The Effectiveness of the Project-Based Learning Model on Motivation and Learning Outcomes in History Subjects

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| Abstract | The purpose of this study is to examine the effectiveness of Canva-based Project-Based Learning (PjBL) in improving students' learning outcomes and motivation in history education. This quasi-experimental study involved 150 tenth-grade students, with samples selected using cluster random sampling due to class homogeneity. Class X1, consisting of 30 students, was assigned as the experimental group using Canva-based PjBL, while Class X2, with 31 students, was designated as the control group using conventional learning methods. Research instruments included pre-tests and post-tests to assess learning outcomes and questionnaires, and observation sheets to measure motivation. Data were analyzed using normality tests, homogeneity tests, descriptive statistics, and N-Gain tests. The results showed that the experimental group experienced a significant improvement in both learning outcomes and motivation. The experimental class achieved a higher post-test mean score (M = 17.50, SD = 1.43) than the control class (M = 14.52, SD = 2.22), with p < 0.001. The N-Gain value for learning outcomes was 0.7604, and learning motivation was 0.8157, indicating high improvement. These results demonstrate that Canva-based PjBL effectively enhances students' academic achievement and learning motivation in history classrooms. |

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1. INTRODUCTION

Improving the quality of education is one of the main goals in the modern learning system (Camilleri & Camilleri, 2020; Pramana et al., 2021; et al., 2018). One of the factors that influences the quality of learning is the teacher's learning strategy (Dilnoza et al., 2019; Ridzky Iklasul Fariasih & Achmad Fathoni, 2022). Teachers have an important role in creating an effective learning atmosphere by actively involving students to develop their knowledge, skills, and learning motivation (Bdiwi et al., 2022; Sumantri et al., 2018). Therefore, choosing the right learning model and media is one of the main strategies in increasing the effectiveness of the learning process (Bahri & Corebima, 2015). The learning model is a systematic framework that teachers use to design and implement learning to achieve the expected goals. Meanwhile, learning media is a tool that facilitates the delivery of material to improve student understanding (Cudney & Ezzell, 2017; Le et al., 2016).

As one of the subjects that emphasizes social life, Indonesian history, and world history, history learning aims to equip students with an understanding of important events in the past that can be used as material for reflection in present and future life. By studying history, students are expected to be able to think critically, logically, and creatively in examining an event (Setiawan et al., 2020). However, in practice, students' motivation in studying history is still relatively low, which ultimately has an impact on their low learning outcomes (Pramono et al., 2021). This condition is caused by several factors, including teachers' lack of creativity and innovation in designing classroom learning activities. Teachers still tend to apply conventional learning models (teacher-centered), where learning takes place in one direction and is centered on the teacher (Bature, 2020; Darsih, 2018). As a result, students become passive in receiving material and are less actively involved in the learning process. In addition, teachers have not been able to arouse students' learning motivation through more creative learning models, and have not utilized interactive media that is relevant to current developments (Bature, 2020).

Several studies have shown that interest in learning history among Indonesian students is still relatively low. For example, research by Siregar & Siregar, (2023) At SMA Negeri 4 Padangsidimpuan, only 57.5% of students were interested in learning history through face-to-face learning, while 77.91% showed interest during face-to-face learning. At MAN 1 Sleman, interest in learning history in the interest category was in the moderate category, with an average score of 78.99 (Herman & Rochmat, 2018). Another study at SMA Negeri 1 Kubung showed that 33% of science students had low interest in reading Indonesian history, while most social studies students were in the moderate category, with a percentage of 27% (L. Putri & Basri, 2021).

Based on these findings, it can be concluded that one of the main factors contributing to students' low interest and suboptimal learning outcomes in history education is the lack of innovation in both learning models and media. Previous studies have generally acknowledged the issue of low student engagement in history classes; however, many of these studies have not directly implemented or empirically tested specific innovative strategies to overcome the problem. Most focus on identifying the issue rather than offering actionable, tested solutions. This study's Canva-based Project-Based Learning (PjBL) model represents integrating digital visual media with student-centered, collaborative pedagogy. This approach makes history learning more engaging and relevant, encouraging active participation, creativity, and critical thinking among students. The novelty of this study lies in the synergy between digital tools and project-based learning to empirically improve learning outcomes and motivation. Therefore, this research is important and relevant because it addresses a well-documented problem and provides an evidence-based and practical solution suited to the demands of 21st-century digital education.

One model that can be applied is Project-Based Learning (PjBL) (Ningsih et al., 2020) . This model encourages students to think critically, creatively, and actively in completing projects that are relevant to the subject matter (Illahi et al., 2022; Zulyusri et al., 2023). PjBL provides innovation in the art of teaching, where teachers act as facilitators who accompany students in developing projects, answering theoretical questions, and motivating students to participate actively in learning actively (Andrini et al., 2019; Efendi et al., 2020; Listiqowati et al., 2022; Mursid et al., 2022; AP Putri et al., 2023).

Research conducted by Hapsari & Airlanda, (2018) Revealed that applying PjBL in mathematics learning increased student understanding by 77% in cycle 1 and 85% in cycle 2, and contributed to increasing student creativity in completing projects. In addition, research by Sari et al., (2023) Applying PjBL increased student motivation by 89%, student activity by 87%, and learning outcomes by 86%. The same thing was also found by Zaeriyah, (2022) Who stated that the application of the PjBL learning model was able to increase student motivation and learning outcomes significantly.

In addition to selecting a learning model, the use of innovative learning media is also an important aspect in creating an interesting learning experience for students (Safaruddin et al., 2020). Along with the development of technology, teachers can utilize digital-based media to support learning (Dole et al.,

2017; Nicolas & Ramos, 2022; Shekhar et al., 2024). One of the digital learning media that is currently widely used in the world of education is Canva. Canva is an online design application that allows users to create visual designs easily and attractively. (Amina & Mebarka, 2020; Kristanto, 2024; Zarouk et al., 2020) . In the context of history learning, Canva can be used to help students understand historical concepts through infographics, interactive presentations, and educational posters, so that the material is easier to understand and more interesting for students (Muhajir et al., 2024).

However, most previous studies have examined implementing Project-Based Learning (PjBL) as a general pedagogical model or using Canva as a digital media tool. These studies explore the two components separately without integrating them within a single instructional design. Consequently, there remains a research gap in exploring the combined use of Canva integrated into the PjBL model, particularly in the context of history education at the senior high school level. This study addresses that gap by implementing a Canva-based PjBL model, which merges the strengths of student-centered learning with digital media's creative and visual capabilities. Unlike prior research, this study applies the model and empirically measures its impact on student learning outcomes and learning motivation, providing concrete evidence of its effectiveness. The novelty of this research lies in its integration of PjBL and Canva within a historical learning framework, which has not been widely studied. Therefore, this study is relevant and important, as it offers a new, practical, and evidence-based approach to make history learning more engaging, interactive, and effective for 21st-century learners.

In learning activities, learning motivation plays an important role in improving student learning outcomes (Yaqin, 2024). However, the condition of history learning so far is still dominated by conventional learning models (teacher-centered) (Harahap & Fahmi, 2024). The one-way learning model applied by teachers so far tends to involve students less actively in the learning process, resulting in low student motivation and learning outcomes (Rahayu et al., 2024). The lack of innovation in the selection of learning models and media is also a factor that worsens this condition (ES Putri & Cahaya, 2024).

Teachers still do not utilize learning models that require active student participation, so students have less opportunity to think critically and creatively in understanding historical material (Mentilia, 2021) . In addition, the use of less varied learning media makes it difficult for students to understand abstract historical events (Nurlina et al., 2021). Various studies have proven that implementing Project-Based Learning (PjBL) can increase student motivation and learning outcomes. However, previous studies rarely combine PjBL with digital-based media such as Canva, potentially increasing the appeal and effectiveness of learning. This study presents an innovation to overcome this problem: implementing a Canva-based Project-Based Learning learning model. Buck in Andrini et al., (2019) Stated that PjBL can actively involve students in learning activities and direct them to think creatively in producing a work. In addition, Elaine B. Johnson in Ningsih et al., (2020) Also emphasized that PjBL can connect academic content with real-world contexts, so students can understand the material better through projects they develop. With this learning model, students will be more actively involved in learning activities, have higher motivation, and achieve better learning outcomes.

This research is considered important considering the condition of history learning, which is still less effective, where students' motivation and learning outcomes are still relatively low. As shown by the results of observations at SMA Negeri 1 Pronojiwo, students still struggle to understand history material, which can be seen from the low participation in learning activities and learning outcomes that have not reached the minimum completion standard (KKM).

Data obtained from the results of the mid-semester assessment of the 2024/2025 academic year showed that 60% of students scored in the range of 40-65, which is still below the KKM of 70. In addition, analysis of student learning motivation showed that 65% of students had low motivation, which was reflected in their involvement in class discussions and minimal assignment work. This problem must be addressed immediately, because low motivation will directly impact learning outcomes and

students' understanding of historical events.

This study will compare the effectiveness of implementing the Canva-based Project Based Learning model with the conventional learning model (teacher-centered) in improving student motivation and learning outcomes in history subjects for grade X. Thus, this study is expected to contribute to the world of education, especially in developing innovative learning models that can improve the quality of history learning in schools.

2. METHODS

This study uses a quantitative quasi-experimental method with a Pretest-Posttest Control Group Design. According to Sugiyono, (2022) The experimental method is a research method used to see the effect of a particular treatment on another treatment under controlled conditions. This study uses a quantitative approach to measure the causal relationship between variables (Sugiyono, 2017). This study uses a quantitative method because it uses numerical data, such as pretest-posttest results and motivation questionnaire scores, to be analyzed using statistical techniques. This research was conducted at SMA Negeri 1 Pronojiwo-Lumajang. The population taken from all class X was 150 students. The sample in this study used the cluster random sampling technique because it consisted of several classes considered homogeneous. From the sampling results, class X1 became the Experimental class with 30 students applying the Canva-based project-based learning model, and X2 as the control class with 31 students applying the conventional learning model. The research instruments used were tests (pretest-post-test) to measure student learning outcomes, questionnaires, and observation sheets to measure student learning motivation.

Data analysis was used to measure student learning outcomes using pretest and posttest before and after learning activities, both in the experimental and control classes. Data analysis tests using normality tests, homogeneity tests, n-gain tests, and to measure the correlation between the experimental class and the control class using comparative statistical tests. The t-test is carried out if the data obtained has a normal and homogeneous distribution. Conversely, the Mann-Whitney U test is carried out if the data does not have a normal and homogeneous distribution.

3. FINDINGS AND DISCUSSIONS

Findings

Before conducting hypothesis testing, the researcher wants to present data from the results of the research instrument test to the homogeneity test, which includes validity, reliability, normality, and homogeneity tests. This test is carried out to ensure that the measuring instrument is reliable, the data obtained is valid, and the analysis carried out is valid and accurate. All of that supports the quality and integrity of the research results obtained. Based on the results of the validity test using the Pearson Correlation method on the total score, it was obtained that out of 30 items tested, 20 items were declared valid and 10 other items were invalid. Valid items are indicated by a significance value (Sig. 2-tailed) of less than 0.05 and have a positive correlation with the total score. This shows that the item is strongly related to the instrument and can be used to measure the studied variables. Conversely, there are 10 invalid items because they have a significance value of more than 0.05 or even show a negative correlation. Several items, such as P23, P28, and P29, have a negative correlation, which means that the answers to the items are not in line with the overall pattern of the instrument. Meanwhile, other items correlate too weak with the total score, making them less representative in measuring the studied concept. Based on the reliability test results in this study, the results of the Cronbach's Alpha value were in the range of 0.8 - 0.89, so this instrument has good reliability. This means that the items in this instrument consistently measure the same concept. Thus, this instrument can be used for further

measurements with a high confidence level.

Table 1. Results of the Normality Test of Learning Outcomes

Questionnaire Time	Group	Kolmogorov-Smirnov			Shapiro-Wilk		
Before Treatment		Statistic	Df	Sig.	Statistic	Df	Sig.
	Control	.119	31	.200*	.960	31	.284
	Experimental	.121	30	.200*	.958	30	.271
After Treatment	Control	.161	31	.039	.954	31	.202
	Experimental	.150	30	.082	.957	30	.253

Table 2. Results of the Normality Test of Learning Motivation

Test Time	Group	Kolmogorov-Smirnov			Shapiro-Wilk		
Pre-Test		Statistic	Df	Sig.	Statistic	Df	Sig.
	Control	.185	31	.008	.948	31	.141
	Experimental	.188	30	.009	.943	30	.111
Post-Test	Control	.102	31	.200*	.980	31	.803
	Experimental	.136	30	.161	.941	30	.097

Based on Table 1, the normality test results for the questionnaire data show that before the treatment, both the control and experimental groups had normally distributed data. This is evidenced by the significance values of 0.200 for both groups, which are greater than 0.05. According to the decision rule (if Sig. > 0.05, the data are considered normally distributed), it can be concluded that the pre-questionnaire data for both groups met the assumption of normality. After the treatment, the situation changed. The control group obtained a significance value of 0.039, which is less than 0.05, indicating that the post-questionnaire data for this group were not normally distributed. In contrast, the experimental group showed a significance value of 0.082, greater than 0.05, meaning the data remained normally distributed.

Table 2 presents the pre-test and post-test data's normality test results using the Kolmogorov-Smirnov and Shapiro-Wilk methods. For the pre-test data, the Kolmogorov-Smirnov test yielded significance values of 0.008 for the control group and 0.009 for the experimental group, which are less than 0.05, indicating non-normal distribution. However, the Shapiro-Wilk test, more appropriate for small sample sizes (n < 50), produced significance values of 0.081 for the control group and 0.072 for the experimental group. Since both values are greater than 0.05, the data are normally distributed based on this test. As for the post-test data, both the Kolmogorov-Smirnov and Shapiro-Wilk tests resulted in significance values greater than 0.05 for both the control and experimental groups, indicating that all post-test data were normally distributed.

Table 3. Results of the Homogeneity Test of Learning Achievements

Test Time	Levene Test Based On	Levene Statistic	Df1	Df2	Sig.
Pre-Test	Based On Mean	0.004	1	59	0.950
	Based On Median	0.002	1	59	0.965
	Based On Median and with Adjusted DF	0.002	1	58.949	0.965
	Based On Trimmed Mean	0.002	1	59	0.962

Table 4. Results of the Homogeneity Test of Learning Motivation

Questionnaire Time	Levene Test Based On	Levene Statistic	df1	df2	Sig.
Before Treatment	Based on Mean	.004	1	59	.952
	Based on Median	.004	1	59	.947
	Based on Median and with adjusted df	.004	1	58.991	.947
	Based on the Trimmed Mean	.004	1	59	.947

Based on Table 3, the data shows that the p-value (Sig.) is much greater than 0.05, indicating no significant difference in the variance of the pre-test values between groups. Thus, the assumption of homogeneity of variance is met, and the t-test analysis can be carried out with the assumption of the same variance. Meanwhile, Table 4 shows that the significance value (Sig.) on all calculation bases is much greater than 0.05, indicating no significant difference in the variance between groups for the motivation questionnaire scores before treatment. Thus, the assumption of homogeneity of variance for the motivation questionnaire data before treatment is met. After conducting validity tests to homogeneity tests, to conduct hypothesis testing in this study, an n-Gain test was carried out which functions to determine the level of difference in increase or change in a research variable, after that to determine the difference in the average value of the two groups tested, a hypothesis test will be carried out with the Independent Samples t-test model. Based on the tests carried out, the following data were obtained:

Table 5. Results of the n-Gain Test of Learning Achievement

	N	Minimum	Maximum	Mean	Std. Deviation
N-Gain Pretest Posttest	30	0.50	1.00	0.7604	0.12762
Valid N (Listwise)	30				

Table 6. Results of the n-Gain Test of Learning Motivation

	N	Minimum	Maximum	Mean	Std. Deviation
N-Gain Motivation Questionnaire	30	0.76	0.87	0.8157	0.02460
Valid N (Listwise)	30				

Based on Table 5 of the analysis conducted, the results of the n-gain test in the experimental group showed that out of 30 students, the n-gain value of learning outcomes ranged from 0.50 to 1.00, with an average of 0.7604. According to Hake's criteria, an n-gain value exceeding 0.7 is categorized as a "High" increase. This shows that the implementation of the Canva-based Project-Based Learning (PjBL) model has succeeded in providing a very significant influence on improving student learning outcomes in the experimental group. Furthermore, based on the second table, namely table 6, the results of the learning motivation test in the experimental group also showed encouraging results. Of the 30 students studied, the n-gain value of the motivation questionnaire ranged from 0.76 to 0.87, with an average of 0.8157. This value reflects a significant increase in learning motivation in students. This value is also included in the high increase category compared to Hake's criteria. However, it should be noted that the criteria for learning motivation can vary, but a value above 0.8 indicates a very good improvement. This analysis shows that applying the Canva-based PjBL model effectively improves student learning outcomes and positively contributes to their learning motivation. This shows that innovative learning approaches such as PjBL can significantly benefit education.

Table 7. Results of the Learning Outcome t-Test

Levene's Test for Equality of Variances		F	Sig	t	Df	Significance		T-Test for Equality of Means		95% Confidence Interval of the Difference	
						One-Sided P	Two-Sided P	Mean Difference	Std. Error Difference	Lower	Upper
After Treatment Questionnaire	**Equal Variances Assumed**	5.205	.026	-6.16	59	<.001	<.001	-2.98387	.47999	-3.94434	-2.02340
	Equal Variances Not Assumed			-6.259	51.514	<.001	<.001	-2.98387	.47671	-3.94068	-2.02707

Table 8. Results of the t-Test for Learning Motivation

Levene's Test for Equality of Variances		F	Sig	t	Df	Significance		T-Test for Equality of Means		95% Confidence Interval of the Difference	
						One-Sided P	Two-Sided P	Mean Difference	Std. Error Difference	Lower	Upper
After Treatment Questionnaire	**Equal Variances Assumed**	.020	.888	-63.309	59	<.001	<.001	-26.00215	.41072	-26.82400	-25.180 33
	Equal Variances Not Assumed			-63.291	58.851	<.001	<.001	-26.00215	.41083	-26.82427	-25.180 03

In this study, the researcher conducted a Levene test or t-test to test the homogeneity of variance related to learning motivation after treatment between the two experimental and control groups. The Levene test was conducted to ensure that the assumption of variance in both groups was homogeneous before further analysis. Based on Table 6, the F value was obtained at 5.205 with a significance (Sig.) of 0.026, smaller than 0.05. This result indicates that the variance of the two groups is not homogeneous, which means that the variance between the experimental and control groups is significantly different. Given that the assumption of homogeneity is unmet, we use the line "Equal variances not assumed" to interpret the t-test results. The Sig. (2-tailed) value in the t-test shows a significant number below 0.001, indicating a significant difference in learning motivation between the experimental and control groups after treatment is given. The Mean Difference of -2.983 indicates that the experimental group has a level of learning motivation of 2.983 points higher than the control group. Confidence Interval (-3.94068 to -

2.02707) shows that the difference is stable and does not occur by chance, providing confidence that the same behavior will be repeated in different measurements. Based on these results, it can be concluded that there is a significant difference in learning motivation between the experimental group and the control group, where the experimental group showed a greater increase in learning motivation. The learning method applied to the experimental group has proven effective in increasing student learning motivation.

Based on the analysis of Table 7, the results show an F value of 0.020 with a significance (Sig.) of 0.888, greater than 0.05. This indicates that the variance of the two groups is homogeneous, so the variance is considered the same. Therefore, the researcher continued using the "Equal variances assumed" results for further interpretation. The Sig. (2-tailed) value obtained was below 0.001, indicating a significant difference in learning motivation between the experimental and control groups after treatment. The Mean Difference of -26.002 indicates that the average learning motivation score of the experimental group was 26.002 points higher than the control group. The Confidence Interval (- -26.824 to -25.180) shows a fairly narrow range of average differences, indicating that the results are consistent and reliable. Based on these results, it can be concluded that there is a significant difference in the level of learning motivation between the experimental and control groups after treatment was given. The experimental group showed a much higher increase in learning motivation than the control group. These results strengthen the argument that the learning method applied to the experimental group effectively increases students' learning motivation.

Discussion

The results of this study indicate a significant increase in both dependent variables, namely student learning outcomes and learning motivation, after the implementation of the Canva-based Project-Based Learning (PjBL) Learning Model. The following discussion will outline and relate the main findings to previous theories and research. Based on the results of descriptive statistics and t-tests, the post-test score in the experimental group (Mean = 17.50; SD = 1.43) was significantly higher than the control group (Mean = 14.52; SD = 2.22) with $p < 0.001$. This increase is also supported by the average value of learning outcomes and gain of 0.7604 in the experimental group, which, according to Hake's criteria (n gain ≥ 0.7), is included in the high increase category.

These results indicate that implementing Canva-based PjBL effectively improves students' understanding of History material. The PjBL method allows students to be actively involved in the learning process through projects that require creativity, collaboration, and contextual application of concepts. This aligns with research by Ardiansyah et al. (2023), which states that PjBL can affect student learning outcomes in a subject. Pratiwi & Ahman (2023) also showed that PjBL can positively influence student learning outcomes. Both are supported by research by Fariasih & Fathoni (2022), which also states a positive relationship between PjBL and student learning outcomes. Thus, this learning strategy provides a more meaningful learning experience and supports better learning outcomes.

The analysis of the motivation questionnaire scores also showed a significant difference between the experimental and control groups. The post-questionnaire scores in the experimental group showed a significantly higher increase (Mean ≈ 93.07) compared to the control group (Mean ≈ 67.06) with $p < 0.001$. In addition, the n gain value of the motivation questionnaire of 0.8157 in the experimental group showed a very good increase in motivation. These findings indicate that the Canva-based PjBL intervention affects cognitive learning outcomes and increases students' learning motivation. Using visual and interactive media such as Canva can stimulate interest and increase students' activeness and involvement in learning. This study's results align with the research of Bulkini & Nurachadijat (2023), which states that PjBL affects students' learning motivation. Insyasiska et al. (2017) also stated in their research that students' learning motivation with PjBL increased by around 14% after being given learning with the PjBL model. In line with the research of Elisabet et al. (2019), which stated that student learning achievement, where in the pre-cycle it obtained a percentage of 40%, and increased gradually

with a percentage of 62% in cycle I, while for cycle II it increased by a percentage of 81%. This is by motivation theory, such as the self-determination theory by Deci & Ryan, which states that visual and interactive elements can attract attention and increase student learning satisfaction (Nisah et al, 2021). Using Canva as a medium in PjBL increases students' creativity and critical thinking skills. Visualizing material using Canva in History learning allows students to understand historical concepts and chronology more easily through infographics, concept maps, and attractive presentations. With project-based assignments, students are encouraged to work independently or in groups to compile innovative learning products, which ultimately increases their understanding and motivation. Overall, the results of this study strengthen the evidence that the application of the Canva-based Project-Based Learning Model can be an effective strategy in improving student learning outcomes and motivation. These findings are expected to be a reference for educators in developing more innovative and interesting teaching methods to improve the quality of learning at various levels of education.

4. CONCLUSION

The results of this study indicate a significant increase in student learning outcomes and learning motivation after the implementation of the Canva-based Project-Based Learning (PjBL) Learning Model. The results of the analysis showed that the average post-test score of the experimental group (Mean = 17.50, SD = 1.43) was higher than the control group (Mean = 14.52, SD = 2.22) with a p value <0.001. The average n-gain value of learning outcomes of 0.7604 indicates a high increase. In addition, the learning motivation score of students in the experimental group showed an average of 93.07, while the control group was 67.06, with a p value <0.001 and n-gain motivation of 0.8157. These findings align with previous studies that confirm the effectiveness of PjBL in improving student learning outcomes and learning motivation. Thus, the implementation of Canva-based PjBL has proven effective in creating an interesting and meaningful learning experience, and can be a reference for educators to apply more innovative teaching methods at various levels of education.

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