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Article

The Influence of Artsteps Virtual Museum Learning Media on the History Learning Outcomes of Grade XI Students of Eria Medan Private High School

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* Esmin Yuliana Sibarani, Samsidar Tanjung, Rheinhard Sam Sianturi, Putri Sri Binda Br. Sitepu[abcd]

[1234]Jurusan Pendidikan Sejarah, Universitas Negeri Medan, Indonesia
*Corresponding Author: esminsibarani3@gmail.com

A B S T R A C T

This study aims to determine the effect of the use of the Artsteps Virtual Museum learning media on the history learning outcomes of class XI students at Eria Medan Private High School. The method used is a quantitative descriptive study with a Quasi-Experimental design through a pretest-posttest control group design model. The study population included all class XI students at Eria Medan Private High School, with a saturated sampling technique so that the entire population of 50 students was sampled. Data were collected through multiple-choice pretest and posttest tests that had passed validity, reliability, difficulty level, and discriminatory power tests. Data analysis included normality tests, homogeneity tests, and hypothesis tests using independent sample t-tests. The results showed a difference in the average posttest score, where the experimental class obtained an average of 86.88 which was higher than the control class of 68.48, with a significance value of <0.001. This proves that there is a significant influence. Thus, it can be concluded that the use of the Artsteps Virtual Museum media has a positive and significant effect on the history learning outcomes of class XI students at Eria Medan Private High School

Keywords: *Learning Media; Artsteps Virtual Museum; Learning Outcomes*

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INTRODUCTION

Education is a planned activity that lasts throughout life and is the most important human need, where education is not only a means to prepare for the future life, but prepares students to be able to face challenges and experiences in real life, because with education human beings can increase the potential of human resources they have. paraphrase without changing the meaning.

In this case, teachers have a very important role as determinants of student success in learning. Teachers directly play a role in influencing, guiding, and developing students' abilities to become intelligent, skilled, and highly moral individuals, even though they have different characteristics. Currently, education is developing into a dynamic space that requires innovation and creativity to be able to attract the attention of the younger generation who live in the midst of the rapid flow of digital information. Therefore, teachers need to innovate learning in accordance with students' abilities and interests to create a learning experience that is relevant, engaging, and able to stimulate their imagination.

According to (Syahrinullah & Ulfah, 2024) Learning media is one of the important components of learning activities. Media can make it easier for teachers to deliver material while helping students understand learning. The use of learning media has proven to be effective and efficient, both in science and social subjects, especially in history subjects.

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However, in practice, the use of media in history learning is still limited. This can be seen from the way teachers deliver material, where most of them still use lecture and note-taking methods, and rarely use supporting media.

Based on initial observations made by researchers through interviews with teachers at Eria Private High School Medan, it is known that some teachers have used media in learning, but only PowerPoint and the internet. In learning history, teachers do not use much other media other than books and the internet. Some teachers are worried that the use of media such as PowerPoint only makes students take pictures of the material without recording it in a book, so that students' critical and creative thinking skills are less developed. This condition also makes students less actively involved in learning, so their motivation for history subjects becomes low. As a result, students often feel bored and lack enthusiasm because they are not fully involved in the learning process. To overcome this, media that can help solve these problems are needed. Therefore, the researcher offers the use of virtual museum-based learning media as a solution to improve student learning activities and outcomes.

A virtual museum is a digital media that displays the characteristics of a museum with the aim of enriching the learning experience without having to visit the museum in person. With the guidance of teachers, this media can function as a means to increase students' interest and learning outcomes. Virtual museums are particularly relevant to use in history learning because they allow students to experience as if they were in a real museum. The use of this media is believed to improve students' understanding as well as learning outcomes.

At Eria Medan Private High School, virtual museum media has never been implemented due to time and technology constraints. Therefore, learning is still carried out conventionally through lectures, discussions, and the use of PowerPoint (PPT) and learning videos. This causes students' interest in learning to be low, while history lessons are considered boring because they emphasize more on memorization so that students have difficulty understanding the material in depth.

METHOD

The research method used by the researcher is a quantitative descriptive research method, with *a Quasi-Experimental* research design with a pretest model and posttest control group design. The research was carried out from July to August 2025

Respond

The researcher used a saturated sampling technique, where all members of the population were used as a research sample totaling 50 students. The sample consisted of two classes, namely class XI-1 as an experimental class that was given treatment using the learning media of the Virtual Artsteps Museum, and class XI-2 as a control class that used Interactive PowerPoint learning media. Thus, the total sample in this study was 50 students, which were evenly divided between the experimental class and the control class, as many as 25 students each.

Instumen

The instrument used in this study is a test of history learning outcomes using a multi-choice test. The student learning outcome test instrument consists of 30 items in the form of multiple choice with choice options a, b, c, d and e between these five answers, one correct answer and 4 answers as a trickster (distributor).

Data Collection Techniques

The data collection of this research uses techniques, namely: 1) Observation, conducting observations or observations carried out directly. 2) Interviews, conducting interviews with teachers and students to get responses and views in the learning process using *the Artsteps virtual museum*.3) Documentation, to complement the results of observations and interviews and provide a more complete or definitive picture of the learning process. 4) Pre-test and Post-test, 5) Validity test, 6) Reliability, 7) Difficulty level, 8) Discriminating power.

Data Analysis

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Data analysis was carried out through normality tests, homogeneity tests, and hypothesis testing using independent sample t-tests.

FINDINGS AND DISCUSSION

Findings

Experimental Class Pretest and Control Class

Table 1 Results of *the Pretest of the Experiment and Control class*

Value Criteria	Experimental Classes	Control Class
N	25	25
Total Values	1.264	1.126
Average	50,56	45,04
Highest Score	64	56
Lowest Score	36	28
Standard Deviation	8.709	7.727

Source: (IBM SPSS statistics output 31, 2025)

The results of the descriptive analysis *of the experimental* and control class pretest obtained using *the IBM SPSS 30 statistical tool* were, the experimental class had a total pretest score of 1,264, an average of 50.56, a maximum score of 64 and a minimum score of 36. In contrast, the number of pretest scores in the control class was 1,126, having an average of 45.04, a maximum score of 56 and a minimum of 28. The difference in standard deviation between the experimental class (8,709) and the control class (7,727) concluded that *the average pretest* scores of students in the experimental class were slightly higher, indicating an initial difference in ability level, and had a higher standard deviation in the experimental class and slightly lower in the control class, suggesting that the group's score distribution was more uniform or even.

Experiment and Control class posttest

Table 2 Posttest Results *of* Experiment and Control class

Value Criteria	Experimental Classes	Control Class
N	25	25
Total Values	2.172	1.712
Average	86,88	68,48
Highest Score	100	80
Lowest Score	68	52
Standard Deviation	8.526	8.818

Source: (IBM SPSS statistics output 31, 2025)

Based on the table and bar diagram above, the results of the descriptive analysis *of the posttest of* the experimental class and the control class, obtained the number of pretest scores in the experimental class of 2,172, having an average of 86.88 with a maximum score of 100, a minimum score of 68. In contrast, the number of pretest scores in the control class was 1,712, having an average of 68.48 with a maximum score of 80 and a minimum of 52. The standard deviation difference between the experimental class (8,526) and the control class (8,818). This difference in score showed that there was a significant increase in learning outcomes in the experimental group, who were given treatment using the Artsteps virtual museum media.

Data on Achievement of Pretest and Posttest Scores of Students Based on Indicators in Experimental Classes and Control Classes

Table 3 Achievement of Pretest and Posttest Scores of Students Based on Indicators

No	Indicator	Experimental Class Pretest	Posttest Experiment Class	Control Class Pretest	Control Class Posttest
1.	Analyze and evaluate the Historical Linkage between Regional and Global Situations	52 ,44	88,89	43,33	69,33

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2.	Analyzing and Evaluating the Resistance of the Indonesian Nation to Colonialism	48,4	85,6	43,2	64,4
3.	Analyzing and evaluating the Impact of Colonialism in Colonial Countries	51,3	86,0	50,6	74,0
	Average	50,72	86,8	45,5	69,2

Based on the data in the table and bar chart above, it shows that the results of *the pretest* and *posttest* of the experimental class exceed the learning outcomes of students in the control class. The experimental class obtained *a pretest* score of 52.44% and *a posttest* score of 88.89% in the cognitive categories of analyzing (C4) and evaluating (C5) which measures the ability to analyze and evaluate the historical relationship between regional and global situations, while *the pretest* and *posttest* of the control class only obtained *a pretest of 43.33% and Post-test 69.33%. In the indicators of analyzing and evaluating the resistance of the Indonesian nation to Colonialism, the experimental class obtained a pretest score of 48.4% and a posttest score* of 85.6% which was also at the cognitive level of analyzing (C4) and evaluating (C5), while the control class obtained *a pretest result* of 43.2% and *a posttest* of 64.4%.

For an indication of the ability to analyze and evaluate the impact of colonialism in a colony that describes thinking skills (C4) and (C5), the experimental class obtained a *pretest score of 51.3% and a posttest score* of 86.0% while the control class obtained a *pretest* score of 50.6% and *a posttest* score of 74.0%. Overall, the experimental class obtained *a pretest score* of 50.72% and *a posttest* score of 86.8%, compared to *a pretest score* of 45.5% and *a posttest* score of 69.2% for the control class. Based on the results obtained by the researchers, the learning process of the experimental class was able to significantly increase the cognitive capacity of students compared to the control class.

Inferential Statistics

Classic Assumption Test

Normality Test

Table 4 Normality Test Results

Statistics	Pretest **Experiments**	Pretest **Control**	**Posttest Experiment**	**Posttest Control**
N	25	25	25	25
A	0,05	0,05	0,05	0,05
(Sig-Talled)	0,080	0,095	0,224	0,067
Conclusion	Normal	Normal	Normal	Normal

Source: (IBM SPSS statistics output 31, 2025)

Based on the data from the table above, *the results of the Shapiro-Wilk* test showed that the significance value of the *pretest significance* value for the experimental class was 0.080 and the control class was 0.095. Because both are greater than the significance level of 0.05, *the pretest data* from both classes can be declared to be normally distributed, then the posttest data in the experimental class has a significance value of 0.224 and the posttest of the control class has a significance value of 0.067, which also shows a normal distribution pattern.

Homogeneity Test

Table 5 Homogeneity Test Results

Statistics	***Experimental* Class Pretest and Control Class**	***Posttest* Experiments and Control Classes**
N	50 (experiment 25, control 25)	50 (experiment 25, control 25)

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A	0,05	0,05
Sig- (2-Talled)	0,319	0,635
Conclusion	Homogeneous	Homogeneous

Source: (IBM SPSS statistics output 31, 2025)

Based on the calculation from the table above, the results of the homogeneity test on *the pretest* data produced a significance of 0.319, because this value exceeded 0.05, it can be said that both groups had homogeneous variance before the treatment was given. In other words, both groups had equal values in the early stages. Furthermore, homogeneity tests were also carried out on posttest data, namely data obtained after being treated to the experimental class and the control class. The results of the analysis showed a significance value of 0.635 exceeding the significance value of 0.05, so it can be said that both classes have homogeneous variance as well.

Uji Hypothesis

Table 6 Test Results of Independent Samples t-Test with SPSS 31

Independent Samples Test								
t-test for Eqauality of Means								
		Itself	t	df	Signifficance	Mean Diference	95% Confidence Interval of the Difference	
					Two - sided p		Lower	Upper
Result	Equal variances asummed	0,635	7.500	48	<,001	18.400	13.368	23.332
	Equal variances not asummed		7.500	47. 946	<,001	18.400	13.467	23.333

Source: (IBM SPSS statistics output 31, 2025)

Covering the table above, the significance value of Levene's Test is 0.635 > 0.05 which means that the variance of the two groups is homogeneous, so the first line *(Equal variances assummed)* is used to interpret the results of the t-test.

The results of the t-test show a value of t = 7,500 with sig. (2-tailled) = < 0.001 < 0.05 which means that H_0 is rejected and H_a is accepted, which means that there is a significant influence of the use of Artsteps virtual museum learning media on the history learning outcomes of grade XI students of Eria Medan Private High School. In addition, there was an average difference of 18,400 points between the experimental and control groups. The 95% confidence interval for the average difference is 13,467 to 23,333 which does not include zeros, thus reinforcing that the difference is statistically significant

Discussion

To find out the initial condition of student learning outcomes, the researcher first carried out a pretest on the two groups studied, namely the experimental group and the control group. The pretest results showed that the average learning outcome of the experimental group was 50.56, while the control group obtained an average of 45.04. This average value indicates that the two groups are in relatively equal and homogeneous initial conditions, so it is worthy of comparison. With these conditions, differences in learning outcomes that arise after being given treatment can be attributed to the use of different learning media.

After the pretest stage, the researcher carried out **a posttest** on both groups and conducted a descriptive statistical analysis. The results of the analysis showed a significant increase in the experimental group with an average score of 86.88, while the control group increased to 68.48. Both groups experienced an improvement in learning outcomes, but the improvement in the experimental group using *the Artsteps* virtual museum media was much higher than in the control group.

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A significant improvement in the experimental group proved that the use of *Artsteps virtual museum media* was able to capture students' attention and encourage active engagement during learning. The improvement in the control group also showed that conventional learning still contributed to history learning outcomes, although not as much as the experimental class. This condition is thought to be influenced by the Hawthorne effect, in which students show greater effort because they realize themselves being the object of research.

Next, the researcher conducted a hypothesis test with the Independent Samples T-Test. The test results showed a significance value (2-tailed) < 0.001, smaller than 0.05. Based on the decision-making criteria, H_0 was rejected and H_a was accepted, so that there was a significant influence of the use of *Artsteps* virtual museum media on students' history learning outcomes. The mean difference between the two groups was 18,400 with a 95% confidence interval between 13,467 and 23,333. Since this interval does not include zeros, the difference is statistically significant. This reinforces the finding that *the Artsteps virtual museum* is effective in improving the learning outcomes of history students in grade XI.

The findings of this study are in line with Slavin's (2013) theory which states that learning outcomes include changes in knowledge, attitudes, and skills acquired through an active, systematic, and structured learning process, which takes place gradually. If the learning process is less effective, the learning outcomes achieved also tend to be low. *The Artsteps* virtual museum is able to present these three aspects on one platform, so that it becomes an effective medium to increase interest and learning history outcomes that have been considered less interesting by students.

Thus, *the Artsteps* virtual museum not only contributes to cognitive achievement, but also to the affective aspect, especially in fostering an interest in learning. This is very important, because interest in learning is a key factor in determining the success of the learning process as a whole.

The implication of this study is that teachers are expected to be able to utilize technology not only as a complement, but also as a facilitator of learning. Student learning outcomes cannot be obtained instantly without the active role of teachers in guiding. In addition to supporting the achievement of learning objectives, the use of *the Artsteps* virtual museum also has the potential to change students' negative perception of history, from boring lessons to more interesting and meaningful. Thus, this study confirms that *the Artsteps* virtual museum is an innovative and effective learning medium in improving students' history learning outcomes, especially at the high school level who tend to be more interested in interactive and technology-based learning.

CONCLUSIONS

Based on the findings of the research, it can be concluded that the application of the Artsteps virtual museum learning media has a positive and significant influence on the history learning outcomes of grade XI students of Eria Medan Private High School. This is evidenced by the clear difference between student learning outcomes in the experimental class using the Artsteps virtual museum and the control class using interactive PowerPoint media. Students who learned with the help of virtual museums showed increased understanding and more optimal engagement, so that the achievement of learning outcomes was higher than students in the control class. Thus, the Artsteps virtual museum has proven to be effective as an innovative learning medium that is able to increase students' interest, motivation, and learning outcomes in history subjects. Looking at the results of this study, the advice to teachers is to be able to utilize innovative learning media such as *the Artsteps* virtual museum in learning activities, because this media is able to increase students' interest and motivation while helping them understand contextual and more interesting material. The school is expected to support the implementation of technology-based learning by providing adequate infrastructure, such as a stable internet network and supporting devices that facilitate access to virtual museums. Students are expected to make more use of the Artsteps virtual museum learning media as a

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means of support in history lessons. Through the virtual museum, students can explore various martial arts resources independently, expand their horizons, and improve critical and creative thinking skills. Students are also expected not only to rely on teachers, but also to take the initiative to explore more extensive information from the materials available in the virtual museum so that the learning process becomes more fun and meaningful. With active involvement, students can increase their motivation to learn while getting more optimal learning outcomes. For future researchers, this research can be used as a reference to develop similar studies on other historical materials, or different grade levels.

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