentage of 13%, as many as 2 students got a score of 84 with a percentage of 8.7%, and one student got a score of 88 with a percentage of 4.3%.

So, based on the data above, the total number of students is 23 people with scores of 36, 40, 56, 64, 72, 76, 80, 86, 84, and 88 with a percentage of 100%. Based on Table 15, the researcher also created a chart using barchat which will be displayed in the following graph:

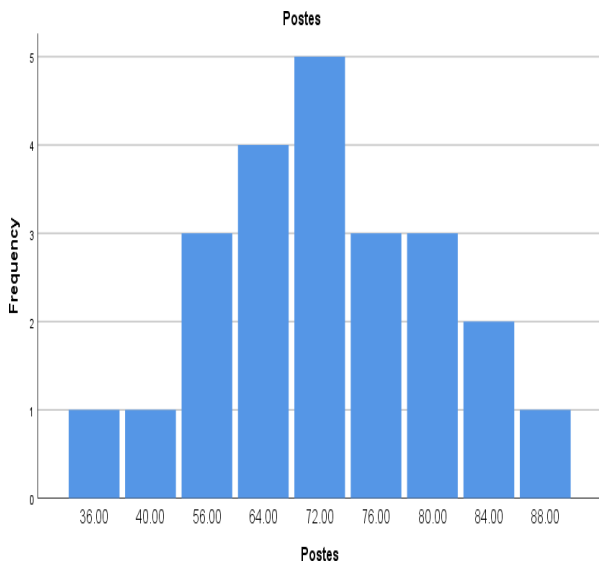


Figure 4. Postes Student Learning Outcome Chart

Based on the Postes Interval Graph above, the total data from 24 students of class X TEI was obtained as follows: 1 student got a score of 36, 1 student got a score of 40, 3 students got a score of 56, 4 students got a score of 64, 5 students got a score of 72, 3 students got a score of 76, 3 students got a score of 80, 2 students got a score of 84 and 1 student got a score of 88.

2. Hypothesis Test

The hypothesis test in this study uses the Paired Sample T Test which is part of parametric statistical analysis. As in the basic rules in parametric statistical analysis, the main requirement is that the research data must be distributed normally. Since the research data has been distributed normally as presented in table 4.4, hypothesis testing can be carried out with the Paired Sample T Test.

- a) Hypothesis Test of the Influence of PjBL assisted by Quizizz on Learning Motivation
The following are the results of the Paired sample T-test X on Y1 using SPSS Version 25:

TABLE XI
RESULTS OF T-TEST OF X-PAIRED SAMPLES AGAINST Y1

Paired Sample Statistics				
	Mean	N	Std. Deviation	Std. Average Error
Previous tests	66.4348	23	7.21631	1.50470
Post tests	66.4783	23	7.05736	1.47156

In the result table, it can be seen that the average value of the Pretest score is 66.0435 and the standard deviation value (Std. deviation) is 7.08698. Meanwhile, in the Posttest score, the average score is 66.4783 and the standard deviation value (Std. deviation) is 7.05736. Because the average score of learning outcomes in the Pretest is 66.04 < the Posttest is 66.47, it can be descriptively concluded that there is a difference in the average learning outcomes of the Pretest and Posttest.

TABLE XII
RESULTS OF PAIRED SAMPLE OUTPUT OF SPSS
T TEST LEARNING MOTIVATION

Paired Sample Statistics					
Pairing Difference					
	Mean	Std. Deviation	t	Df	Sig. (2-tail)
Pretes - Post	-2.04348	4.47699	-2.189	22	.039

Based on the table of the output results of the Paired Sample T Test above, it is known that the significant value (Sig.) (2- tailed) is 0.039. Provided that if the significance value is 0.039

< 0.05, then Ho is rejected and Ha is accepted. So it can be concluded that there is an average difference between students' pretest and posttest learning motivation which means that there is an influence in the use of the PjBL Learning Model assisted by Quizizz evaluation media on the learning motivation of TEI Class X students at SMKN 4 Pariaman.

- b) Hypothesis Test of the Influence of PjBL Assisted by Quizizz Evaluation Media on Learning Outcomes
The following are the results of the Paired Sample T-Test X test on Y2 using SPSS Version 25:

TABLE XIII
SPSS OUTPUT RESULTS FROM STATISTICAL TESTS

Paired Sample Statistics				
	Mean	N	Std. Deviation	Std. Average Error
Previous tests	57.0435	23	13.33307	2.78014
Post tests	68.8696	23	13.31883	2.77717

In the result table, it can be seen that the average value of the Pretest score is 57.0435 and the standard deviation value (Std. deviation) is 13.33307. Meanwhile, in the Posttest score, the average score is 68.8696 and the standard deviation value (Std. deviation) is 13.31883. Because the average score of learning outcomes in the Pretest is 57.0435 < the Posttest is 68.8696, it can be descriptively concluded that there is a difference in the average learning outcomes of the Pretest and Posttest.

TABLE XIV

OUTPUT RESULTS OF SP T PAIRED SAMPLES LEARNING RESULTS TTEST

Paired Sample Statistics					
Pairing Difference					
	Mean	Std. Deviation	t	Df	Sig. (2-tail)
Pretes - Post	-11.82609	17.78573	-3.189	22	.004

Based on the table of the output of the Paired Sample T Test above, it is known that the significant value (Sig.) (2-tailed) is 0.004. Provided that if the significance value is 0.004 < 0.05, then Ho is rejected and Ha is accepted.

So it can be concluded that there is an average difference between the learning outcomes of Pretest and Posttest students which means that there is an influence in the use of the PjBL Learning Model assisted by quiz evaluation media on the Motivation of TEI Class X Students at SMKN 4 Pariaman.

The learning motivation of students in this study uses a questionnaire through googleform. The test provided consists of two tests, namely the initial stage test (pretest) and the final stage test (posttest) which each amounted to 25 questions related to electronic engineering drawing elements. Pretest is carried out before treatment to find out the level of understanding of students. After treatment, the posttest is carried out using a project-based learning model to find out if the students understand the subject matter well. To answer the hypothesis of student learning outcomes, it can be seen from the results of the T-test of the Paired Sample, and to answer the hypothesis, the t-test is used.

From the output results of the Paired Sample T Test, it is known that the significant value (Sig.) (2-tailed) is 0.039. With the provision that if the significant value is $0.039 < 0.05$, then H_0 is rejected and H_a is accepted, which means that it can be concluded that there is an influence of the Project Based Learning learning model assisted by Quizizz evaluation media on student learning outcomes on the electronic engineering image elements of class X TEI at SMKN 4 Pariaman. Research conducted by (Sakwati Abidin et al., 2023) Based on the results of the calculation of the student learning motivation questionnaire, it was obtained that after the implementation of the Project Based Learning (PjBL) model was in the good category, judging from the results of the calculation of the average percentage of motivation questionnaire of 80.22%, it shows that after using the PjBL model, students are more motivated to improve their learning in creative product and entrepreneurship subjects [9].

The learning outcomes of students in this study use a test technique in the form of a multiple-choice test. The test provided consists of two tests, namely the initial stage test (pretest) and the final stage test (posttest) which each amounted to 25 questions related to electronic engineering drawing elements. Questions are given through online-based quiz evaluation media. To answer the hypothesis of student learning outcomes, it can be seen from the results of the Paired Sample T-test. From the results of the Paired Sample T Test, it is known that the significant value (Sig.) (2-tailed) is 0.004. Provided that if the significance value is $0.004 < 0.05$, then H_0 is rejected and H_a is accepted. So this shows that in the learning process using the Project Based Learning learning model assisted by Quizizz evaluation media, there is a significant influence on student learning outcomes.

This is in accordance with research (Siboro *et al.*, 2022) i.e. Learning Model combined with the use of *quiz* can improve students' critical thinking skills. In addition *quiz* also use games with interesting features so that they can increase students' interest in learning, especially in terms of arousing critical thinking attitudes in accordance with

the profile of Pancasila, so that it has a significant effect on improving students' critical thinking skills.

IV. CONCLUSIONS AND ADVICE

A. Conclusion

In the learning outcome variable (Y1) of the PjBL model assisted by quiz evaluation media, it has an effect and is significant on the learning motivation of X TEI students at SMKN 4 Pariaman. This is proven through hypothesis testing using the "t" test (Paired Sample T-Test) with the average score (Mean) of the pretest score is 66.04, and the average score of the posttest is 66.47 which shows that there is a difference in the average learning results of the Pretest and Posttest. Meanwhile, the results of the significance value of the Paired Sample T Test (Sig.) (2-tailed) were obtained with a value of 0.039. Provided that if the significance value is $0.039 < 0.05$, H_0 is rejected and H_a is accepted. So it can be concluded that there is an influence in the use of the PjBL model assisted by *quiz evaluation media* on the learning motivation of TEI class X students at SMKN 4 Pariaman.

In the learning outcome variable (Y2), the PjBL model assisted by quiz evaluation media has an influence and significance on the learning outcomes of X TEI students at SMKN 4 Pariaman. This is proven through hypothesis testing using the "t" test (*Paired Sample T-Test*) with the average score (*Mean*) of the *pretest* score is 57.04, and in the *posttest score* the average score is 68.86 which shows that there is a difference in the average learning results of Pretest and *Posttest*. Meanwhile, the results of the *Paired Sample T Test* (Sig.) (2-tailed) significance value obtained a value of 0.004. Provided that if the significance value is $0.004 < 0.05$, then H_0 is rejected and H_a is accepted. So it can be concluded that there is a significant influence between the PjBL model assisted by *Quizizz evaluation media* on the learning outcomes of TEI class X students at SMKN 4 Pariaman.

B. Suggestions

For teachers, it is hoped that they can implement a more varied Learning Model so that students are not bored during learning and are expected to increase students' interests and ability in learning outcomes.

Furthermore, in order to be able to pay attention to other factors besides using Quizizz in learning that can affect Students' Motivation and Learning Outcomes in learning electronic engineering drawings.

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