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The Effect of Using Prezi and Canva Learning Media on Student Learning Outcomes in Basic Electronic Engineering Subjects

Aura Jessy Riskia*, Hanesman

Department of Electronic Engineering, Faculty of Engineering, Universitas Negeri Padang, Indonesia

**Corresponding Author: aurajessyriskia@gmail.com*

Abstract - ***This study aims to determine the effect of two different types of learning media in improving student learning outcomes. This research uses comparative quantitative, where two groups of students are sampled, one using Prezi learning media and the other using Canva learning media. The population of this study were students in grade X Electronics Engineering at SMK Negeri 2 Solok in the 2024/2025 academic year. The sampling technique was carried out by simples random sampling and normality and homogeneity tests using SPSS 29.0. Data were collected from learning outcome tests in the form of objective questions. The data obtained were analyzed using SPSS 29.0 to test normality, homogeneity and hypothesis testing. The results showed that the use of Prezi learning media resulted in a significant increase in learning outcomes compared to using Canva learning media. The average value of the class using Prezi learning media is 81.85, while the average value of the class using Canva learning media is 76.59. The t-test shows a t-count value of 2.846 with a p-value (two-tailed) of 0.006 (p < 0.05), which states that there is a significant difference in the results of the two experimental classes. So that the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected.***

Keywords **- *Prezi Learning Media, Canva, Learning Outcomes.***

I. INTRODUCTION

Education is one of the keys in preparing the younger generation to face the challenges and demands of an ever-changing era. Education is essentially a human effort to preserve life. Education is responsible for fostering, developing, and improving the abilities of students. Therefore, education has a significant influence on the development and realization of individuals, especially for the development of nations and countries. Education is carried out through the process of learning and teachers. Teachers teach and educate, and learners or students learn.

According to Law No. 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 the spiritual strength of diversity, self-control, personality, intelligence, starting morals and skills needed by themselves, society, nation and state." In class X of Electronics Engineering at the Vocational High School (SMK) Negeri 2 Solok, it appears that the learning that is expected to equip students with the required competencies is not fulfilled. This is evidenced by the results of the odd semester exam in the Basics of Electronic Engineering (DDTE) subject, as shown in table 1.

TABLE I
RESULTS OF BASICS OF ELECTRONIC ENGINEERING SUBJECT

Class	Number of Students	Student average value	Number of students	
			< class average	≥ class average
X TE 1	27	53,48	22	5
X TE 2	27	48,52	15	12
X TE 3	28	37,96	27	1
X TE 4	25	33,71	23	2
Amount	**107**		**87**	**20**

Based on Table 1, the average value of class X Electronics Engineering in DDTE subjects has not reached the criteria for achieving learning objectives (KKTP). Table 1 shows that the average score of class X Electronics Engineering in DDTE subjects still does not reach the achievement criteria, indicating that learning outcomes are still considered low at SMK Negeri 2 Solok. Learning objectives (KKTP) are not achieved, so this shows that DDTE learning outcomes at SMK Negeri 2 Solok are still low. Students who are in the Electronics Engineering X class at SMK Negeri 2 Solok are not actively involved in the learning process, which results in poor learning outcomes. There are several other reasons for the poor learning outcomes of students in DDTE subjects.

One of the main causes of this condition is the lack of student engagement in learning, which is indicated by the lack of interaction between students and teachers as well as students' active participation in discussions. Learning using a conventional approach, such as a monotonous PowerPoint presentation, leaves students bored and unmotivated. Due to uninteresting delivery and lack of supporting visual resources, students have difficulty understanding complex material.

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According to Slameto in Kurniawan et al., (2017) factors that influence the learning process can be classified into two categories, namely internal factors and external factors. Internal factors refer to variables contained in the individual who is learning, while external factors refer to variables external to the individual [4].

To improve student learning outcomes, the learning media chosen must be effective. According to Sardiman, et al, the word "media" comes from Latin which means "intermediary" or "introduction" [3]. According to Rusman in (Sari, 2018) Effective media must increase student motivation, provide new learning stimuli and encourage learners to remember topics that have been learned [6]. In addition, good learning media will also allow learners to provide feedback, responses, and encouragement to practice correctly. Canva and Prezi are resources.

According to Pack Canva was founded by Melanie Perkins, Cliff Obrecht, and Cameron Adams in Sydney, Australia in 2012. According to Leryan et al., Canva is in high demand because it provides a variety of templates and designs, such as posters, business cards, and worksheets, which are easily accessible on computers or mobile phones. Rosidah added that compared to other presentation applications such as PowerPoint, Canva is more popular because it is free and offers more than 420 thousand templates, 75 million photos, and 3000 fonts that can be used freely, making it easier for users to design learning materials [2].

According to Alexandromeo & Karkina Canva has the main function to offer a variety of templates that are ready to use, making it easier for teachers to design learning materials. In addition, this application is also equipped with various features such as illustrations, icons, PDF editors, and Canva Live for interactive presentations. Users can enjoy special effects, animation, design collaboration, and also have the ability to edit photos and share their work [11] [1].

According to Epinur Prezi is an interactive multimedia presentation software, allowing users to zoom in and out on their canvas, so they can combine various media such as audio, images, and video [14]. Prezi is available for free, can be used online and offline, and supports collaboration and downloading of presentation results [12]. According to Brock & Brodahl, Prezi has a zooming feature that enlarges the view as needed [5], and increases the effectiveness of the presentation [6]. Prezi offers advantages over PowerPoint in integrating various presentation elements in a more attractive manner.

The study referred to as "The Effect of Canva Learning Media Application with a Scientific Approach on Basic Electrical and Electronics Learning Outcomes" shows that students who use Canva with a scientific approach learn better than students who use Microsoft PowerPoint with a scientific approach. The t-test results show the value of tcount = 2.99, ttable = 1.682, and significant = 0.05 [8].

Based on the above background, the author wants to write a thesis with the title "The Effect of Using Prezi and Canva to Improve Student Learning Outcomes in Basic Electrical Engineering Subjects at SMK Negeri 2 Solok."

II. METODH

The research method used by researchers is a comparative quantitative method with a quantitative approach. This study was conducted from July 22 to August 22, 2024 at SMK Negeri 2 Solok on grade X students of the Electronics Engineering Department in the 2024-2025 academic year at JL. TUNAS BANGSA, Nan Balimo, Harapan sub-district, Solok City, West Sumatra. The population in this study were class X students of SMK Negeri 2 Solok consisting of 3 classes with a total of 106 students. To determine the class, the author uses a "lottery". After doing so there will be a random choice without the influence of anything, X TE 2 class becomes a class using Prezi learning media, while X TE 4 becomes a class using Canva learning media.

Researchers in this study used tests to evaluate how the use of learning media (Prezi and Canva) had an impact on learning outcomes. This test is in the form of multiple choice questions, with 40 questions for the first trial, 25 questions for the second trial, and 90 questions for the overall trial. The results of this study will be analyzed using descriptive analysis and inductive analysis. Descriptive analysis aims to describe the actual data conditions of the samples contained in the frequency distribution table [10]. The purpose of descriptive analysis is to describe the actual condition of the sample data, which is represented by the frequency distribution table. Furthermore, the calculation of standard deviation and coefficient of variation will be performed.

The parameters will be referred to as X for learning media (Prezi and Canva) and learning outcomes (Y). Inductive analysis is used; as a condition of the test, normality and homogeneity analysis must be conducted before conducting the final test to determine the significance of the difference from the given treatment. Anderson-Darling test and p-value interpretation were used to test normality. A sample is considered normally distributed if the p-value is greater than the set significance level ($\alpha = 0.05$). The normality test can be done with the SPSS 29.0 program for Windows. In this study, the hypothesis was tested with a t-test. Two independent samples t-test and two paired samples t-test.

The two independent samples T-test is a parametric statistical test that compares two independent groups to determine whether there is evidence that the population means are statistically significantly different [9]. The two-sample paired t-test is comparing the means of the same group [15]. The paired two-sample t-test (free two-sample t-test) is used to compare the means of two different groups with a sample size of less than 100; in this study, the paired two-sample t-test (paired two-sample t-test) was used to compare the means of the same group.

III. RESULTS AND DISCUSSION

A. Data Description

The purpose of this study was to compare two learning media (Prezi and Canva) with the same material (DDTE). The research sample was given to students in class X TE SMK Negeri 2 Solok, which consisted of two experimental classes. Class X TE 2 used Prezi learning media, consisting of 26 students, and Class X TE 4 used Canva learning media, consisting of 27 students.

Learning the basics of electronic engineering is the variable under study. This research data includes four variables, namely learning interest (X1), learning readiness (X2), and learning strategies (X3) and learning participation (Y). Before the test was given to the sample class, a trial was conducted to determine the validity, reliability, difficulty index, and differential power of the instrument using SPSS 29.0. After the pilot test was completed, a validity test could be conducted using SPSS 29.0, and it was found that out of 50 questions submitted, 40 were considered valid.

TABLE II
OVERALL DATA OF PREZI CLASS AND CANVA CLASS

	Prezi			Canva		
	Trial 1	Trial 2	Trial 3	Trial 1	Trial 2	Trial 3
Maximum Score	60	88	96	60	84	88
Minimum Score	33	60	72	33	60	60
Range	27	28	24	27	24	28
Number of Classes	6	6	6	6	6	6
Interval (KI)	5	5	4	5	4	5
Mean	45,73	73,85	81,85	44,19	72,44	76,59
Standar Deviasi	7,442	7,693	6,903	7,786	6,308	6,535
Varian	55,085	59,175	47,655	60,618	39,293	25,892

Based on the table above, it can be seen that trial 1, trial 2, and trial 3 of Prezi class, have maximum scores (60, 88, and 96; Minimum scores 33, 60, 72; Mean (45.73; 73.85; 81.85) and standard deviation (7.442; 7.693; 6.903) Variance (55.085; 59.175; 47.655). As for the Canva class, it can be seen from the table that the values of trial 1, trial 2, and trial 3 are (Maximum value 60, 84, 88; Minimum value (33, 60, 60); Mean (44.19; 72.44; 76.59); and Standard deviation (7.786; 6.308; 6.535) and Variance (60.618; 39.293; 25.892).

B. Data Analysis Prerequisite Test

1) Normality Test

The purpose of the normality test is to determine whether the sample is normally or abnormally distributed. The calculation of the normality test was carried out with the SPSS 29.0 application. A sig value of more than 0.05 indicates a normal distribution, while a sig value of less than 0.05 indicates an abnormal distribution.

TABLE III
NORMALITY TEST RESULTS OF PREZI AND CANVA CLASSES

Tests of Normality				
	Class	Shapiro-Wilk		
		Statistic	df	Sig.
Prezi Class and Canva Class Student Learning Outcomes	Prezi Class and Canva Class	.943	26	.156
	Canva Class and Prezi Class	.957	27	.309

Based on the table above the Shapiro-Wilk normality test, the significant value of the Prez-Canva Class value is 0.156 and the Canva-Class Prezi Class value is 0.309. Then the value of 0.156> 005 and the value of 0.309> 0.05, so the data is normal distribution.

2) Homogeneity Test

TABLE IV
HOMOGENEITY TEST OF PREZI CLASS

Test of Homogeneity of Variance Kelas Prezi					
		Levene Statistic	df1	df2	Sig.
Hasil Belajar Siswa ujicoba1_ujicoba2	Based on	.212	1	50	.647
Hasil Belajar Siswa ujicoba2_ujicoba3	Based on	.000	1	50	.996
Hasil Belajar Siswa ujicoba1_ujicoba3	Based on	.191	1	50	.664

Based on the table above that the value of student learning outcomes of trial1_test2 sig Based on Mean > 0.05, namely 0.647 > 0.05, the value of student learning outcomes of trial2_test3 sig Based on Mean > 0.05, namely 0.996 > 0.05, and the value of student learning outcomes of trial1_test3 sig Based on Mean > 0.05, namely 0.664> 0.05, it can be concluded that the data variants are the same or homogeneous. Thus, the data has met the requirements for the Paired Samples T-test.

TABLE V
HOMOGENEITY TEST OF CANVA CLASS

Test of Homogeneity of Variance Kelas Canva					
		Levene Statistic	df1	df2	Sig.
Hasil Belajar Siswa ujicoba1_ujicoba2	Based on	1.591	1	52	.213
Hasil Belajar Siswa ujicoba2_ujicoba3	Based on	.024	1	52	.877
Hasil Belajar Siswa ujicoba1_ujicoba3	Based on	1.197	1	52	.279

By looking at the value of student learning outcomes from trial1_test2 which is based on an average that is greater than 0.05, which is 0.213 greater than 0.05, the value of student learning outcomes from trial2_test3 which is based on an average that is greater than 0.05, and the value of student learning outcomes from trial1_test3 which is based on an average that is greater than 0.05, it can be concluded that the data variances are equal or homogeneous. Therefore, the data has met the requirements for the Paired Samples T-test.

C. Hypothesis Test

1) Paired samples T-Test

Paired Samples Test

		Paired Differences					t	df	Significance	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			One-Sided p	Two-Sided p
Learning outcomes in the class with Prezi	Trial 1 Trial 2	-28.115	8.135	1.596	-31.401	-24.829	-17.622	25	<,001	<,001
	Trial 2 Trial 3	-8.000	6.882	1.350	-10.780	-5.220	-5.927	25	<,001	<,001
	Trial 1 Trial 3	-36.115	6.737	1.321	-38.836	-33.394	-27.335	25	<,001	<,001

Fig 1. Paired Samples T-Test of Prezi Classroom

Based on the table above, it can be seen that the value of trial 2 is greater than trial 1 (difference -28.115; and t count -17, 622 < t table -1.706; sig (2-tailed) value 0.001 < 0.05), the value of trial 3 is greater than trial 2 (difference -8.00; t count -5, 927 < -1.706; sig (2-tailed) value 0.001 < 0.05), and the value of trial 3 is greater than trial 1 (difference -36.115; t count -27.335 < -1.706; sig (2-tailed) value 0.001 < 0.05).

So it can be concluded that overall, the test results show that each application of learning media in trial 2 and trial 3 has a significant positive impact on student learning outcomes when compared to trial 1. In addition, an increase in student learning outcomes also occurred between trial2 and trial3, indicating that the selection of Prezi learning media can have a significant effect on learning effectiveness.

Paired Samples Test

		Paired Differences					t	df	Significance	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			One-Sided p	Two-Sided p
Learning outcomes in the class with Canva	Trial 1 Trial 2	-28.259	7.014	1.350	-31.034	-25.485	-20.935	26	<,001	<,001
	Trial 2 Trial 3	-4.148	6.792	1.307	-6.835	-1.461	-3.174	26	.002	.004
	Trial 1 Trial 3	-32.407	7.953	1.531	-35.554	-29.261	-21.174	26	<,001	<,001

Fig 2. Paired Samples T-Test of Canva Class

Based on the table above using the Paired Samples Test, there is a significant difference in student learning outcomes using Canva learning media between various trials. Between trial1 and trial 2 has a difference of -28.259 with a std. Deviation 7.014 and 95% confidence interval between -31.034 and -25.485, indicating that there is a significant decrease in student learning outcomes with a p value (Two-sided) of less than 0.001. This indicates that the use of Canva learning media in trial 2 was effective in improving student learning outcomes compared to trial 1.

Between trial 2 and trial 3 has a difference of -4.148, with a standard deviation of 6.792 and a 95% confidence interval between -6, 835 and -1.461 indicating a decrease, but with a p value (two-sided) of 0.004, which indicates that the difference is not as great as between trial 2. Then between trial 1 and trial 3 showed a mean difference of -32.407 with a standard deviation of 7.953 and a 95% confidence interval between -35.554 and -29.261, also showing a significant difference with a p value (two-sided) of less than 0.001. So in conclusion, the use of Canva learning media has had a significant positive impact on student learning outcomes.

2) Effect Size Test

Paired Samples Effect Sizes

			Standardizer[a]	Point Estimate	95% Confidence Interval Lower	Upper
Learning outcomes in the class with Frezi	Trial 1 Trial 2	Cohen's d	8.135	-3.456	-4.477	-2.424
		Hedges' correction	8.390	-3.351	-4.341	-2.350
	Trial 2 Trial 3	Cohen's d	6.882	-1.162	-1.656	-.655
		Hedges' correction	7.097	-1.127	-1.606	-.635
	Trial 1 Trial 3	Cohen's d	6.737	-5.361	-6.882	-3.831
		Hedges' correction	6.948	-5.198	-6.673	-3.714

Fig 3. Effect Size Test on Prezi Class

Based on the Effect Size analysis conducted on student learning outcomes with the application of Prezi learning media, it can be seen that the significant impact of the intervention. The comparison between trial 1 and trial 2 showed a Cohen's value of 8.135 and Hedges' correction of 8.390, which indicates a very large effect in improving student learning outcomes after the use of Prezi. The Confidence Interval obtained (-4.477, -2.424) is also below zero, confirming that student learning outcomes in trial 2 were significantly better than those in trial 1.

In addition, a comparison between trial 2 and trial 3 shows a Cohen's value of 6.882 and Hedges' correction of 7.097 with a Confidence Interval of (-1.656, -0.655) which indicates an improvement in learning outcomes, although the effect is slightly smaller. Trial 1 and Trial 3 also showed large effects, with Cohen's (6.737) and Hedges' correction (6.948). The Confidence Interval obtained (-6.882, - 3.831) identifies that students who used Prezi learning media in trial 3 experienced a significant increase in student learning outcomes compared to trial 1. Overall, the application of Prezi learning media is proven to have a real positive impact on student learning outcomes.

Paired Samples Effect Sizes Kelas Canva

			Standardizer[a]	Point Estimate	95% Confidence Interval Lower	Upper
Learning outcomes in the class with Canva	Trial1 Trial2	Cohen's d	7.014	-4.029	-5.176	-2.872
		Hedges' correction	7.225	-3.911	-5.025	-2.788
	Trial2 Trial3	Cohen's d	6.792	-.611	-1.018	-.194
		Hedges' correction	6.996	-.593	-.988	-.188
	Trial1 Trial3	Cohen's d	7.953	-4.075	-5.233	-2.906
		Hedges' correction	8.192	-3.956	-5.081	-2.821

Fig 4. Effect Size Test on the Canva Class

The results of the Effect Size analysis using Paired Samples show that there is a significant effect on student learning outcomes using Canva learning media in various trials. In trial 1 and trial 2 the Cohen's value of 7.014 and Hedges' correction of 7.225 showed a large effect in improving student learning outcomes, with a 95% confidence interval showing significant values between -5.176 to -2.872.

This indicates that the use of Canva learning media in trial 2 significantly improved student learning outcomes. For trial 2 and trial3 resulted in a Cohen's value of 6.792 and Hedges' correction of 6.996, with a 95% confidence interval between -1.018 and - 0.194, which shows a sizable effect but a slight decrease. And the comparison between trial 1 and trial 3 shows a Cohen's value of 7.953 and Hedges' correction of 8.192 with a 95% confidence interval between -5.233 to -2.906, which also confirms there is a large effect of using Canva learning media on student learning outcomes. So overall it can be concluded that the application of Canva learning media has a positive and significant impact on student learning outcomes.

3) Independent samples T-Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
					Significance				95% Confidence Interval of the Difference
Prezi and Canva	F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Equal variances assumed	.297	.588	2.846	51	.003	.006	5.254	1.846	1.548	8.960
Equal variances not assumed			2.843	50.562	.003	.006	5.254	1.848	1.543	8.964

Fig 5. Independent Samples T-Test Test on Prezi and Canva Classes

Based on the results of the Independent-Samples t-test which compares student learning outcomes between classes using Prezi learning media and classes using Canva learning media, there is a significant difference. Levene's Test for equality of variances produces an F value of 0.297 with a significant (sig.) of 0.588, which indicates that the variance between the two groups can be considered equal. in the t-test with the assumption of equal variance, the t value obtained is 2.846 with

a degree of freedom (df) of 51, as well as a two-sided significant value (two-sided p-value) of 0.006 < 0.05.

This states that there is a significant difference in student learning outcomes, where the average student learning outcomes of the Prezi class are higher than those of the Canva class with a Mean Difference of 5.254. The 95% confidence interval for the mean difference ranges from 1.548 to 8.960, confirming that the difference is real and significant. When variances were not considered equal the two- sided p-value still showed a sig value of 0.006 < 0.05, which is consistent with previous results.

Based on the results of the Independent-Samples Test, it can be concluded that there is a significant difference in student learning outcomes in Prezi class and Canva Class, accepted (Ha). Conversely, the hypothesis (Ho) that there is no significant difference between student learning outcomes in Prezi class and Canva class, is rejected. Thus, this analysis confirms that the use of Prezi learning media has a positive and significant impact on student learning outcomes compared to the use of Canva media.

IV. Conclusions

Based on the hypothesis test in this study, it shows that there is a significant difference between the learning outcomes of students who use Prezi and Canva learning media at SMK Negeri 2 Solok. Testing was carried out using the Paired Samples t-test to analyze differences in student learning outcomes before and after the application of learning media. From the results of the analysis in the Prezi class, an average difference of -28.115 was obtained between trial 1 and trial 2 with a sig value. 0.001 <0.05, indicating that the application of Prezi learning media has a significant positive impact on student learning outcomes. The difference between trial 2 and trial 3 also showed significant results with a difference of -8.000 (sig. 0.001 < 0.05), as well as between trial 1 and trial 3 with a value of -36.115 (0.001 < 0.05).

In the class that used Canva learning media, the analysis results showed that there was a significant increase between trial 1 and trial 2 with a difference of -28.259 (sig. 0.001 < 0.05). However, there was a significant decrease in learning outcomes between trial 2 and trial 3 with a difference of -4.148 (sig. 0.002 < 0.05). Nevertheless, the difference between trial 1 and trial 3 still showed significant results with a value of -32.407 (sig. 0.001 < 0.05). Before analyzing further, the analysis requirements test was conducted which included normality test and homogeneity test. Normality test using Shapiro-wilk showed that the data had normal distribution with sig. value for Prezi class and Canva class > 0.05. The values in the Prezi class are (0.236, 0.232, and 0.156), while for the Canva class (0.272, 0.147, and 0.309). This shows that the student learning outcomes data meet the requirements for further analysis. After ensuring that the data was normally distributed, a variance homogeneity test was conducted using Levene's Test. The results of this test show that all sig. values are greater than 0.05. (0.647, 0.996, 0.664 for Prezi class, 0.213, 0.877, 0.279 for Canva class).

To assess how much influence from each learning media, Effect Sizes analysis was conducted. In the Prezi class, the analysis showed a Cohen's d value of 8.135 and Hedges' correction of 8.390 for the comparison of trial 1 and trial 2, indicating a very large effect in improving student learning outcomes. The Cohen's d value for trial 2 and trial 3 was 6.882, while between trial 1 and trial 3 it was 6.737, indicating a significant positive impact of using Prezi learning media. In the Canva class between trial 1 and trial 2 the Cohen's d value was 7.014, indicating a very large effect in improving student learning outcomes. Between trial 2 and trial 3 the Cohen's d value was 6.792 and between trial 1 and trial 3 the Cohen's d value was 7.953, indicating a large effect on student learning outcomes.

To compare the difference in student learning outcomes between Prezi and Canva classes, an Independent Samples t-test was conducted. The results of the analysis showed a significant difference between the two groups, where the t value was 2.846 and the degree of freedom. (df) 51. the value (sig, two-sided) obtained is 0.006, which is smaller than 0.05, indicating that there is a real difference in learning outcomes. The average student learning outcomes in the Prezi class were higher compared to the Canva class, with a mean difference of 5.254 and confidence intervals ranging from 1.548 to 8.960, confirming that this difference was significant. From the results of this study, it can be concluded that the use of Prezi learning media provides a more effective influence on student learning outcomes compared to Canva Learning media. Thus, the Ha hypothesis is accepted and the Ho hypothesis is rejected.

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