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THE INFLUENCE OF MUSEUM VIRTUAL TOURS ON STUDENTS' HISTORICAL THINKING SKILLS IN ELEVENTH-GRADE HISTORY SUBJECT AT SMAN 13 KABUPATEN TANGERANG

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ABSTRACT

This study aims to explain the influence of museum virtual tours on students' historical thinking skills in the 11th-grade Social Sciences (IS) History subject at SMAN 13 Tangerang Regency. The method used in this research is a pre-experimental pretest-post test design and was tested using a paired samples t-test. The sample was selected using a purposive sampling technique, and the sample used consisted of 34 students from class XI IS 2. Data was collected through field observations, interviews, and tests in the form of essay questions. The research results indicate a two-tailed significance value of 0.000, which is smaller than the significance threshold of 0.05, thereby demonstrating that the use of virtual museum tours has a significant effect on students' historical thinking skills. In conclusion, the utilization of museum virtual tours can be evaluated as an effective learning strategy, as it can foster students' active engagement and enthusiasm, which ultimately contributes to the development of their historical thinking skills and academic achievements.

I. INTRODUCTION

History learning plays a strategic role in shaping students' identity, character, and national awareness (Sumardin, 2024). Tidak sekadar menyajikan fakta masa lalu, pembelajaran sejarah menuntut peserta didik untuk memahami konteks sosial, politik, dan budaya yang melatarbelakangi suatu peristiwa. Far from merely presenting past facts, history learning requires students to understand the social, political, and cultural contexts underlying an event. Thus, according to Marli, history learning contributes to developing critical and reflective thinking skills regarding the dynamics of human life (Purni, 2023). In line with this, Hasan emphasizes that

history learning functions to understand society, shape morality, and build responsible citizens (Nur Asyifa Ananda & Noorazmah Hidayati, 2024).

To be able to study and understand historical material effectively, students need to possess an ability called historical thinking skills. Wineburg explains that historical thinking skills refer to the ability to critically analyze, interpret, and evaluate historical events (Syahputra & Purwanta, 2024). This ability serves as an important indicator of success in history learning, as it enables students to understand the complexity of events and reconstruct historical knowledge according to each student's respective perspective (Achmadin, 2022). The mastery of historical thinking correlates positively with the improvement of students' learning outcomes and critical thinking skills (Nurjanah, 2020). Through the development of this ability, students are encouraged to understand the diversity of human experiences by examining differences in social backgrounds, values, and life goals across various time periods (Hardy & Iwatani, 2021). This understanding is subsequently used to interpret how these differing contexts contribute to patterns of action and the dynamics of societal life (Abbas, 2024).

However, field conditions indicate that students' historical thinking skills are still relatively low. Based on the diagnostic test results in class XI at SMAN 13 Tangerang Regency, an average score of 36.59 was obtained, which is far below the Minimum Mastery Criteria (≥ 75). This finding is further supported by the results of observations and interviews with the teacher, which reveal low active participation among students, a lack of critical questions, and minimal engagement in the learning process.

One of the factors suspected to contribute to this condition is the insufficient utilization of innovative learning media. Learning is still dominated using student worksheets (LKS) and textbooks; thus, the learning experiences obtained by students tend to be passive and lack context. According to Wahid, learning media in historical studies possesses two main roles (Wulandari dkk., 2023). First, as an auxiliary tool that enables the presentation of material to become more concrete, thereby helping students understand concepts that are inherently abstract. In this regard, the use of media such as pictures, models, or real objects can clarify the teacher's explanation. Second, media functions as a link in the communication process between the sender and the receiver of the message. Media acts as an intermediary that carries information so that it can be received through various forms, such as text, visuals, or audio, so that the process of delivering material can take place more effectively (Daniyati dkk., 2023). In addition to those two roles, the use of innovative learning media is also key to enhancing the effectiveness of history learning (Dahnas & Kartika, 2025).

Along with the development of digital technology, various learning media innovations have emerged that have the potential to improve the quality of history learning, one of which is museum virtual tours (Robin & Jumardi, 2023). This media allows students to explore historical sites virtually, observe artifacts, and understand various cultural perspectives without the limitations of

space and time (Chatulistiwa dkk., 2024). Recent research indicates that the utilization of virtual museums can enhance learning engagement, conceptual understanding, and provide a more authentic learning experience (Ariesta dkk., 2024). In addition, Hehr states that museum virtual tours can be an opportunity for the development of history learning due to the lack of research related to the implementation of these museum virtual tours in the world of education, especially social education (Wibowo dkk., 2020). Furthermore, this virtual museum possesses distinct advantages (Fany dkk., 2022), such as (1) introducing, informing, and promoting museums because it is effective in terms of providing information and efficient in terms of costs incurred, (2) presenting data and displaying images from various perspectives simultaneously, (3) serving as an activity for pre-study and review before physically visiting the actual museum, (4) providing a new learning experience and being accessible repeatedly.

Meanwhile, studies delving into the topic concerning the influence of virtual museums on students' historical thinking skills are still limited. As for previous research that is related to and supports this research topic, namely a thesis written by Aslikah (2024) entitled *"Pengaruh Media Pembelajaran Museum Nasional Virtual Tour Terhadap Kesadaran Sejarah siswa di Kelas 10 SMA Negeri 7 Kabupaten Tangerang"* and the results showed a significant influence. Next, an article written by Fatimah & Riyadi (2021) titled *"Pengaruh Virtual Tour Museum Sebagai Media Pembelajaran Terhadap Capaian Kognitif Siswa Pada Mata Pelajaran Sejarah Kelas XI IPS 2 SMA Negeri 1 Menganti-Gresik"* and the results indicated a significant influence. These prior studies focused more on aspects of historical awareness or cognitive achievement. Thus, they have not specifically examined the correlation with historical thinking skills as a core competence in history learning. The similarity between those two studies and this research lies in the independent variable, namely the virtual museum as a learning medium. Additionally, what distinguishes those two previous studies from this research lies in the dependent variable, which is historical thinking skills.

Based on this gap, this study aims to analyze the influence of using museum virtual tours on students' historical thinking skills in the subject of history. This study employs a quantitative approach with a pre-experimental one-group pretest-post test design. Thus, this research is expected to provide an empirical contribution to the development of digital-based history learning media, while simultaneously enriching studies on improving students' historical thinking skills.

II.METHODS

This study utilizes a quantitative approach with a pre-experimental one-group pretest-post test design. The population of this study consists of the 11th-grade Social Sciences (IS) students at SMAN 13 Tangerang Regency, totaling 266 students. The sample for this research comprises the students of class XI IS 2 at SMAN 13 Tangerang Regency, with a total of 34 individuals. The sampling technique used adopts a non-probability sampling method, specifically purposive

sampling. The selection of research subjects was based on the class that possessed the lowest historical thinking skills, as evidenced by the lowest diagnostic test assessment results compared to other classes. The primary sources used in this research consist of interview results, documentation results, student grade lists, and the scores obtained by students on the pretest and posttest, whereas secondary data were obtained from a literature review. The research instrument used was an essay test consisting of 10 items that had been aligned with the indicators of historical reasoning skills from the chosen theory. The results of the item validity test showed that all 10 items were declared valid and reliable. The data collected were analyzed using statistical analysis, such as normality tests, homogeneity tests, and hypothesis testing using a paired samples t-test. The hypotheses in this study are as follows: Null Hypothesis (H_0): Virtual Museum tours have no effect on students' historical thinking skills in the subject of history. Alternative Hypothesis (H_a): Virtual Museum tours have a positive effect on students' historical thinking skills in the subject of history.



Figure 1. Research Procedures

III. RESULT AND DISCUSSION

Inferential Analysis of Pretest and Posttest Data

a. Normality Test

The normality test was conducted using IBM's SPSS. The Shapiro-Wilk Test is used to test the normality of data with a sample size < 50 . The formulation of the hypotheses is as follows:

1. H_0 = The sample is derived from a population that is not normally distributed
2. H_a = The sample is derived from a population that is normally distributed

With the criteria when using the Shapiro-Wilk Test, namely:

1. If Sig. > 0,05, then the data are normally distributed, therefore H_0 = rejected
2. If Sig. < 0,05, then the data are not normally distributed, therefore H_0 = accepted.

As for the results of the data normality test for the pretest and posttest using the Shapiro-Wilk Test, they are as follows:

<i>Shapiro Wilk</i>				
Data	Statistic	Df	Sig.	Keterangan
<i>Pretest</i>	0,966	34	0,353	Normal
<i>Posttest</i>	0,940	34	0,061	Normal

Table 1. Normality Test Results

Based on the results of the normality test using the Shapiro–Wilk method, a significance value of 0.353 was obtained for the pretest data and 0.061 for the posttest data. These values are above the significance threshold of 0.05, thereby indicating that both data sets are normally distributed. Therefore, the assumption of normality in this study has been fulfilled, and the data are eligible to be analyzed using a parametric statistical technique, namely the paired t-test.

b. Homogeneity Test

The homogeneity test was conducted using SPSS. The formulation of the hypotheses is as follows:

1. H_0 = The information groups are drawn from populations with different variances.
2. H_a = The information groups are drawn from populations with the same variance.

With the criteria if:

1. If the Sig. value is $\geq$ 0,05, then H_0 is rejected.
2. If the Sig. value is $\leq$ 0,05, then H_0 is accepted.

The following are the results of the homogeneity test for the pretest and posttest data.

<i>Test of Homogeneity of Variances</i>			
Levene Statistic	Pretest	Posttest	Sig.
0.432	1	66	0.513

Table 2. Homogeneity Test Results

Based on the testing of homogeneity of variance through Levene's test, a significance value of 0.513 was obtained. Because this value is above the significance threshold of 0.05, the variance between the pretest and posttest data is declared homogeneous. This indicates that the data have met the prerequisites for parametric statistical analysis.

Hypothesis Testing

Hypothesis testing was conducted as a basis for drawing conclusions from the results of the data analysis, which includes both descriptive and inferential analyses, so that the research findings hold validity for the population. The descriptive statistical results for the pretest and

posttest data show an increase in students' historical thinking skills in the posttest phase compared to the pretest phase. This can be seen in the presentation of the data diagram, which shows a higher value for the posttest results. The next step is to use inferential statistical testing to analyze the differences in historical thinking skills before and after the treatment. In conducting this testing, the following research hypotheses are proposed.

1. **Null Hypothesis (H_0):** The museum virtual tour has no effect on students' historical thinking skills in the history subject.
2. **Alternative Hypothesis (H_a):** The museum virtual tour has a positive effect on students' historical thinking skills in the history subject.

The processing of data on students' historical thinking skills for the purpose of hypothesis testing was conducted using SPSS and is summarized in the table below.

Type of Test	Statistics	Conclusion
<i>paired t-test</i>	0,000	H_a is accepted

Table 3. Results of the Paired Samples T-Test

The results of the statistical analysis show that the significance value of the paired t-test is 0.000. This value is smaller than the established significance threshold of 0.05, so the testing decision leads to the acceptance of the alternative hypothesis. This finding indicates that the use of museum virtual tours contributes to changes in students' historical thinking skills in the history subject. This finding shows that there is an effect of using museum virtual tour learning media on the historical thinking skills of eleventh-grade students at SMA Negeri 13 Kabupaten Tangerang. Thus, it can be concluded that museum virtual tour learning media make a positive contribution to improving students' historical thinking skills.

Analysis of Hypothesis Testing Results

The research results show that the implementation of the learning approach used successfully increased students' historical thinking skills. This increase is reflected in the average score of each tested indicator. Thus, the applied learning strategy is proven to support students in developing historical thinking skills, ranging from understanding to systematically evaluating problems. This aligns with the explanation by Pasaribu et al. that if the significance value is less than 0.05, the independent variable used has an effect on the dependent variable, and after the treatment, it shows a noticeable increase in performance, skills, or learning outcomes (Pasaribu dkk., 2022).

Based on the research results, the implementation of museum virtual tour learning media proven to have several advantages that support the effectiveness of the learning process. First, the use of this media can increase student engagement because they are given the opportunity to learn independently as well as explore various museum collections through the digitally available features. This condition aligns with the constructivist view put forward by Vygotsky (1978), which

states that learning will take place more optimally when students are actively involved in interaction with the learning materials as well as with their peers (Ilham & Tiodora, 2023). Second, virtual museums provide a visual experience that allows students to directly observe artifacts, photographs, documents, and historical relics, thereby making historical concepts that were previously abstract more concrete and easier to understand. Third, the ease of access to virtual museums, which can be used anytime and anywhere, accompanied by an interactive 360°-based display, makes learning more engaging and encourages students to participate more enthusiastically in history learning activities (Robbani dkk., 2024). Fourth, this media also contributes to increasing students' learning motivation by presenting a more varied learning experience compared to conventional lecture methods (Rosmah dkk., 2023). In addition, the observation of digital collections and historical narratives presented within the virtual museum further supports the development of students' historical thinking skills (Fikri dkk., 2026). These results are further reinforced through the implementation of the Problem-Based Learning (PBL) model combined with museum virtual tour media. The PBL model serves as an enhancer of the learning process, as it encourages students to seek information, analyze problems, and evaluate and interpret information, while the virtual museum provides a diverse range of historical sources (Febriany A. Mahagia, 2023). The combination of both supports a learning process that emphasizes problem-solving and the development of historical thinking skills (Dewi, 2025).

During its implementation in learning, the virtual museum possesses several advantages, namely: (1) presenting learning that is non-abstract and context-appropriate, (2) being easily accessible via various digital devices and unlimited by space and time, (3) supporting various collaborative activities that make the learning atmosphere more engaging and dynamic, (4) being efficient in terms of time and cost, and (5) enabling students to enhance 21st-century skills, such as digital literacy. This is supported by the research findings of Aslikah (Aslikah, 2024) in which, in its utilization, the virtual museum possesses a number of advantages, such as (1) the National Museum Virtual Tour presents data and image displays that can be enjoyed from various perspectives, (2) it serves as a solution to the limitations of space, transportation, and funds required to visit a museum, and (3) it provides a new experience for students. In addition, in the study conducted by Fatimah & Riyadi, the use of virtual museums received an excellent percentage across the overall questionnaire scores, indicating that the use of a museum virtual tour is quite easy and does not complicate things for students, thereby providing a unique experience for learners who visit the museum virtually (Fatimah, 2021).

The weaknesses of the virtual museum during its implementation in learning include: (1) requiring digital devices connected to the internet, (2) requiring a sufficiently good network connection, (3) a lack of audio features to explain the museum collections, (4) teachers being less able to directly supervise students as they explore the virtual museum, (5) a lack of supporting facilities and equipment, such as speakers and projectors, and (6) some information regarding the

collections being unclear and difficult to read. The solutions to these problems are to ensure that all students possess digital devices (mobile phones/laptops), ensure that the internet network is stable at the research location, ensure the availability of features in the virtual museum to be used, create a scheme of small learning groups for easier supervision, ensure the availability of supporting equipment facilities at the school, and ensure that all information in the virtual museum is clearly legible.

IV. CONCLUSION

The results of the analysis indicate an increase in student learning achievement after receiving learning treatment using a museum virtual tour. The average score, which was initially at 57.50, experienced an increase to 86.91 at the posttest stage. Inferential testing through the paired t-test yielded a two-tailed significance value of 0.000, which is smaller than the significance threshold of 0.05. This finding indicates that the use of a museum virtual tour has a significant effect on students' historical thinking skills. During the conduct of the research, there were several obstacles and limitations, such as difficulties in using the virtual museum, an unstable internet network, suboptimal supporting equipment, and some information regarding the collections being difficult to read. Nevertheless, this study still demonstrates that interactive media, such as virtual museums, can be used as a reference for learning media in the history learning process to improve the quality of history education. Therefore, it is important for schools and educators to consider utilizing this technology more optimally in the future to maximize the outcomes. In addition, for future research, it is suggested to use a control group as a comparison class so that the effect of using museum virtual tour learning media becomes clearer.

REFERENCES

- Abbas, S. (2024). *Urgensi Historical Thinking bagi Mahasiswa dalam Pembelajaran Sejarah*.
- Achmadin, B. Z. (2022). URGENSI HISTORICAL THINKING SKILLS BAGI PESERTA DIDIK DALAM PEMBELAJARAN SEJARAH KEBUDAYAAN ISLAM. *Muta'allim: Jurnal Pendidikan Agama Islam*, 1(2), 96–114. <https://doi.org/10.18860/mjpai.v1i2.1125>
- Ariesta, F. W., Maftuh, B., Sapriya, & Syaodih, E. (2024). The Effectiveness of Virtual Tour Museums on Student Engagement in Social Studies Learning in Elementary Schools. *Jurnal Ilmiah Sekolah Dasar*, 8(1), 45–53. <https://doi.org/10.23887/jisd.v8i1.67726>
- Aslikah, A. (2024). *PENGARUH MEDIA PEMBELAJARAN MUSEUM NASIONAL VIRTUAL TOUR TERHADAP KESADARAN SEJARAH SISWA DI KELAS 10 SMA NEGERI 7 KABUPATEN TANGERANG* [Thesis]. Universitas Sultan Ageng Tirtayasa.
- Chatulistiwa, D., Mustika, N., Khairunnisa, S., & Santoso, G. (2024). *Peran Museum Pendidikan Nasional Sebagai Media Dalam Pembelajaran Sejarah*. 03(02).
- Dahnas, I., & Kartika, E. (2025). *Pemanfaatan Media Digital dalam Meningkatkan Hasil Belajar Sejarah di SMA Negeri 1 Tualang*. 02(01), 205–208.

- Daniyati, A., Saputri, I. B., Wijaya, R., Septiyani, S. A., & Setiawan, U. (2023). *Konsep Dasar Media Pembelajaran*. 1(1), 282–294.
- Dewi, F. N. (2025). *Implementasi Media Interaktif Digital dalam Pembelajaran Problem Based Learning: Literature Review*. 8(8), 9964–9972.
- Fany, M. R., Agusta, A., & Januarsa, A. (2022). *PERANCANGAN MUSEUM VIRTUAL ZOOLOGI INDONESIA BAGI ANAK SEKOLAH DASAR*. (1).
- Fatimah, A. R. (2021). *PENGARUH VIRTUAL TOUR MUSEUM SEBAGAI MEDIA PEMBELAJARAN TERHADAP CAPAIAN KOGNITIF SISWA PADA MATA PELAJARAN SEJARAH KELAS XI IPS 2 SMA NEGERI 1 MENGANTI – GRESIK*. 10(3).
- Febriany A. Mahagia, A. M. G. (2023). *Model Pembelajaran Problem Based Learning (PBL) Meningkatkan Hasil Belajar Matematika Siswa*. <https://doi.org/10.5281/ZENODO.10727024>
- Fikri, A., Bunari, B., Al-Fiqri, Y., & Yuliska, Y. (2026). Digital Museums as Learning Platforms: Assessing Their Impact on Historical Education. *Jurnal Pendidikan Humaniora*, 11(4), 240–251. <https://doi.org/10.17977/um011v11i42023p240-251>
- Hardy, A., & Iwatani, E. (2021). *Rubrics for Examining Historical Thinking Skills in High School World History Activities and Student Work: Construct Validity Evidence from the Literature*. Digital Promise. <https://doi.org/10.51388/20.500.12265/113>
- Ilham, M. F., & Tiodora, L. (2023). *IMPLEMENTASI TEORI BELAJAR PERSPEKTIF PSIKOLOGI KONSTRUKTIVISME DALAM PENDIDIKAN ANAK SEKOLAH DASAR*. 3(3), 629–638. <https://doi.org/http://dx.doi.org/10.28926/briliant.v8i3.1437>
- Nur Asyifa Ananda & Noorazmah Hidayati. (2024). Menggali Makna dan Pentingnya Pembelajaran Sejarah Kebudayaan Islam Dalam Membangun Karakter Generasi Muda di Era Modern. *Akhlak : Jurnal Pendidikan Agama Islam dan Filsafat*, 2(1), 110–121. <https://doi.org/10.61132/akhlak.v2i1.285>
- Nurjanah, W. (2020). *HISTORICAL THINKING SKILS AND CRITICAL THINKING SKILLS*. 23(1), 92–104.
- Pasaribu, R. J., Silalahi, M. V., & Silaen, S. (2022). *Pengaruh Model Pembelajaran Contextual Teaching And Learning Terhadap Hasil Belajar Siswa Pada Materi Sel Kelas XI Di SMA Swasta Tamansiswa Pematang Siantar*. 1(4), 182–187.
- Purni, T. (2023). *PENTINGNYA PENDIDIKAN SEJARAH SEBAGAI PENGUAT PENDIDIKAN YANG BERKARAKTER*. *Krinok: Jurnal Pendidikan Sejarah dan Sejarah*, 2(1), 190–197. <https://doi.org/10.22437/krinok.v2i1.24723>
- Robbani, M. I., Chalimi, I. R., & Mirzachaerulsyah, E. (2024). *PENGEMBANGAN MUSEUM VIRTUAL PRAAKSARA....* 7(2), 269–288.
- Robin, A. A., & Jumardi, J. (2023). Museum Virtual Sumpah Pemuda Sebagai Media Pembelajaran Sejarah Untuk Meningkatkan Kesadaran Sejarah. *Briliant: Jurnal Riset dan Konseptual*, 8(3), 629. <https://doi.org/10.28926/briliant.v8i3.1437>
- Rosmah, R., Suparman, S., & Setiawan, V. R. (2023). *PENGARUH MEDIA PEMBELAJARAN BERBASIS VIRTUAL TOUR MUSEUM TERHADAP MINAT DAN HASIL BELAJAR PESERTA DIDIK*. *Jurnal Ilmiah Mandala Education*, 9(1). <https://doi.org/10.58258/jime.v9i1.4374>

- Sumardin, O. (2024). *Pentingnya Pendidikan Sejarah Dalam Pembentukan Identitas Bangsa*. 2(12), 27–33. <https://doi.org/https://doi.org/10.59435/gjmi.v2i12.415>
- Syahputra, M. I., & Purwanta, H. (2024). Prosiding Pendidikan Sejarah KOMPETENSI BERPIKIR HISTORIS DALAM PEMBELAJARAN. *Prosiding Pendidikan Sejarah KOMPETENSI BERPIKIR HISTORIS DALAM PEMBELAJARAN*, 1(2).
- Wibowo, T. U. S. H., Maryuni, Y., Nurhasanah, A., & Willdianti, D. (2020). PEMANFAATAN VIRTUAL TOUR MUSEUM (VTM) DALAM PEMBELAJARAN SEJARAH DI MASA PANDEMI COVID-19. *PEMANFAATAN VIRTUAL TOUR MUSEUM (VTM) DALAM PEMBELAJARAN SEJARAH DI MASA PANDEMI COVID-19*, 3(1), 402–408.
- Wulandari, A. P., Salsabila, A. A., Cahyani, K., Nurazizah, T. S., & Ulfiah, Z. (2023). Pentingnya Media Pembelajaran dalam Proses Belajar Mengajar. *Journal on Education*, 5(2), 3928–3936. <https://doi.org/10.31004/joe.v5i2.1074>